



# **Compendium on Environment Statistics of Pakistan 2010**

**Federal Bureau of Statistics  
Government of Pakistan**



# Foreword

As an inescapable concomitant with the traditional route of economic 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, have 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 task of environmental data collection does not consist just in determining the frame and approaching the selected sources of information because environmental statistics per se do not exist as a ready-to-compile/pick category as generally perceived about data and statistics. The information on environment are generated through deliberate scientific observations and measurements in a consistent way, under the aegis of specialized agencies. Since it is skill and resource intensive pursuit and, generally undertaken in public sector, the overall budgetary/financial constraints do take the toll of the canvas and continuity of environmental data generation down the time lane.

Consequently, availability of the statistics falls short of desired level. Further, the studies pertaining to normals over a period of time are repeated after long time intervals which may not conform with the quinquennial periodicity of this document. Similarly, a lot of variables antecedental, associated with and, consequential to, environment are derived from population census which is yet to be carried out even though the stipulated decennial time frame has long been overstepped.

Nevertheless, the latest update of the compendium is a good attempt to mirror quite a few environmental factors as a means to raise awareness and help stay focus on the pivotality of environmental concerns for instituting sustainable development paradigm-the only way forward to ensuring the continuity of human race on the face of planet earth.

Hopefully, researchers, planers and environmentalists would find this document useful for their specific pursuits. Comments/suggestions for improvement would be welcomed and highly appreciated.

ASIF BAJWA  
SECRETARY

Government of Pakistan  
Statistics Division  
Islamabad



# PREFACE

Federal Bureau of Statistics prepared the 1st Compendium on Environment Statistics of Pakistan 1998 under the Technical Assistance of Asian Development Bank in accordance with, as far as possible, the guidelines of United Nations “Framework for the Development of Environment Statistics (FDES)”. It has since been updating it as a regular activity with quinquennial periodicity. Compendium on Environment Statistics of Pakistan 2010 is the second update in the series. The predecessor of the current one presented the statistics of 2004 vintage.

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, green house gases and, disasters, 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 or cyclical activity or, the source agencies did not have the pertinent data. The same have been listed at appendix-IV to refer compendium-2004 for the requisite historical data. Similarly, international comparison of salient environmental indicators have also been included at appendix-V.

I seize this opportunity to acknowledge the debt of gratitude owed to our worthy respondents of data both in public and private sector. I would also like to appreciate the staff of Social Statistics Section for their untiring efforts towards compiling this document in accordance with the stipulated periodicity. I do hope that the planner, researcher and other users at large will find this document useful for their varied inquests.

ARIF MAHMOOD CHEEMA  
DIRECTOR GENERAL

Federal Bureau of Statistics  
Government of Pakistan  
Islamabad



## CONTENT

<b>Section A - Socio-economic Activities and Natural Events</b>	<b>1</b>
A-I Demographic Situation	1
Table A-I: Population Distribution, Growth Rates and Percentage Share by Urban and Rural Areas	1
Table A-II: Most populous cities, 2010	2
Table A-III: Population by Selected Age Groups	3
A-I.i Population Density	3
A-I.ii Urban-Rural Population Distribution	4
A-I.iii Global Perspective	4
Table A-IV: Ten Most Populous Countries, 2010 and 2050	4
A-I.iv Fertility	4
Table A-V: Crude Birth, Crude Death and Total Fertility Rates	5
A-I.v Mortality	5
A-I.vi Infant Mortality Rate	5
A-I.vii Life Expectancy	6
Table A-VI: Infant Mortality Rate and Life Expectancy by Birth, 1991-2007	6
A-II Housing	6
Table A-VII: Average Household Size by Provinces and Urban/Rural Areas	6
Table A-VIII: Average Number of Persons per Room by Provinces and Urban/Rural Areas	7
Table A-IX: Percentage Distribution of the Housing Units and the Population by number of Rooms per Unit by Urban-Rural Areas, Pakistan, 1960-98	8
A-II.i Construction of Housing Units	8
A-II.ii Housing Units by Lighting Facilities	9
A-II.iii Housing Units by Type of Cooking Fuel Used	9
A-II.iv Housing Units by Water Facilities	9
A-II.v Housing Units with Latrine Facilities	9
A-III Labour Force	9
A-IV Land Utilization	10
A-V Agriculture	10
A-V.i Area under Agriculture Crops	10
A-V.ii Production of Agriculture Crops	10
A-VI Water	10
A-VI.i Tubewells	13
A-VII Livestock	13
A-VII.i Livestock Population	13
A-VII.ii Livestock Products	13
A-VIII Forestry	13
A-IX Transportation	14
Table A-01: Population of Pakistan by Region/Province, Land Area and Percentage Distribution, 1951 to 1998 Censuses	15
Table A-01-a: Population of Pakistan by Region/Province, Land Area and Percentage Distribution, 2005 to 2009	15
Table A-02: Population Density by Region/Province, 1951 to 1998 Censuses	16
Table A-02-a: Population Density by Region/Province, 1998 & 2005 to 2009	16
Table A-03: Percentage Distribution of Population (10 years and over) by Marital Status Pakistan and Provinces, 2008-09	17
Table A-04: Population (10 years and above ) by Age, Sex and Literacy 2008-09	18
Table A-05: Percentage Distribution of Total Population and That of 10 Years Age and Over By Age, Sex, Area and Nature of Activities, 2008-09	19
Table A-06: Population (15 years and Above) by Age groups, Sex and Marital Status for Urban and Rural Areas, 2008-09	20
Table A-07: Employed Population (10 years and above) by Industry, Occupation, Sex, Broad Age Group and Rural/Urban Areas 2008-09	23

Table A-08: working Population (10 years and above) by Industry Status, Sex, Board Age Group, by Areas 2008-09	26
Table A-09: Percentage Distribution of Households By Housing Tenure PSLM, 2008-09	29
Table A-10: Percentage Distribution of Households By Material Used For Walls PSLM, 2008-09	30
Table A-11: Percentage Distribution of Households by Material Used for Roof PSLM, 2008-09	31
Table A-12: Percentage Distribution of Households By Fuel Used For Lighting PSLM, 2008-09	32
Table A-13: Percentage Distribution of Households By Fuel Used For Cooking PSLM, 2008-09	33
Table A-14: Percentage Distribution of Households by Main Source of Drinking Water- Pakistan and Provinces, 2004-05 and 2008-09	34
Table A-15: Percentage Distribution of Housing Units by Type of Toilet Used and Urban/Rural Areas of Pakistan and Provinces, 2004-05 and 2008-09	35
Table A-16: Percentage Distribution of Civilian Labour Force	36
Table A-17: Percentage Distribution of Population by Economic Category	37
Table A-18: Percentage Distribution of Employed Persons by Major Industry Division by Areas	39
Table A-19: Percentage Distribution of Employed Persons by Major Occupational Group, by Areas	42
Table A-20: Land Utilization Statistics	45
TableA-21: Area under Agricultural Crops	46
Table A-22: Production of Agricultural Crops	48
Table A-23: Number of Tube wells by Province	50
Table A-24: Overall Water Availability at Farm Gate	51
Table A-25: Production of Chemical Fertilizers	53
Table A-26: Season-Wise Consumption of Fertilizers	54
Table A-27: Usage of Fertilizers by Crops	55
Table A-28:Consumption of Pesticides	56
Table A-29: Estimated Livestock Population	57
Table A-30: Estimated Livestock Products	59
Table A-31: Estimated Milk Production	61
Table A-32: Estimated Meat and Eggs Production	62
Table A-33: Fish Production	63
Table A-34: Total Catch of Fish and their Indices	65
Table A-35: Fishermen Engaged in Marine and Inland Fisheries	66
Table A-36: Number of Fishing Crafts in Pakistan	67
Table A-37: Forest Products of Pakistan	68
Table A-38: Uses of Forest Resources (Estimated Wood Consumption in Various End-uses)	69
Table A-39: Production of Manufacturing Items	70
Table A-40: Mineral Production in Pakistan	73
Table A-41: Crude Oil Production by Field	75
Table A-42: Petroleum Energy Products Consumption by Sector	78
Table A-43: Petroleum Energy Products Consumption by Province	79
Table A-44: Consumption of Petroleum (Energy) Products by Fuel	80
Table A-45: Consumption of Indigenous Coal by Sector	81
Table A-46: Associated Gas Production by Field	82
Table A-47: Non-Associated Gas Production by Field	83
Table A-48: Natural Gas Consumption by Sector	87
Table A-49: Natural Gas Consumption 2008-09 by Province	88
Table A-50: Gas Supplies to Fertilizer and Power Sectors by Source	89
Table A-51: Installed Capacity of Electricity Generation As on 30 <sup>th</sup> June	90
Table A-52: Gross Generation of Electricity by Source	92
Table A-53: Electricity Consumption by Sector (Public Utilities Only)	92
Table A-54: Electricity Consumption by Province (Public Utilities Only)	93
Table A-55: Fuel Consumption for Thermal Power Generation	93
Table A-56: Thermal Electricity Generation by Fuel	94
Table A-57: Field-wise Production of Coal in Pakistan	94
Table A-58: Energy Consumption by Sector	95



Table A-59: International Shipping-Entered and Cleared at Karachi Port/Port Qasim	97
Table A-60: Number and Registered Tonnage of Native Crafts by Nationalities which Entered/Cleared in Coastal Shipping with Cargo into/From Karachi Port	98
Table A-61: Total Passengers Handled at Civil Airports in Pakistan (Scheduled and Non-scheduled)	99
Table A-62: Air Traffic of Passengers, Freight and Mail of Pakistan International Airlines	100
Table A-63: Transport Statistics	101
Table A-64: Number of Motor Vehicles Registered	102
Table A-65: Motor Vehicles on Road	103
Table A-66: Post and Telecommunications	104
Table A-67: Traffic Accidents in Pakistan and Province	106
Table A-68: River In-flow at Rim Stations in Pakistan	109
Table A-69: Population Served with Water Supply and Sanitation Facilities in WASA Area, District Lahore	110
Table A-70: Population Served with Water Supply, Sewerage and Drainage Facilities of Various Cities	111
Table A-71: Distance To Water Source By Province and Source, PSLM 2007-08	113
Table A-72: Municipal Solid Waste Disposal system (Transportation) at Selected Cities during, 2009	114
Table A-73: Municipal Solid Waste Disposal System (by Number of Employees) at selected cities during 2009	114
Table A-74: Municipal Solid Waste Disposal System (Sanitary Landfill/Dumps) at selected cities during 2009	115
Table A-75: Garbage Collection System From The Household By Province, 2007-08	115
Table A-76: Type of Sanitation System Used-by Province, 2005-06 & 2007-08	116
Table A-77: Summary Report for National Greenhouse Gases (Giga gram), 2008	117
Table A-78: Month Wise Analysis of Air Quality at Quaid-e-Azam Town, Township & Lower Mall, Town Hall, Lahore- 2009	118
Table A-79: State of Air Quality in Urban Centers of Punjab (From 2008 to Jan 2010)	120
Table A-80: Tide Data Off Seashore Karachi	122
Table A-81: Films Released by Language	125
Table A-82: Documentary Films Produced/Released	126
Table A-83: Dramas and Plays Produced/Released	127
Table A-84: Cinemas and Seating Capacity therein by Province	128
Table A-85: Visitors, Type of Attraction, Total Expenditure and Income by Zoo	129
<b>Section B- Environmental Impacts of Socio-Economic Activities and Natural Events</b>	131
Table B-01: Area under Agricultural Crops and Fruits Indices (1996-97=100)	132
Table B-02: Production of Agricultural Crops and Fruits Indices (1996-97=100)	134
Table B-03: Quantity and Value of Export of Major Agricultural Commodities	136
Table B-04: Import of other Agricultural Commodities	138
Table B-05: Import of Edible Oil	139
Table B-06: Import of Milk and Milk Products	140
Table B-07: Import of Fertilizers	141
Table B-08: Import of Wood and Wood Products	141
Table B-09: Export of Crude Oil and Petroleum Products	143
Table B-10: Import of Petroleum Products	144
Table B-11: Import of Crude Oil	145
Table B-12: Import of Coal	146
Table B-13: Revenue Earned by Forest Department	147
Table B-14: Solid Waste Generation Estimates	148
Table B-15: Physical Composition of Waste	149
Table B-16: Waste Generation Rate and Amount	149
Table B-17: Results of Chemical Analysis of Water Samples from River Sutlej, Ravi, Chenab, Jhelum, Indus	150
Table B-18: Who Installed the Water Delivery System by Province	155

Table B-19: Extent of Water logging and Salinity	156
Table B-20: Summary of Different Types of Pollutants on the Coast of Pakistan, 2009	157
Table B-21: Major Natural Disasters in Pakistan (Since 1994)	158
Table B-22: Damages Causes by 8th October, 2005 Earthquake in Pakistan	159
Table B-23: Total Destroyed and Damaged Housing Units Due to Earthquake, 2005	159
Table B-24: Damaged Water Supply Schemes Due to Earthquake, 2005	160
Table B-25: Summary of Roads/Bridges Damaged Due to Earthquake, 2005	160
Table B-26: Damage Caused to Hotels and Tourist Lodges Due to Earthquake, 2005	161
<b>Section C - Responses to Environmental Impacts</b>	162
C-I Climate	162
C-II Temperature	163
C-III Rain Fall	163
C-IV Pressure and Winds	163
Table C-01: Sunshine Hours at Selected Centres (Percentage of long term average)	165
Table C-02: Temperature at Selected Centres (Mean of Maximum)	166
Table C-03: Rainfall at Selected Centres	170
Table C-04: Air Pressure at Selected Centres	172
Table C-05: Vapour Pressure at Selected Centers	177
Table C-06: Area of Crops Covered by Ground Plant Protection Measures in Pakistan	179
Table C-07: Area Covered by Aerial Plant Protection Operation in Pakistan	179
Table C-08: Area Irrigated by Different Sources	180
Table C-09: River Flow Availability (Kharif and Rabi)	181
Table C-10: Summary of Protected Areas in Pakistan (based on NCCW data) 2009	182
Table C-11: Forest Area (2007-08)	182
Table C-12: Share of Forestry in Value Added of Agriculture Sector	183
Table C-13: Area of Forests and Range Lands under the Control of Forest Department- by Legal Category in 2007-08	184
Table C-14: Forest Area under the Control of Forest Departments by Types of Vegetation in 2007-08	184
Table C-15: Area Afforested	185
Table C-16: Area Regenerated	186
Table- C-17: Quality of Ground Water at Various Locations of Islamabad, (Physical and Aesthetic Examination)	187
Table C-18: Quality of Ground Water at Various Locations of Islamabad (Chemical & Inorganic Constituents Analysis)	188
Table C-19: Quality of Ground Water at Various Locations at Rawalpindi, (Physical and Aesthetic Examination)	190
Table C-20: Quality of Ground Water at Various Location of Rawalpindi, (Chemical & Inorganic Constituents Analysis)	191
Table- C-21: Quality of Ground Water at Various Locations of Faisalabad, (Physical and Aesthetic Examination)	193
Table C-22: Quality of Ground Water at Various Locations of Faisalabad (Chemical & Inorganic Constituents Analysis)	194
Table- C-23: Quality of Ground Water at Various Locations of Kasur, (Physical and Aesthetic Examination)	196
Table C-24: Quality of Ground Water at Various Locations of Kasur (Chemical & Inorganic Constituents Analysis)	197
Table-C-25: Quality of Ground Water at Various Locations of Lahore, (Physical and Aesthetic Examination )	199
Table C-26: Quality of Ground Water at Various Locations of Lahore (Chemical & Inorganic Constituents Analysis )	200
Table-C-27: Quality of Ground Water at Various Locations of Multan, (Physical and Aesthetic Examination)	202
Table C-28: Quality of Ground Water at Various Locations of Multan (Chemical & Inorganic Constituents Analysis)	203

Table- C-29: Quality of Ground Water at Various Locations of Hyderabad, (Physical and Aesthetic Examination)	205
Table C-30: Quality of Ground Water at Various Locations of Hyderabad (Chemical & Inorganic Constituents Analysis )	206
Table- C-31: Quality of Ground Water at Various Locations of Sukkur, (Physical and Aesthetic Examination)	208
Table C-32: Quality of Ground Water at Various Locations of Sukkur, (Chemical & Inorganic Constituents Analysis)	209
Table- C-33: Quality of Ground Water at Various Locations of Karachi, (Physical and Aesthetic Examination)	211
Table C-34: Quality of Ground Water at Various Locations of Karachi, (Chemical & Inorganic Constituents Analysis)	213
Table- C-35: Quality of Ground Water at Various Locations of Abbottabad, (Physical and Aesthetic Examination)	215
Table C-36: Quality of Ground Water at Various Locations of Abbottabad (Chemical & Inorganic Constituents Analysis)	216
Table- C-37 : Quality of Ground Water at Various Locations of Mardan, (Physical and Aesthetic Examination)	218
Table C-38: Quality of Ground Water at Various Locations of Mardan, (Chemical & Inorganic Constituents Analysis)	219
Table C-39: Quality of Ground Water at Various Locations of Peshawar, (Physical and Aesthetic Examination)	221
Table C-40: Quality of Ground Water at Various Locations of Peshawar, (Chemical & Inorganic Constituents Analysis)	222
Table- C-41: Quality of Ground Water at Various Locations of Khuzdar, (Physical and Aesthetic Examination)	224
Table C-42: Quality of Ground Water at Various Locations of Khuzdar (Chemical & Inorganic Constituents Analysis)	225
Table C-43: Quality of Ground Water at Various Locations of Quetta, (Physical and Aesthetic Examination)	227
Table C-44: Quality of Ground Water at Various Locations of Quetta (Chemical & Inorganic Constituents Analysis)	229
Table C-45: Water Quality Analysis Results Collected from District Gilgit, 2005-06	231
Table C-46: Water Quality Analysis Results Collected from District Skardu, 2005-06	233
Table C-47: Quality of Ground Water at Various Locations of Faisalabad during Oct, 2010 (Physical and Biological Parameters)	235
Table C-48: Quality of Ground Water at Various Locations of Faisalabad during Nov. 2010 (Chemical Parameters)	235
Table C-49: CFC (Chlorofluorocarbons) Phase Out Project Implemented by World Bank, 2002 to 2009	236
Table C-50: CTC Phase Out Project Implemented by UNIDO, 2004 to 2009	237
<b>Section D - Inventories, Stocks and Background Conditions</b>	238
D-I Education	238
D-I.i Literacy	238
D-I.ii Enrollment	239
a. Primary Schools	239
Table D-I: Relationship of Primary Schools and Population Aged (5-9 Years)	239
b. Middle Schools	240
c. High and Secondary Vocational Institutions	240
d. Arts and Science Colleges	240
e. Professional Colleges	241
f. Universities	241
D-I.iii Educational Infrastructure	241
a. Primary Level Schools	241
b. Middle Schools	242

c.	High and Secondary Vocational Institutions	242
d.	Arts and Science Colleges	243
e.	Professional Colleges	243
f.	Universities	243
D-II	Health	243
D-II.i	Historical Background	243
D-II.ii	Health Infrastructure	244
a.	Hospitals	244
b.	Dispensaries	244
c.	Maternal and Child Health Centre (MCH)	244
d.	Beds in Hospitals and Dispensaries	244
D-II.iii	Health Manpower	245
a.	Doctors	245
b.	Nurses	245
c.	Dentists	245
D-II.iv	Basic Health Indicators	245
Table D-II: Basic Health Indicators, Pakistan and Other Countries of Region		246
D-III	Family Planning	246
D-III.i	Knowledge of Methods	246
Table D-III: Currently Married Women by Knowledge of Specific Method		246
D-III.ii	Contraceptive Performance and Use	247
Table D-IV: Current Contraceptive Prevalence Rates by Method and Sources		247
D-IV	Extended Programme of Immunization (EPI)	247
Table D-01 Literacy Rates (10 years & above) by Province, Sex and Area		248
Table D-02: Number of Institutions, Enrollment and Number of Teachers by Sex and Level of Educational Institutions		249
Table D-03: Professional Colleges by Type and Sex		253
Table D-04: Teachers in Professional Colleges by Type and Sex		254
Table D-05: Number of Secondary Vocational Institutions by Kind		255
Table D-06: Enrollment in Secondary Vocational Institutions by Kind and Sex		256
Table D-07: Medical Personnel in Pakistan		257
Table D-08: Hospitals, Dispensaries, Maternity & Child Health Centres and Beds		258
Table D-09: Electricity Balances (Public Utilities only)		259
Table D-10: Natural Gas Reserves as on June 30th, 2009		260
Table D-11: Associated Gas Reserves as on 30th June, 2009		263
Table D-12: Pakistan Coal Resources as on 30th June, 2009		264
Table D-13: Bunkering of Petroleum Products		266
Table D-14: Immunization Coverage		267
Table D-15: Performance of Contraceptive Delivery Services Through Population Welfare Programme, Pakistan and province		268
<b>Appendix-I Concepts and Definitions</b>		273
<b>Appendix-II Abbreviations</b>		278
<b>Appendix-III References</b>		282
<b>Appendix-IV The list of excluded tables</b>		283
<b>Appendix-V International Comparison</b>		286
Table 1: Rural population and land use		286
Table 2: Agriculture inputs		287
Table 3: Agriculture output and productivity		288
Table 4: Deforestation and biodiversity		289
Table 5: Freshwater		290
Table 6: Water pollution		291
Table 7: Energy production and use		292

Table 8: Energy dependency and efficiency and carbon dioxide Emission	293
Table 9: Traffic and congestion	294
<b><i>Compilers of Compendium on Environment Statistics</i></b>	295

# 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 involving continuous exchange and transformation of materials. Man's exploitation of resources without sustainability considerations leads to environmental degradation to the detriment of biosphere.

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.

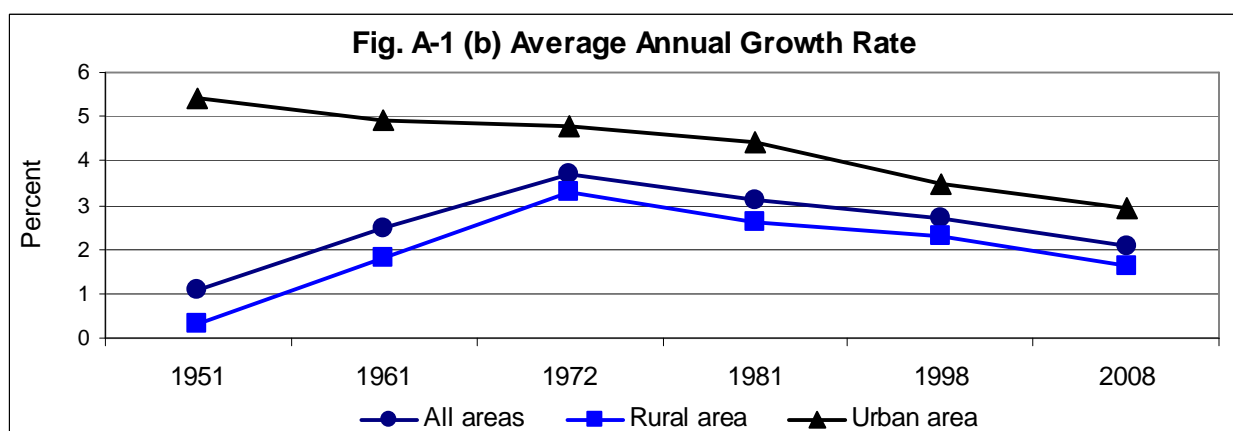
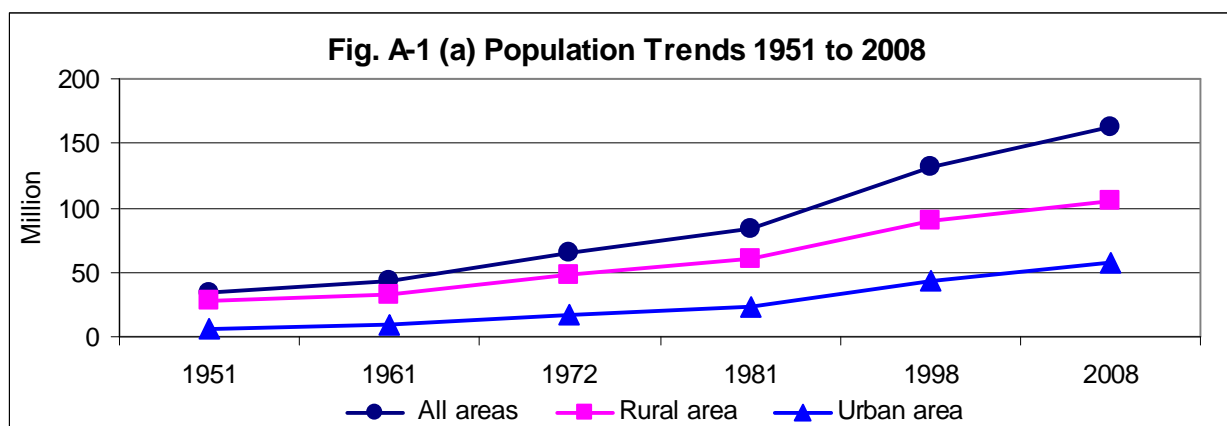
### A-I Demographic Situation

Average annual growth rate of population calculated on the basis of decennial censuses more than doubled from 1.1 percent in 1951 to 2.5 percent in 1961, peaked to 3.7 % in 1972 and set on declining thereafter to the level of 2.06 percent in 2008 (estimated). Rural growth followed the overall pattern while urban growth has since been declining. However, in line with the expected demographic transition, percentage population share of rural areas has been decreasing while that of urban areas increasing.

**Table A-I 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
2008	162.37	105.06	57.32	2.06	1.64	2.91	100.0	64.70	35.30

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



Rapid urbanization is one of the foremost hallmarks of the demographic scene of Pakistan. The five most populous cities of Pakistan (Table A-II) add similar numbers during twelve (12) years span between 1998 to 2010 as were accrued in the duration of seventeen (17) years between 1981 to 1998. As Pakistan's resourcefulness does not concede ample space to prioritize infrastructural development, rapid urbanization is likely to lead to proliferation of slums to the detriment of physical, social and administrative environment of urban localities.

**Table A-II Most populous cities, 2010**

In Millions

Cities	1981	1998	2010
Karachi	5.21	9.34	13.38
Lahore	2.95	5.14	7.21
Faisalabad	1.10	2.01	2.91
Rawalpindi	0.79	1.41	2.01
Gujranwala	0.60	1.13	1.67

Source: National Institute of Population Studies, Islamabad.

The age composition of country's population is highly skewed to younger ages (Table-III). As such there is fertile ground for high population growth. Further, preponderance of younger age groups is fraught with consequences in terms of dependency, rising socio-economic demands on the limited resources and unsustainable use of environment. However, proportion of population aged less than forty (40) years declines from eight-tenth of the total population in 1998 to less than seven-tenth in 2010. About four-fifth of population change during 1998 to 2010 belongs to population aged less than forty (40) years.

**Table A-III Population by Selected Age Groups**

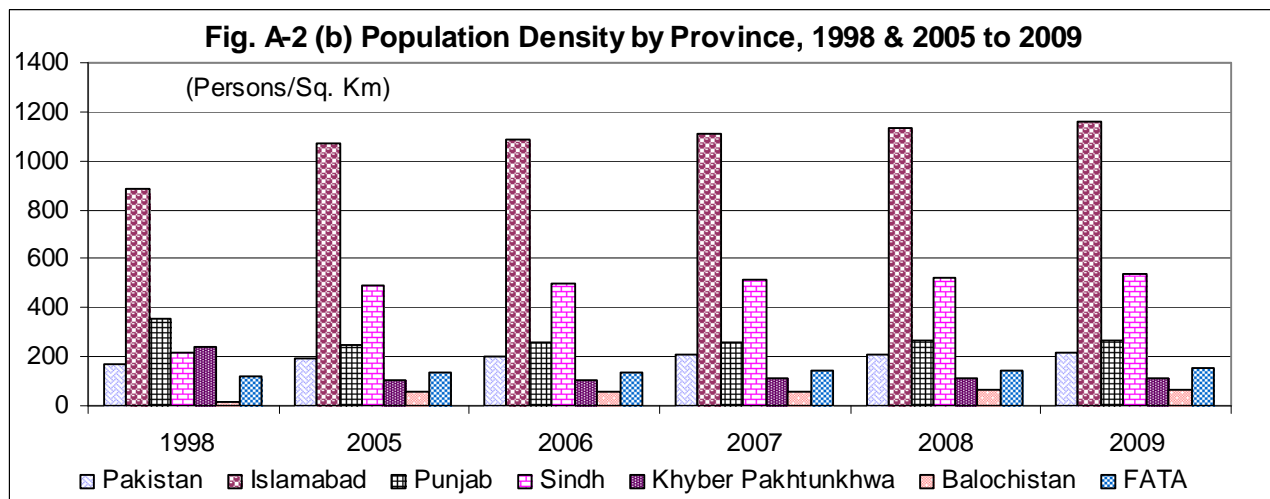
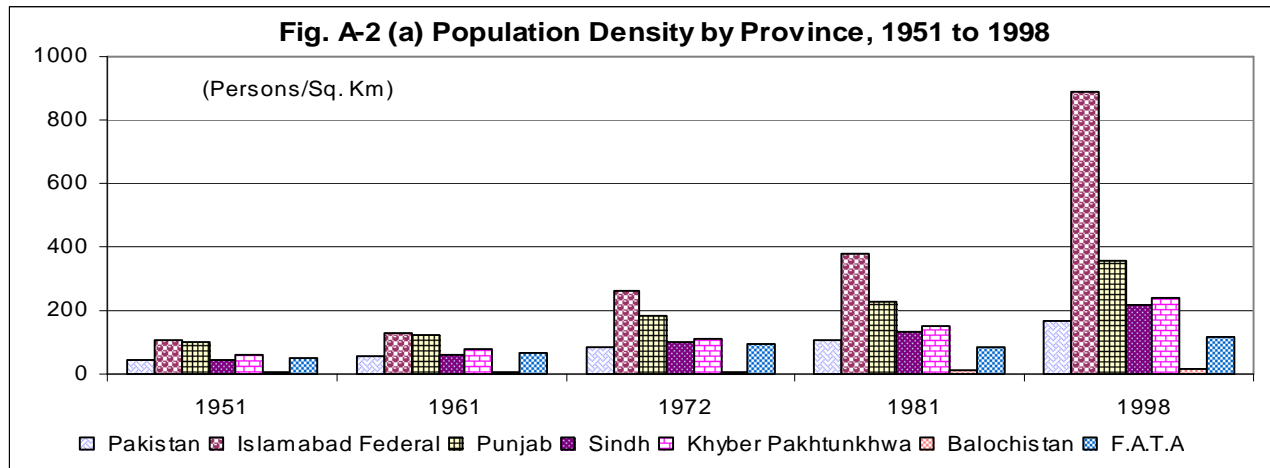
In Millions

Age Groups	1998	2010	2015	2020	2025	2030
00-04	19.12	21.81	22.76	23.28	22.44	20.35
05-09	20.21	20.17	21.33	22.35	22.95	22.18
10-14	16.73	20.19	20.07	21.24	22.28	22.88
15-19	13.40	19.88	20.12	20.01	21.19	22.24
20-24	11.59	17.22	19.80	20.05	19.95	21.14
25-29	9.52	14.81	17.13	19.71	19.98	19.89
30-34	8.04	12.50	14.72	17.04	19.62	19.91
35-39	6.17	10.49	12.40	14.62	16.94	19.53
40-44	5.74	8.64	10.36	12.27	14.49	16.81
45-49	4.56	7.09	8.49	10.20	12.01	14.31
50-54	4.15	5.81	6.88	8.26	9.95	11.84
55-59	2.78	4.68	5.53	6.57	7.93	9.60
60-64	2.64	3.64	4.31	5.13	6.14	7.45
65+	4.52	6.60	7.82	9.39	11.39	13.93
Total	129.17	173.53	191.72	210.12	227.26	242.06

Source: National Institute of Population Studies, Islamabad.

**A-I.i Population Density**

The country's population density has tripled from 54 in 1961 to 166 persons per sq. kilometer in 1998. It increased to 215 in 2009 (estimated). Population density by province forms a descending sequence of Sind (537), Punjab (269), Khyber Pakhtunkhwa (114) and Balochistan (62) in 2009 (Table A-02 and Figure A-2-a & b).





### A-I.ii Urban-Rural Population Distribution

The urban population increased from 17.8 percent of the total population in 1951 to 35.30 percent in 2008, registering an annual growth rate of 4.0 percent. Rural population increased by 2.4 percent per year during the same period. Thus, share of rural population decreased from 82.2 percent in 1951 to 64.70 percent in 2008. In terms of absolute numbers, urban population grew from 5.99 million in 1951 to 57.32 million in 2008 posting 10 times increase in 57 years, while rural population quadrupled. (Table A-I). Arguably, Pakistan is on the way to rapid urbanization.

### A-I.iii Global Perspective

Population Reference Bureau (PRB) publishes tabulations on world's demographics. According to PRB's estimates- which appear to be extrapolation of intercensal growth rate under certain assumptions-Pakistan's average annual growth rate is the 2nd highest (Table A-IV) and ranks sixth among the most populous countries of the world. Previously, Pakistan ranked 10th in 1991 and seventh in 1998.

**Table A-IV Ten Most Populous Countries, 2010 and 2050**

S. No	Country	Population Mid-2010 (in million)	Rate of Natural increase	Projected Population Mid-2025 (millions)	Projected Population Mid-2050 (millions)
1	China	1,338.1	0.5	1476.0	1437.0
2	India	1,188.8	1.5	1444.5	1748.0
3	USA	309.6	0.6	351.4	422.6
4	Indonesia	235.5	1.4	273.2	309.4
5	Brazil	193.3	1.0	212.4	215.3
6	Pakistan	184.8	2.3	246.3	335.2
7	Bangladesh	164.4	1.5	195.0	222.5
8	Nigeria	158.3	2.4	217.4	326.4
9	Russia	141.9	-0.2	140.8	126.7
10	Japan	127.4	-0.0	119.3	95.2

Sources:- 2010 Population Reference Bureau.

### A-I.iv Fertility

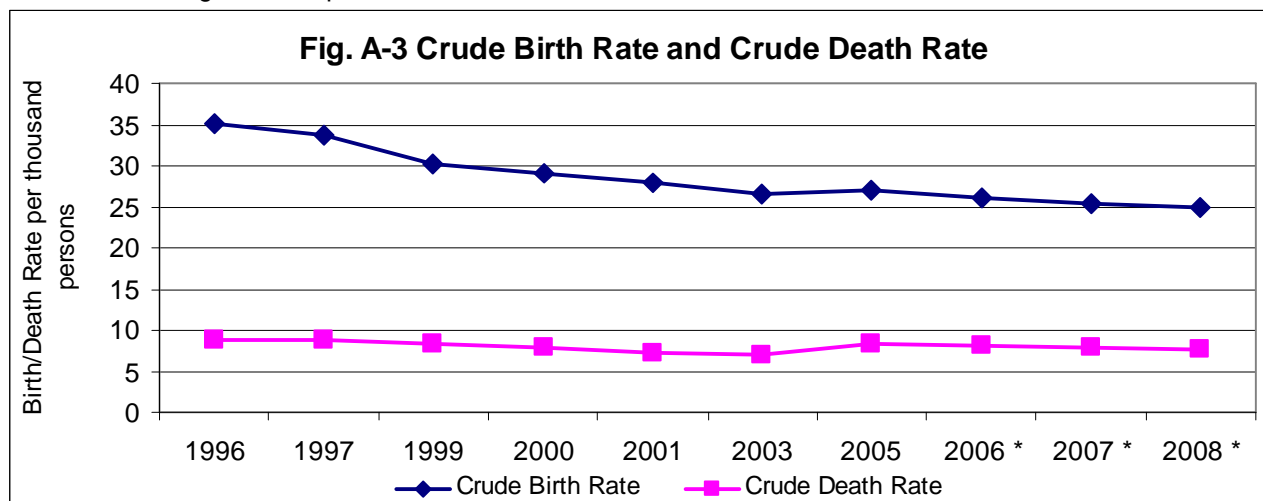
In the absence of vital statistics registration system and consequential inadequacy of data, it is difficult to estimate accurate fertility rates in the country. However, some direct and indirect estimates of fertility under different assumptions have been made through various surveys. One of the major 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) from an around 7 per woman in 1985 to 3 in 2008. Antecedently, the crude birth rate (CBR) declined from 43.3 per thousand population in 1985 to 24.9 percent per thousand population in 2008. (Table A-V). These trends allude to a sort of demographic transition towards sustainable population dynamics.

**Table A-V 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 Woman)
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	2.1	3.9
2005	27.0	8.4	1.9	3.5
2006 *	26.0	8.1	1.8	3.3
2007 *	25.4	7.9	1.7	3.1
2008 *	24.9	7.7	1.7	3.0

Source:- Pakistan Demographic Survey FBS.

\* Planning & Development Division



**A-I.v Mortality**

Crude death rate (CDR) provides an overall picture of the level of mortality in the country. CDR declined from eleven (11) per thousand in 1988 to eight (8) in 2008 during a span of twenty (20) years (Table-V). Better health facilities, improved nutrition and introduction of vaccination programme are some of the prime factors to have resulted in the decline of mortality rate.

**A-I.vi Infant Mortality Rate**

Infant mortality rate (IMR) is an important indicator of health situation in a country. Pakistan has been having very high infant mortality rate. IMR was 102.4 per thousand live births in 1991 declined to 75.2 per thousand live births in 2007. However, it is still high (Table A-VI) as compared to other developing countries.

## A-I.vii Life Expectancy

Expectancy of life at birth is an important indicator of survivability. 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 sex. It indicates that expectancy of life at birth which was 59.30 for male and 60.70 for female in 1991 increased to 63.55 for male and 68.00 for females in 2007. Higher stride in the case of females indicates gravitation towards progressive socio-cultural practices.

**Table A-VI Infant Mortality Rates, and Life Expectancy at Birth, 1991-2007**

Years	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	64.70	66.02
2003	76.2	64.70	66.00
2005	76.7	63.59	66.00
2006	76.2	64.67	67.00
2007	75.2	63.55	68.00

Source:- Federal Bureau of Statistics.

## A-II Housing

As per Population Census and household based 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. In the context of housing units deficit at the time of independence due to mass migration, coupled with high population growth, the country has continuously been facing shortages of housing units. Table A-15 gives housing stocks during 1960-98 and percentage changes in three censuses by provinces and area.

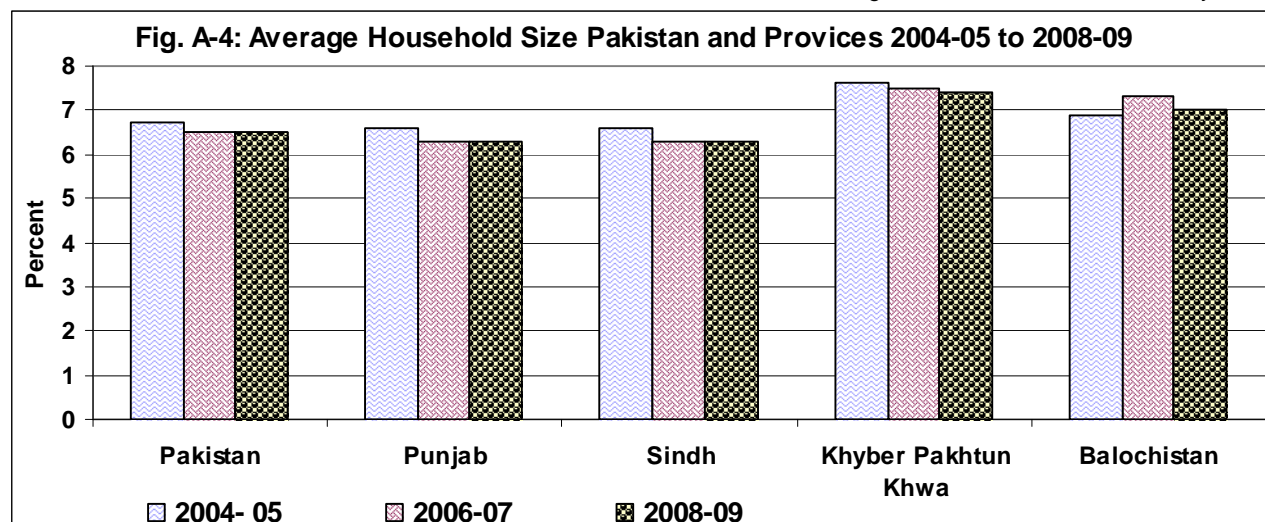
An analysis of data for the last four housing censuses indicates that the number of housing units which were about 7.816 million in 1960 increased to 19.211 million in 1998. Thus, housing grew by 2.39 percent per annum during 1960-98 which is about 0.7 percent less than the population growth rate during the period.

During this period, urban areas of Sindh and Punjab witnessed increase in the construction of housing units while pace of construction in KP and Balochistan remained almost on the same level. As for pressure on housing units, the average household size during 2004-05 to 2008-09 (Table A-VII) remains same; though seem to be relieving in all provinces, except Balochistan.

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

Area	2004-05	2006-07	2008-09
<b>Pakistan</b>	<b>6.7</b>	<b>6.5</b>	<b>6.5</b>
Urban	6.7	6.4	6.2
Rural	6.7	6.6	6.6
<b>Punjab</b>	<b>6.6</b>	<b>6.3</b>	<b>6.3</b>
Urban	6.6	6.3	6.2
Rural	6.5	6.4	6.3
<b>Sindh</b>	<b>6.6</b>	<b>6.3</b>	<b>6.3</b>
Urban	6.6	6.2	6.1
Rural	6.6	6.4	6.6
<b>Khyber Pakhtunkhwa</b>	<b>7.6</b>	<b>7.5</b>	<b>7.4</b>
Urban	7.7	7.3	6.9
Rural	7.6	7.5	7.5
<b>Balochistan</b>	<b>6.9</b>	<b>7.3</b>	<b>7</b>
Urban	7.1	7.4	7.6
Rural	6.9	7.3	6.9

Source:- Pakistan Social and Living Standard Measurement Surveys, FBS.

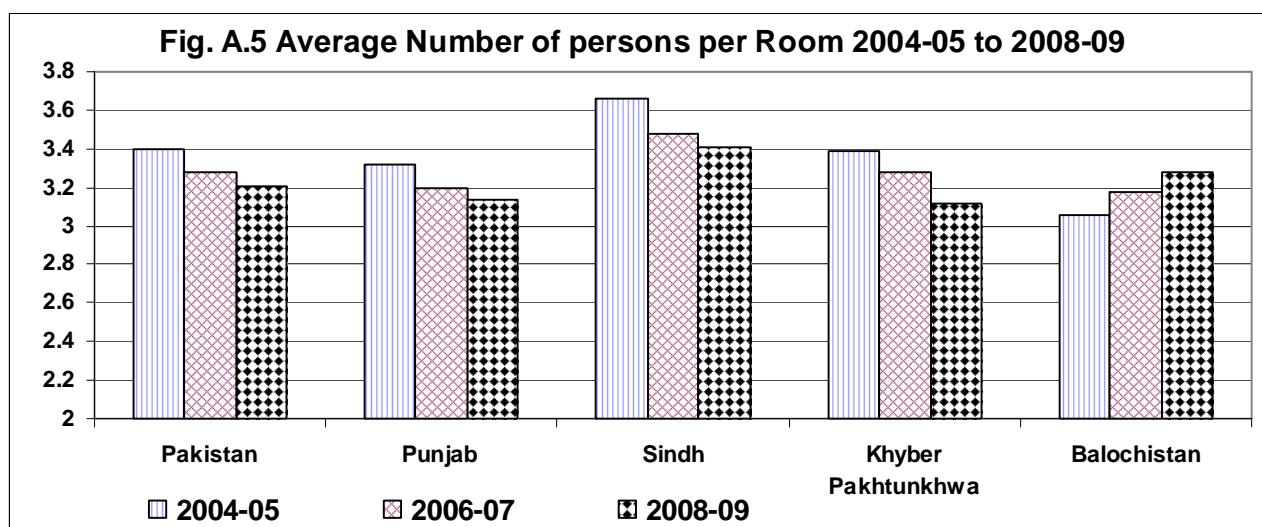


Average number of persons per room does not reflect an enviable situation. However, it seems to be decreasing, more in urban than rural areas. Province wise figures, except in the case of Balochistan, do also indicate gravitation towards lower average number of persons per room (Table A-VIII).

**Table A-VIII Average Number of Persons per Room by Provinces and Urban/Rural Areas**

Area	2004-05	2006-07	2008-09
<b>Pakistan</b>	<b>3.40</b>	<b>3.28</b>	<b>3.21</b>
Urban	3.15	2.99	2.90
Rural	3.52	3.43	3.37
<b>Punjab</b>	<b>3.32</b>	<b>3.20</b>	<b>3.14</b>
Urban	3.14	3.04	2.93
Rural	3.39	3.27	3.24
<b>Sindh</b>	<b>3.66</b>	<b>3.48</b>	<b>3.41</b>
Urban	3.15	2.91	2.88
Rural	4.17	4.05	3.96
<b>Khyber Pakhtunkhwa</b>	<b>3.39</b>	<b>3.28</b>	<b>3.12</b>
Urban	3.29	3.09	2.82
Rural	3.41	3.32	3.19
<b>Balochistan</b>	<b>3.06</b>	<b>3.18</b>	<b>3.28</b>
Urban	2.93	2.88	2.95
Rural	3.09	3.27	3.36

Source:- Pakistan Social and Living Standard Measurement Survey, FBS.

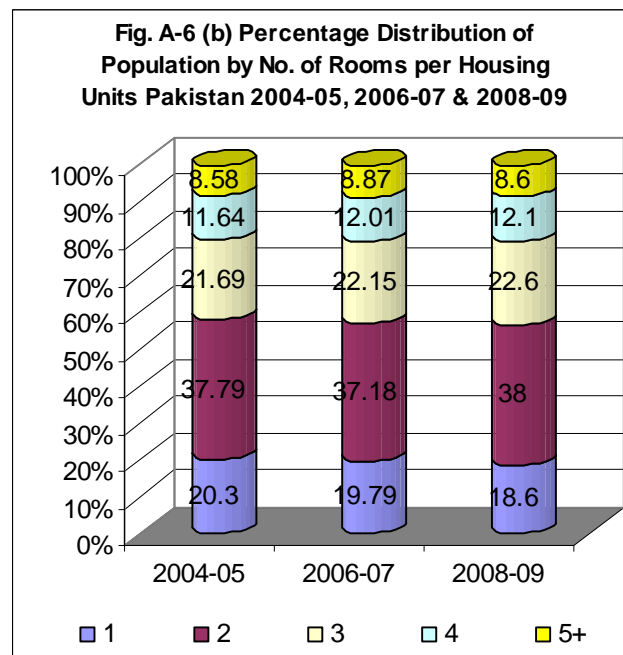
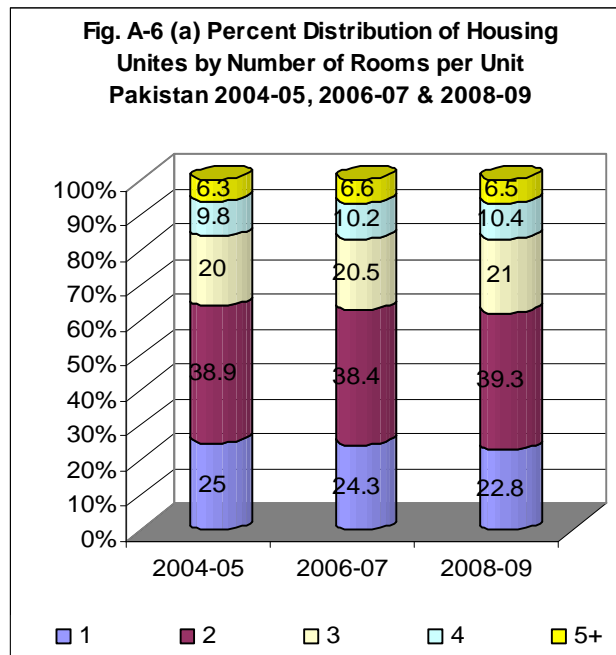


There were 25 percent one-roomed, 39 percent two roomed, 36 percent three or more roomed housing units in 2004-05. The share of all but the foremost category increased in 2008, across the areas generally. As for share of population, 20.30 percent were residing in one room housing units in 2004-05, 37.79 percent in two roomed and about 41.83 percent in three roomed or more. The share of all but the foremost category increased in 2008, across the areas generally (Table A-IX).

**Table A-IX Percentage Distribution of the Housing Units and the Population by Number of Rooms per Unit by Urban-Rural Areas, Pakistan**

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+	
<b>Pakistan</b>												
2004-05	100.0	25.0	38.9	20.0	9.8	6.3	20.30	37.79	21.69	11.64	8.58	
2006-07	100.0	24.3	38.4	20.5	10.2	6.6	19.79	37.18	22.15	12.01	8.87	
2008-09	100.0	22.8	39.3	21.0	10.4	6.5	18.60	38.00	22.60	12.10	8.6	
<b>Urban</b>												
2004-05	100.0	19.9	37.3	22.9	11.9	8.0	16.60	36.15	24.14	13.11	10.00	
2006-07	100.0	19.5	36.1	23.9	12.2	8.3	16.19	34.87	24.78	13.89	10.28	
2008-09	100.0	18.4	37.2	23.6	12.6	8.2	15.30	35.70	24.80	14.0	10.20	
<b>Rural</b>												
2004-05	100.0	27.4	39.7	18.6	8.9	5.5	22.05	38.57	20.52	10.94	7.91	
2006-07	100.0	26.9	39.6	18.7	9.1	5.8	21.62	38.36	20.82	11.05	8.15	
2008-09	100.0	25.1	40.4	19.7	9.3	5.6	20.20	39.2	21.50	11.20	7.90	

Source:- Pakistan Social and Living Standard Measurement Survey, FBS.



#### 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

According to Pakistan Social & Living Standards Measurement (PSLM) Survey, 86.61 percent of the housing units had electricity facilities in 2006-07 and it increased to 90.73 percent in 2008-09, whereas about 12.44 percent of the households were using Gas and oil for lighting in 2006-07, their share decreased to about 8.25 percent in 2008-09. A comparison of data by urban-rural areas shows that 97.73 percent of the housing units in urban areas have electricity facilities in 2008-09 while 87.10 percent of rural housing units have electricity facilities in 2008-09 (Table A-22-a).

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

Analysis of data suggests that 53.29 percent of housing units were using wood as cooking fuel in 2006-07 which decreased to 51.92 percent in 2008-09. About 29.99 percent of the households were using Gas and oil as cooking fuel in 2006-07 which increased to 31.47 percent in 2008-09, (Table A-24-a).

#### A-II.iv Housing Units by Water Facilities

An important basic need for the population is the access to safe drinking water. In 2004-05 only 34 percent housing units had access to tap water either available inside or outside the housing unit while, about 52 percent of the households were using ground water i.e. either hand pumps or well, and the remaining 13 percent were using water from ponds, springs, rivers and streams (Table A-27).

Analysis by area shows that about 60 percent of the urban population had access to tap water either inside or outside of the housing units in 2004-05 while, the share of such category increased to 62 percent in 2008-09. The situation in rural areas was worst where only 21 percent of the rural housing units had facilities of safe tap water in 2004-05 which remained the same in 2008-09. Whereas about 62 percent of rural housing units were using ground water in 2004-05 which increased to 65 percent in 2008-09 whereas, about 18 percent were using

water for drinking purposes either from ponds, springs, rivers and streams the share of which decreased to 15 percent in 2008-09 (Table A-27).

#### **A-II.v Housing Units with Latrine Facilities**

According to (PSLM) survey, about 54 percent of the households had flush facility in their toilets, 20 percent were without flush and 26 percent of the households had no latrine facility in their housing units in 2004-05. The area-wise analysis indicates that 86 percent of the urban household had flush system in their toilets in 2004-05 which increased to 95 percent in 2008-09. While 7 percent had no flush facility decreased to 3 percent and 6 percent of the urban household did not have toilet facility in the housing units in 2004-05 which decreased to 2 percent. The situation in rural areas has improved more as compared to urban areas and it increased from 30 percent in 2004-05 to 47 percent 2008-09. The over all situation has also improved in 2008-09 and the percentage of housing units having flush facility in their toilets increased to 63 percent (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 explanations 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 decennial Population Census and Labour Force Survey conducted by Federal Bureau of Statistics on annual basis. According to the latest available Labour Force Survey, 2008-09, about 32.8 percent of the total population was in the civilian labour force. The analysis of data of last 28 years indicates that the total Civilian Labour Force which was 27.57 in 1981 increased to 32.8 in 2008-09. There was not much difference in the urban-rural labour force participation rates, according to 2008-09 Labour Force Survey, about 29.87 percent of the urban population (10 years and above) was in civilian labour force as against 34.29 percent for rural areas. The percentage of un-employed was 1.79 in 2008-09. The urban unemployment rate was slightly lower as compared to that of rural areas (Table A-30 & 31).

#### **A-IV Land Utilization**

Pakistan has 79.61 million hectares of land of which 57.08 million hectares (72%) have been surveyed and reported. Of the total reported area, only 42 percent was cropped area till 2008-09. The cropped area registered about 9 percent increase during (1996-97 to 2008-09) last 12 years i.e. about 8 percent each year. In the face of increasing population 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 2008-09 was 77 percent of the total cultivated area. About 7.52 million hectares of areas was sown more than once during 2008-09 (Table A-34). The analysis of data shows that Area sown more than once is continuously increasing since 1996-97. The share of "Area sown more than once" was about 32 percent of the total cropped area during 2008-09. This is an encouraging trend, and amounts to substantial expansion in productive capacity to the benefit of attaining food security.

#### **A-V Agriculture**

##### **A-V.i Area under Agriculture Crops**

The largest segment of the cultivated area (9.046 million hectares) went to wheat crop during 2008-09 followed by Rice (2.962 million hectares), Cotton (2.820 million hectares), Gram (1.081 million hectares), Maize (1.052 million hectares), Sugarcane (1.029 million hectares) and various types of fruits like, Mango, Apple, Guava, Citrus Fruits, Bananas, Grapes and Dates (1.504 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 foremost of the major crops in terms of area and production. Production of wheat during

2008-09 was 24.033 million tones as against 16.651 million in 1996-97. The rice production was 4.305 million tones in 1996-97 which increased to 6.952 million tones in 2008-09. Like area under cultivation, production of various important crops also indicates fluctuating trends during 1996-97 to 2008-09. This may be attributed more to natural than economic causes. However, there was significant increase in the production of major crops during 2008-09 as compared to 1996-97 (Table A-36).

## **A-VI Water**

Pakistan has entered into the 21<sup>st</sup> century with rising challenge to meet food and fibre requirements for its population for domestic consumption and export. 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 are required to develop the requisite resources with futuristic considerations. Achieving sustainable development will, thus be a major challenge and conservation and optimum utilization of available resources will undoubtedly be one of the most critical considerations in this regard.

**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 291 mm (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 restraining 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 zed 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 KP 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*
KP	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 73.5% in kharif and 54.13% in rabi requirement for 2008-09 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 contribute about 34 percent of total water availability in 2008-09. There were about 507 thousand tubewells in the country in 1996-97 which increased to 921 thousand in 2008-09, at an average annual growth rate of about 5.1 percent. As for share by province, Punjab accounts 94.7 percent of the total tubewells installed in the country during 2008-09, followed by Balouchistan (3.7 percent), Khyber Pakhtunkhwa (1.6 percent) and Sindh (0.02 percent). (Table A-37).

### **A-VII Livestock**

#### **A-VII.i Livestock Population**

Livestock accounts for 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 2001-02 to 2008-09 indicates increase in various categories of animals. The number of buffalos which were 24.0 million in 2001.02 increased to 29.9 million in 2008-09, with 2.8% annual growth. The population of goats and sheep was higher as compared to other animals. The population of goats increased by 1.7 percent per year while the population of sheep increased by 1.5 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 70.0 percent increase in last 11 years. From 940 thousand tonnes in 1997-98 it increased to 1601 thousand tonnes in 2008-09. Surprisingly the mutton production registered milder decrease (4.2 %) from 617 thousand tonnes in 1997-98 to 591 thousand tonnes in 2008-09. Although the production of beef has increased in 2008-09, 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 17% from 30.1 million tonnes in 1997-98 to 35.2 million tonnes in 2008-09. (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 129% from 284 thousand tonnes in 1997-98 to 651 thousand tonnes in 2008-09 during last 11 years. Eggs production was 6015 million in 1997-98 increased to 11258 million in 2008-09 during the same period by 87%. (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. Notwithstanding frequent, tree plantation campaigns, natural events like flood, land slides and erosion and man made like excessive grazing, deforestation due to reliance on wood as major fuel source and wanton falling of trees by timber mafia have taken their excessive pound of flesh and as such, 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 2008-09. The railway route kilometers almost remained the same during last 22 years i.e. 1987-2009. However, there was decline in number of passengers, in 2008-09 as compared to 1987-88. The passenger traveled through railways in 1987-88 (about 80.0 million) declined by 26% and to 58.97 million in 2008-09. 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 143 thousand km in 1987-88 increased by 82% to 260 thousand in 2008-09. The average annual growth in length during 1987 to 2008-09 was 2.6 percent whereas the length of high type roads during the same period increased about 160 percent (Table A-79).

Total registered vehicles during 1992 were 3.179 million, which increased by 113 percent during 19 years period to 6.757 million in 2010. There were about 95 thousand registered buses in 1992 and the number of buses increased to about 195 thousand in 2010. There were only 41 thousand taxis in the country in 1992 increased to 101 thousand in 2010. Of the total registered 195 thousand buses only 120.2 thousand were on road in 2010. Despite 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 to the rising detriment of 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
<b>Pakistan</b>	796096	33740	42880	65309	84254	132352
	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)
<b>Islamabad</b>	906	96	118	238	340	805
	(0.1)	(0.3)	(0.3)	(0.4)	(0.4)	(0.6)
<b>Balochistan</b>	347190	1167	1353	2429	4332	6566
	(43.6)	(3.5)	(3.2)	(3.7)	(5.1)	(5.0)
<b>Khyber Pakhtunkhwa</b>	74521	4557	5731	8389	11061	17744
	(9.4)	(13.5)	(13.4)	(12.8)	(13.1)	(13.4)
<b>Punjab</b>	205344	20541	25464	37607	47292	73621
	(25.8)	(60.9)	(59.4)	(57.6)	(56.1)	(55.6)
<b>Sindh</b>	140914	6048	8367	14156	19029	30440
	(17.7)	(17.9)	(19.5)	(21.7)	(22.6)	(23.0)
<b>FATA</b>	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-01-a: Population of Pakistan by Region/Province, Land Area and Percentage Distribution, 2005 to 2009**

Region/Province	Area Sq Km	Population				
		2005	2006	2007	2008	2009
<b>Pakistan</b>	796096	156,695,009	160,203,973	163,728,363	167,271,211	170,834,779
	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)
<b>Islamabad</b>	906	966,242	987,053	1,007,919	1,028,796	1,049,607
	(0.1)	(0.6)	(0.6)	(0.6)	(0.6)	(0.6)
<b>Punjab</b>	347190	86,339,752	88,134,129	89,938,924	91,750,458	93,565,464
	(43.6)	(55.1)	(55.0)	(54.9)	(54.9)	(54.8)
<b>Sindh</b>	74521	36,494,829	37,377,421	38,257,704	39,141,446	40,028,837
	(9.4)	(23.3)	(23.3)	(23.4)	(23.4)	(23.4)
<b>Khyber Pakhtunkhwa</b>	205344	21,285,057	21,803,854	22,325,444	22,850,698	23,383,922
	(25.8)	(13.6)	(13.6)	(13.6)	(13.7)	(13.7)
<b>Balochistan</b>	140914	7,903,399	8,101,927	8,302,968	8,506,566	8,713,641
	(17.7)	(5.0)	(5.1)	(5.1)	(5.1)	(5.1)
<b>FATA</b>	27220	3,705,730	3,799,589	3,895,404	3,993,247	4,093,308
	(3.4)	(2.4)	(2.4)	(2.4)	(2.4)	(2.4)

Source: National Institute of Population Studies (NIPS Islamabad (Projection)).

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
Khyber Pakhtunkhwa	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-02-a: Population Density by Region/Province, 1998 & 2005 to 2009**

(Persons/Sq. Km.)

Region/Province	1998	2005	2006	2007	2008	2009
Pakistan	166	197	201	206	210	215
Islamabad	889	1,066	1,089	1,112	1,136	1,159
Punjab	19	249	254	259	264	269
Sindh	238	490	502	513	525	537
Khyber Pakhtunkhwa	358	104	106	109	111	114
Balochistan	216	56	57	59	60	62
FATA	117	136	140	143	147	150

Source: National Institute of Population Studies (NIPS Islamabad (Projection)).

**Table A-03: Percentage Distribution of Population (10 years and over) by Marital Status Pakistan and Provinces, 2008-09**

Region/Province	Marital status				
	Total	Never Married	Married	Widow/ Widower	Divorced
<b>Pakistan</b>					
<b>Both Sexes</b>	100.00	45.31	50.55	3.84	0.30
<b>Male</b>	100.00	50.27	47.21	2.27	0.25
<b>Female</b>	100.00	40.07	54.09	5.50	0.35
<b>Balochistan</b>					
<b>Both Sexes</b>	100.00	45.87	52.40	1.71	0.01
<b>Male</b>	100.00	52.07	47.01	0.91	0.01
<b>Female</b>	100.00	38.12	59.15	2.71	0.02
<b>Khyber Pakhtunkhwa</b>					
<b>Both Sexes</b>	100.00	45.84	50.22	3.84	0.10
<b>Male</b>	100.00	52.63	45.55	1.73	0.08
<b>Female</b>	100.00	39.30	54.72	5.87	0.12
<b>Punjab</b>					
<b>Both Sexes</b>	100.00	44.51	50.66	4.39	0.45
<b>Male</b>	100.00	48.65	48.08	2.89	0.38
<b>Female</b>	10.00	40.28	53.30	5.91	0.52
<b>Sindh</b>					
<b>Both Sexes</b>	100.00	46.78	50.15	2.95	0.11
<b>Male</b>	100.00	52.27	46.18	1.44	0.10
<b>Female</b>	100.00	40.37	54.79	4.72	0.13

Source:- Labour Force Survey 2008-09 FBS

**Table A-04: Population (10 years and above) by Age, Sex and Literacy 2008-09**

Age group (Years)	Population			Literates		
	Both sexes	Male	Female	Both sexes	Male	Female
10 & above	117661566	60461465	57200101	67482272	41912060	25570212
10 - 14	21747229	11654365	10092864	15729169	9118835	6610334
15 - 19	19070268	10214613	8855655	13847432	8103909	5743523
20 - 24	14704826	7287655	7417171	9827950	5685535	4142415
25 - 29	11313710	5314751	5998959	6679731	3978029	2701702
30 - 34	9166848	4268233	4898615	4952396	3097165	1855231
35 - 39	9021375	4396978	4624397	4342280	2895744	1446536
40 - 44	7665263	3817071	3848192	3398990	2366349	1032641
45 - 49	6985266	3542109	3443157	2909506	2044665	864841
50 - 54	5187994	2804922	2383071	1969344	1526619	442725
50 - 59	4169625	2252725	1916899	1446009	1128729	317280
60 - 64	3265884	1797381	1468503	1033048	830428	202620
65 & above	5363277	3110661	2252616	1346417	1136054	210363
Age group (Years)	Literacy Ratio					
	Both sexes		Male		Female	
10 & above	57.35		69.32		44.70	
10 - 14	72.33		78.24		65.50	
15 - 19	72.61		79.34		64.86	
20 - 24	66.83		78.02		55.85	
25 - 29	59.04		74.85		45.04	
30 - 34	54.03		72.56		37.87	
35 - 39	48.13		65.86		31.28	
40 - 44	44.34		61.99		26.83	
45 - 49	41.65		57.72		25.12	
50 - 54	37.96		54.43		18.58	
50 - 59	34.68		50.11		16.55	
60-64	31.63		46.20		13.80	
65 & above	25.10		36.52		9.34	

Source :- Labour Force Survey 2008-09 FBS



**Table A-05: Percentage Distribution of Total Population and That of 10 Years Age and Over by Age, Sex, Area and Nature of Activities, 2008-09**

Age Groups (Years)	Total Population			Civilian Labour Force			Out of Labour Force		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
<b>All Areas</b>									
<b>Total (All ages)</b>	100.00	51.57	48.43	32.81	25.59	7.22	67.19	25.98	41.22
<b>10 years &amp; above</b>	100.00	51.39	48.61	45.66	35.62	10.04	54.34	15.77	38.57
10-14	18.48	9.90	8.58	2.42	1.60	0.81	16.06	8.30	7.76
15-19	16.21	8.68	7.53	6.00	4.58	1.42	10.21	4.10	6.10
20-24	12.50	6.19	6.30	6.72	5.29	1.43	5.77	0.91	4.87
25-29	9.62	4.52	5.10	5.53	4.36	1.16	4.09	0.15	3.94
30-34	7.79	3.63	4.16	4.58	3.55	1.03	3.21	0.08	3.14
35-39	7.67	3.74	3.93	4.77	3.68	1.09	2.90	0.05	2.84
40-44	6.51	3.24	3.27	4.09	3.18	0.90	2.43	0.06	2.37
45-49	5.94	3.01	2.93	3.71	2.93	0.78	2.22	0.08	2.14
50-54	4.41	2.38	2.03	2.78	2.29	0.50	1.63	0.10	1.53
55-59	3.54	1.91	1.63	2.22	1.79	0.43	1.32	0.12	1.20
60 -64	2.78	1.53	1.25	1.42	1.17	0.25	1.36	0.36	0.99
<b>65 years &amp; above</b>	4.56	2.64	1.91	1.41	1.18	0.23	3.15	1.46	1.69
<b>Rural</b>									
<b>Total (All ages)</b>	100.00	51.38	48.62	34.29	25.29	9.01	65.71	26.09	39.61
<b>10 years &amp; above</b>	100.00	51.05	48.95	49.17	36.26	12.92	50.83	14.80	36.03
10-14	19.46	10.57	8.89	3.29	2.13	1.17	16.17	6.45	7.72
15-19	16.01	8.65	7.37	6.94	5.12	1.82	9.07	3.52	5.55
20-24	11.73	5.63	6.10	6.68	5.03	1.65	5.05	0.59	4.45
25-29	9.39	4.24	5.14	5.58	4.12	1.46	3.80	0.13	3.68
30-34	7.82	3.55	4.28	4.81	3.47	1.34	3.02	0.08	2.94
35-39	7.73	3.73	4.00	5.06	3.67	1.39	2.66	0.06	2.60
40-44	6.31	3.12	3.19	4.23	3.06	1.16	2.09	0.06	2.03
45-49	5.83	2.90	2.93	3.85	2.82	1.03	1.98	0.08	1.91
50-54	4.38	2.32	2.06	2.89	2.23	0.66	1.49	0.09	1.40
55-59	3.64	1.97	1.67	2.46	1.88	0.59	1.18	0.10	1.08
60 -64	2.89	1.60	1.29	1.69	1.33	0.38	1.20	0.27	0.93
<b>65 years &amp; above</b>	4.80	2.77	2.03	1.69	1.40	0.29	3.11	1.37	1.74
<b>Urban</b>									
<b>Total (All ages)</b>	100.00	51.94	48.06	29.87	26.19	3.67	70.13	25.74	44.39
<b>10 years &amp; above</b>	100.00	51.99	48.01	39.28	34.45	4.83	60.72	17.54	43.18
10-14	16.71	8.69	8.02	0.83	0.66	0.17	15.88	8.04	7.84
15-19	16.56	8.74	7.82	4.29	3.59	0.70	12.27	5.16	7.12
20-24	13.89	7.22	6.67	6.80	5.75	1.05	7.09	1.47	5.62
25-29	10.04	5.01	5.03	5.43	4.81	0.62	4.61	0.20	4.41
30-34	7.73	3.77	3.96	4.16	3.70	0.46	3.57	0.07	3.50
35-39	7.56	3.75	3.81	4.24	3.71	0.53	3.32	0.05	3.27
40-44	6.88	3.47	3.41	3.84	3.41	0.43	3.04	0.06	2.98
45-49	6.13	3.21	2.91	3.47	3.13	0.34	2.66	0.09	2.57
50-54	4.46	2.49	1.96	2.59	2.39	0.20	1.87	0.11	1.76
55-59	3.36	1.81	1.56	1.79	1.65	0.15	1.57	0.16	1.41
60 -64	2.57	1.40	1.17	0.93	0.87	0.06	1.64	0.53	1.11
<b>65 years &amp; above</b>	4.12	2.42	1.70	0.91	0.80	0.11	3.20	1.62	1.59

Source: Labour Force Survey, 2008-09

**Table A-06: Population (15 years and above) by Age groups, Sex and Marital Status for Urban and Rural Areas, 2008-09**  
**All Areas**

Age Group (Years)	Sex	Marital Status				
		Total	Never married	Married	Widowed	Divorced
15 and above	Both Sexes	95914337	31605823	59445091	4516849	346574
	Male	48807100	18762669	28522171	1374420	147840
	Female	47107237	12843154	30922920	3142429	198734
15-19	Both Sexes	19070270	18018717	1045373	1849	4330
	Male	10214614	10046353	168261	0	0
	Female	8855656	7972364	877112	1849	4330
20-24	Both Sexes	14704827	9318005	5343586	18492	24743
	Male	7287655	5739363	1533601	9214	5477
	Female	7417171	3578642	3809985	9278	19266
25-29	Both Sexes	11313710	2916219	8308999	41374	47117
	Male	5314751	2089155	3195767	8157	21672
	Female	5998959	827064	5113232	33217	25446
30-34	Both Sexes	9166849	780065	8257761	84561	44462
	Male	4268233	545206	3678280	24390	20357
	Female	4898617	234859	4579481	60171	24105
35-39	Both Sexes	9021374	241922	8589335	132263	57853
	Male	4396977	154993	4178928	36561	26495
	Female	4624397	86929	4410407	95702	31358
40-44	Both Sexes	7665262	109963	7312167	199619	43513
	Male	3817071	60536	3689369	47447	19719
	Female	3848192	49428	3622798	152172	23794
45-49	Both Sexes	6985265	62369	6496130	392377	34388
	Male	3542109	31366	3414892	77340	18511
	Female	3443156	31003	3081238	315037	15877
50-54	Both Sexes	5187994	52453	4696167	418245	21129
	Male	2804924	36843	2651787	104144	12150
	Female	2383071	15610	2044381	314101	8979
55-59	Both Sexes	4169625	31453	3549530	564039	24602
	Male	2252725	17474	2096203	127996	11052
	Female	1916899	13979	1453327	436043	13550
60 and above	Both Sexes	8629161	74654	5846042	2664029	44436
	Male	4908042	41379	3915084	939171	12408
	Female	3721119	33275	1930958	1724858	32028

Contd...

**Table A-06: Population (15 years and above) by Age groups, Sex and Marital Status for Urban and Rural Areas, 2008-09**  
**Urban Areas**

Age Group (Years)	Sex	Marital Status				
		Total	Never married	Married	Widowed	Divorced
15 and above	Both Sexes	34815246	12946111	20083888	1674256	110991
	Male	18098757	7664409	9905141	484166	45041
	Female	16716489	5281702	10178747	1190090	65950
15-19	Both Sexes	6922063	6690002	231186	0	875
	Male	3655126	3628512	26614	0	0
	Female	3266936	3061490	204572	0	875
20-24	Both Sexes	5808002	4230724	1569625	3226	4427
	Male	3018200	2589194	425795	2541	670
	Female	2789802	1641530	1143830	685	3757
25-29	Both Sexes	4197847	1399443	2764779	15312	18312
	Male	2094894	1014631	1072510	1996	5756
	Female	2102953	384812	1692269	13316	12556
30-34	Both Sexes	3231517	375010	2807244	35086	14177
	Male	1577406	279483	1283869	8296	5758
	Female	1654111	95527	1523375	26790	8419
35-39	Both Sexes	3158840	111444	2985417	44502	17477
	Male	1567910	70560	1477403	10536	9411
	Female	1590930	40884	1508014	33966	8066
40-44	Both Sexes	2874649	49677	2727026	79043	18903
	Male	1449296	27215	1400620	13968	7493
	Female	1425353	22462	1326406	65075	11410
45-49	Both Sexes	2560494	24540	2369695	154762	11497
	Male	1343075	14819	1302060	19991	6205
	Female	1217419	9721	1067635	134771	5292
50-54	Both Sexes	1863254	23783	1654543	176732	8196
	Male	1042596	16848	981319	39256	5173
	Female	820658	6935	673224	137476	3023
55-59	Both Sexes	1405712	17480	1163718	215639	8874
	Male	754673	8906	692989	50240	2537
	Female	651039	8574	470729	165399	6337
60 and above	Both Sexes	2792870	24008	1810654	949954	8253
	Male	1595581	14240	1241961	337342	2037
	Female	1197289	9768	568693	612612	6216

Contd...

**Table A-06: Population (15 years and above) by Age groups, Sex and Marital Status for Urban and Rural Areas, 2008-09**  
**Rural Areas**

Age Group (Years)	Sex	Marital Status				
		Total	Never married	Married	Widowed	Divorced
15 and above	Both Sexes	61099091	18659712	39361203	2842593	235583
	Male	30708343	11098260	18617030	890254	102799
	Female	30390748	7561451	20744173	1952339	132784
15-19	Both Sexes	12148207	11328716	814186	1849	3456
	Male	6559487	6417841	141646	0	0
	Female	5588719	4910875	672540	1849	3456
20-24	Both Sexes	8896825	5087281	3773961	15266	20316
	Male	4269456	3150169	1107806	6673	4807
	Female	4627369	1937112	2666155	8593	15509
25-29	Both Sexes	7115864	1516776	5544220	26063	28805
	Male	3219857	1074524	2123257	6161	15915
	Female	3896007	442252	3420963	19902	12890
30-34	Both Sexes	5935332	405055	5450517	49475	30285
	Male	2690827	265723	2394411	16094	14599
	Female	3244505	139332	3056106	33381	15686
35-39	Both Sexes	5862534	130478	5603918	87761	40377
	Male	2829067	84433	2701525	26025	17084
	Female	3033467	46045	2902393	61736	23293
40-44	Both Sexes	4790613	60287	4585140	120576	24610
	Male	2367774	33321	2288748	33478	12226
	Female	2422839	26966	2296392	87098	12384
45-49	Both Sexes	4424771	37829	4126435	237615	22891
	Male	2199034	16547	2112832	57349	12306
	Female	2225737	21282	2013603	180266	10586
50-54	Both Sexes	3324740	28670	3041624	241513	12933
	Male	1762327	19995	1670468	64888	6976
	Female	1562413	8675	1371157	176625	5956
55-59	Both Sexes	2763913	13973	2385812	348400	15727
	Male	1498053	8568	1403214	77756	8514
	Female	1265860	5405	982598	270644	7213
60 and above	Both Sexes	5836291	50646	4035388	1714075	36183
	Male	3312461	27139	2673123	601829	10371
	Female	2523830	23507	1362265	1112246	25812

Source:- Labour Force Survey 2008-09 FBS

**Table A-07: Employed Population (10 years and above) by Industry, Occupation, Sex, Broad Age Group and Rural/Urban Areas 2008-09**

**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
All Occupations	50790774	12452419	3851858	16304278	25064573	6510255	31574829
Legislators, Senior Officials and Managers	6289055	1247557	30724	1278281	4432344	135868	4568211
Professionals	879684	84215	32817	117032	613768	92989	706758
Technicians and Associate Professionals	2737824	264623	288184	552807	1638064	480369	2118434
Clerks	690057	83258	6564	89821	575868	7298	583166
Service Workers and Shop and Market Sales Workers	2478368	1039245	30535	1069780	1340064	17436	1357500
Skilled Agricultural and Fishery Workers	19100010	3692650	1722875	5415525	7460003	4500532	11960536
Craft and Related Trades Workers	7348688	2266460	630448	2896908	3606951	606468	4213418
Plant and Machine Operators and Assemblers	2076870	476343	6183	482526	1554258	5286	1559543
Elementary Occupations	9190218	3298070	1103528	4401598	3843254	664009	4507262
Occupation group	60 Years and above						
	Male		Female		Both Sexes		
	8		9		10		
All Occupations	2519859		391809		2911668		
Legislators, Senior Officials and Managers	426217		16346		442563		
Professionals	55000		894		55894		
Technicians and Associate Professionals	59068		7515		66584		
Clerks	16803		266		17069		
Service Workers and Shop and Market Sales Workers	51088		0		51088		
Skilled Agricultural and Fishery Workers	1408606		315344		1723949		
Craft and Related Trades Workers	221671		16691		238362		
Plant and Machine Operators and Assemblers	34801		0		34801		
Elementary Occupations	246605		34753		281358		

Contd...

**Table A-07: Employed Population (10 years and above) by Industry, Occupation, Sex, Broad Age Group and Rural/Urban Areas 2008-09**

**Urban 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	15253282	3735468	625153	4360621	9248103	1013815	10261918
Legislators, Senior Officials and Managers	3706814	684823	17978	702801	2690422	65543	2755965
Professionals	582183	49216	21845	71060	402824	76394	479218
Technicians and Associate Professionals	1406350	145801	175603	321404	763770	289378	1053149
Clerks	460230	53928	6403	60331	383812	4967	388779
Service Workers and Shop and Market Sales Workers	1363107	579037	16036	595073	728604	16332	744936
Skilled Agricultural And Fishery Workers	771203	152737	46054	198791	346748	146345	493093
Craft and Related Trades Workers	3663928	1168860	231135	1399995	1927373	238783	2166156
Plant and Machine Operators and Assemblers	823691	171330	1874	173203	628067	2773	630840
Elementary Occupations	2475776	729737	108226	837963	1376481	173300	1549781
Occupation group	60 Years and above						
	Male		Female		Both Sexes		
	8		9		10		
All Occupations	606220		24524		630744		
Legislators, Senior Officials and Managers	244546		3502		248048		
Professionals	31582		323		31905		
Technicians and Associate Professionals	27354		4444		31797		
Clerks	10854		266		11120		
Service Workers and Shop and Market Sales Workers	23098		0		23098		
Skilled Agricultural and Fishery Workers	72933		6386		79319		
Craft and Related Trades Workers	92922		4855		97777		
Plant and Machine Operators and Assemblers	19648		0		19648		
Elementary Occupations	83284		4748		88032		

Contd...

**Table A-07: Employed Population (10 years and above) by Industry, Occupation, Sex, Broad Age Group and Rural/Urban Areas 2008-09**

**Rural 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	35537492	8716951	3226705	11943657	15816471	5496440	21312911
Legislators, Senior Officials and Managers	2582241	562734	12746	575480	1741921	70325	1812246
Professionals	297501	35000	10972	45972	210944	16596	227540
Technicians and Associate Professionals	1331474	118822	112581	231403	874294	190991	1065285
Clerks	229827	29330	161	29491	192056	2331	194387
Service Workers and Shop and Market Sales Workers	1115262	460208	14499	474707	611460	1104	612564
Skilled Agricultural and Fishery Workers	18328807	3539913	1676821	5216734	7113255	4354187	11467442
Craft and Related Trades Workers	3684760	1097600	399314	1496913	1679578	367684	2047262
Plant and Machine Operators and Assemblers	1253179	305013	4310	309323	926191	2513	928703
Elementary Occupations	6714441	2568332	995302	3563634	2466773	490709	2957481
Occupation group	60 Years and above						
	Male		Female		Both Sexes		
	8		9		10		
All Occupations	1913639		367285		2280924		
Legislators, Senior Officials and Managers	181672		12844		194516		
Professionals	23418		571		23989		
Technicians and Associate Professionals	31715		3071		34786		
Clerks	5949		0		5949		
Service Workers and Shop and Market Sales Workers	27990		0		27990		
Skilled Agricultural and Fishery Workers	1335673		308958		1644631		
Craft and Related Trades Workers	128749		11836		140585		
Plant and Machine Operators and Assemblers	15153		0		15153		
Elementary Occupations	163320		30006		193326		

Source:- Labour Force Survey-2008-09

Socio-economic Activities and Natural Events

**Table A-08: Working Population (10 years and above) by Industry Status, Sex, Broad Age Group, All Areas 2008-09**

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
<b>Total employed persons</b>	50790774	12452419	3851858	16304278	25064573	6510255	31574829
<b>Agriculture, hunting &amp; forestry</b>	22812132	5276756	2700181	7976937	8101405	4916637	13018042
Fishing	85972	37260	0	37260	44862	1304	46166
<b>Mining and quarrying</b>	61486	17700	492	18191	41676	300	41976
<b>Manufacturing</b>	6612342	1963728	642526	2606254	3176562	616191	3792753
<b>Electricity, gas, water supply</b>	351627	28236	0	28236	314850	2545	317394
<b>Construction</b>	3361638	1183615	25202	1208817	2020784	20568	2041352
<b>Wholesale &amp; retail trade, repair of motor vehicles, motorcycles &amp; personal &amp; household goods</b>	7699251	2256850	35159	2292009	4847097	105663	4952760
<b>Hotel &amp; restaurants</b>	664699	249827	5836	255663	367212	10004	377216
<b>Transport, storage &amp; Communication</b>	2658265	642835	13698	656532	1931234	10487	1941721
<b>Financial intermediation</b>	277143	36489	6882	43371	222530	8408	230938
<b>Real estate, renting &amp; business activities</b>	514001	92445	4094	96539	381720	6466	388186
<b>Public administration &amp; defence compulsory social security</b>	1411070	146093	10004	156096	1208418	33526	1241944
<b>Education</b>	2066902	106376	255803	362179	1235552	444245	1679797
<b>Health &amp; social work</b>	652436	55614	42220	97833	397406	126163	523569
<b>Other community, social &amp; personal service activities</b>	1310095	319391	70099	389490	685723	136916	822639
<b>Activities of private households as employers &amp; undifferentiated production</b>	246362	38196	39663	77859	83200	70832	154032
<b>Extraterritorial Organizations &amp; bodies</b>	5354	1010	0	1010	4344	0	4344
Major Industry Division	<b>60 Years and above</b>						
		<b>Male</b>	<b>Female</b>	<b>Both Sexes</b>			
	<b>8</b>	<b>9</b>	<b>10</b>				
<b>Total employed persons</b>	2519859	391809	2911668				
<b>Agriculture, hunting &amp; forestry</b>	1479587	337567	1817153				
Fishing	2546	0	2546				
<b>Mining and quarrying</b>	1319	0	1319				
<b>Manufacturing</b>	196517	16819	213336				
<b>Electricity, gas, water supply</b>	5997	0	5997				
<b>Construction</b>	111469	0	111469				
<b>Wholesale &amp; retail trade, repair of motor vehicles, motorcycles &amp; personal &amp; household goods</b>	438295	16187	454482				
<b>Hotel &amp; restaurants</b>	31661	159	31819				
<b>Transport, storage &amp; Communication</b>	59746	266	60012				
<b>Financial intermediation</b>	2834	0	2834				
<b>Real estate, renting &amp; business activities</b>	29276	0	29276				
<b>Public administration &amp; defence compulsory social security</b>	13029	0	13029				
<b>Education</b>	23237	1688	24925				
<b>Health &amp; social work</b>	23015	8019	31034				
<b>Other community, social &amp; personal service activities</b>	91423	6543	97966				
<b>Activities of private households as employers &amp; undifferentiated production</b>	9910	4561	14471				
<b>Extraterritorial Organizations &amp; bodies</b>	0	0	0				

Contd..



**Table A-08: Working Population (10 years and above) by Industry Status, Sex, Broad Age Group, Urban Areas 2008-09**

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
<b>Total employed persons</b>	15253282	3735468	625153	4360621	9248103	1013815	10261918
<b>Agriculture, hunting &amp; forestry</b>	880103	192438	68565	261002	363468	171729	535196
<b>Fishing</b>	41762	20878	0	20878	18465	1304	19769
<b>Mining and quarrying</b>	15526	966	0	966	13243	300	13543
<b>Manufacturing</b>	3645328	1097680	247524	1345205	1946806	251267	2198073
<b>Electricity, gas, water supply</b>	198481	12339	0	12339	182534	1366	183900
<b>Construction</b>	1047254	334287	14076	348362	651525	6474	657998
<b>Wholesale &amp; retail trade, repair of motor vehicles, motorcycles &amp; personal &amp; household goods</b>	4419993	1302014	13772	1315786	2814992	43529	2858521
<b>Hotel &amp; restaurants</b>	378676	136037	3056	139093	216871	4265	221136
<b>Transport, storage &amp; Communication</b>	1131635	221772	9498	231270	861263	9262	870526
<b>Financial intermediation</b>	233400	30873	6882	37755	185758	8408	194166
<b>Real estate, renting &amp; business activities</b>	370172	55673	3749	59422	283089	6188	289277
<b>Public administration &amp; defence compulsory social security</b>	824944	83009	9665	92673	696205	29592	725797
<b>Education</b>	935533	51997	158733	210729	426311	286502	712813
<b>Health &amp; social work</b>	331045	23173	22305	45478	193171	72336	265507
<b>Other community, social &amp; personal service activities</b>	643799	151764	35328	187091	348185	69148	417333
<b>Activities of private households as employers &amp; undifferentiated production</b>	152139	19559	32002	51561	43737	52146	95883
<b>Extraterritorial Organizations &amp; bodies</b>	3490	1010	0	1010	2480	0	2480
Major Industry Division	<b>60 Years and above</b>						
		<b>Male</b>	<b>Female</b>	<b>Both Sexes</b>			
	<b>8</b>	<b>9</b>	<b>10</b>				
<b>Total employed persons</b>	606220	24524	630744				
<b>Agriculture, hunting &amp; forestry</b>	77518	6386	83904				
<b>Fishing</b>	1116	0	1116				
<b>Mining and quarrying</b>	1017	0	1017				
<b>Manufacturing</b>	97195	4855	102050				
<b>Electricity, gas, water supply</b>	2242	0	2242				
<b>Construction</b>	40894	0	40894				
<b>Wholesale &amp; retail trade, repair of motor vehicles, motorcycles &amp; personal &amp; household goods</b>	242343	3344	245686				
<b>Hotel &amp; restaurants</b>	18289	159	18448				
<b>Transport, storage &amp; Communication</b>	29574	266	29840				
<b>Financial intermediation</b>	1478	0	1478				
<b>Real estate, renting &amp; business activities</b>	21473	0	21473				
<b>Public administration &amp; defence compulsory social security</b>	6474	0	6474				
<b>Education</b>	10303	1688	11991				
<b>Health &amp; social work</b>	15113	4948	20060				
<b>Other community, social &amp; personal service activities</b>	37621	1754	39375				
<b>Activities of private households as employers &amp; undifferentiated production</b>	3570	1125	4695				
<b>Extraterritorial Organizations &amp; bodies</b>	0	0	0				

Contd..

Socio-economic Activities and Natural Events

**Table A-08: Working Population (10 years and above) by Industry Status, Sex, Broad Age Group, Rural Areas 2008-09**

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	35537492	8716951	3226705	11943657	15816471	5496440	21312911
Agriculture, hunting & forestry	21932030	5084318	2631617	7715935	7737937	4744908	12482846
Fishing	44209	16382	0	16382	26397	0	26397
Mining and quarrying	45960	16734	492	17225	28433	0	28433
Manufacturing	2967014	866048	395002	1261049	1229755	364924	1594679
Electricity, gas, water supply	153146	15897	0	15897	132316	1178	133494
Construction	2314383	849329	11126	860455	1369260	14094	1383354
Wholesale & retail trade, repair of motor vehicles, motorcycles & personal & household goods	3279258	954836	21387	976223	2032104	62135	2094239
Hotel & restaurants	286022	113790	2780	116570	150341	5739	156081
Transport, storage & Communication	1526630	421062	4200	425262	1069970	1225	1071195
Financial intermediation	43743	5616	0	5616	36772	0	36772
Real estate, renting & business activities	143830	36772	345	37117	98631	278	98909
Public administration & defence compulsory social security	586126	63084	339	63423	512213	3934	516147
Education	1131368	54379	97071	151450	809241	157743	966984
Health & social work	321390	32440	19915	52355	204235	53827	258061
Other community, social & personal service activities	666296	167628	34771	202399	337537	67768	405305
Activities of private households as employers & undifferentiated production	94223	18637	7661	26297	39463	18687	58150
Extraterritorial Organizations & bodies	1864	0	0	0	1864	0	1864
Major Industry Division	<b>60 Years and above</b>						
	<b>Male</b>	<b>Female</b>		<b>Both Sexes</b>			
	<b>8</b>	<b>9</b>		<b>10</b>			
Total employed persons	1913639	367286		2280924			
Agriculture, hunting & forestry	1402068	331181		1733249			
Fishing	1430	0		1430			
Mining and quarrying	301	0		301			
Manufacturing	99322	11964		111286			
Electricity, gas, water supply	3755	0		3755			
Construction	70575	0		70575			
Wholesale & retail trade, repair of motor vehicles, motorcycles & personal & household goods	195952	12844		208796			
Hotel & restaurants	13372	0		13372			
Transport, storage & Communication	30173	0		30173			
Financial intermediation	1355	0		1355			
Real estate, renting & business activities	7803	0		7803			
Public administration & defence compulsory social security	6555	0		6555			
Education	12934	0		12934			
Health & social work	7902	3072		10974			
Other community, social & personal service activities	53802	4789		58591			
Activities of private households as employers & undifferentiated production	6339	3436		9776			
Extraterritorial Organizations & bodies	0	0		0			

Source:- Labour Force Survey, 2008-09 FBS

**Table A-09: Percentage Distribution of Households by Housing Tenure  
PSLM, 2008-09**

Region & Province	Households by housing tenure				
	Own	Rent	Free	Subsidised Rent	Total
<b>PSLM 2006-07</b>					
<b>Pakistan</b>	<b>85.88</b>	<b>7.04</b>	<b>6.12</b>	<b>0.96</b>	<b>100.00</b>
Punjab	86.52	6.16	6.49	0.83	100.00
Sindh	83.93	9.43	5.27	1.37	100.00
Khyber Pakhtunkhwa	86.62	6.76	5.80	0.81	100.00
Balochistan	86.18	6.16	6.78	0.88	100.00
<b>Urban Areas</b>	<b>75.67</b>	<b>17.35</b>	<b>4.52</b>	<b>2.45</b>	<b>100.00</b>
Punjab	76.71	15.57	5.53	2.20	100.00
Sindh	75.49	18.55	3.28	2.68	100.00
Khyber Pakhtunkhwa	69.14	24.00	3.35	3.51	100.00
Balochistan	72.11	22.55	2.96	2.31	100.00
<b>Rural Areas</b>	<b>91.28</b>	<b>1.59</b>	<b>6.96</b>	<b>0.18</b>	<b>100.00</b>
Punjab	91.29	1.58	6.96	0.17	100.00
Sindh	92.35	0.34	7.25	0.06	100.00
Khyber Pakhtunkhwa	90.23	3.20	6.31	0.26	100.00
Balochistan	90.47	1.13	7.96	0.44	100.00
<b>PSLM 2008-09</b>					
<b>Pakistan</b>	<b>87.24</b>	<b>6.06</b>	<b>5.62</b>	<b>1.08</b>	<b>100.00</b>
Punjab	87.70	5.84	5.71	0.74	100.00
Sindh	85.58	7.07	5.20	2.15	100.00
Khyber Pakhtunkhwa	88.40	6.03	4.86	0.71	100.00
Balochistan	86.81	3.66	8.69	0.83	100.00
<b>Urban Areas</b>	<b>78.26</b>	<b>14.79</b>	<b>4.27</b>	<b>2.68</b>	<b>100.00</b>
Punjab	78.13	15.00	5.00	1.87	100.00
Sindh	78.94	13.63	3.45	3.98	100.00
Khyber Pakhtunkhwa	75.65	19.45	2.50	2.40	100.00
Balochistan	78.09	14.57	4.37	2.97	100.00
<b>Rural Areas</b>	<b>91.90</b>	<b>1.53</b>	<b>6.32</b>	<b>0.25</b>	<b>100.00</b>
Punjab	92.21	1.53	6.04	0.21	100.00
Sindh	92.34	0.39	6.98	0.28	100.00
Khyber Pakhtunkhwa	91.16	3.13	5.37	0.35	100.00
Balochistan	89.18	0.70	9.87	0.25	100.00

Source:- Pakistan Social and Living Standards Measurement Survey, 2008-09 FBS.

Note: Households having the housing tenure indicated expressed as a percentage of the total number of households. Total may not add to 100 because of rounding.

**Table A-10: Percentage Distribution of Households By Material Used for Walls PSLM, 2008-09**

Region & Province	Households by Material Used for Walls				
	Burnt Bricks/ Blocks	Mud Bricks/ Mud	Wood/ Bamboo	Other	Total
<b>PSLM 2006-07</b>					
<b>Pakistan</b>	<b>69.04</b>	<b>23.64</b>	<b>2.51</b>	<b>4.80</b>	<b>100.00</b>
Punjab	81.12	17.16	0.66	1.07	100.00
Sindh	60.89	30.93	7.65	0.54	100.00
Khyber Pakhtunkhwa	45.14	23.01	0.87	30.98	100.00
Balochistan	20.03	74.47	3.39	2.10	100.00
<b>Urban Areas</b>	<b>93.61</b>	<b>5.37</b>	<b>0.55</b>	<b>0.47</b>	<b>100.00</b>
Punjab	96.31	2.92	0.46	0.31	100.00
Sindh	93.82	5.36	0.67	0.14	100.00
Khyber Pakhtunkhwa	81.84	14.12	0.14	3.90	100.00
Balochistan	64.12	33.97	1.70	0.21	100.00
<b>Rural Areas</b>	<b>56.07</b>	<b>33.29</b>	<b>3.55</b>	<b>7.09</b>	<b>100.00</b>
Punjab	73.73	24.07	0.76	1.44	100.00
Sindh	28.02	56.44	14.61	0.93	100.00
Khyber Pakhtunkhwa	37.57	24.84	1.02	36.57	100.00
Balochistan	6.49	86.92	3.91	2.69	100.00
<b>PSLM 2008-09</b>					
<b>Pakistan</b>	<b>71.52</b>	<b>21.96</b>	<b>2.35</b>	<b>4.17</b>	<b>100.00</b>
Punjab	82.01	15.84	0.46	1.68	100.00
Sindh	66.54	26.14	7.05	0.27	100.00
Khyber Pakhtunkhwa	49.59	25.14	1.21	24.07	100.00
Balochistan	22.27	69.81	5.13	2.79	100.00
<b>Urban Areas</b>	<b>94.31</b>	<b>4.92</b>	<b>0.27</b>	<b>0.50</b>	<b>100.00</b>
Punjab	97.16	2.40	0.06	0.38	100.00
Sindh	94.31	5.05	0.53	0.11	100.00
Khyber Pakhtunkhwa	84.19	11.93	0.15	3.72	100.00
Balochistan	62.74	35.68	1.29	0.29	100.00
<b>Rural Areas</b>	<b>59.70</b>	<b>30.80</b>	<b>3.42</b>	<b>6.08</b>	<b>100.00</b>
Punjab	74.89	22.17	0.65	2.29	100.00
Sindh	38.24	47.63	13.70	0.43	100.00
Khyber Pakhtunkhwa	42.08	28.00	1.44	28.48	100.00
Balochistan	11.26	79.09	6.17	3.47	100.00

Source:- Pakistan Social and Living Standards Measurement Survey, FBS 2008-09

Note: Categories "Other" consists of stone and any thing other than Burnt Bricks/Blocks, Mud Bricks/Mud & wood/Bamboo. Total may not add to 100 because of rounding.

**Table A-11: Percentage Distribution of Households by Material Used for Roof PSLM, 2008-09**

Region & Province	Households by Material Used for Roof				
	RCC/ RBC	Wood/ Bamboo	Sheet/ Iron Cement	Other	Total
<b>PSLM 2006-07</b>					
<b>Pakistan</b>	<b>32.11</b>	<b>43.57</b>	<b>19.17</b>	<b>5.14</b>	<b>100.00</b>
Punjab	31.36	39.58	22.31	6.75	100.00
Sindh	40.44	39.32	17.52	2.71	100.00
Khyber Pakhtunkhwa	26.07	59.03	11.01	3.90	100.00
Balochistan	12.02	77.66	9.63	0.70	100.00
<b>Urban Areas</b>	<b>60.77</b>	<b>17.60</b>	<b>17.99</b>	<b>3.64</b>	<b>100.00</b>
Punjab	57.54	21.27	16.39	4.80	100.00
Sindh	68.60	7.29	21.71	2.40	100.00
Khyber Pakhtunkhwa	54.80	35.20	8.46	1.54	100.00
Balochistan	39.38	35.39	24.25	0.98	100.00
<b>Rural Areas</b>	<b>16.98</b>	<b>57.29</b>	<b>19.79</b>	<b>5.94</b>	<b>100.00</b>
Punjab	18.65	48.48	25.18	7.69	100.00
Sindh	12.34	71.29	13.35	3.01	100.00
Khyber Pakhtunkhwa	20.13	63.95	11.53	4.38	100.00
Balochistan	3.61	90.64	5.14	0.61	100.00
<b>PSLM 2008-09</b>					
<b>Pakistan</b>	<b>34.54</b>	<b>41.08</b>	<b>17.35</b>	<b>7.02</b>	<b>100.00</b>
Punjab	33.85	37.83	20.22	8.10	100.00
Sindh	44.17	35.93	13.89	6.01	100.00
Khyber Pakhtunkhwa	28.62	54.67	13.48	3.24	100.00
Balochistan	9.72	72.64	9.02	8.61	100.00
<b>Urban Areas</b>	<b>68.16</b>	<b>16.11</b>	<b>9.62</b>	<b>6.12</b>	<b>100.00</b>
Punjab	65.90	19.25	7.29	7.56	100.00
Sindh	75.44	6.80	13.19	4.57	100.00
Khyber Pakhtunkhwa	61.57	29.57	7.05	1.80	100.00
Balochistan	37.50	39.11	16.37	7.02	100.00
<b>Rural Areas</b>	<b>17.10</b>	<b>54.04</b>	<b>21.37</b>	<b>7.49</b>	<b>100.00</b>
Punjab	18.77	46.58	26.31	8.35	100.00
Sindh	12.29	65.61	14.61	7.49	100.00
Khyber Pakhtunkhwa	21.47	60.11	14.87	3.55	100.00
Balochistan	2.17	81.76	7.03	9.04	100.00

Source:- Pakistan Social and Living Standards Measurement Survey, 2008-09 FBS

Note: RCC/RBC Reinforced Concrete & Cement & RBC is reinforced Bricks & Cement. Other includes any category other than RCC/RBS, Wood/Bamboo, and Sheet/Iron/Cement.  
Total may not add to 100 because of rounding.

**Table A-12: Percentage Distribution of Households by Fuel Used For Lighting PSLM, 2008-09**

Region & Province	Fuel Used for Lighting				
	Electricity	Gas/ Oil	Candle	Other	Total
<b>PSLM 2006-07</b>					
<b>Pakistan</b>	<b>86.61</b>	<b>12.44</b>	<b>0.25</b>	<b>0.70</b>	<b>100.00</b>
Punjab	90.11	9.56	0.11	0.22	100.00
Sindh	79.27	18.62	0.54	1.56	100.00
Khyber Pakhtunkhwa	91.46	7.59	0.21	0.74	100.00
Balochistan	65.47	31.69	0.52	2.31	100.00
<b>Urban Areas</b>	<b>97.58</b>	<b>2.14</b>	<b>0.10</b>	<b>0.18</b>	<b>100.00</b>
Punjab	97.84	1.88	0.13	0.15	100.00
Sindh	97.05	2.67	0.07	0.23	100.00
Khyber Pakhtunkhwa	98.31	1.53	0.03	0.13	100.00
Balochistan	97.44	2.49	0.00	0.08	100.00
<b>Rural Areas</b>	<b>80.82</b>	<b>17.88</b>	<b>0.32</b>	<b>0.98</b>	<b>100.00</b>
Punjab	86.36	13.29	0.10	0.25	100.00
Sindh	61.53	34.57	1.00	2.90	100.00
Khyber Pakhtunkhwa	90.04	8.84	0.25	0.87	100.00
Balochistan	55.65	40.67	0.68	3.00	100.00
<b>PSLM 2008-09</b>					
<b>Pakistan</b>	<b>90.73</b>	<b>8.25</b>	<b>0.26</b>	<b>0.75</b>	<b>100.00</b>
Punjab	93.01	6.56	0.16	0.27	100.00
Sindh	87.04	11.32	0.29	1.35	100.00
Khyber Pakhtunkhwa	93.59	5.79	0.07	0.56	100.00
Balochistan	73.17	20.62	1.89	4.32	100.00
<b>Urban Areas</b>	<b>97.73</b>	<b>2.01</b>	<b>0.09</b>	<b>0.17</b>	<b>100.00</b>
Punjab	97.74	2.03	0.07	0.15	100.00
Sindh	97.62	2.09	0.09	0.20	100.00
Khyber Pakhtunkhwa	98.36	1.40	0.13	0.12	100.00
Balochistan	97.43	1.85	0.40	0.32	100.00
<b>Rural Areas</b>	<b>87.10</b>	<b>11.49</b>	<b>0.35</b>	<b>1.05</b>	<b>100.00</b>
Punjab	90.78	8.69	0.21	0.33	100.00
Sindh	76.26	20.73	0.49	2.53	100.00
Khyber Pakhtunkhwa	92.56	6.74	0.05	0.65	100.00
Balochistan	66.58	25.72	2.30	5.40	100.00

Source:- Pakistan Social and Living Standards Measurement Survey, 2008-09 FBS

Note: "Other" consists of wood for lighting and other.  
Total may not add to 100 because of rounding.

**Table A-13: Percentage Distribution of Households by Fuel Used For Cooking PSLM, 2008-09**

Region & Province	Fuel Used for Cooking				
	Electricity	Gas/Oil	Wood/Charcoal	Other	Total
<b>PSLM 2006-07</b>					
<b>Pakistan</b>	<b>0.07</b>	<b>29.99</b>	<b>53.29</b>	<b>16.65</b>	<b>100.00</b>
Punjab	0.03	27.74	47.12	25.10	100.00
Sindh	0.15	43.65	50.89	5.31	100.00
Khyber Pakhtunkhwa	0.08	16.63	80.19	3.10	100.00
Balochistan	0.04	22.18	71.90	5.88	100.00
<b>Urban Areas</b>	<b>0.15</b>	<b>73.80</b>	<b>22.56</b>	<b>3.48</b>	<b>100.00</b>
Punjab	0.07	69.95	24.91	5.08	100.00
Sindh	0.29	83.44	14.94	1.34	100.00
Khyber Pakhtunkhwa	0.17	58.27	39.67	1.88	100.00
Balochistan	0.07	63.32	33.84	2.77	100.00
<b>Rural Areas</b>	<b>0.02</b>	<b>6.86</b>	<b>69.52</b>	<b>23.60</b>	<b>100.00</b>
Punjab	0.02	7.23	57.91	34.84	100.00
Sindh	0.01	3.95	86.77	9.27	100.00
Khyber Pakhtunkhwa	0.06	8.03	88.55	3.36	100.00
Balochistan	0.03	9.54	83.60	6.83	100.00
<b>PSLM 2008-09</b>					
<b>Pakistan</b>	<b>0.06</b>	<b>31.47</b>	<b>51.92</b>	<b>16.55</b>	<b>100.00</b>
Punjab	0.01	29.13	45.80	25.06	100.00
Sindh	0.05	47.43	47.11	5.41	100.00
Khyber Pakhtunkhwa	0.33	16.87	80.67	2.14	100.00
Balochistan	0.09	18.13	77.62	4.16	100.00
<b>Urban Areas</b>	<b>0.05</b>	<b>77.84</b>	<b>19.55</b>	<b>2.56</b>	<b>100.00</b>
Punjab	0.01	75.01	21.22	3.76	100.00
Sindh	0.07	86.25	12.74	0.94	100.00
Khyber Pakhtunkhwa	0.24	65.37	33.62	0.78	100.00
Balochistan	0.14	57.36	39.08	3.42	100.00
<b>Rural Areas</b>	<b>0.07</b>	<b>7.41</b>	<b>68.71</b>	<b>23.81</b>	<b>100.00</b>
Punjab	0.02	7.53	57.37	35.08	100.00
Sindh	0.03	7.87	82.14	9.97	100.00
Khyber Pakhtunkhwa	0.35	6.35	90.87	2.44	100.00
Balochistan	0.07	7.47	88.09	4.36	100.00

Source:- Pakistan Social and Living Standards Measurement Survey, 2008-09 FBS

Note: "Other" consists of dung cake and any material used as fuel for cooking other than Electricity, Gas/Oil and Wood/Charcoal. Total may not add to 100 because of rounding.

**Table A-14: Percentage Distribution of Households by Main Source of Drinking Water- Pakistan and Provinces, 2004-05 & 2008-09**

Province and water source	2004-05 PSLM			2008-09 PSLM		
	Urban	Rural	Overall	Urban	Rural	Overall
<b>Pakistan</b>						
Tap Water	60	21	34	62	21	35
Hand Pump	13	44	33	8	41	30
Motor Pump	23	18	19	25	24	24
Dug Well	2	7	5	1	6	4
Others	3	11	8	4	9	8
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
<b>Balochistan</b>						
Tap Water	84	22	33	85	25	38
Hand Pump	3	5	4	3	4	4
Motor Pump	5	4	4	3	1	2
Dug Well	4	28	23	2	21	17
Others	5	42	36	7	48	39
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
<b>Khyber Pakhtunkhwa</b>						
Tap Water	62	40	44	66	47	50
Hand Pump	8	12	11	8	13	12
Motor Pump	17	4	6	17	9	10
Dug Well	11	18	17	8	13	12
Others	2	27	23	1	19	16
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
<b>Punjab</b>						
Tap Water	52	17	28	52	16	28
Hand Pump	13	50	39	8	44	32
Motor Pump	32	27	29	34	35	35
Dug Well	1	2	2	0	2	1
Others	2	4	3	5	3	4
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
<b>Sindh</b>						
Tap Water	71	19	44	74	11	43
Hand Pump	13	60	37	9	65	37
Motor Pump	10	3	6	12	6	9
Dug Well	2	8	5	0	9	4
Others	5	11	8	4	9	7
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Source:- Pakistan Social &amp; Living Standards Measurement Survey, 2008-09, FBS

- Notes: 1. Household obtaining water from the source indicated expressed as a percentage of the total number of households.
2. Categories: "Tap water" consists of both tap water inside and out side house. "Hand pump" includes hand pumps both inside and outside. "Motor pump" includes motor pump and tube well outside the house; "Dug well" includes well open and well closed both inside and out side the house; and "Other" includes public standpipe (supplied by tanker), water sell, canal, river, spring, stream, pond and other.
3. Total may not add to 100 because of rounding.



**Table A-15: Percentage Distribution of Housing Units by Type of Toilet Used and Urban/Rural Areas of Pakistan and Provinces, 2004-05 & 2008-09**

Province and Sanitation System	2004-05 PSLM			2008-09 PSLM		
	Urban	Rural	Overall	Urban	Rural	Overall
<b>Pakistan</b>						
Flush	86	30	54	95	47	63
Non-Flush	7	30	20	3	21	15
No Toilet	6	40	26	2	33	22
Total	100	100	100	100	100	100
<b>Balochistan</b>						
Flush	63	7	23	75	10	24
Non-Flush	33	48	44	21	66	56
No Toilet	4	45	33	5	24	20
Total	100	100	100	100	100	100
<b>Khyber Pakhtunkhwa</b>						
Flush	81	32	48	89	49	56
Non-Flush	13	36	28	7	26	23
No Toilet	6	32	24	4	25	21
Total	100	100	100	100	100	100
<b>Punjab</b>						
Flush	91	43	66	96	56	69
Non-Flush	2	7	5	1	5	4
No Toilet	7	50	30	3	39	28
Total	100	100	100	100	100	100
<b>Sindh</b>						
Flush	88	17	51	95	25	60
Non-Flush	7	56	32	4	55	29
No Toilet	5	27	16	1	20	10
Total	100	100	100	100	100	100

Source:- Pakistan Social & Living Standards Measurement Survey, 2008-09 FBS.

- Notes:-**
1. Households having the type of toilets indicated, expressed as a percentage of the total number of households
  2. "Flush" consists of flush connected to public sewerage, flush connected to septic tank and flush to open drain while "Non-Flush" contains dry raised latrine, dry pit latrine and other.
  3. Totals may not add up to 100 because of rounding.

**Table A-16: 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
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
2006-07	31.82	25.24	6.58	30.13	24.10	6.03	1.69	1.14	0.55
2007-08	32.17	25.36	6.81	30.50	24.27	6.23	1.67	1.09	0.58
2008-09	32.81	25.59	7.22	31.02	24.45	6.57	1.79	1.14	0.65

Source:- Labour Force Surveys of the respective years, FBS  
( \* ) = Population Census, 1981

**Table A-17: Percentage Distribution of Population by Economic Category**

Economic category	1981 (*)	1990-91	1994-95	1996-97	1997-98	1999-00
<b>All Areas</b>						
<b>Total population</b>	100.00	100.00	100.00	100.00	100.00	100.00
<b>Civilian labour force</b>	27.57	27.97	27.46	28.69	29.38	28.97
<b>i) Employed</b>	26.72	26.21	25.98	26.93	27.65	26.70
<b>ii) Un-employed</b>	0.85	1.76	1.48	1.75	1.73	2.27
<b>Not in civilian labour Force</b>	72.43	72.03	72.54	71.31	70.62	71.03
<b>Urban Areas</b>						
<b>Total population</b>	100.00	100.00	100.00	100.00	100.00	100.00
<b>Civilian labour force</b>	25.35	26.37	26.12	27.15	26.98	27.14
<b>i) Employed</b>	24.03	24.22	24.32	25.21	24.84	24.45
<b>ii) Un-employed</b>	1.32	2.16	1.80	1.95	2.15	2.69
<b>Not in civilian labour Force</b>	74.65	73.63	73.88	72.85	73.02	72.86
<b>Rural Areas</b>						
<b>Total population</b>	100.00	100.00	100.00	100.00	100.00	100.00
<b>Civilian labour force</b>	28.49	28.70	28.00	29.42	30.58	29.82
<b>i) Employed</b>	27.82	27.13	26.66	27.76	29.06	27.75
<b>ii) Un-employed</b>	0.67	1.57	1.34	1.66	1.52	2.07
<b>Not in civilian labour Force</b>	71.51	71.30	72.00	70.58	69.42	70.18

Contd...

**Table A-17: Percentage Distribution of Population by Economic Category**

Economic category	2001-02	2003-04	2005-06	2006-07	2007-08	2008-09
<b>All Areas</b>						
<b>Total population</b>	100.00	100.00	100.00	100.00	100.00	100.00
<b>Civilian labour force</b>	29.61	30.41	32.22	31.82	32.17	32.81
<b>i) Employed</b>	27.16	28.07	30.22	30.13	30.50	31.02
<b>ii) Un-employed</b>	2.45	2.34	2.00	1.69	1.67	1.79
<b>Not in civilian labour Force</b>	70.39	69.59	67.78	68.18	67.83	67.19
<b>Urban Areas</b>						
<b>Total population</b>	100.00	100.00	100.00	100.00	100.00	100.00
<b>Civilian labour force</b>	29.10	29.20	30.20	29.68	28.87	29.87
<b>i) Employed</b>	26.25	26.37	27.78	27.70	27.04	27.74
<b>ii) Un-employed</b>	2.85	2.83	2.43	1.98	1.83	2.12
<b>Not in civilian labour Force</b>	70.90	70.80	69.80	70.32	71.13	70.13
<b>Rural Areas</b>						
<b>Total population</b>	100.0	100.0	100.00	100.00	100.00	100.00
<b>Civilian labour force</b>	29.85	31.02	33.23	32.88	33.84	34.29
<b>i) Employed</b>	27.59	28.93	31.45	31.33	32.25	32.67
<b>ii) Un-employed</b>	2.25	2.09	1.78	1.55	1.59	1.62
<b>Not in civilian labour Force</b>	70.15	68.98	66.77	67.12	66.16	65.71

Source:- Labour Force Surveys of the respective years, FBS

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

(\*) = Population Census, 1981

**Table A-18: Percentage Distribution of Employed Persons by Major Industry Division****All Areas**

Major Industry Division	1981 ( * )	1991-92	1993-94	1994-95	1996-97	1997-98
	1	2	3	4	5	6
<b>Total employed persons</b>	100.00	100.00	100.00	100.00	100.00	100.00
<b>Agriculture, forestry, hunting and fishing</b>	52.72	48.27	50.04	46.79	44.15	47.25
<b>Mining and quarrying</b>	0.4	0.25	0.09	0.12	0.10	0.19
<b>Manufacturing</b>	9.16	12.28	10.03	10.38	11.10	9.96
<b>Electricity, gas, water and sanitary services</b>	0.6	0.79	0.87	0.82	0.98	0.70
<b>Construction</b>	4.19	6.33	6.50	7.21	6.75	6.26
<b>Wholesale, retail trade, restaurants &amp; hotels</b>	9.42	13.10	12.78	14.50	14.62	13.87
<b>Transport, storage and communication</b>	4.14	5.51	4.95	5.07	5.71	5.48
<b>Financing, insurance, real estate and business services</b>	0.76	0.76	0.78	0.77	0.98	0.87
<b>Community, social and personal services</b>	13.7	12.65	13.92	14.28	15.58	15.36
<b>Activities not adequately described</b>	4.92	0.07	0.05	0.07	0.04	0.05
Major Industry Division	1999-00	2001-02	2003-04	2005-06	2006-07	2007-08
	7	8	9	10	11	12
<b>Total employed persons</b>	100.00	100.00	100.00	100.00	100.00	100.00
<b>Agriculture, forestry, hunting and fishing</b>	48.42	42.09	43.05	43.37	43.61	45.65
<b>Mining and quarrying</b>	0.07	0.07	0.07	0.09	0.11	0.12
<b>Manufacturing</b>	11.48	13.84	13.73	13.84	13.54	12.99
<b>Electricity, gas, water and sanitary services</b>	0.70	0.81	0.67	0.66	0.75	0.70
<b>Construction</b>	5.78	6.05	5.83	6.13	6.56	6.29
<b>Wholesale, retail trade, restaurants &amp; hotels</b>	13.50	14.85	14.80	14.67	14.42	14.62
<b>Transport, storage and communication</b>	5.03	5.90	5.73	5.74	5.39	5.46
<b>Financing, insurance, real estate and business services</b>	0.82	0.89	1.06	1.10	1.14	1.41
<b>Community, social and personal services</b>	14.20	15.50	15.01	14.35	14.41	13.66
<b>Activities not adequately described</b>	..	..	0.05	0.04	0.05	0.10

Contd...

**Table A-18: Percentage Distribution of Employed Persons by Major Industry Division**  
**Urban Areas**

Major Industry Division	1981 ( * )	1991-92	1993-94	1994-95	1996-97	1997-98
	1	2	3	4	5	6
<b>Total employed persons</b>	100.00	100.00	100.00	100.00	100.00	100.00
<b>Agriculture, forestry, hunting and fishing</b>	7.38	6.89	5.55	5.80	5.69	5.56
<b>Mining and quarrying</b>	0.28	0.30	0.08	0.14	0.13	0.07
<b>Manufacturing</b>	18.28	23.25	21.24	20.10	21.02	19.72
<b>Electricity, gas, water and sanitary services</b>	1.18	1.71	1.62	1.53	1.75	1.43
<b>Construction</b>	6.43	6.80	6.64	6.49	6.64	7.36
<b>Wholesale, retail trade, restaurants &amp; hotels</b>	21.82	25.40	27.22	28.63	26.38	28.41
<b>Transport, storage and communication</b>	8.65	9.37	8.74	8.47	9.39	10.03
<b>Financing, insurance, real estate and business services</b>	2.12	2.00	2.22	2.13	2.55	2.37
<b>Community, social and personal services</b>	26.41	23.86	26.55	26.58	26.35	24.95
<b>Activities not adequately described</b>	7.43	0.15	0.12	0.13	0.10	0.03
Major Industry Division	1999-00	2001-02	2003-04	2005-06	2006-07	2007-08
	7	8	9	10	11	12
<b>Total employed persons</b>	100.00	100.00	100.00	100.00	100.00	100.00
<b>Agriculture, forestry, hunting and fishing</b>	5.70	5.19	5.94	6.32	6.52	6.21
<b>Mining and quarrying</b>	0.07	0.07	0.04	0.02	0.04	0.07
<b>Manufacturing</b>	23.78	25.08	23.97	24.71	23.38	23.89
<b>Electricity, gas, water and sanitary services</b>	1.31	1.33	1.20	1.25	1.24	1.36
<b>Construction</b>	6.32	5.67	5.41	5.91	6.61	6.75
<b>Wholesale, retail trade, restaurants &amp; hotels</b>	27.06	27.19	26.62	26.71	27.16	27.45
<b>Transport, storage and communication</b>	7.90	8.26	8.80	8.22	7.99	7.92
<b>Financing, insurance, real estate and business services</b>	2.35	2.18	2.71	2.79	2.86	3.70
<b>Community, social and personal services</b>	25.54	25.03	25.71	24.00	24.10	22.39
<b>Activities not adequately described</b>	0.00	-	0.14	0.06	0.10	0.26

Contd...

**Table A-18: Percentage Distribution of Employed Persons by Major Industry Division****Rural Areas**

Major Industry Division	1981 ( * )	1991-92	1993-94	1994-95	1996-97	1997-98
	1	2	3	4	5	6
<b>Total employed persons</b>	100.00	100.00	100.00	100.00	100.00	100.00
<b>Agriculture, forestry, hunting and fishing</b>	68.76	64.15	66.00	61.94	60.83	65.13
<b>Mining and quarrying</b>	0.44	0.23	0.10	0.11	0.09	0.24
<b>Manufacturing</b>	5.93	7.97	6.00	6.78	6.78	5.77
<b>Electricity, gas, water and sanitary services</b>	0.39	0.43	0.60	0.56	0.63	0.39
<b>Construction</b>	3.4	6.16	6.44	7.47	6.80	5.79
<b>Wholesale, retail trade, restaurants &amp; hotels</b>	5.03	8.37	7.60	9.29	9.52	7.62
<b>Transport, storage and communication</b>	2.54	4.03	3.58	3.81	4.11	3.53
<b>Financing, insurance, real estate and business services</b>	0.28	0.28	0.26	0.27	0.32	0.23
<b>Community, social and personal services</b>	9.2	8.34	9.39	9.73	10.90	11.26
<b>Activities not adequately described</b>	4.03	0.04	0.03	0.05	0.01	0.06
Major Industry Division	1999-00	2001-02	2003-04	2005-06	2006-07	2007-08
	7	8	9	10	11	12
<b>Total employed persons</b>	100.00	100.00	100.00	100.00	100.00	100.00
<b>Agriculture, forestry, hunting and fishing</b>	65.85	59.01	60.03	59.87	59.90	60.94
<b>Mining and quarrying</b>	0.07	0.07	0.08	0.12	0.14	0.14
<b>Manufacturing</b>	6.46	8.68	9.05	9.00	9.22	8.37
<b>Electricity, gas, water and sanitary services</b>	0.45	0.56	0.43	0.39	0.54	0.42
<b>Construction</b>	5.56	6.23	6.02	6.23	6.54	6.09
<b>Wholesale, retail trade, restaurants &amp; hotels</b>	7.98	9.20	9.39	9.30	8.83	9.19
<b>Transport, storage and communication</b>	3.86	4.82	4.33	4.64	4.25	4.42
<b>Financing, insurance, real estate and business services</b>	0.20	0.30	0.30	0.35	0.39	0.44
<b>Community, social and personal services</b>	9.57	11.13	10.36	10.06	10.16	9.96
<b>Activities not adequately described</b>	..	..	0.01	0.03	0.03	0.03

Source:- Labour Force Surveys of the respective years, FBS.

(\*) = Population Census 1981

**Table A-19: Percentage Distribution of Employed Persons by Major Occupational Group**  
**All Areas**

Major Occupational Group	2005-06	2006-07	2007-08	2008-09
<b>Total employed persons</b>	100.0	100.0	100.00	100.00
<b>Legislators, Senior Officials and Managers</b>	11.98	12.31	12.70	12.38
<b>Professionals</b>	1.67	1.64	1.47	1.73
<b>Technicians and Associate Professionals</b>	5.09	4.99	5.31	5.39
<b>Clerks</b>	1.43	1.44	1.64	1.36
<b>Service Workers and Shop and Market Sale Workers</b>	5.37	5.58	4.90	4.88
<b>Skilled Agricultural and Fishery Workers</b>	35.31	36.36	37.36	37.61
<b>Craft and related Trade Workers</b>	15.76	15.30	15.20	14.47
<b>Plant and Machine Operators and Assemblers</b>	4.16	4.08	4.04	4.09
<b>Elementary (Unskilled) Occupations</b>	19.23	18.30	17.38	18.09

Contd...



**Table A-19: Percentage Distribution of Employed Persons by Major Occupational Group  
Urban Areas**

Major Occupational Group	2005-06	2006-07	2007-08	2008-09
<b>Total employed persons</b>	100.00	100.00	100.00	100.00
<b>Legislators, Senior Officials and Managers</b>	21.63	22.77	24.09	24.31
<b>Professionals</b>	3.40	3.22	3.15	3.83
<b>Technicians and Associate Professionals</b>	8.38	8.52	8.64	9.22
<b>Clerks</b>	3.25	2.88	3.70	3.03
<b>Service Workers and Shop and Market Sale Workers</b>	9.40	10.36	9.09	8.92
<b>Skilled Agricultural and Fishery Workers</b>	5.50	5.51	5.45	5.06
<b>Craft and related Trade Workers</b>	26.22	24.87	25.57	24.01
<b>Plant and Machine Operators and Assemblers</b>	5.97	6.16	5.88	5.39
<b>Elementary (Unskilled) Occupations</b>	16.25	15.71	14.43	16.22

Contd...

**Table A-19: Percentage Distribution of Employed Persons by Major Occupational Group  
Rural Areas**

Major Occupational Group	2005-06	2006-07	2007-08	2008-09
<b>Total employed persons</b>	100.00	100.00	100.00	100.00
<b>Legislators, Senior Officials and Managers</b>	7.69	7.71	7.88	7.26
<b>Professionals</b>	0.89	0.95	0.76	0.84
<b>Technicians and Associate Professionals</b>	3.62	3.44	3.89	3.74
<b>Clerks</b>	0.63	0.80	0.77	0.64
<b>Service Workers and Shop and Market Sale Workers</b>	3.57	3.48	3.13	3.14
<b>Skilled Agricultural and Fishery Workers</b>	48.59	49.91	50.88	51.58
<b>Craft and related Trade Workers</b>	11.10	11.10	10.81	10.36
<b>Plant and Machine Operators and Assemblers</b>	3.35	3.17	3.26	3.53
<b>Elementary (Unskilled) Occupations</b>	20.56	19.44	18.64	18.90

Source:- Labour Force Surveys of the respective years, FBS.

**Table A-20: 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
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	59.45	4.04	24.25	8.95
2003-04	79.61	59.46	4.01	24.23	9.10
2004-05	79.61	59.48	4.02	24.39	8.94
2005-06	79.61	57.22	4.03	22.87	8.21
2006-07	79.61	57.05	4.19	22.70	8.30
2007-08	79.61	57.05	4.21	23.41	8.19
2008-09	79.61	57.08	4.21	23.45	8.20
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
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	6.23	15.89	7.05	22.94
2004-05	22.13	6.86	15.27	7.51	22.78
2005-06	22.11	6.72	15.39	7.74	23.13
2006-07	21.87	5.72	16.16	7.40	23.56
2007-08	21.17	4.93	16.25	7.51	23.85
2008-09	21.21	4.93	16.28	7.52	23.80

Source: - Agricultural Statistics of Pakistan 2008-09

**TableA-21: Area under Agricultural Crops**

(000 Hectares)

Year	Rice	Wheat	Bajra	Jowar	Maize	Barley	Gram	Masoor
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	944.1	113.0	905.0	46.1
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	2,460.6	8,216.2	539.3	392.5	947.1	101.6	982.3	51.6
2004-05	2,519.6	8,358.0	343.3	307.5	981.8	93.3	1,093.9	43.4
2005-06	2,621.4	8,447.9	440.7	254.4	1042.0	89.9	1,028.9	33.9
2006-07	2,581.2	8,578.2	504.1	291.6	1016.9	94.0	1,052.3	39.0
2007-08	2,515.4	8,549.8	530.6	281.4	1051.7	91.1	1,106.8	30.4
2008-09	2,962.2	9,046.0	469.7	262.7	1052.1	86.0	1,080.6	30.9
Year	Mash	Mung	Other Pulses (a)	Rapeseed & mustard	Sesamum	Linseed	Groundnut	Cotton
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	13.3	333.7	71.1	7.7	97.5	2,922.8
1999-00	43.4	202.7	10.8	327.3	71.7	7.2	92.5	2,983.1
2000-01	45.8	219.2	10.8	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	59.7	6.2	102.6	2,989.3
2004-05	37.5	225.4	8.0	257.2	66.5	5.4	105.8	3,192.6
2005-06	34.6	208.5	8.3	227.3	82.0	5.8	93.7	3,103.0
2006-07	33.2	217.8	9.3	265.8	71.4	5.2	93.5	3,074.8
2007-08	32.5	245.9	11.6	234.6	76.4	4.6	94.8	3,054.3
2008-09	27.6	219.7	9.1	244.9	90.7	5.4	92.8	2,820.0

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

Contd...

**Table A-21: Area Under Agricultural Crops**

(000 Hectares)

Year	Jute	Sun hemp	Sugar cane	Tobacco	Potato	Vegetables (b)	Garlic	Chilies
1996-97	0.03	3.4	964.5	49.0	85.8	215.5	8.5	87.2
1997-98	0.03	3.1	1,056.2	53.4	104.7	220.6	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	1,074.5	45.6	109.7	236.6	6.9	55.8
2004-05	0.00	1.7	966.4	50.5	112.0	238.7	6.6	48.7
2005-06	0.00	1.9	907.3	56.4	117.4	246.3	7.0	64.6
2006-07	0.00	1.5	1,028.8	50.9	133.4	245.5	7.8	47.3
2007-08	0.00	1.4	1,241.3	51.4	154.3	253.8	8.1	64.2
2008-09	0.00	1.2	1,029.4	49.7	145.0	252.9	8.4	73.8
Year	Onion	Citrus Fruit	Banana	Mango	Apple	Guava	Grapes	Dates
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	60.3	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	61.6	12.8	74.8
2004-05	127.8	183.8	33.1	151.5	111.6	63.5	13.0	81.7
2005-06	148.7	192.3	32.5	156.6	112.0	61.8	13.0	82.0
2006-07	131.4	193.2	34.9	164.5	112.6	62.5	13.8	84.8
2007-08	153.1	199.4	35.5	166.2	113.0	63.3	15.3	90.1
2008-09	129.6	199.9	36.0	170.1	113.0	62.2	15.3	90.7

Source:- Agricultural Statistics of Pakistan 2008-09

Note: - (b) Excluding potato &amp; Sugar beet.

**Table A-22: Production of Agricultural Crops**

(000 Tonnes)

Year	Rice	Wheat	Bajra	Jowar	Maize	Barley	Gram	Masoor
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	218.1	1,643.3	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
2004-05	5,024.8	21,612.3	193.3	186.4	2,797.0	91.7	868.2	25.9
2005-06	5,547.2	21,276.8	220.8	152.6	3,109.6	87.5	479.5	17.9
2006-07	5,438.4	23,294.7	238.0	179.5	3,088.4	92.7	837.8	21.1
2007-08	5,563.4	20,958.8	305.0	170.1	3,604.7	87.4	474.6	14.6
2008-09	6,952.0	24,032.9	296.4	164.5	3,593.0	81.5	740.5	14.4
Year	Mash	Mung	Other Pulses (a)	Rapeseed & mustard	Sesamum	Linseed	Ground nut	Cotton (000 bales)
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	7.3	282.0	32.1	4.9	103.1	8,790.2
1999-00	23.7	94.8	6.0	297.3	35.4	4.5	99.1	11,240.0
2000-01	25.7	104.5	6.2	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	238.2	24.7	3.1	114.7	10,047.7
2004-05	18.4	130.0	4.6	215.8	29.8	2.6	76.4	14,265.2
2005-06	16.5	113.9	4.6	180.8	35.1	2.8	69.1	13,018.9
2006-07	15.9	138.5	4.8	221.0	30.4	3.6	73.9	12,856.2
2007-08	17.3	177.7	7.2	185.1	32.8	3.1	83.4	11,655.1
2008-09	13.6	157.4	6.1	198.9	41.0	3.6	85.5	11,819.0

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

Contd...

Socio-economic Activities and Natural Events

**Table A-22: Production of Agricultural Crops**

(000 Tonnes)

Year	Jute	Sunhemp	Sugar cane	Tobacco	Potato	Vegetables * (b)	Garlic	Chillies
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	1,721.7	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	3,028.4	56.5	96.4
2004-05	0.0	1.1	47,244.1	100.5	2,024.9	3,048.4	55.9	90.5
2005-06	0.0	1.2	44,665.5	112.6	1,567.9	3,124.8	57.3	122.9
2006-07	0.0	1.0	54,741.6	103.3	2,581.6	3,138.0	62.3	69.5
2007-08	0.0	1.0	63,920.0	107.8	2,539.0	3,136.8	63.8	116.1
2008-09	0.0	1.0	50,045.4	104.9	2,941.3	3,213.9	67.2	187.7
Year	Onion	Citrus fruits	Banana	Mango	Apple	Guava	Grapes	Dates
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	540.1
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	154.0	1,055.9	333.8	549.6	50.8	426.8
2004-05	1,764.9	1,943.7	158.0	1,671.2	351.9	571.8	49.1	622.4
2005-06	2,055.7	2,458.4	163.5	1,753.9	351.3	552.2	48.8	496.3
2006-07	1,816.5	1,472.4	150.5	1,719.2	348.3	555.3	46.5	426.3
2007-08	2,015.2	2,294.5	158.0	1,753.7	441.6	538.9	75.3	557.5
2008-09	1,704.1	2,132.2	157.3	1,727.9	441.0	512.3	76.1	566.5

Source:- Agricultural Statistics of Pakistan 2008-09

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

**Table A-23: Number of Tube wells by Province**

Year	Total	Balochistan	Khyber Pakhtunkhwa	Punjab	Sindh
1996-97	506,824	21,059	9,726	452,431	23,588
1997-98	531,259	22,048	11,956	473,667	23,588
1998-99	563,226	22,456	11,956	500,631	28,581
1999-00	609,775	21,115	11,956	543,243	33,661
2000-01	659,278	21,115	12,842	588,130	37,191
2001-02	707,273	29,914	12,747	610,750	53,862
2002-03	768,962	31,794	12,758	656,898	67,512
2003-04	950,144	34,126	12,739	824,879	78,400
2004-05	984,294	34,492	12,757	845,573	91,472
2005-06	999,569	34,492	12,773	857,774	94,530
2006-07	931,306	32,222	14,382	884,228	474
2007-08	921,121	34,054	14,412	872,444	211
2008-09	921,229	34,054	14,553	872,444	178

Source:- Agricultural Statistics of Pakistan 2008-09



**Table A-24: 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	Scarp T.well	Other Pr.T well	
<b>1992-93</b>							
<b>Kharif</b>	61.58	50.26	6.27	16.96	-	-	73.49
<b>Rabi</b>	39.35	28.38	6.29	16.96	-	-	51.63
<b>Total</b>	100.93	78.64	12.56	33.92	-	-	125.12
<b>1993-94</b>							
<b>Kharif</b>	71.42	51.01	6.32	17.39	-	-	74.72
<b>Rabi</b>	36.16	29.55	6.34	17.40	-	-	53.29
<b>Total</b>	107.58	80.56	12.66	34.79	-	-	128.01
<b>1994-95</b>							
<b>Kharif</b>	57.31	51.08	6.37	17.82	-	-	75.27
<b>Rabi</b>	37.14	30.15	6.39	17.84	-	-	54.38
<b>Total</b>	94.45	81.23	12.76	35.66	-	-	129.65
<b>1995-96</b>							
<b>Kharif</b>	62.80	51.15	6.42	18.25	-	-	75.82
<b>Rabi</b>	39.58	30.31	6.44	18.28	-	-	55.03
<b>Total</b>	102.38	81.46	12.86	36.53	-	-	130.85
<b>1996-97</b>							
<b>Kharif</b>	72.72	51.22	6.47	18.68	-	-	76.37
<b>Rabi</b>	38.40	30.47	6.49	18.72	-	-	55.68
<b>Total</b>	111.12	81.69	12.96	37.40	-	-	132.05
<b>1997-98</b>							
<b>Kharif</b>	67.50	51.30	0.96	19.11	-	-	71.37
<b>Rabi</b>	35.64	30.65	0.97	19.16	-	-	50.78
<b>Total</b>	103.14	81.95	1.93	38.27	-	-	122.15
<b>1998-99</b>							
<b>Kharif</b>	72.79	51.73	0.96	19.25	5.25	0.00	77.19
<b>Rabi</b>	37.91	30.98	0.97	19.38	5.26	0.00	56.59
<b>Total</b>	110.70	82.71	1.93	38.63	10.51	0.00	133.78
<b>1999-00</b>							
<b>Kharif</b>	74.71	51.97	0.96	19.11	4.86	0.00	76.90
<b>Rabi</b>	31.99	31.40	0.97	19.16	4.85	0.00	56.38
<b>Total</b>	106.70	83.37	1.93	38.27	9.71	0.00	133.28

Contd...

Table A-24: 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	Scarp T.well	Other Pr.T well	
<b>2000-01</b>							
Kharif	62.85	52.57	0.96	19.53	4.63	0.00	77.69
Rabi	23.32	31.65	0.97	19.82	4.64	0.00	57.08
<b>Total</b>	<b>86.17</b>	<b>84.22</b>	<b>1.93</b>	<b>39.35</b>	<b>9.27</b>	<b>0.00</b>	<b>134.77</b>
<b>2001-02</b>							
Kharif	58.11	52.62	0.96	19.67	4.32	0.00	77.57
Rabi	21.50	31.72	0.97	20.04	4.33	0.00	57.06
<b>Total</b>	<b>79.61</b>	<b>84.34</b>	<b>1.93</b>	<b>39.71</b>	<b>8.65</b>	<b>0.00</b>	<b>134.63</b>
<b>2002-03</b>							
Kharif	68.19	52.68	0.96	19.81	4.00	0.00	77.45
Rabi	28.22	31.78	0.97	20.27	4.01	0.00	57.03
<b>Total</b>	<b>96.41</b>	<b>84.46</b>	<b>1.93</b>	<b>40.08</b>	<b>8.01</b>	<b>0.00</b>	<b>134.48</b>
<b>2003-04</b>							
Kharif	69.59	52.86	0.96	19.81	4.00	0.00	77.63
Rabi	33.56	31.90	0.97	20.27	4.01	0.00	57.15
<b>Total</b>	<b>103.15</b>	<b>84.76</b>	<b>1.93</b>	<b>40.08</b>	<b>8.01</b>	<b>0.00</b>	<b>134.78</b>
<b>2004-05</b>							
Kharif	61.39	53.42	0.96	19.81	4.00	0.00	78.19
Rabi	24.53	32.24	0.97	20.27	4.01	0.00	57.49
<b>Total</b>	<b>85.82</b>	<b>85.66</b>	<b>1.93</b>	<b>40.08</b>	<b>8.01</b>	<b>0.00</b>	<b>135.68</b>
<b>2005-06</b>							
Kharif	73.02	52.98	0.96	19.70	4.00	0.00	77.64
Rabi	31.51	34.08	0.97	20.68	4.01	0.00	59.74
<b>Total</b>	<b>104.53</b>	<b>87.06</b>	<b>1.93</b>	<b>40.38</b>	<b>8.01</b>	<b>0.00</b>	<b>137.38</b>
<b>2006-07</b>							
Kharif	65.35	57.60	0.96	19.70	4.00	0.00	82.26
Rabi	32.61	29.88	0.97	20.68	4.01	0.00	55.54
<b>Total</b>	<b>97.96</b>	<b>87.48</b>	<b>1.93</b>	<b>40.38</b>	<b>8.01</b>	<b>0.00</b>	<b>137.80</b>
<b>2007-08</b>							
Kharif	73.05	61.12	0.86	19.70	3.90	0.00	85.58
Rabi	29.41	31.40	0.87	20.68	3.91	0.00	56.86
<b>Total</b>	<b>102.46</b>	<b>92.52</b>	<b>1.73</b>	<b>40.38</b>	<b>7.81</b>	<b>0.00</b>	<b>142.44</b>
<b>2008-09</b>							
Kharif	69.03	65.00*	0.86	19.50	3.50	0.00	88.86
Rabi	26.38	29.23*	0.87	20.40	3.50	0.00	54.00
<b>Total</b>	<b>95.41</b>	<b>94.23</b>	<b>1.73</b>	<b>39.90</b>	<b>7.00</b>	<b>0.00</b>	<b>142.86</b>

Source:- Agricultural Statistics of Pakistan 2008-09

\* Surface water figure are saumed on last five years average actual IRSA data.

**Table A-25: Production of Chemical Fertilizers**

(000 Tonnes)

Year	Total	Urea	Ammonium Nitrate	Ammonium Sulphate	SSP Phosphate	Nitro Phosphate
1996-97	4,017	3,258	330	78	1	350
1997-98	3,894	3,284	316	0.5	-	293
1998-99	4,242	3,550	339	-	22	285
1999-00	5,960	3,995	386	-	146	371
2000-01	5,127	3,983	374	-	160	285
2001-02	5,057	4,260	329	-	162	306
2002-03	5,194	4,407	335	-	147	305
2003-04	5,316	4,435	350	-	168	363
2004-05	5,444	4,611	330	-	164	339
2005-06	5,691	4,804	327	-	161	399
2006-07	5,584	4,732	332	-	151	369
2007-08	5,797	4,925	346	-	160	366
2008-09	5,776	4,922	344	-	178	332
2009-10	6,033	5,155	383	-	150	345

Source:- National Fertilizer Development Centre, Islamabad

**Table A-26: Season-Wise Consumption of Fertilizers**

(000 Nutrient Tonnes)

Year	Kharif				Rabi				Total			
	N	P	K	All	N	P	K	All	N	P	K	All
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	362	10	1,505	2208	579	18	2805
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	22	3218
2004	1287	329	10	1626	1435	455	14	1903	2722	784	24	3529
2005	1385	402	21	1808	1529	476	12	2018	2914	878	33	3826
2006	1258	252	9	1519	1400	686	33	2119	2658	934	42	3638
2007	1384	354	16	1754	1552	405	14	1970	2936	759	30	3724
2008	1332	158	15	1505	1580	374	11	1964	2912	532	26	3469
2009	1690	504	8	2202	1722	451	13	2187	3412	955	21	4389

Source:- National Fertilizer Development Centre (NDFC), Islamabad

**Note:-** Kharif = 1st April to 30th September  
Rabi = 1st October to 31st March

**Table A-27: Usage of Fertilizers by Crops**

(000 Nutrient Tonnes)

Year	Wheat	Rice	Maize	Cotton	Sugarcane	Others	Total
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
2004-05	1,874.00	221.64	55.41	923.50	295.52	184.70	3694.00
2005-06	1902.10	228.25	57.06	951.05	304.43	361.40	3804.00
2006-07	1835.80	220.29	55.07	917.90	293.72	348.80	3671.61
2007-08	1790.50	214.80	53.71	895.20	286.50	340.19	3581.00
2008-09	1855.5	222.7	55.7	927.7	296.9	352.5	3711.3
2009-10	2180.0	261.6	65.4	1090.0	348.8	414.2	4360.0

Source:- National Fertilizer Development Centre (NFDC) Islamabad

**Table A-28: Consumption of Pesticides**

Year	Quantity (M.T)			Value (Million Rs.)
	Imports	Production	Total	
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	40,482	89,116	1,29,598	12,592
2005	28,371	76,792	1,05,164	10,379
2006	12,721	30,855	43,576	5,906
2007	17,939	76,326	94,265	10,534
2008	9,282	29,904	39,186	6,940

Source: - Agricultural Statistics of Pakistan 2008-09

Table A-29: Estimated Livestock Population

(000  
Heads)

Years Cattle	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
<b>Cattle</b>								
<b>1. Bulls 3 years &amp; above</b>								
a) For breeding	314	321	327	333	1574	1633	1694	1758
b) For work	3793	3867	3942	4018	2574	2671	2772	2876
c) Others	-	-	-	-	-	-	-	-
<b>2. Cows 3 years &amp; above</b>								
a) In milk	7080	7217	7359	7504	8721	9049	9390	9744
b) Dry	2665	2717	2770	2824	4470	4638	4812	4994
c) Not yet calved	1471	1499	1528	1557	1968	2041	2118	2198
<b>3. Bulls less than 3 years</b>								
	3993	4071	4150	4230	5375	5577	5787	6005
<b>4. Cows less than 3 years</b>								
	3542	3611	3681	3752	4882	5065	5256	5454
<b>Total Cattle</b>	<b>22858</b>	<b>23303</b>	<b>23757</b>	<b>24218</b>	<b>29564</b>	<b>30674</b>	<b>31829</b>	<b>33029</b>
<b>Buffaloes</b>								
<b>1. Bulls 3 years &amp; above</b>								
a) For breeding	235	242	249	256	331	340	350	361
b) For work	193	199	205	211	280	288	297	306
c) Others	-	-	-	-	-	-	-	-
<b>2. Buffaloes 3 years &amp; above</b>								
a) In milk	9258	9537	9829	10130	10223	10526	10845	11175
b) Dry	2884	2971	3062	3156	3382	3481	3587	3696
c) Not yet calved	2333	2403	2477	2553	1960	2017	2078	2142
<b>3. Bulls less than 3 years</b>								
	3895	4012	4136	4264	4706	4845	4993	5144
<b>4. Buffaloes less than 3 years</b>								
	5232	5390	5555	5725	6457	6649	6851	7059
<b>Total Buffaloes:-</b>	<b>24030</b>	<b>24754</b>	<b>25513</b>	<b>26295</b>	<b>27339</b>	<b>28146</b>	<b>29001</b>	<b>29883</b>

Contd...

Table A-29: Estimated Livestock Population

(000 heads)

Years Cattle <sup>®</sup>	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
<b>Sheep</b>								
1. Male 1 year & above	3535	3559	3585	3611	4365	4415	4468	4521
2. Female 1 year & above	13772	13867	13967	14068	13756	13914	14078	14245
3. Young stock less than 1 year	7091	7140	7192	7244	8369	8465	8565	8666
<b>Total Sheep:-</b>	<b>24398</b>	<b>24566</b>	<b>24744</b>	<b>24923</b>	<b>26490</b>	<b>26794</b>	<b>27111</b>	<b>27432</b>
<b>Goats</b>								
1. Male 1 year & above	6452	6686	6929	7181	6617	6796	6980	7169
2. Female 1 year & above	27651	28653	29694	30773	31172	32014	32882	33773
3. Young stock less than 1 year	16814	17424	18056	18711	16000	16434	16879	17337
<b>Total Goats:-</b>	<b>50917</b>	<b>52763</b>	<b>54679</b>	<b>56665</b>	<b>53789</b>	<b>55244</b>	<b>56741</b>	<b>58279</b>
<b>Camels</b>								
1. 3 years & above	582	577	571	566	698	707	716	726
2. Less than 3 years	176	174	172	170	223	226	229	232
<b>Total Camels:-</b>	<b>758</b>	<b>751</b>	<b>743</b>	<b>736</b>	<b>921</b>	<b>933</b>	<b>945</b>	<b>958</b>
<b>Asses</b>								
1. 3 years & above	3140	3199	3261	3324	3495	3559	3625	3692
2. Less than 3 years	826	841	858	875	774	788	803	818
<b>Total Asses:-</b>	<b>3966</b>	<b>4640</b>	<b>4119</b>	<b>4199</b>	<b>4269</b>	<b>4347</b>	<b>4428</b>	<b>4510</b>
<b>Horses</b>								
1. 3 years & above	266	265	263	261	290	291	292	294
2. Less than 3 years	52	52	52	52	55	55	56	56
<b>Total Horses:-</b>	<b>318</b>	<b>317</b>	<b>315</b>	<b>313</b>	<b>345</b>	<b>347</b>	<b>348</b>	<b>350</b>
<b>Mules</b>								
1. 3 years & above	168	182	195	209	141	142	145	148
2. Less than 3 years	34	36	39	42	16	16	17	17
<b>Total Mules:-</b>	<b>202</b>	<b>218</b>	<b>234</b>	<b>251</b>	<b>156</b>	<b>158</b>	<b>162</b>	<b>165</b>
<b>Poultry</b>								
<b>Total Poultry (Million)</b>	<b>330</b>	<b>346</b>	<b>353</b>	<b>360</b>	<b>441</b>	<b>477</b>	<b>518</b>	<b>562</b>

Source:- Agricultural Statistics of Pakistan 2008-09



**Table A-30: Estimated Livestock Products**

Products	Unit	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03
<b>Milk production</b>	<b>000 tonnes</b>	30,126	30,948	31804	32695	33624	34593
<b>Milk available for human consumption</b>	<b>000 tonnes</b>	24,215	24,877	25566	26284	27055	27811
<b>Meat Production</b>							
<b>Beef</b>	<b>000 tonnes</b>	940	963	985	1009	1035	1060
<b>Mutton</b>	<b>000 tonnes</b>	617	633	649	666	683	702
<b>Poultry meat</b>	<b>000 tonnes</b>	284	310	322	339	355	372
<b>Other Product</b>							
<b>Wool (Sheep)</b>	<b>000 tonnes</b>	38.5	38.7	38.9	39.2	39.9	39.7
<b>Hair (Goat)</b>	<b>000 tonnes</b>	16.7	17.3	18.0	18.6	19.3	20.0
<b>Bones</b>	<b>000 tonnes</b>	309.2	316.3	323.7	331.4	339.4	347.6
<b>Fat</b>	<b>000 tonnes</b>	115.2	117.7	120.6	123.5	126.5	129.6
<b>Blood</b>	<b>000 tonnes</b>	33.6	34.4	40.9	41.9	42.9	44.0
<b>Eggs</b>	<b>Million Nos.</b>	6,015	8,261	8,463	7505	7679	7991
<b>Hides</b>	<b>Million Nos.</b>	7.3	7.4	7.6	7.8	7.9	8.2
<b>Skins</b>	<b>Million Nos.</b>	35.3	36.2	37.2	38.2	39.3	40.3
<b>Casings</b>	<b>Million Nos.</b>	7.2	7.4	7.6	7.7	7.9	8.1
<b>Guts</b>	<b>Million Nos.</b>	34.1	35.0	35.9	36.8	37.8	38.9

Contd...

**Table A-30: Estimated Livestock Products**

Products	Unit	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
<b>Milk production</b>	<b>000 tonnes</b>	35603	36,620	39,597	40,860	42,171	43,563
<b>Milk available for human consumption</b>	<b>000 tonnes</b>	28624	29,438	31,970	32,986	34,041	35,160
<b>Meat Production</b>							
<b>Beef</b>	<b>000 tonnes</b>	1087	1115	1449	1498	1548	1601
<b>Mutton</b>	<b>000 tonnes</b>	720	739	554	566	578	591
<b>Poultry meat</b>	<b>000 tonnes</b>	378	384	512	554	601	651
<b>Other Product</b>							
<b>Wool (Sheep)</b>	<b>000 tonnes</b>	40.0	40.0	40.1	40.6	41.1	41.5
<b>Hair (Goat)</b>	<b>000 tonnes</b>	20.7	20.7	20.3	20.9	21.4	22.0
<b>Bones</b>	<b>000 tonnes</b>	356.2	356.2	633.5	652.5	672.1	692.4
<b>Fat</b>	<b>000 tonnes</b>	132.9	136.3	203.3	209.2	215.3	221.6
<b>Blood</b>	<b>000 tonnes</b>	45.2	45.2	51.5	52.7	54.1	55.4
<b>Eggs</b>	<b>Million Nos.</b>	8102	8529	9712	10197	10711	11258
<b>Hides</b>	<b>Million Nos.</b>	8.4	8.4	11.4	11.8	12.2	12.7
<b>Skins</b>	<b>Million Nos.</b>	42.4	43.2	43.3	44.3	45.4	46.4
<b>Casings</b>	<b>Million Nos.</b>	8.3	8.3	12.2	12.6	13.0	13.4
<b>Guts</b>	<b>Million Nos.</b>	39.9	39.9	43.8	44.8	45.8	46.8

Source:- Agricultural Statistics of Pakistan 2008-09

Table A-31: Estimated Milk Production

(000 Tonnes)

Years	Cows	Buffaloes	Sheep	Goats	She Camel	Total
<b>1997-98</b>						
Gross Production	9,682	19,868	30	546	-	30,126
Human Consumption	7,745	15,894	30	546	-	24,215
<b>1998-99</b>						
Gross Production	9,863	20,489	30	565	-	30,948
Human Consumption	7,890	16,391	30	565	-	24,877
<b>1999-00</b>						
Gross Production	10,049	21,138	31	586	-	31,804
Human Consumption	8,039	16,910	31	586	-	25,566
<b>2000-01</b>						
Gross Production	10240	21817	31	607	-	32,695
Human Consumption	8192	17454	31	607	-	26,284
<b>2001-02</b>						
Gross Production	10437	22527	31	629	-	33,624
Human Consumption	8350	18022	31	652	-	27,055
<b>2002-03</b>						
Gross Production	10639	23271	31	652	-	34,593
Human Consumption	8511	18617	31	652	-	27,811
<b>2003-04</b>						
Gross Production	10847	24050	31	675	-	35,603
Human Consumption	8678	19240	31	675	-	28,624
<b>2004-05</b>						
Gross Production	11059	24855	31	675	-	36620
Human Consumption	8848	19884	31	675	-	29438
<b>2005-06</b>						
Gross Production	13408	24724	34	664	767	39597
Human Consumption	10726	19779	34	664	767	31970
<b>2006-07</b>						
Gross Production	13912	25455	35	682	776	40860
Human Consumption	11129	20364	35	682	776	32986
<b>2007-08</b>						
Gross Production	14435	26214	35	701	786	42171
Human Consumption	11548	20971	35	701	786	34041
<b>2008-09</b>						
Gross Production	14982	27028	36	719	798	43563
Human Consumption	11985	21622	36	719	798	35160

Source: - Agricultural Statistics of Pakistan 2008-09



**Table A-32: Estimated Meat and Eggs Production**

(000 Tonnes/Million No)

Years	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
<b>Beef</b>								
<b>Cattle</b>	486 (49)	495 (50)	505 (50)	515 (50)	702 (70)	729 (73)	756 (76)	785 (78)
<b>Buffaloes</b>	549 (55)	565 (57)	582 (58)	600 (60)	742 (74)	764 (76)	787 (79)	811 (81)
<b>Total Beef</b>	1035 (104)	1060 (106)	1087(108)	1115 (110)	1449 (145)	1493 (149)	1543 (155)	1596 (160)
<b>Mutton</b>								
<b>Sheep</b>	221 (62)	223 (62)	224 (63)	225 (63)	207 (58)	210 (59)	212 (59)	215 (60)
<b>Goats</b>	462 (129)	479 (134)	496 (139)	514 (144)	347 (97)	356 (100)	366 (102)	376 (105)
<b>Total Mutton</b>	683 (191)	702 (196)	720 (202)	739 (207)	554(155)	566 (158)	578 (161)	591 (165)
<b>Poultry Meat</b>	355	372	378	384	512	554	601	651
<b>Total Meat</b>	2073 (295)	2134 (303)	2185(310)	2238 (317)	2515 (300)	2618 (308)	2727 (317)	2843 (325)
<b>EGGS (Million No)</b>	7679	7991	8102	8529	9712	10197	10711	11258

Source:- Agricultural Statistics of Pakistan-2008-09,

**Note:-** Figures in parentheses are of edible offal's.

Table A-33: Fish Production

( 000 Tonnes )

Year	Category	Pakistan	Balochistan	Khyber Pakhtunkhwa (a)	Punjab (b)	Sindh
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
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

Contd..

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

Table A-33: Fish Production

( 000 Tonnes )

Year	Category	Pakistan	Balochistan	Khyber Pakhtunkhwa (a)	Punjab (b)	Sindh
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
2005	Inland	174.6	-	2.6	65.0	107.0
	Marine	406.0	130.0	-	-	276.0
	Total	580.6	130.	2.6	65.0	383.0
2006	Inland	179.9	-	2.9	68.0	109.0
	Marine	425.0	140.0	-	-	285.0
	Total	604.9	140.0	2.9	68.0	394.0
2007	Inland	250.0	18.0	12.0	85.0	135.0
	Marine	390.0	140.0	-	-	250.0
	Total	640.0	158.0	12.0	85.0	385.0
2008	Inland	208.0	-	3.0	85.0	120.0
	Marine	477.0	138.0	-	-	339.0
	Total	685.0	138.0	3.0	85.0	459.0

Source:- Directorate of Marine Fisheries Karachi

**Table A-34: Total Catch of Fish and their Indices**

Year	Total Catch of Fish ( 000 Metric Tonnes )			Index (Base: 1987 = 100)		
	Total	Inland	Marine	Total	Inland	Marine
1987	427.7	91.6	336.1	100	100	100
1988	445.4	96.5	348.9	104.1	105.3	103.8
1989	446.2	105.0	341.2	104.3	114.6	101.5
1990	483.0	113.2	369.8	112.9	123.6	110.0
1991	518.7	115.9	402.8	121.3	126.5	119.8
1992	553.1	121.6	431.5	129.3	132.8	128.4
1993	621.7	122.5	499.2	145.4	133.7	148.5
1994	558.1	139.5	418.6	130.5	152.3	124.5
1995	541.9	136.4	405.5	126.7	148.9	120.6
1996	555.5	160.2	395.3	129.9	174.9	117.6
1997	589.7	167.5	422.2	137.9	182.9	125.6
1998	597	163.5	433.5	139.6	178.5	129.0
1999	654.5	179.8	474.7	153.0	196.3	141.2
2000	614.8	176.5	438.3	143.7	192.7	130.4
2001	629.6	178.6	452.0	147.2	195.0	134.5
2002	637.8	183.3	454.5	149.1	200.1	135.2
2003	566.2	165.7	400.5	132.4	180.9	119.2
2004	552.1	165.4	386.7	129.1	180.6	115.1
2005	516.1	176.3	339.8	120.7	192.5	101.1
2006	523.9	174.5	349.4	122.5	190.5	104.0
2007	524.2	181.6	342.6	122.6	198.3	101.9
2008	530.0	185.3	344.7	123.9	202.3	102.6

Source:- Directorate of Marine Fisheries, Karachi



**Table A-35: Fishermen Engaged in Marine and Inland Fisheries**

(Number)

Year	Marine			Inland	Grand total
	Karachi and Sindh coasts	Baluchistan coast	Total		
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
2003	97,476	40,596	138,072	156,601	294,673
2004	98,237	41,786	140,023	164,839	304,862
2005	99,828	42,295	142,123	163,560	305,683
2006	101,596	42,995	144,591	167,191	311,782
2007	102,875	43,865	146,740	166,261	313,001
2008	103,946	44,760	148,706	170,314	319,020

Source:- Marine Fisheries Department, Karachi

**Table A-36: 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		
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
2005	2,913	3,646	8,237	9,822	24,618	13,241	37,859
2006	2,933	3,821	8,370	9,463	24,587	13,338	37,925
2007	2,956	4,317	8,936	9,423	25,632	13,511	39,143
2008	2,965	4,374	8,950	9,446	25,735	13,672	39,407

Source:- Marine Fisheries Department, Karachi

Note:- (a) Including Oar/Row Boats

**Table A-37: 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.
<b>Major Products</b>						
1997-98	386	438.4	184	384.0	202	54.4
1998-99	436	563.5	227	492.0	209	71.5
1999-00	364	944.9	138	660.0	226	284.9
2000-01	472	995.0	243	706.9	229	288.1
2001-02	487	1,026.8	267	740.3	247	286.5
2002-03	266	937.9	339	685.7	115	252.2
2003-04	313	1,489.9	340	1,176.5	163	313.4
2004-05	282	1,569.9	169	1,283.7	113	286.2
2005-06	265	1,765.4	139	1,384.3	126	381.1
2006-07	373	1,521.4	217	1,244.4	156	277.0
2007-08	204	1,537.9	139	1,149.4	65	388.5
2008-09	119	1,774.7	85	1,337.4	34	437.3
Year	Resin		Mazri		Ephedra	
<b>Minor Products (Tonnes)</b>						
1997-98	386		7,709		-	
1998-99	238		5,109		-	
1999-00	447		3,430		0.022	
2000-01	398		4,381		-	
2001-02	417		4,887		-	
2002-03	40		117		-	
2003-04	33		54		-	
2004-05	34		56		-	
2005-06	-		929		-	
2006-07	-		935		-	
2007-08 (R)	-		22,043		-	
2008-09 (R)	-		22,507		-	

Source:- Pakistan Forest Institute, Peshawar

Note:- Figures/Forest Product consist only State Control Forest  
excluding forest product of Gilgit Baltistan & AJK  
( R ) Revised

**Table A-38: 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)
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
2003	30,141	310	1,466	599	25,303	2,463
2004	30,994	322	1,530	625	26,000	2,517
2005	31,649	335	1,593	651	26,500	2,570
2006	31,762	347	1,657	676	26,459	2,623
2007	34,980	360	1,721	702	29,520	2,677
2008	35,274	372	1,785	727	29,660	2,730
2009	36,615	384	1,851	479	30,846	2,785

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-39: Production of Manufacturing Items**

Year Production <sup>®</sup>	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
<b>(i) Vegetable Products (a)</b>								
No. of Reporting Factories	87	87	87	87	87	87	87	87
Production (000 Tonnes)	797	772	888	1048	1152	1180	1137	1058
<b>(ii) Sugar (b)</b>								
No. of Reporting Factories	76	76	76	76	76	76	76	76
Production (000 Tonnes)	3247	3686	4021	3116	2960	3526	4733	3189
<b>(iii) Tea Blended (c)</b>								
No. of Reporting Factories	5	5	5	5	5	5	5	5
Production (000 Tonnes)	55	57	59	61	64	61	69	66
<b>(iv) Beverages (c)</b>								
No. of Reporting Factories	157	164	...	...	...	...	...	36
Production (Million bottles)	2492	2289	2691	3424	4620	6205	7351	7609
<b>v) Cigarettes (d)</b>								
No. of Reporting Factories	24	14	14	14	14	14	14	14
Production (Million No.)	55	49	55	61	64	66	67	76
<b>(vi) Cotton Textiles (Mills Sector)</b>								
No. of Reporting Mills	354	363	358	423	437	427	427	**
Production of Cotton Cloth (Million sq. metre)	568	582	683	899	915	1013	1017	**
<b>(vii) Jute Textiles</b>								
No. of Reporting Mills	13	13	13	13	12	12	12	12
Total Production (000 Tonnes)	82	95	104	105	105	118	129	137
<b>(viii) Paper and Board</b>								
No. of Factories of Papers	95	19	19	19	19	19	19	19
Production Paper (000 Tonnes)	325	376	405	164	168	162	192	252
Production Board (000 Tonnes)	256	228	248	236	286	280	227	169
<b>(ix) Chemicals</b>								
No. of Reporting Factories	13	12	12	12	12	12	12	12
Soda Ash (a) (000 Tonnes)	215	280	286	297	318	331	365	365
Caustic Soda (a) (000 Tonnes)	150	164	187	207	219	242	248	248
Sulphuric Acid (a) (000 Tonnes)	59	56	64	91	94	96	103	98
Chlorine Gas (b) (000 Tonnes)	15	16	17	19	18	17	18	17
<b>(x) Chemicals Fertilizers (a)</b>								
No. of Reporting Factories	11	11	11	13	13	13	11	11
Urea (000 Tonnes)	4260	4402	4431	4606	4806	4732	4925	4918
Super phosphate (000 Tonnes)	161	147	168	163	161	149	162	187
Ammonium Sulphate	..	..	..	..	..	..	..	..
Ammonium Nitrate(000 Tonnes)	329	335	350	330	328	331	344	344
Nitro Phosphate(000 Tonnes)	306	305	363	339	357	326	330	306
Dai Ammonium phosphate(000 Tonnes)	67	..	268	408	436	398	356	530
<b>(xi) Paints &amp; Varnishes (By weight)</b>								
No. of Reporting Factories	100	100	102	102	102	102	102	102
Production (000 Tonnes)	10	4	5	15	17	24	26	30

Contd...

Table A-39: Production of Manufacturing Items

Year Production <sup>®</sup>	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
<b>(xii) Paints &amp; Varnishes (By Volume)</b>								
No. of Reporting Factories	211	211	169	169	169	169	169	169
Production (Million Liters )	27	47	38	41	48	53	57	63
<b>(xiii) Cosmetics</b>								
No. of Reporting Factories	75	..	..	..	..	..	..	..
Production (Million Containers )	363	..	..	..	..	..	..	..
<b>(xiv) Soap and Detergents Toilet Soap</b>								
No. of Reporting Factories	22	..	..	..	..	..	..	..
Production (000 Tonnes)	24	23	36	50	61	67	75	66
<b>Detergents</b>								
No. of Reporting Factories	22	..	..	..	..	..	..	..
Production (000 Tonnes)	90	102	187	209	242	246	234	258
<b>Detergents Bars</b>								
No. of Reporting Factories	35	..	..	..	..	..	..	..
Production (Tonnes)	18294	..	..	..	..	..	..	..
<b>Detergents Liquids</b>								
No. of Reporting Factories	2	..	..	..	..	..	..	..
Production (Tonnes)	288	..	..	..	..	..	..	..
<b>(xv) Cycle Tyres (a)</b>								
No. of Reporting Factories	9	9	9	9	9	9	9	9
Production (000 Nos.)	4652	5330	4768	4900	5287	5182	4243	3214
<b>(xvi) Cycle Tubes (a)</b>								
No. of Reporting Factories	9	9	9	9	9	9	9	9
Production (000 Nos.)	7058	8942	8270	9612	10204	10420	9224	6867
<b>(xvii) Motor Tyres (a)</b>								
No. of Reporting Factories	4	4	4	4	4	4	4	4
Production (000 Nos.)	2694	3360	5175	5336	5942	7027	6990	7102
<b>(xviii) Motor Tubes (a)</b>								
No. of Reporting Factories	4	4	4	4	4	4	4	4
Production (000 Nos.)	3419	4091	4964	6278	7164	10277	9627	14514
<b>(xix) Cement (b)</b>								
No. of Reporting Factories	24	24	22	..	..	..	..	..
Production (000 Tonnes)	9935	10845	12862	16353	18564	22739	26751	28380
<b>(xx) Steel Products (000 Tonnes)</b>								
Coke	695	775	785	773	182	326	291	424
Pig Iron	1043	1140	1180	1137	768	1009	993	791
Billets	412	408	429	314	231	342	279	252
H.R Sheets/Strips/ Plates/Coils	383	546	507	347	4193	4422	534	418

Contd....

**Table A-39: Production of Manufacturing Items**

Year Production <sup>®</sup>	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
<b>C.R Sheets/Strips/ Plates/Coils</b>	127	153	146	164	145	141	146	118
<b>Galvanize Sheets</b>	41	39	44	45	44	37	26	25
<b>(xxi) Sewing Machines (a)</b>								
<b>No. of Reporting Factories</b>	7	7	7	..	..	..	..	..
<b>Production (000 Nos.)</b>	24	31	35	36	39	52	57	51
<b>(xxiii) Electric Motors (a)</b>								
<b>No. of Reporting Factories</b>	23	23	23	..	..	..	..	..
<b>Production (000 Nos.)</b>	20	23	18	13	12	13	11	9
<b>(xxiv) Transformers (a)</b>								
<b>No. of Reporting Factories</b>	10	10	10	..	..	..	..	..
<b>Production (000 Nos.)</b>	14	18	34	37	45	54	37	29
<b>(xxv) Televisions (b)</b>								
<b>No. of Reporting Factories</b>	9	9	9	9	..	..	..	..
<b>Production (000 Nos.)</b>	450	765	843	909	935	609	716	395
<b>(xxvi) Electric Bulbs (a)</b>								
<b>No. of Reporting Factories</b>	..	..	..	..	..	..	..	..
<b>Production (Million Nos.)</b>	55	58	139	147	144	145	130	91
<b>(xxvii) Electric Tubes (a)</b>								
<b>No. of Reporting Factories</b>	..	..	..	..	..	..	..	..
<b>Production (000 Nos.)</b>	10441	10844	14630	19819	19992	21400	19524	11164
<b>(xxviii) Manufacture/Assembly of Automobiles(Nos.)</b>								
<b>Cars (a)</b>	40601	62893	99263	126817	160642	176016	164710	84308
<b>Jeeps (4x4) (a)</b>	570	374	807	1564	2472	3298	1590	932
<b>Light Commercial Vehicles (a)</b>	8491	12174	14089	23613	29581	19672	21354	16158
<b>Trucks (a)</b>	1141	1950	2022	3204	4518	4410	4993	3135
<b>Buses (a)</b>	1099	1340	1380	1762	825	993	1146	657
<b>Motorcycles (a)</b>	133334	176591	327446	571145	751667	839224	1057751	912067
<b>(xxix) Tractors (a)</b>								
<b>No. of Reporting Factories</b>	..	..	..	..	..	..	..	..
<b>Production (Nos.)</b>	24331	26501	36103	43746	49439	54610	53607	60107
<b>(xxx) Bicycles (b)</b>								
<b>No. of Reporting Factories</b>	5	5	5	5	5	5	5	5
<b>Production (000 Nos.)</b>	553	630	664	588	590	486	536	428

Source:- (a) i. Provincial Bureaus of Statistics Since, July, 2002

(b) i. Central Bureau of Revenue upto June,2002

ii. Ministry of Industries since July, 2002

(c) Provincial Bureaus of Statistics

(d) Central Board of Revenue upto June, 2002 and M/O Industries from July,2002

(e) Pakistan Electronics Manufacturing Association (PEMA)



**Table A-40: Mineral Production in Pakistan**

(Tonnes)

Year	Argonite/ marble	Barytes	Bauxite	Celestite	China clay
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	46,574
2001-02	685,258	21,484	12,233	382	53,542
2002-03	1,142,113	40,745	4,098	402	39,575
2003-04	980,671	44,207	4,847	570	25,204
2004-05	1,280,304	42,087	6,504	1,855	37,732
2005-06	1,828,513	49,221	7,831	3,160	53,051
2006-07	1,980,368	46,759	18,082	1,530	30,979
2007-08	1,536,808	49,933	35,635	1,310	31,512
2008-09	1,144,818	62,997	13,618	470	17,169
Year	Chromite	Ebry	Fire clay	Flourite	Fuller's earth
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	21,683	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	28,529	680	192,728	1,166	13,986
2004-05	56,359	430	253,501	1,060	17,001
2005-06	64,572	40	332,528	1,966	16,209
2006-07	104,141	..	346,689	1,505	11,378
2007-08	114,884	..	330,072	2,612	10,998
2008-09	89,739	2,150	389,493	1,261	10,213

Contd...

**Table A-40: Mineral Production in Pakistan**

(Tonnes)

Year	Dolomite	Gypsum	Lime stone	Magnesite	Manganese
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	420,413	11,880,275	2,645	1,551
2003-04	297,419	467,065	13,150,127	6,074	40
2004-05	199,653	552,496	14,857,479	3,029	511
2005-06	183,952	601,027	18,391,364	1,151	3,522
2006-07	342,463	624,120	25,512,304	3,445	2,919
2007-08	359,994	660,473	31,789,073	3,940	1,229
2008-09	249,918	800,084	33,186,359	2,639	1,254
Year	Ochres	Rock Salt	Silica sand	Soap stone	Sulphur
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
2004-05	18,686	1,648,223	308,901	20,564	24,158
2005-06	34,320	1,858,931	411,047	21,065	24,695
2006-07	61,665	1,872,664	402,324	44,886	27,710
2007-08	46,215	1,849,199	403,124	37,999	29,485
2008-09	56,617	1,917,486	369,773	13,923	25,784

Source:- Provincial Directorate of Industries &amp; Mineral Development

## Socio-economic Activities and Natural Events

**Table A-41: Crude Oil Production by Field**

(US Barrels)

Province/Field	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
<b>PUNJAB</b>							
Rodho	-	-	-	-	-	38832	65451
Bhalsyedon	47360	33082	18893	6691	4543	8531	5483
Chak Naurang	171490	164295	158612	149352	139150	124115	121940
Dakhni	189676	210392	355364	413315	381037	464623	572765
Dhodak	858816	887350	899963	942283	896495	569031	149881
Fimkassar	199747	195140	190412	176175	151230	126361	123660
Kal	557042	559291	574832	586238	413371	181265	122595
Missa Keswal	233371	144012	126743	115131	80646	68559	39275
Rajian	444722	430410	642409	540582	425547	520940	480995
Sadkal	173621	79517	58236	42140	47517	36917	30128
Toot	81543	90518	114965	114861	111548	92473	74732
Bhangali	148525	67464	48086	32478	30765	29900	30608
Dhurnal	384256	252030	202230	165047	133064	104329	89577
Ratana	24497	46841	40321	35814	34935	29468	29751
Balkassar	140766	125071	116481	124655	138436	140231	138672
Dhulian	62126	51622	39430	50512	40593	36725	50075
Joyamair	28699	18998	16468	10409	10045	9644	9832
Khaur	1859	1460	2964	619	1650	2135	2114
Meyal	509571	312556	206847	248318	281827	244425	187574
Minwal	61101	39942	68305	22866	23602	22962	23925
Pariwali	325694	291421	391714	834891	741242	728495	562748
Pindori	2071396	2875358	2388881	3398111	1930655	1081567	296539
Turkwal	233631	80917	533350	83016	63044	51823	36874
Adhi	1163111	1428537	1284142	1254831	1776050	1804204	1664123
<b>Punjab Total</b>	<b>8112620</b>	<b>8386224</b>	<b>8481476</b>	<b>9348335</b>	<b>7856992</b>	<b>6517555</b>	<b>4909307</b>
<b>SINDH</b>							
Zamzama	194405	602811	625305	655857	732056	959616	991429
Akri North	459557	356366	303288	151451	102553	82379	69645
Ali Zaur	-	52296	273476	134435	80364	42290	17177
Bari	20697	21452	20353	14547	6786	1409	-
Bhatti/Nakurji	204191	159985	134148	123494	70535	50315	42425
Bukhari	32444	14960	19565	15471	16367	13763	6884
Bukhari Deep	-	-	-	5182	6585	15725	16074
Buzdar	54100	42646	43397	58331	58229	68329	62441
Buzdar South	9005	-	-	-	-	3669	21070
Buzdar South/Deep	59620	60968	176369	103225	81013	72372	55929
Dabhi,Dabhi N.& S	1273606	542693	241419	111542	93069	125500	87887
Duphri	198	-	12518	104127	159275	110758	90982
Fateh Shah	-	-	-	2097	209	50	-
Fateh Shah North	-	-	-	2700	4719	356	59
Ghungro	938919	547707	302826	235342	144036	99627	69528
Golarchi	7272	3402	15417	10285	2472	931	7291
Halipota	-	-	30839	53912	69474	69757	67200
Jabo	321118	361003	188452	317496	348217	260780	385264
Jagir	532280	409035	225365	138230	79597	68842	74091

Contd..

Socio-economic Activities and Natural Events

**Table A-41: Crude Oil Production by Field**

(US Barrels)

Province/Field	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Jalal	-	-	-	-	8936	34425	52058
Jhaberi, Jhaberi South	85899	8339	43735	49631	30139	13219	23460
Jogwani	-	-	297	7381	14038	20748	3663
Junathi South	532	1727	4199	-	-	-	-
Kato	9157	352	127	11181	9507	12171	5873
Keyhole-G	16218	356134	186990	26949	4371	5975	11840
Khaskheli	186537	190469	176078	153844	116215	89040	97255
Khorewah & K. Deep	117566	101356	89019	75899	45608	36646	46171
Laghari	81991	64124	58436	37031	33085	40382	49924
Liari	415795	140136	47806	38411	37856	40347	18368
Liari Deep	36874	17852	14615	9495	8564	8317	518
Makhdumpur	23715	17748	12766	8727	3038	8266	947
Matli	-	-	-	-	-	-	202
Mazari	229077	190372	104180	21327	31082	45991	49634
Mazari South	647976	465884	425861	346227	296573	208267	197930
Mazari South Deep	298683	288686	324135	272276	386489	440306	440065
M. Ismail & M. Ismail Deep	41449	30179	31110	13648	10327	34224	53766
Missri	-	-	-	-	-	3397	65642
Muban	51975	57643	40954	35710	37685	27473	22018
Nari	1709	-	371	55364	-	-	-
Paniro	29242	29850	13599	-	67155	61227	48185
Pir	-	1411	2146	-	-	-	-
Raj	4348	706	-	-	-	-	-
Rajo	40223	6568	23019	4057	-	371	-
Rind	253322	316878	165148	147561	134768	111004	59060
Sakhi, Sakhi S & S Deep	391713	559101	357931	220584	188452	132321	240610
Shah Dino	20416	145839	170273	108893	32764	14681	6018
Sonro	739018	587801	403093	308647	375128	407798	453222
Tajedi	116839	78003	69787	85748	58041	57509	49971
Tangri	1565309	739212	244804	303728	180405	117473	119093
Tando Ghulam Ali	-	-	-	33250	62908	45000	31106
Turk&Turk deep	62482	101568	106395	68579	47506	54556	27083
Zaur	755406	953763	827204	396559	326616	191985	255115
Zaur Deep	18377	12012	2	4625	6667	6797	6392
Zaur South & West	-	127281	117346	199163	148064	135385	67983
Kadanwari	25607	18501	968	1036	1109	1363	6205
Bhit	-	76482	119429	114681	123915	123237	134135
Bhullan Shan	-	15304	-	-	1221	6148	2
Bobi	-	5210	885789	952675	1127768	1389220	1075805
Chak-2	24985	1368	-	-	-	-	-
Chak-63	4490	42705	-	-	-	-	-
Chak-66 NE	-	-	-	-	-	91458	134240
Daru	72988	74816	47035	98848	43712	-	-
Kunnar	1244161	1463921	1487739	1598160	1681041	2034803	2534205

Contd...

**Table A-41: Crude Oil Production by Field**

(US Barrels)

Province/Field	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Lashari Centre & South	375768	277428	365875	683795	835433	798939	526180
Missan	49010	54219	151936	123878	76904	88650	86180
Moolan N	-	-	-	-	-	83777	264150
Noorai Jagir	-	42346	10500	-	37189	44455	15984
Palli	1165	-	-	-	-	-	-
Pasakhi	1020926	832250	1610405	1523310	1348147	1026005	1419342
Pasakhi North	381455	372270	374945	205125	2199998	335205	303091
Pasakhi North East	-	-	-	-	269416	437010	323010
Qadirpur	112231	205520	383590	378480	371893	358582	349698
Resham	51475	-	-	-	-	-	-
Sono	285747	201843	672895	888558	1450124	1330653	1131058
Tando Alam	441499	688043	663085	390156	401570	648022	566641
Thora	871417	730070	633479	600255	547928	492292	370547
Miano	3394	15411	35625	35260	30725	34449	24431
Ali	-	-	-	26048	22757	4770	-
Bilal	-	-	-	44281	117170	83136	18042
Bilal North	-	-	-	18345	35145	19144	3737
Kamal North	-	-	-	-	71813	250547	354998
kausar	-	-	-	-	-	241	185
Naimat Basal	-	49323	84431	79776	78696	66805	33398
Rahim	-	-	-	-	9268	10390	1748
Siraj South	-	28434	65323	78580	46774	16	-
Umer	-	229879	246498	98951	100408	98986	53921
Usman	-	-	-	-	-	387	294
Rehmat	-	-	8207	38055	30265	25200	12614
Kandhkot	14780	10926	12396	13331	11471	13339	15619
Mazarani	-	20549	22461	25487	23698	21151	22038
<b>Sindh Total</b>	<b>15330358</b>	<b>14223136</b>	<b>14556774</b>	<b>13299290</b>	<b>13873101</b>	<b>14370147</b>	<b>14330026</b>
<b>Balochistan</b>							
Sui	14866	13211	10290	11144	12294	13399	12524
Uch	-	2372	9301	13367	12346	12714	11697
<b>Balochistan Total</b>	<b>14866</b>	<b>15583</b>	<b>19591</b>	<b>24511</b>	<b>24640</b>	<b>26113</b>	<b>24221</b>
<b>Khyber Pakhtunkhwa</b>							
Chanda	-	-	1005896	958025	1887302	2058926	1818588
Mela	-	-	-	-	298165	1721515	2125126
Makori	-	-	-	144255	517543	771595	676310
Manzalai	-	-	55043	161214	156978	137231	149717
<b>KP Total</b>			<b>1060939</b>	<b>1263494</b>	<b>2859988</b>	<b>4689267</b>	<b>4769741</b>
<b>Grand Total</b>	<b>23457844</b>	<b>22624943</b>	<b>24118780</b>	<b>23935630</b>	<b>24614721</b>	<b>25603082</b>	<b>24033295</b>

Source:- Pakistan Energy Year Book 2009 Published by Hydrocarbon Development Institute of Pakistan

**Table A-42: Petroleum Energy Products Consumption by Sector**(Tonnes)  
(TOE)

Sector/Year	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
<b>Domestic</b>	282,521	231,459	192750	128651	106148	120961	97332
	291,449	238,773	198841	132716	109502	124781	100403
<b>Industrial *</b>	1,604,068	1,493,080	1542398	1681517	1595981	1071191	969193
	1,584,771	1,481,873	1533234	1703633	1623346	1082885	977451
<b>Agriculture **</b>	196,747	183,506	142062	81896	97232	109351	69793
	204,842	191,1080	148008	85351	101406	113889	72710
<b>Transport ***</b>	8,082,273	8,464,042	9024783	8156831	7981893	9384482	8837197
	8,505,689	8,909,350	9498485	8582717	8399371	9881537	9306722
<b>Power</b>	6,019,958	2,739,763	3452581	4218982	6740559	7083933	7570418
	5,868,192	2,672,432	3366043	4110527	6566628	6910062	7384157
<b>Other Government</b>	266,387	309,263	316686	358807	325318	310501	367266
	278,967	324,288	332352	373184	341705	325631	385328
<b>Total:</b>	<b>16,451,954</b>	<b>13,421,113</b>	<b>14671260</b>	<b>14626684</b>	<b>16847131</b>	<b>18080419</b>	<b>17911199</b>
	<b>16,733,909</b>	<b>13,817,797</b>	<b>15,076,964</b>	<b>14,988,128</b>	<b>17,141,959</b>	<b>18,438,785</b>	<b>18226771</b>
<b>Annual Growth Rate</b>	-3.00%	-18.42%	9.31%	-0.30%	15.18%	7.32%	-0.94%

Source:- Pakistan Energy Year Book,2009 Published by Hydrocarbon Development Institute of Pakistan

**Note:** - \* Include consumption in cement manufacturing industry.

\*\* 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-43: Petroleum Energy Products Consumption by Province**

(TOE)

Province	Year						
	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
<b>Balochistan</b>	1134647	889518	918548	1085153	1838082	1845742	2184332
<b>Khyber Pakhtunkhwa</b>	1146391	1241454	1290377	1305763	1502377	1649405	1390361
<b>Punjab</b>	9760023	7938372	8592985	8192878	9454915	10174269	10680792
<b>Sindh</b>	4544408	3547229	4051824	4262858	4213195	4619081	3785017
<b>A.J. Kashmir</b>	148439	201224	223229	141476	133390	150288	186268
<b>Total:</b>	<b>16733909</b>	<b>13817797</b>	<b>15076964</b>	<b>14988128</b>	<b>17141959</b>	<b>18438785</b>	<b>18226771</b>
<b>Annual Growth Rate</b>	-2.90%	-17.43%	9.11%	- 0.59%	14.37%	7.57%	-1.15%

Source:- Pakistan Energy Year Book, 2009 Published by  
Hydrocarbon Development Institute of Pakistan

## Socio-economic Activities and Natural Events

**Table A-44: Consumption of Petroleum (Energy) Products by Fuel**Unit : Tonnes  
(TOE)

Product	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Aviation Fuels	570435	640809	716920	718537	715766	575493	624600
	591323	664374	743379	744716	742287	596674	647729
Motor Spirit 87RON	1086708	1232576	1320596	1178743	1138878	1449864	1518381
	1161039	1316884	1410925	1259369	1216777	1549035	1622238
HOBC	11634	11099	9942	8787	9008	9706	9572
	12369	11800	10570	9342	9577	10319	10177
HSD	6980981	7253375	7684996	7299135	7246776	8225663	7562882
	7339105	7625473	8079236	7673581	7618536	8647640	7950858
LDO	220654	200735	153871	126070	137200	115197	76010
	229877	209126	160303	131340	142935	120012	79187
Furnace Oil	7269834	3823620	4552488	5059872	7388608	7475886	7940530
	7078637	3723059	4432758	4926797	7194288	7279270	7731694
Kerosene	311708	258899	232447	235540	210895	228610	179224
	321558	267080	239792	242983	217559	235834	184887
Total	<b>16451954</b>	<b>13421113</b>	<b>14671260</b>	<b>14626684</b>	<b>16847131</b>	<b>18080419</b>	<b>17911199</b>
	<b>16733909</b>	<b>13817797</b>	<b>15076964</b>	<b>14988128</b>	<b>17141959</b>	<b>18438785</b>	<b>18226771</b>
Annual Growth Rate	-3.00%	-18.42%	9.31%	-0.30%	15.18%	7.32%	-0.94%

Source:- Pakistan Energy Year Book 2009 Published by Hydrocarbon Development Institute of Pakistan



**Table A-45: Consumption of Indigenous Coal by Sector**

(Tonnes)

Sector	Power (WAPDA)	Brick-Kiln Industry*	Domestic	Cement/ Other Industry**	Pak Steel***	Total
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	957169	1121000	4889755
2003-04	184992	2589445	1047	2508238	781000	6064722
2004-05	179887	3906738	-	2535168	1272000	7893793
2005-06	149334	4221825	-	2778379	564450	7713988
2006-07	164397	3277472	994	4140986	310209	7894058
2007-08	162200	3760707	1000	5720972	465968	10110847
2008-09	112520	3274789	813	3801751	1200000	8389873
ACGR	-9.5%	4.8%	-4.9%	8.7%	9.0%	6.7%

Source:- Pakistan Energy Year Book, 2009 Published by Hydrocarbon Development Institute of Pakistan

**Note:-** \* Estimated by deducting other uses of indigenous coal from the total production.  
 \*\* Include indigenous as well as imported coal.  
 \*\*\* Imported coal/coke used as coke in Pak Steel.

**Table A-46: Associated Gas Production by Field**

(Million cubic feet)

Field/Province	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Chanda (KP)	-	-	3539	2846	3552	3032	2682
Bhalsyedian (Punjab)	539	473	161	-	-	-	-
Missa Keswal (Punjab)	538	375	165	10	-	-	-
Bhangali (Punjab)	1124	446	292	239	191	156	161
Dhurnal (Punjab)	1143	742	724	627	542	468	429
Balkassar (Punjab)	18	18	17	20	19	20	20
Dhulian (Punjab)	966	629	588	835	1116	984	876
Meyal (Punjab)	3213	2369	1983	2048	1798	1439	1328
Pariwali (Punjab)	3522	3151	4102	7175	6526	7025	5789
Pindori (Punjab)	6390	8894	8359	10368	5888	3246	929
Turkwal (Punjab)	517	176	111	63	47	51	28
Akri North (Sindh)	80	62	54	38	31	10	28
Ali Zaur (Sindh)	-	59	590	676	458	214	44
Dabhi N (Sindh)	3750	3429	5054	2616	1621	728	361
Dabhi Dabhi S (Sindh)	116	2218	2305	1628	3060	2506	715
Duphuri (Sindh)	18	-	2930	122	229	357	548
Halipota (Sindh)	-	-	49	100	125	232	166
Jagir (Sindh)	222	160	74	52	38	11	32
Jhaberi South (Sindh)	431	118	936	1528	667	27	214
Junathi South (Sindh)	72	388	179	-	-	-	-
Khaskeli (Sindh)	101	190	213	164	116	47	156
Laghari (Sindh)	45	49	47	26	13	15	55
Liari (Sindh)	122	52	71	11	72	611	339
Mazari (Sindh)	509	1204	403	69	22	25	66
Mazari S & S Deep (Sindh)	623	924	762	424	399	586	498
Meyun Ismail Deep	1966	3805	5232	2975	2814	2163	4070
Nari (Sindh)	129	-	56	-	-	-	-
Sakhi Deep & S Deep (Sindh)	580	4419	6900	8266	8948	8732	6401
Tangri (Sindh)	742	607	143	167	89	95	97
Zaur & West (Sindh)	5112	4591	4731	3043	1751	1724	1012
Zaur Deep (Sindh)	1516	603	4	348	447	447	269
Zaur South (Sindh)	-	230	218	125	121	219	158
Others (Sindh)**	466	476	403	1183	196	189	246
<b>Total: Million CFt</b>	<b>34570</b>	<b>40857</b>	<b>51395</b>	<b>47790</b>	<b>40896</b>	<b>35357</b>	<b>27717</b>
<b>TOE</b>	<b>1009176</b>	<b>1217816</b>	<b>1505157</b>	<b>1409491</b>	<b>1218160</b>	<b>1061935</b>	<b>847451</b>
<b>Annual Growth Rate</b>	<b>-12.54%</b>	<b>18.19%</b>	<b>25.79%</b>	<b>-7.01%</b>	<b>-14.43%</b>	<b>-13.54%</b>	<b>-21.61%</b>

Source:- Pakistan Energy Year Book 2009 Published by Hydrocarbon Development Institute of Pakistan

Note:- \*\* Includes Bari, Ghungro, Keyhole G, Muban, Rajo, Tajedi, Meyun Ismail

Socio-economic Activities and Natural Events

**Table A-47: Non-Associated Gas Production by Field**

(Million cubic feet)

(TOE)

Field/Province	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Zamzama (Sindh)	31287	90440	94273	99348	111415	138872	163028
	606968	1754536	1800607	1887616	2116880	2666344	3260564
Bhatti (Sindh)	7534	7142	6731	6092	3208	3013	2331
	191364	181407	170975	154727	81483	76528	59209
Bilal (Sindh)**	-	-	-	1537	4633	2124	1119
	-	-	-	33354	100544	46096	24276
Bilal North (Sindh)**	-	-	-	627	1059	643	150
	-	-	-	13408	22672	13761	3536
Bukhari (Sindh)	2054	1368	1862	2747	1264	1222	863
	59566	39672	54010	79669	36665	35429	25023
Bukari Deep (Sindh)	-	-	-	-	2146	2299	3418
	-	-	-	-	54733	58612	87152
Buzdar (Sindh)	13296	14955	13158	14752	16383	19537	17973
	299160	336488	296055	331913	368622	439583	404383
Buzdar S & S Deep (Sindh)	1620	198	918	834	579	1721	2221
	36450	4455	20666	18772	13023	38714	49977
Fateh Shah (Sindh)	-	-	-	1021	894	344	304
	-	-	-	22562	22439	8644	7628
Fateh Shah North (Sindh)	-	-	-	484	1245	549	318
	-	-	-	10688	31260	13778	7986
Golarchi (Sindh)	3964	2489	4959	5565	3550	1507	2912
	96722	60732	121006	135784	86622	36773	71055
Liari Deep (Sindh)	1265	1231	1400	1143	1222	888	654
	33270	32375	36825	30056	32144	23360	17193
Jabo(Sindh)	739	1217	621	487	557	474	3283
	15889	26166	13360	10460	11973	10187	70585
Jalal (Sindh)	-	-	-	-	712	2156	3619
	-	-	-	-	17798	53905	90477
Kamal North (Sindh)**	-	-	-	-	264	773	728
	-	-	-	-	7797	22790	18991
Kausar (Sindh)**	-	126	6083	7357	8075	6736	4111
	-	2848	138077	166267	182492	152228	93328
Naimat Basal (Sindh)**	-	3670	5744	4275	4089	4373	3744
	-	85144	137286	99613	95278	101902	89110
Jhaberi (Sindh)	5365	2564	287	-	-	-	-
	93888	44870	5017	-	-	-	-
Jogwani (Sindh)	-	-	271	7088	8502	9008	9025
	-	-	6131	156649	190440	201788	202168

Contd..

Socio-economic Activities and Natural Events

**Table A-47: Non-Associated Gas Production by Field**

(Million cubic feet)

(TOE)

Field/Province	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Kato (Sindh)	225	6	3	412	412	432	160
	6570	175	87	12039	12027	12603	4676
Khorewah (Sindh)	9781	9539	8343	7158	5118	4539	4314
	249416	243245	212750	182519	130509	115734	110006
Khorewah Deep (Sindh)	521	441	382	399	384	303	966
	13025	11025	9551	9980	9610	7585	24140
Makhpur & Deep (Sindh)	3441	2260	2182	2202	3883	3609	1294
	70885	46556	44957	45365	79984	74347	26654
Matli (Sindh)	-	-	-	-	720	89	256
	-	-	-	-	17422	2159	6187
Missri (Sindh)	-	-	-	-	-	1909	2513
	-	-	-	-	-	34369	45226
Pir (Sindh)	245	185	107	4	-	206	153
	6101	4607	2664	87	-	5132	3821
Raj (Sindh)	2354	646	354	644	117	-	-
	54377	14923	8179	14872	2710	-	1
Rind (Sindh)	261	423	200	89	67	60	51
	5612	9095	4297	1922	1438	1299	1089
Siraj South (Sindh)	-	1324	2783	2069	838	-	-
	-	30982	65127	46749	18946	-	-
Sonro (Sindh)	3005	2784	2766	3784	3461	3025	2819
	64608	59856	59464	81362	74405	65033	60618
Turk (Sindh)	1169	1987	1960	1584	1675	1540	1423
	31212	53053	52336	42282	44709	41115	38007
Turk Deep (Sindh)	9551	9341	5935	6596	4563	3159	3054
	212987	208304	132356	147097	101753	70452	68093
Umar (Sindh)**	-	266	1358	1194	1055	925	603
	-	7421	36526	33313	29425	25816	16152
Usman (Sindh)**	-	-	6107	9806	12073	10765	7807
	-	-	138618	222603	274056	244372	177217
Others * (Sindh)	24	155	214	1157	1729	1554	1528
	600	3875	5356	28913	43233	38849	38194
Rodho (Punjab)	-	-	-	-	-	8066	13921
	-	-	-	-	-	192769	332706
Kadanwari (Sindh)	20247	17225	25140	18640	20283	19786	19453
	435311	408233	548052	406352	442169	431335	424069
Bhit (Sindh)	28194	108724	117000	115870	120210	121683	133968
	566699	2468035	2351700	2328987	2416221	2445828	2692757

Contd..

Socio-economic Activities and Natural Events

**Table A-47: Non-Associated Gas Production by Field**

(Million cubic feet)

(TOE)

Province/Field	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Mari (Sindh)	156290	159010	162263	171045	172465	171418	169705
	2766333	2814477	2839610	2993283	3018141	2999821	2969844
Makori (KP)	-	-	-	616	6594	10314	9349
	-	-	-	16152	172752	268174	243072
Manzalai (KP)	-	-	4927	16698	16181	12550	13392
	-	-	121196	405762	393210	307480	328098
Bhullan Shah (Sindh)	-	619	-	-	222	265	-
	-	16837	-	-	5728	6837	-
Bobi (Sindh)	-	-	-	-	237	4566	5322
	-	-	-	-	7371	142003	165514
Dakhni (Punjab)	5136	5377	7109	8205	8631	12260	17328
	129941	136038	179854	207574	218375	310178	438398
Daru (Sindh)	2753	2969	1948	2551	1212	-	-
	76809	82835	54344	71181	33806	-	-
Dhodak (Punjab)	13239	13785	14300	16041	15422	9836	2169
	321708	334976	347481	389790	374759	239015	52707
Loti (Balochistan)	12874	11341	11154	7078	7955	10864	11437
	258767	227954	224198	142269	159891	218366	229884
Mela (KP)	-	-	-	-	43	3809	5936
	-	-	-	-	1200	106271	165614
Nandpur/Panjpir (Punjab)	20274	17324	16560	13460	14357	12155	17006
	109480	93550	89426	72681	77526	65637	91832
Noorai Jagir (Sindh)	-	390	246	-	1003	1205	717
	-	11193	7067	-	28786	34584	20578
Pirkoh (Balochistan)	24171	19852	16523	8208	6776	6521	5250
	517259	424833	353602	175643	140941	135637	109200
Qadirpur (Sindh)	139196	116638	171736	181317	183264	193174	199817
	2950955	2472726	3640802	3843926	3885193	4095289	4236120
Sadkal (Punjab)	3564	1917	1431	996	1072	783	744
	98723	53101	39652	27591	29687	21689	20609
Sari/Hundi (Sindh)	1046	785	840	917	1055	766	973
	21443	16093	17215	18789	21617	15703	19947
Uch (Balochistan)	49773	62863	66586	67475	65363	70812	71166
	502707	634916	672517	681494	660165	715201	718777
Miano (Sindh)	51403	57839	64494	60859	50627	36431	30055
	1125726	1260890	1405965	1332804	1113803	801489	661210
Latif (Sindh)	-	-	-	-	-	-	1307
	-	-	-	-	-	-	30839
Tajjal (Sindh)	-	-	-	-	-	-	3944
	-	-	-	-	-	-	93080

Contd..

Socio-economic Activities and Natural Events

**Table A-47: Non-Associated Gas Production by Field**

(Million cubic feet)

(TOE)

Province/Field	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Sawan (Sindh)	-	95646	137805	138997	144658	152889	137379
	-	2104212	3031699	3044039	3153555	3332987	2994859
Ahmad (Sindh)	-	-	-	-	460	-	-
	-	-	-	-	9340	-	-
Ali (Sindh)	-	-	-	3008	2766	611	11
	-	-	-	74900	68884	15202	281
Rahim (Punjab)	-	-	-	-	7	21	6
	-	-	-	-	185	546	161
Ratana (Punjab)	587	982	792	675	624	519	501
	15966	26318	21373	17823	15976	13283	12827
Block-22 (Sindh)	4897	6014	6352	7514	5583	5412	5613
	76393	122084	98458	115715	86539	82808	85883
Badar (Sindh)	-	-	-	1370	5870	5723	5494
	-	-	-	18626	79826	78402	75274
Rahmat (Sindh)	-	-	2405	11286	9702	8800	5106
	-	-	60136	281018	240622	218241	126634
Adhi (Punjab)	7121	6984	7136	7036	12368	14771	15053
	195115	208123	212665	209682	368554	440184	448566
Chachar (Sindh)#	-	-	-	-	-	4695	3560
	-	-	-	-	-	89197	66568
Kandhkot (Sindh)	38003	37062	37910	48573	48442	52646	58051
	756260	737534	754409	966603	964003	1047654	1155210
Mazarani (Sindh)	14	3564	4218	4422	4164	3996	4089
	337	85892	101654	106570	100360	96308	98546
Sui (Balochistan)	271428	254652	242230	247272	238094	231381	217506
	6324272	5933392	5643959	5761438	5547593	5391180	5067892
Sara & Suri (Sindh)	10108	5574	3450	1655	1080	1753	893
	193063	106463	65888	31442	20524	33475	17056
<b>Total:</b>	<b>958019</b>	<b>1065238</b>	<b>1293558</b>	<b>1352235</b>	<b>1372685</b>	<b>1418837</b>	<b>1432962</b>
	<b>19591934</b>	<b>21910268</b>	<b>26455203</b>	<b>27762775</b>	<b>28089767</b>	<b>28801839</b>	<b>29397335</b>

Source:- Pakistan Energy Year Book,2009 Published by Hydrocarbon Development Institute of Pakistan

\* Others Include Paniro, Shah Dino, Tando Ghulam Ali.

\*\* BP purchased field from OPII.

# PPL purchased field from Tullow.

**Table A-48: Natural Gas Consumption by Sector**

(Million cubic feet)

(TOE)

Sector	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
<b>Domestic</b>	153508	155174	172103	171109	185533	204035	214113
	3592094	3631072	4027210	4003955	4341475	4774412	5010247
<b>Commercial</b>	22776	24192	27191	29269	31375	33905	35536
	532964	566093	636268	684886	734180	793367	831547
<b>General Industries *</b>	152068	178942	211766	263348	290214	305662	305042
	3558395	4187245	4955321	6162353	6791013	7152491	7137980
<b>Pakistan Steel Mills</b>	12900	14453	14350	15498	16386	16901	13961
	301860	338200	335790	362653	383432	395483	326687
<b>Cement</b>	3445	7711	13383	15335	14686	12736	7305
	80619	180437	313164	358834	343646	298025	170927
<b>Fertilizer (as Feedstock)</b>	140975	145128	149869	155258	153458	160062	162028
	2745637	2842095	2938731	3033832	2989825	3145626	3186253
<b>Fertilizer (as fuel use)</b>	39636	40222	40540	42917	40224	40001	39072
	779054	793123	797852	842662	786437	782979	765787
<b>Power</b>	335636	469738	503983	490142	432607	429892	404140
	6440342	9463538	10305897	9978369	8640208	8491536	7830065
<b>Transport (CNG)</b>	11320	15858	24443	38885	56446	72018	88236
	264885	371075	571961	909908	1320841	1685232	2064722
<b>Total</b>	<b>872265</b>	<b>1051418</b>	<b>1157628</b>	<b>1221762</b>	<b>1220929</b>	<b>1275212</b>	<b>1269433</b>
	<b>18295849</b>	<b>22372877</b>	<b>24882193</b>	<b>26337452</b>	<b>26331057</b>	<b>27519152</b>	<b>27324216</b>
<b>Annual Growth Rate</b>	5.78%	20.54%	10.10%	5.54%	-0.07%	4.45%	-0.45%

Source:- Pakistan Energy Year Book,2009 published by Hydrocarbon Development Institute of Pakistan.

**Note:-** \* Includes 5,091 MMcft as shrinkages at JJVL in 2005-06.

**Table A-49: Natural Gas Consumption 2008-09 by Province**Unit: Million CFT  
TOE

Sector	Punjab	Khyber Pakhtunkhwa	Sindh	Balochistan	Total
Domestic	125516	19362	61359	7876	214113
	2937084	453064	1435801	184298	5010247
Commercial	23347	2341	9268	580	35536
	546328	54776	216871	13572	831547
Gen-Industry*	182384	11265	111171	222	305042
	4267794	263590	2601401	5195	7137980
Pakistan Steel Mills	-	-	13961	-	13961
	-	-	326687	-	326687
Cement	2618	268	4418	-	7305
	61265	6281	103381	-	170927
Fertilizer (as Feedstock)	111532	-	50496	-	162028
	2172522	-	1013730	-	3186253
Fertilizer (as Fuel use)	26948	57	12066	-	39072
	524733	1343	239711	-	765787
Power	122839	-	200816	80485	404140
	2570020	-	4323777	936268	7830065
Transport	54752	11413	21715	356	88236
	1281192	267068	508131	8330	2064722
Total	<b>649938</b>	<b>44706</b>	<b>485271</b>	<b>89519</b>	<b>1269433</b>
	<b>14360940</b>	<b>1046122</b>	<b>10769492</b>	<b>1147663</b>	<b>27324216</b>

Source:- Pakistan Energy Year Book,2009 published by  
Hydrocarbon Development Institute of Pakistan.

\* Include 5091 MMcft as Shrinkages at JJVL in 2005-06.



**Table A-50: Gas Supplies to Fertilizer and Power Sectors by Source**

(Million cubic feet)

(TOE)

Sector/Source	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
<b>Fertilizer Sector</b>							
<b>SNGPL</b>	41315	43788	42826	45399	43382	45953	46472
	966761	1024631	1002133	1062330	1015131	1075299	1087447
<b>SSGCL</b>	20379	22585	25718	23825	22182	26504	26881
	476869	528489	601801	557505	519059	620194	629015
<b>Mari Gas Field</b>	118918	118977	121866	128952	128118	127606	127747
	2081016	2082098	2132648	2256660	2242072	2233112	2235578
<b>Total Fertilizer Sector</b>	180611	185350	190410	198176	193682	200063	201100
	3524691	3635217	3736582	3876494	3776262	3928605	3952040
<b>Power Sector</b>							
<b>SNGPL</b>	90491	170756	207691	189660	144550	134814	105927
	2117478	3995690	4859963	4438040	3382459	3154657	2478694
<b>SSGCL</b>	89366	136665	135253	138112	127544	126766	131540
	2091164	3197961	3164920	3231821	2984530	2966324	3078036
<b>Bhalsyedan Gas Field</b>	1111	471	161	0	0	0	0
	30666	13013	4436	0	0	0	0
<b>Kandhkot Gas Field</b>	37775	36781	37615	40095	37892	35836	36163
	751720	731942	748534	797899	754060	713134	719653
<b>Mari Gas Field</b>	36984	39616	39986	41649	43871	43394	41548
	647220	693277	699747	728859	767738	759397	727081
<b>Nandpur/Panjpir Gas Field</b>	20276	17245	16604	13530	13680	12033	16912
	109490	93123	89660	73062	73872	64980	91326
<b>Sara/Suri Gas Field</b>	10034	5519	0	0	0	6300	841
	191646	105415	65228	31018	20342	118486	16065
<b>Uch Gas Field</b>	49600	62685	66674	67096	65070	70748	71209
	500957	633117	673409	677670	657207	714558	719209
<b>Total Power Sector</b>	335636	469738	503983	490142	432607	429892	404140
	6440342	9463538	10305897	9978369	8640208	8491536	7830065

Source:- Pakistan Energy Year Book,2009 published by Hydrocarbon Development Institute of Pakistan.

**Table A-51: Installed Capacity of Electricity Generation as on 30<sup>th</sup> June**

Unit:MW

Type/Power Station	2003	2004	2005	2006	2007	2008	2009
<b>A- Hydel (WAPDA)</b>							
Tarbela	3478	3478	3478	3478	3478	3478	3478
Ghazi Barotha	-	1450	1450	1450	1450	1450	1450
Mangla	1000	1000	1000	1000	1000	1000	1000
Warsak	240	240	243	243	243	243	243
Chashma	184	184	184	184	184	184	184
Malakand	20	20	20	20	0*	0*	0*
Dargai	20	20	20	20	20	20	20
Rasul	22	22	22	22	22	22	22
Shadiwal	14	14	14	14	14	14	14
Chichoki Malian	13	14	14	14	13	13	13
Nandipur	14	13	13	13	14	14	14
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
<b>A. 2 Hydel (AJKHEB)</b>							
Jagran	30	30	30	30	30	30	30
Leepa	2	-	-	-	-	-	-
Others	5	5	5	5	5	6	7
<b>Hydel Sub-Total</b>	<b>5051</b>	<b>6496</b>	<b>6499</b>	<b>6499</b>	<b>6479</b>	<b>6480</b>	<b>6481</b>
<b>B.1 Thermal (WAPDA)</b>							
GTPS Shahdra	-	-	59	59	59	59	59
SPS Faisalabad	132	132	132	132	132	132	132
GTPS Faisalabad	244	244	244	244	244	244	244
NGPS Multan	130	130	130	195	195	195	195
TPS Muzaffar Garh	1350	1350	1350	1350	1350	1350	1350
TPS Guddu	1655	1655	1655	1655	1655	1655	1655
GTPS Kotri	174	174	174	174	174	174	174
TPS Jamshoro	850	850	850	850	850	850	850
FBC Lakhra	150	150	150	150	150	150	150
TPS Quetta	-	-	35	35	35	35	35
GTPS Panjgur	32	32	39	39	39	39	39
TPS Pasni	18	18	17	17	17	17	17
<b>Thermal WAPDA Sub-Total</b>	<b>4735</b>	<b>4735</b>	<b>4835</b>	<b>4900</b>	<b>4900</b>	<b>4900</b>	<b>4900</b>

Contd...

**Table A-51: Installed Capacity of Electricity Generation as on 30<sup>th</sup> June**

Unit:MW

Type/Power Station	2003	2004	2005	2006	2007	2008	2009
<b>B.2. Thermal (KESC)</b>							
TPS Korangi	316	316	316	316	316	316	250
GTPS Korangi Town	80	80	80	80	80	80	125
GTPS Site	100	100	100	100	100	100	100
TPS Bin Qasim	1260	1260	1260	1260	1260	1260	1260
Korangi CCP	-	-	-	-	-	-	220
Thermal (KESC) Sub-Total	1756	1756	1756	1756	1756	1756	1955
<b>B.3. Thermal (IPPs)</b>							
AES Lalpir	362	362	362	362	362	362	362
AES Pak Gen	365	365	365	365	365	365	365
Attock Gen.	Commissioned on 17 March 2009						165
Fauji Kabirwala	157	157	157	157	157	157	157
Gul Ahmed	136	136	136	136	136	136	136
Habibullah	129	127	129	129	129	129	129
HUBCO	1292	1292	1292	1292	1292	1292	1292
Japan Power	135	135	135	136	136	136	136
KAPCO	1466	1466	1466	1466	1466	1466	1466
Kohinoor Energy	131	131	131	131	131	131	131
Rousch Power	412	450	450	450	450	450	450
Saba Power	134	134	134	134	134	134	134
Southern Electric	117	117	117	117	117	117	117
Tapal Energy	126	126	126	126	126	126	126
TNB Liberty Power	235	235	235	235	235	235	235
Uch Power	586	564	586	586	586	586	586
Thermal Private Sub-Total	5794	5808	5832	5833	5822	5822	5987
<b>C. NUCLEAR</b>							
KANUPP	137	137	137	137	137	137	137
CHASNUPP	325	325	325	325	325	325	325
Nuclear Sub-Total	462	462	462	462	462	462	462
Grand Total	17798	19257	19384	19450	19420	19420	19786
Of which:							
Thermal- Total	12285	12299	12423	12489	12478	12478	12842

Source:- Pakistan Energy Year Book,2009 published by Hydrocarbon Development Institute of Pakistan.

\* Decommissioned due to fire incident in November, 2006.

**Table A-52: Gross Generation of Electricity by Source**

Unit: GWh

Source	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Hydel (WAPDA)	22351	26944	25671	30862	31953	28707	27784
Thermal (WAPDA)	19574	20972	22189	22508	21597	20427	19521
KESC	8808	9724	9304	9130	8169	8219	8262
IPPs	23209	21426	25669	28645	34206	35231	34431
Thermal-Total	<b>51591</b>	<b>52122</b>	<b>57162</b>	<b>60283</b>	<b>63972</b>	<b>63877</b>	<b>62214</b>
Nuclear (KANUPP)	236	78	322	143	189	424	475
CHASNUPP	1504	1682	2473	2341	2099	2653	1142
Nuclear-Total	<b>1740</b>	<b>1760</b>	<b>2795</b>	<b>2484</b>	<b>2288</b>	<b>3077</b>	<b>1618</b>
Total Generation	<b>75682</b>	<b>80827</b>	<b>85629</b>	<b>93629</b>	<b>98213</b>	<b>95661</b>	<b>91616</b>
Imported *	0.36	73	109	146	171	199	277
Total Electricity Supply	<b>75682</b>	<b>80900</b>	<b>85738</b>	<b>93774</b>	<b>98384</b>	<b>95860</b>	<b>91843</b>
Of which WAPDA	41925	47916	47860	53370	53550	49134	47305
Annual Growth Rate	4.53%	6.80%	5.94%	9.34%	4.90%	-2.60%	-4.23%

Source:- Pakistan Energy Year Book,2009 published by Hydrocarbon Development Institute of Pakistan.

\* WAPDA imported electricity from Iran since October, 2002.

**Table A-53: Electricity Consumption by Sector (Public Utilities Only)**Unit (GWh)  
(TOE)

Sector	2002-02	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Domestic	23,624	25,846	27601	30720	33335	33704	32282
	1,923,919	2,104,889	2247791	2501813	2714814	2744868	2619079
Commercial	3,218	3,689	4080	4730	5363	5572	5282
	262,101	300,407	332281	385222	436727	453782	427686
Industrial	16,181	17,366	18591	19803	21066	20729	19330
	1,317,802	1,414,326	1514085	1612735	1715579	1688171	1574199
Agriculture	6,016	6,669	6988	7949	8176	8472	8795
	489,941	543,122	569143	647349	665861	689948	716297
Street Light	244	262	305	353	387	415	430
	19,851	21,344	24858	28744	31506	33789	35006
Traction	10	9	12	13	12	8	5
	792	735	981	1042	971	625	425
Bulk Supplies	3,318	3,603	3700	3985	4246	4342	4177
	270,189	293,464	301354	324500	345798	353620	340146
Other Govt.	45	46	50	51	127	158	101
	3,632	3,777	4066	4151	10380	12893	8194
Total: GWh TOE	<b>52,655</b>	<b>57,491</b>	<b>61328</b>	<b>67603</b>	<b>72712</b>	<b>73400</b>	<b>70371</b>
	<b>4,288,227</b>	<b>4,682,063</b>	<b>4994560</b>	<b>5505555</b>	<b>5921635</b>	<b>5977697</b>	<b>5731032</b>
Annual Growth Rate	4.02%	9.18%	6.67%	10.23%	7.56%	0.95%	-4.13%

Source:- Pakistan Energy Year Book,2009 published by Hydrocarbon Development Institute of Pakistan.

**Table A-54: Electricity Consumption by Province (Public Utilities Only)**

(GWh)

(TOE)

Sector	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Punjab	32,328	35,374	37,696	42,018	45,294	45,040	43465
	2,632,768	2,880,896	3,069,990	3,421,972	3,688,741	3,668,071	3539759
Sindh	10,704	11,624	12,496	13,500	14,201	14,726	14518
	871,770	946,670	1,017,671	1,099,436	1,156,532	1,199,300	1182380
Khyber Pakhtunkhwa	6,758	7,230	7,644	8,255	8,459	8,223	7560
	550,411	588,772	622,532	672,311	688,921	669,650	615672
Balochistan	2,864	3,263	3,492	3,829	3,965	4,089	4110
	233,278	265,725	284,366	311,836	322,938	333,015	334678
AJK	-	-	-	-	792	1,322	719
	-	-	-	-	64,504	107,662	58543
<b>Total:</b>	<b>52,655</b>	<b>57,491</b>	<b>61328</b>	<b>67603</b>	<b>72712</b>	<b>73400</b>	<b>70371</b>
	<b>4,288,227</b>	<b>4,682,063</b>	<b>4994560</b>	<b>5505555</b>	<b>5921635</b>	<b>5977697</b>	<b>5731032</b>

Source:- Pakistan Energy Year Book,2009 published by Hydrocarbon Development Institute of Pakistan.

**Table A-55: Fuel Consumption for Thermal Power Generation**

(TOE)

Fuel	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Coal	91101	82765	80,481	66812	73551	72568	50341
Furnace Oil	5779335	2608548	3,308,574	4076897	6521503	6741614	7210211
Diesel Oil	88850	63272	55899	32176	45125	168449	173947
Gas	6440342	9463538	10305897	8694561	8640101	8492919	7830065
<b>Total:</b>	<b>12,399,628</b>	<b>12,218,124</b>	<b>13750851</b>	<b>12870446</b>	<b>15280281</b>	<b>15475550</b>	<b>15264564</b>
<b>Annual Growth Rate</b>	1.06%	-1.46%	12.54%	-6.40%	18.72%	1.28%	-1.36%

Source:- Pakistan Energy Year Book,2009 published by Hydrocarbon Development Institute of Pakistan.

**Table A-56: Thermal Electricity Generation by Fuel**

(TOE)

Fuel	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Coal	231	198	175	129	136	136	113
Oil	24353	12711	13516	18868	28025	30818	32423
Gas	27006	39213	43472	41286	35811	32923	29678
<b>Total:</b>	<b>51591</b>	<b>52122</b>	<b>57162</b>	<b>60283</b>	<b>63972</b>	<b>63877</b>	<b>62214</b>
<b>Annual Growth Rate</b>	<b>0.82%</b>	<b>1.03%</b>	<b>9.67%</b>	<b>5.46%</b>	<b>6.12%</b>	<b>-0.15%</b>	<b>-2.60%</b>

Source:- Pakistan Energy Year Book, 2009 published by Hydrocarbon Development Institute of Pakistan.

**Table A-57: Field-wise Production of Coal in Pakistan**

(Tonnes)

Province/Field	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
<b>BALUCHISTAN</b>							
Sor Range	167252	145039	129172	122417	119276	117681	115802
Degari	62993	58552	55966	47257	48229	43175	41632
Sharigh	157724	167128	197677	265804	199153	184989	140370
Sinjidi	196115	161410	128895	121413	138009	120515	117118
Mach	219649	188473	302939	307539	294642	293340	236274
Harnai-Khost Nasaka-Zardalu	55608	124639	143736	169086	122783	93931	103358
Duki	420929	417726	436222	531929	508362	564944	469524
Pir Ismail Ziarat	359890	325051	350116	366090	337586	318166	294567
Abegum	69236	57730	63576	27380	14928	11697	17623
Barkhan/ Chamalang	-	-	-	-	48321	520185	521041
<b>Sub Total</b>	<b>1709396</b>	<b>1645748</b>	<b>1808299</b>	<b>1958915</b>	<b>1831289</b>	<b>2268623</b>	<b>2057309</b>
<b>Khyber Pakhtunkhwa</b>							
Makerwal/ Gula Khel	53198	183571	234000	328560	303504	242969	52969
Kohat, FATA							215825
<b>Sub Total</b>	<b>53198</b>	<b>183571</b>	<b>234000</b>	<b>328560</b>	<b>303504</b>	<b>242969</b>	<b>268794</b>
<b>Punjab</b>							
Makerwal/Salt Range	502326	535066	544326	573684	508168	553453	571493
<b>Sub Total</b>	<b>502326</b>	<b>535066</b>	<b>544326</b>	<b>573684</b>	<b>508168</b>	<b>553453</b>	<b>571493</b>
<b>Sindh</b>							
Lakhra	1031129	900613	*	*	981250	1038926	825860
Jhimpir	15537	10486	*	*	18652	19936	14666
<b>Sub Total</b>	<b>1046666</b>	<b>911099</b>	<b>2000000</b>	<b>2010000</b>	<b>999902</b>	<b>1058862</b>	<b>840526</b>
<b>Grand Total</b>	<b>3311586</b>	<b>3275484</b>	<b>4586625</b>	<b>4871159</b>	<b>3642863</b>	<b>4123907</b>	<b>3738122</b>
<b>Annual Growth Rate</b>	<b>-0.49%</b>	<b>-1.09%</b>	<b>40.03%</b>	<b>6.20%</b>	<b>-25.22%</b>	<b>13.21%</b>	<b>-9.35%</b>

Source:- Pakistan Energy Year Book, 2009 Published by Hydrocarbon Development Institute of Pakistan

\* Field-wise breakup not available.

Table A-58: Energy Consumption by Sector

Unit: TOE

Sector	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
<b>Domestic</b>						
Oil	238773	198841	132716	109502	124781	100403
Gas	3631072	4027210	4003955	4341475	4774412	5010247
LPG	303716	338693	416102	438908	401786	352039
Electricity	2104889	2247791	2501813	2714814	2744868	2629079
Coal	468	0	0	445	447	364
<b>Sub-Total</b>	<b>6278918</b>	<b>6812535</b>	<b>7054587</b>	<b>7605145</b>	<b>8046294</b>	<b>6092132</b>
<b>Annual Growth Rate</b>	<b>3.06%</b>	<b>8.50%</b>	<b>3.55%</b>	<b>7.80%</b>	<b>5.80%</b>	<b>0.57%</b>
* @ 3412 Btu/k Wh.						
<b>Commercial</b>						
LPG	61134	111686	177884	206341	208378	200584
Gas	566093	636268	684886	734180	793367	831547
Electricity *	300407	332281	385222	436727	453782	427686
<b>Sub-Total</b>	<b>927633</b>	<b>1080235</b>	<b>1247992</b>	<b>1377247</b>	<b>1455527</b>	<b>1459817</b>
<b>Annual Growth Rate</b>	<b>8.90%</b>	<b>16.45%</b>	<b>15.53%</b>	<b>10.36%</b>	<b>5.68%</b>	<b>0.29%</b>
* @ 3412 Btu/k Wh.						
<b>Industrial</b>						
Oil	1481873	1533234	1703633	1623346	1082885	977451
Gas*	5499005	6402126	7726502	8304528	8628979	8401383
Electricity**	1414326	1514085	1612735	1715579	1688171	1574199
Coal	2703437	3310512	3611490	4148596	5404268	3892637
<b>Sub-Total</b>	<b>11098642</b>	<b>12759957</b>	<b>14654360</b>	<b>15792049</b>	<b>16804303</b>	<b>14845670</b>
<b>Annual Growth Rate</b>	<b>19.17%</b>	<b>14.97%</b>	<b>14.85%</b>	<b>7.76%</b>	<b>6.41%</b>	<b>-11.66%</b>
*Includes energy consumption in fertilizer production. ** @ 3412 Btu/k Wh.						
<b>Agricultural</b>						
Oil*	191080	148008	85351	101406	113889	72710
Electricity**	543122	569143	647349	665861	689948	716297
<b>Sub-Total</b>	<b>734202</b>	<b>717151</b>	<b>732699</b>	<b>767266</b>	<b>803837</b>	<b>789008</b>
<b>Annual Growth Rate</b>	<b>5.67%</b>	<b>-2.32%</b>	<b>2.17%</b>	<b>4.72%</b>	<b>4.77%</b>	<b>-1.84%</b>
* HSD consumption for tractors in agriculture sector is not separately available and is included in the transport sector. Agriculture sector represents LDO only. ** @ 3412 Btu/k Wh.						

Contd...

Table A-58: Energy Consumption by Sector

Unit: TOE

Sector	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
<b>Transport</b>						
Aviation Fuel	494216	547048	563985	542700	436928	467605
Motor Spirit	1291339	1390407	1227579	1188565	1522251	1595910
HOBG	8507	8248	7336	7380	8335	7111
Kerosene	458	984	623	679	497	466
HSD	7111674	7532857	6763639	6650979	7907464	7229266
LOD	533	5095	723	0	140	-
Furnace Oil	2623	13845	18831	9068	5921	6365
Electricity*	735	981	1042	971	625	425
Natural Gas**	371075	571961	909908	1320841	1685232	2064722
<b>Sub-Total</b>	<b>9281160</b>	<b>10071427</b>	<b>9493667</b>	<b>9721183</b>	<b>11567394</b>	<b>11371869</b>
<b>Annual Growth Rate</b>	<b>5.81%</b>	<b>8.51%</b>	<b>-5.74%</b>	<b>2.40%</b>	<b>18.99%</b>	<b>-1.69%</b>
* @ 3412 Btu/k Wh.** Compressed Natural Gas (CNG)						
<b>Other Government Sector</b>						
Oil	324288	332352	373184	341705	325631	385328
Electricity*	318585	330279	357394	387683	400302	383346
LPG	15520	**	31806	12975	9779	17371
<b>Sub-Total</b>	<b>658393</b>	<b>662631</b>	<b>762384</b>	<b>742364</b>	<b>735712</b>	<b>786045</b>
<b>Annual Growth Rate</b>	<b>12.72%</b>	<b>0.64%</b>	<b>15.05%</b>	<b>-2.63%</b>	<b>-0.90%</b>	<b>6.84%</b>
* @ 3412 Btu/kWh Also include bulk supplies and street light ** Included in commercial sector.						
<b>Sector</b>						
<b>Domestic</b>	<b>6,278,918</b>	<b>6,812,535</b>	<b>7,054,587</b>	<b>7,605,145</b>	<b>8,046,294</b>	<b>8,092,132</b>
<b>Commercial</b>	<b>927,633</b>	<b>1,080,235</b>	<b>1,247,992</b>	<b>1,377,247</b>	<b>1,455,527</b>	<b>1,459,817</b>
<b>Industrial</b>	<b>11,098,642</b>	<b>12,759,957</b>	<b>14,654,360</b>	<b>15,792,049</b>	<b>16,804,303</b>	<b>14,845,670</b>
<b>Agricultural</b>	<b>734,202</b>	<b>717,151</b>	<b>732,699</b>	<b>767,266</b>	<b>803,837</b>	<b>789,008</b>
<b>Transport</b>	<b>9,281,160</b>	<b>10,071,427</b>	<b>9,493,667</b>	<b>9,721,183</b>	<b>11,567,394</b>	<b>11,371,869</b>
<b>Other Govt.</b>	<b>658,393</b>	<b>662,631</b>	<b>762,384</b>	<b>742,364</b>	<b>735,712</b>	<b>786,045</b>
<b>Grand Total</b>	<b>28,978,949</b>	<b>32,103,936</b>	<b>33,945,689</b>	<b>36,005,255</b>	<b>39,413,069</b>	<b>37,344,540</b>

Source:- Pakistan Energy Year Book,2009 published by Hydrocarbon Development Institute of Pakistan.



**Table A-59: 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
<b>Karachi Port</b>						
1998-99	1,625	1,246	13,216	1,597	7,942	6,484
1999-00	1,577	1,231	12,938	1,588	7,088	6,876
2000-01	1,563	1,296	14,183	1,573	8,313	7,207
2001-02	1,680	1,354	14,872	1,673	7,713	8,518
2002-03	1,595	1,067	14,875	1,590	3,763	12,166
2003-04	1,592	1,158	14,522	1,567	3,985	11,652
2004-05	1,817	1,823	14,781	1,792	5,520	11,007
2005-06	2,080	1,277	18,148	1,995	6,297	13,097
2006-07	1,929	1,602	17,154	1,946	5,256	13,449
2007-08	2,160	2,524	18,593	2,151	5,308	15,759
2008-09	2,386	2,976	21,946	2,345	5,563	19,253
2009-10	2,376	2,395	21,939	1,595	3,613	12,391
<b>Port Qasim</b>						
1997-98	455	234	8,793	458	4,702	4,157
1998-99	566	326	8,359	575	4,821	4,496
1999-00	590	249	8,656	591	4,799	4,398
2000-01	612	406	8,215	618	4,677	4,270
2001-02	562	916	7,885	566	4,563	4,295
2002-03	674	2,317	15,626	681	7,824	9,757
2003-04	810	140	17,879	800	8,261	10,387
2004-05	970	171	25,905	978	12,719	14,726
2005-06	1,029	322	26,283	1,090	12,653	15,382
2006-07	1,110	552	28,177	1,141	13,132	16,625
2007-08	1,094	377	29,108	1,127	13,210	17,092
2008-09	1,196	1,062	33,028	1,222	14,342	20,670
2009-10	1,173	909	32,974	1,201	12,793	20,437

Source:- Karachi Port Trust and Port Qasim Authority

**Table A-60: 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
1998-99	-	-	280	92,821	280	92,821
1999-00	-	-	438	135,865	438	135,865
2000-01	-	-	586	199,017	586	199,017
2001-02	-	-	566	179,616	566	179,616
2002-03	-	-	558	92,942	558	92,942
2003-04	-	-	501	96,757	501	96,757
2004-05	-	-	500	113,836	500	113,836
2005-06	-	-	384	96,896	384	96,896
2006-07	-	-	423	105,166	423	105,166
2007-08	-	-	276	67,870	276	67,870
2008-09	-	-	396	118,709	396	118,709
2009-10	-	-	486	205,451	486	205,451
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
1998-99	-	-	267	85,781	267	85,781
1999-00	-	-	422	139,795	422	139,795
2000-01	-	-	571	195,156	571	195,156
2001-02	-	-	564	184,084	564	184,084
2002-03	-	-	555	91,808	555	91,808
2003-04	-	-	499	96,450	499	96,450
2004-05	-	-	500	114,463	500	114,463
2005-06	-	-	382	96,373	382	96,373
2006-07	-	-	411	103,963	411	103,963
2007-08	-	-	283	69,048	283	69,048
2008-09	-	-	384	14,758	384	14,758
2009-10	-	-	490	208,298	490	208,298

Source:- Karachi Port Trust.

Socio-economic Activities and Natural Events

**Table A-61: 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
1997-98	4,205,160	4,205,160	8,410,320	266,815	8,677,135	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	2,531,632	2,349,993	4,881,625
2003-04	2,945,264	2,645,264	5,890,528	81,436	5,971,964	2,892,232	2,746,429	5,638,661
2004-05	3,426,464	3,426,464	6,852,928	94,936	6,947,864	3,245,168	3,133,713	6,378,881
2005-06	3,396,185	3,696,185	7,392,370	103,355	7,495,725	3,514,924	3,404,192	6,919,116
2006-07	3,436,065	3,436,065	6,872,130	113,739	6,985,869	3,642,781	3,793,849	7,136,630
2007-08	3,259,785	3,529,785	6,519,570	107,957	6,627,527	3,860,597	3,544,581	7,405,178
2008-09*	3,224,368	3,224,368	6,448,736	98,115	6,546,851	3,740,577	3,670,187	7,410,764
Year	International		Total (Domestic + International)					
	Transit	Total	Em-barked	Dis-embarked	Terminal	Transit	Total	
1997-98	309,603	4,672,244	6,451,767	6,321,194	12,772,961	576,418	13,349,379	
1998-99	305,931	4,621,799	5,714,771	5,642,937	11,357,708	527,778	11,885,486	
1999-00	297,208	4,966,501	5,896,726	5,827,337	11,724,063	504,512	12,228,575	
2000-01	316,514	5,517,566	5,838,432	5,712,460	11,550,892	487,853	12,038,745	
2001-02	267,293	4,829,451	4,819,892	4,710,852	9,530,744	357,729	9,888,473	
2002-03	234,867	5,116,492	5,247,370	5,065,731	10,313,101	311,645	10,624,746	
2003-04	275,207	5,913,868	5,837,496	5,691,693	11,529,189	356,643	11,885,832	
2004-05	282,727	6,661,608	6,671,632	6,560,177	13,231,809	377,663	13,609,472	
2005-06	235,962	7,155,078	7,211,109	7,100,377	14,311,486	339,317	14,650,803	
2006-07	228,636	7,365,266	7,078,846	6,929,914	14,008,760	342,375	14,351,135	
2007-08	168,695	7,573,873	7,120,382	6,804,366	13,924,748	276,652	14,201,400	
2008-09*	185,747	7,596,511	6,964,945	6,894,555	13,859,500	283,862	14,143,362	

Source:- Civil Aviation Authority, Karachi.

\* Provisional

**Table A-62: Air Traffic of Passengers, Freight and Mail of Pakistan  
International Airlines**

Year	Kilometers Flown	Passenger Kilometers performed	Tonne kilometers performed			
			Passengers	Freight	Mail	Total
<b>Domestic Scheduled</b>						
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
2003-04	16,056	1,769,313	159,620	36,470	471	196,561
2004-05	15,988	1,710,023	154,136	39,093	506	193,735
2005-06	16,518	1,989,274	179,329	40,053	586	219,968
2006-07	15,606	1,909,876	175,162	36,649	515	212,326
2007-08	16,687	1,808,827	162,923	37,833	379	201,135
2008-09*	16,839	1,769,896	159,293	28,935	279	188,507
<b>International Scheduled</b>						
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	6,990	1,159,910
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
2003-04	57,048	10,882,007	987,687	323,427	7,475	1,318,589
2004-05	64,046	11,800,688	1,074,919	376,730	5,994	1,457,643
2005-06	70,378	13,255,050	1,198,501	393,562	4,470	1,596,533
2006-07	69,107	12,772,506	1,148,021	348,112	4,311	1,500,444
2007-08	60,031	11,278,558	1,020,288	296,049	2,607	1,318,944
2008-09*	62,833	12,456,115	1,121,655	252,542	2,132	1,376,329

Source:- Civil Aviation Authority, Karachi.

Table A-63: Transport Statistics

Year	Railways						Length of Roads (Km.)		
	Route kilometers	Number of Passengers Carried (Million)	Freight Carried (M.Tons)	Freight Tonne kilometers Million	Locomotives (Nos.)	Freight Wagons (Nos.)	Total	High Type	Low Type
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	64.90	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	4,573	577	23,460	251,661	148,877	102,784
2002-03	7,791.00	72.40	6.18	4,820	577	23,722	252,168	153,225	98,943
2003-04	7,791.00	75.70	6.14	4,796	592	21,812	256,070	158,543	97,527
2004-05	7,791.00	78.18	6.41	5,014	557	21,556	258,214	162,841	95,373
2005-06	7,791.00	81.43	6.03	4,971	544	20,809	259,021	167,530	91,491
2006-07	7,791.00	83.89	6.42	5,453	544	19,638	261,821	172,891	88,930
2007-08	7,791.00	79.99	7.23	6,187	555	18,638	258,350	174,320	84,030
2008-09	7,791.00	82.54	6.94	5,896	551	17,259	260,200	177,060	83,140
2008-09 (P) (Jul-Mar)	7,791.00	58.97	4.63	3,925	520	16,450	259,618	179,290	80,328

Source:- Pakistan Economic Survey, 2009-10

(P) Provisional

**Table A-64: Number of Motor Vehicles Registered**

Year	Motor Cars Jeeps & Station Wagons	Motor Cabs/ Taxis	Buses/ Mini Buses	Trucks	Motor Cycle (2 wheels)	Motor Cycle/ Motor Rickshaws (3 Wheels)	Others	Total
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	93,940	158,694	157,027	2,346,056	103,407	797,840	4,843,702
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	2,444,567	122,448	846,017	5,132,037
2004	1,301,406	84,311	163,242	181,150	2,681,066	124,076	860,480	5,395,731
2005	1,321,590	85,619	165,775	183,962	2,722,645	126,004	873,825	5,479,417
2006	1,375,419	89,105	172,530	191,454	2,833,540	131,134	909,416	5,702,598
2007	1,444,190	93,560	181,157	201,027	2,975,217	137,691	954,887	5,987,729
2008	1,553,499	95,204	184,104	204,179	3,123,252	150,049	975,980	6,286,267
2009	1,608,154	96,026	185,578	205,755	3,197,270	156,228	986,527	6,435,538
2010 E (Jul-Mar)	1,688,562	100,827	194,857	216,043	3,357,134	164,039	1,035,853	6,757,315

Source:- Pakistan Economic Survey, 2009-10

(E) Estimated

**Table A-65: Motor Vehicles on Road**

(000 Number)

Year	Motor Cycles/ Scooters	Motor Cars	Jeeps	Station Wagons	Tractors	Buses
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	86.6
2001-02	2,481.1	1,040.0	43.4	122.7	630.5	96.6
2002-03	2,656.2	1,110.0	44.4	126.4	663.2	98.3
2003-04	2,882.5	1,193.1	47.8	132.4	722.7	100.4
2004-05	3,063.0	1,264.7	51.8	140.5	778.1	102.4
2005-06	3,791.0	1,999.2	65.7	140.8	822.3	103.6
2006-07	4,463.8	1,682.2	85.4	169.1	877.8	108.4
2007-08	5,037.0	1,853.5	82.9	163.2	900.5	109.8
2008-09	5,368.0	2,029.1	79.0	155.6	911.7	111.1
2009-10* (Jul-Mar)	5,469.6	2,076.2	89.7	176.7	1,009.9	120.2
Year	Taxi Cabs Taxis	Rickshaws	Delivery Vans	Trucks	Others	Total
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	3,654.5
1999-00	69.8	59.9	55.5	127.4	149.8	4,000.2
2000-01	79.8	72.4	72.4	132.3	167.1	4,450.0
2001-02	96.4	80.8	116.9	145.2	162.4	5,016.0
2002-03	104.1	80.9	120.3	146.7	164.8	5,315.3
2003-04	112.6	81.0	121.3	149.2	168.6	5,711.2
2004-05	120.3	81.3	121.9	151.8	170.1	6,048.3
2005-06	122.1	77.8	143.3	151.8	166.8	7,084.5
2006-07	119.1	79.0	148.9	173.3	156.3	8,063.6
2007-08	129.8	89.3	163.5	177.8	171.1	8,878.5
2008-09	138.6	88.4	167.20	181.9	183.2	9,413.8
2009-10* (Jul-Mar)	144.4	97.3	180.1	195.9	208.3	9,768.3

Source:- Pakistan Economic Survey, 2009-10

\* Estimated

**Table A-66: Post and Telecommunications**

Year	No. of Post Offices			No. of Telegraph Offices		
	Urban	Rural	Total	Urban	Rural	Total
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	2,267	9,840	12,107	215	73	288
2004-05	1,831	10,499	12,330	215	77	292
2005-06	1,845	10,494	12,339	...	...	...
2006-07	1,849	10,494	12,343	...	...	...
2007-08	1,849	10,793	12,342	...	...	...
2008-09	1,852	10,514	12,366	...	...	...
2009-10 (Jul-Mar)	1,846	10,495	12,340	...	...	...

... Not available

Contd...

Note: Telegraph Offices closed in 2006



**Table A-66: Post and Telecommunications**

Year	Inter net connection (Million )	No. of PCO *	Telephones (000 Nos)	TV Sets (000 Nos)	Mobilephone	No. of Internet Cities Connected
1992-93	-	5,618	1,548	1,773	-	-
1993-94	-	6,422	1,801	1,975	-	-
1994-95	-	4,600	2,126	2,149	-	-
1995-96	-	9,410	2,376	2,273	68,038	-
1996-97	-	10,040	2,558	2,522	135,027	-
1997-98	0.01	10,071	2,756	2,736	196,096	-
1998-99	0.2	10,107	2,861	3,034	265,614	-
1999-00	0.5	10,400	3,124	4,015	306,493	-
2000-01	0.8	66,968	3,340	3,432	742,606	-
2001-02	1.0	97,751	3,656	3,598	1,698,536	-
2002-03	1.6	139,493	4,940	3,716	2,404,400	1,350
2003-04	2.0	180,901	4,460	3,828	5,022,908	1,898
2004-05	2.1	217,597	5,191	6,763	12,771,203	2,210
2005-06	2.4	353,194	5,128	7,972	34,506,557	2,389
2006-07	3.5	387,490	4,806	9,004	63,160,874	2,419
2007-08	3.7	449,121	4,546	9,940	88,019,812	3,002
2008-09	3.5	405,359	3,523	10,557	94,342,030	**
2009-10 (Jul-Mar)	3.5	..	..	11,136	97,579,940	**

Source:- Pakistan Economic Survey, 2009-10

\* Included Cardpay phones      \*\* All over country  
 .. Not available

**Table A-67: Traffic Accidents in Pakistan**

(Number)

Year	Total number of accident	Accident		Persons		Total Number of Vehicles involved
		Fatal	Non- Fatal	Killed	Injured	
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
2004-05	9,896	4,250	5,646	5,112	12,401	10,912
2005-06	9,492	4,115	5,377	4,868	11,415	10,565
2006-07	10,466	4,535	5,931	5,465	12,875	11,481
2007-08	10,466	4,610	5,856	5,615	12,096	11,456
2008-09	9,496	4,145	5,351	4,907	11,037	10,322
2009-10	9,747	4,378	5,369	5,280	11,173	10,496

Contd...

Table A-67: Traffic Accidents in

(Number)

Year	Total number of accidents	Accident		Persons		Total Number of vehicles involved
		Fatal	Non- Fatal	Killed	Injured	
<b>Balochistan</b>						
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	406	132	274	138	359	451
2003-04	415	141	274	148	420	469
2004-05	481	194	287	217	638	513
2005-06	520	206	314	254	741	594
2006-07	551	233	318	284	840	612
2007-08	490	236	254	314	914	578
2008-09	431	206	225	248	747	545
2009-10	379	193	186	245	496	444
<b>Kyber Pakhtunkhwa</b>						
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
2004-05	2,666	682	1,983	830	3,979	3,133
2005-06	2,732	716	2,016	875	4,006	3,366
2006-07	2,942	779	2,163	1,006	4,421	3,756
2007-08	2,893	755	2,138	942	3,884	3,634
2008-09	2,392	644	1,748	786	3,340	2,975
2009-10	2,559	712	1,847	921	3,560	3,128

Contd...

Table A-67: Traffic Accidents

(Number)

Year	Total number of accidents	Accident		Persons		Total Number of vehicles involved
		Fatal	Non- Fatal	Killed	Injured	
<b>Punjab</b>						
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
2004-05	4,969	2,447	2,522	2,988	6,418	5,175
2005-06	4,431	2,105	2,326	2,500	5,408	4,571
2006-07	5,355	2,591	2,764	3,096	6,311	5,355
2007-08	5,522	2,721	2,801	3,293	6,163	5,522
2008-09	5,240	2,471	2,769	2,912	5,790	5,240
2009-10	5,344	2,590	2,754	3,083	5,856	5,344
<b>Sindh</b>						
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	1,166	1,155	2,058	2,232
2004-05	1,780	926	854	1,077	1,366	2,091
2005-06	1,809	1,088	721	1,239	1,260	2,034
2006-07	1,618	932	686	1,079	1,303	1,758
2007-08	1,561	898	663	1,066	1,135	1,722
2008-09	1,433	824	609	961	1,160	1,562
2009-10	1,465	883	582	1,031	1,261	1,580

Source:- Crime Branch of Provincial Police Departments.

**Table A-68: 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
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	3.60	21.70	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
2001-02	41.47	6.62	48.09	8.23	3.66	11.89	16.00	2.90	18.90
2002-03	48.28	7.94	56.22	12.30	5.10	17.40	18.02	5.47	23.49
2003-04	55.09	8.54	63.63	17.67	5.00	22.67	21.50	4.36	25.86
2004-05	42.06	9.51	51.57	11.74	6.71	18.45	14.90	6.41	21.31
2005-06	56.00	9.54	65.54	17.71	5.46	23.17	21.11	4.02	25.13
2006-07	55.07	9.98	65.05	16.43	6.78	23.21	21.38	6.32	27.70
2007-08	49.16	8.25	57.41	13.51	4.18	17.69	16.98	3.62	20.60
2008-09	46.92	9.06	55.98	13.77	5.88	19.65	16.21	3.61	19.82
2009-10	46.78	9.27	56.05	16.48	4.57	21.05	14.47	3.43	17.90
Year	Ravi Component at Balloki (a)			Sutlej Component at Sulemanki (b)					
	Kharif	Rabi	Total	Kharif	Rabi	Total			
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			
2001-02	0.93	0.43	1.36	0.01	0.01	0.02			
2002-03	0.41	0.45	0.86	0.00	0.03	0.03			
2003-04	0.93	0.09	1.02	0.02	0.09	0.11			
2004-05	0.39	0.40	0.79	0.00	0.04	0.04			
2005-06	0.70	0.14	0.84	0.31	0.04	0.35			
2006-07	1.16	0.32	1.48	0.07	0.08	0.15			
2007-08	0.81	0.23	1.04	0.16	0.04	0.20			
2008-09	1.58	0.26	1.84	2.17	0.02	2.19			
2009-10 (c)	0.11	0.17	0.28	0.00	0.01	0.01			

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

(a) Ravi at Balloki (Above)-UCC Tail-MR Tail-QB Trail.

(b) Sutlej at Suleimanki (Above)- B.SI &amp; II Tails.

(c)Provisional

**Table A-69: Population Served with Water Supply and Sanitation**

## Facilities in WASA Area, District Lahore

Description	Unit	2005-06	2006-07	2007-08	2008-09	2009-10
<b>Population in WASA area</b>	<b>Million</b>	5.387	5.548	5,671	5.842	6.011
<b>Population served with pipe water supply</b>	<b>Million</b>	4.676	4.827	4.913	5.137	5.351
<b>Percentage of Total Population within WASA area I</b>	<b>%</b>	87	87	87	88	89.02
<b>Quantum of Water Supply(Daily)</b>	<b>Million Gallons</b>	340	350	360	379	424
<b>Population Served with Sewerage &amp; Drainage</b>	<b>Million</b>	4.500	4.576	4.764	5.000	5.169
<b>Facilities Percentage of Total population</b>	<b>%</b>	84	82	84	86	86
<b>Per Person Supply</b>	<b>GPCD</b>	73	73	73	74	79

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

**Table A-70: Population Served with Water Supply, Sewerage and Drainage Facilities of Various Cities**

Particulars	Unit	2005-06	2006-07	2007-08	2008-09	2009-10
<b>Rohri</b>						
1. Total Population (approx.)	Thousand	60.413	62.829	65.342	67.956	70.674
2. Population Served with Pipe Water Supply	Thousand	60.413	62.829	65.342	67.956	70.674
3. Percentage of Total Population	%	100	100	100	100	100
4. Quantum of water Supply (daily)	Million Gallons	1.810	1.885	1.960	2.038	2.120
5. Population Served with Sewerage & Drainage Facilities.	Thousand	60.413	62.829	65.342	67.956	70.674
6. Percentage of Total Population	%	100	100	100	100	100
<b>Tando Allahyar</b>						
1. Total Population (approx.)	Thousand	117.773	122.484	127.384	132.478	137.775
2. Population Served with Pipe Water Supply	Thousand	71.600	90.500	90.500	90.500*	90.500*
3. Percentage of Total Population	%	61	74	71	68	66
4. Quantum of water Supply (daily)	Million Gallons	2.148	2.715	2.715	2.715	2.715
5. Population Served with Sewerage & Drainage Facilities.	Thousand	47.700	47.700	127.384*	132.478*	137.775
6. Percentage of Total Population	%	40	38	100	100	100
<b>Umar Kot</b>						
1. Total Population (approx.)	Thousand	48.117	50.042	52.044	54.126	56.291
2. Population Served with Pipe Water Supply	Thousand	28.475	28.475	28.475	54.126	56.291
3. Percentage of Total Population	%	59	57	55	100	100
4. Quantum of water Supply (daily)	Million Gallons	0.854	0.854	0.854	1.620	1.688
5. Population Served with Sewerage & Drainage Facilities.	Thousand	25.740	25.740	25.740	54.126*	56.291*
6. Percentage of Total Population	%	53	51	49	100	100

Contd...

\* Water supply scheme Tando Allahyar is designed for 18800 persons upto 2014 @ 15 gallons/ Capita/day for only Brackish Zone city as rest of people are using underground water.

\* Drainage scheme Tando Allahyar is designed for 151100 persons upto 2019 and is under execution and some of components are put in operation. Therefore present gap is covered.

\* Water Supply Scheme Umerkot is designed for 92800 upto 2020 and is under execution stage

\* Drainage scheme Thull is designed for 78200 persons upto 2020. Scheme is under execution stage and present gap is covered.

\* Drainage scheme Umerkot is designed for 92800 persons upto 2020. Scheme is under execution stage and present gap is covered.

**Table A-70: Population Served with Water Supply, Sewerage and Drainage Facilities of Various Cities**

Particulars	Unit	2005-06	2006-07	2007-08	2008-09	2009-10
<b>Thull</b>						
1. Total Population (approx.)	Thousand	39.311	40.883	42.518	44.219	45.988
2. Population Served with Pipe Water Supply	Thousand	33.603	33.603	33.603	44.219	45.988
3. Percentage of Total Population	%	85	82	79	100	100
4. Quantum of water Supply (daily)	Million Gallons	1.179	1.226	1.275	1.326	1.379
5. Population Served with Sewerage & Drainage Facilities.	Thousand	25.000	25.000	42.518	44.219	45.988
6. Percentage of Total Population	%	63	61	100	100	100
<b>Kotri</b>						
1. Total Population (approx.)	Thousand	83.661	87.007	90.488	94.107	97.870
2. Population Served with Pipe Water Supply	Thousand	83.661	84.350	84.350	84.350	84.350
3. Percentage of Total Population	%	100	97	93	90	86
4. Quantum of water Supply (daily)	Million Gallons	2.500	2.530	2.530	2.530	2.530
5. Population Served with Sewerage & Drainage Facilities.	Thousand	56.148	57.669	59.232	60.838	62.487
6. Percentage of Total Population	%	67	66	65	64	64
<b>Faisalabad</b>						
1. Total Population (approx.)	Thousand	2660.000	2700.000	2800.000	2900.000	3000.000
1. Population Served with Pipe Water Supply	Thousand	1330.000	1350.000	1400.000	1450.000	1500.000
2. Percentage of Total Population	%	50	50	50	50	50
3. Quantum of water Supply (daily)	Million Gallons	46.00	45.00	44.00	44.50	45.00
4. Population Served with Sewerage & Drainage Facilities.	Thousand	1650.000	1701.000	1820.000	2030.000	2100.000
5. Percentage of Total Population	%	62	63	65	70	70

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

Water supply scheme Kotri, Filtration is designed for 84335 persons upto 2020 and is in operation since June 2010



**Table A-71: Distance to Water Source by Province and Source, PSLM 2007-08**

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
<b>Punjab</b>						
Tap water	93	6	1	0	0	0
Hand pump / M.pump	93	6	1	0	0	0
Dug well	77	22	0	0	1	0
River/Canal/Stream/Pond	18	44	23	11	3	0
<b>Total</b>	92	7	1	0	0	0
<b>Sindh</b>						
Tap water	96	4	0	0	0	0
Hand pump /M.pump	84	15	0	0	0	0
Dug well	17	64	13	4	1	0
River/Canal/Stream/Pond	3	91	6	0	0	0
<b>Total</b>	84	15	1	0	0	0
<b>Khyber Pakhtunkhwa</b>						
Tap water	82	18	0	0	0	0
Hand pump /M.pump	84	15	1	0	0	0
Dug well	70	29	0	0	0	0
River/Canal/Stream/Pond	32	60	7	0	0	1
<b>Total</b>	74	25	1	0	0	0
<b>Balochistan</b>						
Tap water	87	13	0	0	0	0
Hand pump /M.pump	34	62	2	1	0	0
Dug well	69	29	2	0	0	0
River/Canal/Stream/Pond	1	60	28	9	1	1
<b>Total</b>	55	36	7	2	0	0
<b>Pakistan</b>						
Tap water	92	8	0	0	0	0
Hand pump /M.pump	90	9	1	0	0	0
Dug well	58	36	4	1	0	0
River/Canal/Stream/Pond	16	67	13	3	0	1
<b>Total</b>	87	12	1	0	0	0

Source:- Pakistan Social &amp; Living Standards Measurement Survey 2007-08 FBS.

- Note:-**
- Households traveling the distance indicated to the water source as a percentage of all households using the specified source "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; River/Canal/Stream"includes canal, river, spring, stream, pond.
  - Totals for columns may not add up to 100 because of rounding

**Table A-72: Municipal Solid Waste Disposal System (Transportation) at Selected Cities during, 2009**

Type of Vehicles	Selected cities by number of vehicles									
	2002					2009				
	Karachi	Peshawar	Bannu	Quetta	Sibi	Gujranwala	Faisalabad	Hyderabad	Lahore	Bahawalpur
Donkey Carts	-	-	-	-	-	50	-	45	-	10
Bullock Carts	-	-	-	-	-	-	-	-	-	3
Suzuki Pickup	-	4	-	1	-	-	-	-	5	-
Tractor Trolleys	-	7	4	6	3	40	19	6	52	12
Truck	389	21	2	43	-	22	1	3	96	-
Roll on roll off	-	-	-	-	-	-	18	-	219	-
Mec. Road sweeper	-	-	-	-	-	-	11	-	53	-
Mazda Compactor	-	-	-	-	-	-	2	-	3	-
Showel	-	-	-	-	-	-	2	-	-	-
Water Lorries	-	-	-	-	-	-	13	-	-	-
Dumpers	-	-	-	22	-	-	2	2	31	-
Mech Loader	-	16	1	1	-	5	11	3	7	02
Master High land pickup									65	

Source:- Tehsil Municipal Administration of each district

**Table A-73: Municipal Solid Waste Disposal System (by Number of Employees) at selected cities during 2009**

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
<b>2002</b>						
Karachi	4	334	244	11,571	11,142	11,905
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
<b>2009</b>						
Gujranwala	2	10	40	1,463	1,742	1,513
Faisalabad	4	115	72	2,968	2,539	3,083
Lahore	9	203	171	2,010	7,897	2,213
Bahawalpur	21	3	34	-	720	757
Hyderabad	1	58	1	990	990	1049

Source:- Tehsil Municipal Administration of each district

**Table A-74: Municipal Solid Waste Disposal System (Sanitary Landfill/Dumps) at selected cities during 2009**

Name of City	Existing Dumps		Proposed land, fill/site
	Number	Size	
<b>2002</b>			
Bahawalpur	4	-	-
Peshawar	1	24Kanals	-
Bannu	1	50Kanals	Topi Ghulam Qadir
Quetta	1	65Acres	Eastern By Pass
Sibi	Many sites	-	-
<b>2009</b>			
Gujranwala	-	-	Opening dumping at Chauwali
Faisalabad	2	40 Acres	At Chak Muhammad Wala Jaranwala Road
Lahore	2	638Kanal/Private Land	i)Kaachaa village site ii) Sundar village site iii) Handoki landfill site iv) Tahayat pind landfill site
Karachi	2	500 Acres each-	Both the dump sites at Deh Jam Chakro, Surjani Town & Deh Gond Pass, Hub river Road are to be proposed as Engineered Landfill sites & at Deh Dhabeji, Bin Qasim town a piece of land measuring 3000 acres is proposed for establishment of Engineered landfill site-
Hyderabad	Many plots	-	-

Source:- Tehsil Municipal Administration of each district

**Table A-75: Garbage Collection System from the Household by Province 2007-08**

Province and Garbage Collection System	2007-08 PSLM		
	Urban	Rural	Overall
<b>Punjab</b>			
Municipality	42	1	14
Privately	7	2	4
No System	51	96	82
Total	100	100	100
<b>Sindh</b>			
Municipality	31	1	16
Privately	35	0	18
No System	34	98	66
Total	100	100	100
<b>Khyber Pakhtunkhwa</b>			
Municipality	70	1	13
Privately	3	1	2
No System	27	98	86
Total	100	100	100
<b>Balochistan</b>			
Municipality	17	0	4
Privately	10	0	3
No System	73	100	93
Total	100	100	100
<b>Pakistan</b>			
Municipality	39	1	14
Privately	17	2	7
No System	44	97	79
Total	100	100	100

Source:- PSLM 2007-08 Federal Bureau of Statistics.

- Note:-
1. Household reporting the garbage collection system indicated for their household expressed as percentage of the total number of households.
  2. Total may not add to 100 because of rounding.

**Table A-76: Type of Sanitation System Used-by Province, 2005-06 & 2007-08**

Province and Sanitation System	2005-06 PSLM			2007-08 PSLM		
	Urban	Rural	Overall	Urban	Rural	Overall
<b>Punjab</b>						
Underground Drains	43	2	15	49	8	21
Covered Drains	5	2	3	6	5	5
Open Drains	44	48	47	38	46	44
No system	7	48	35	7	41	30
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
<b>Sindh</b>						
Underground Drains	66	1	35	66	1	34
Covered Drains	4	1	3	2	0	1
Open Drains	23	15	19	27	14	20
No system	7	82	42	6	85	45
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
<b>Khyber Pakhtunkhwa</b>						
Underground Drains	4	1	1	4	1	1
Covered Drains	4	1	2	3	1	1
Open Drains	78	42	48	85	42	50
No system	14	56	49	9	56	48
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
<b>Balochistan</b>						
Underground Drains	10	1	2	24	3	9
Covered Drains	18	1	5	10	1	4
Open Drains	36	6	13	47	9	19
No system	37	92	80	19	86	68
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
<b>Pakistan</b>						
Underground Drains	48	2	18	52	5	21
Covered Drains	5	1	3	4	3	4
Open Drains	38	39	39	37	38	38
No system	8	58	41	7	53	37
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Source:- PSLM 2007-08 Federal Bureau of Statistics.

- Note:-**
1. Households connected to the drainage system indicated, expressed as a percentage of the total number of households.
  2. Totals may not add to 100 because of rounding

**Table A-77: Summary Report for National Greenhouse Gases (Giga gram), 2008**

Source/GHG	CO <sub>2</sub> Emission	CO <sub>2</sub> Removals	CH <sub>4</sub>	N <sub>2</sub> O	NO <sub>x</sub>	CO	NM VOCs	Halocarbons
Energy	142900.0	NA	824.4	0.9	612.3	952.3	182.5	NA
A- Fuel Combustion activities	142900.0	NA	13.5	0.9	611.6	951.3	175.1	NA
1. Energy industries	41274	NA	1.2	0.2	112.5	11.5	3.2	NA
2. Manufacturing industries & construction	44900	NA	4.2	0.4	131.5	45.4	6.6	NA
3. Transport	34028	NA	6.5	0.24	346.7	876.3	164.0	NA
4. Other sectors	16398	NA	1.6	0.035	15.4	18.1	1.3	NA
B- Fugitive emissions from fields	NA	NA	810.9	NA	0.7	1.0	7.4	NA
1. Solid fuels	NA	NA	73.4	NA				NA
2. Oil & natural gas	NA	NA	737.5	NA				NA
3. Ozone precursors & SO <sub>2</sub> from refining	NA	NA	NA	NA	0.7	1.0	7.4	NA
Industrial processes	30593.3	NA	NA	1.1	3.5	9.4	1417.3	2.4
A. Mineral products	15294.3	NA	NA				1373.0	NA
B. Chemical industries	436.8	NA	NA	1.1	3.0	4.8	9.1	NA
C. Metal production	14862.2	NA	NA		0.5	4.6	0.5	2.0
D. Other production		NA	NA				35.3	NA
E. Production of halocarbons & sulfur hexafluoride	NA	NA	NA	NA	NA	NA	NA	NA
F. Consumption of halocarbons & sulfur hexafluoride	NA	NA	NA	NA	NA	NA	NA	0.4
Solvent & other product use	-	-	-	-	-	-	-	-
Agriculture & Livestock	NA	NA	3835.4	183.0	12.3	361.1	NA	NA
A. Enteric fermentation								
B. Manure management	NA	NA	3667.4		0.02	NA	NA	NA
C. Rice cultivation	NA	NA	155.0	NA	NA	NA	NA	NA
D. Agricultural soils	NA	NA	NA	182.6	NA	NA	NA	NA
E. Prescribed burning of savannas	NA	NA	NA	NA	NA	NA	NA	NA
F. Field burning of agricultural residues	NA	NA	12.9	0.34	12.3	361.1		NA
Forestry & land use change	18730	87284	NA	NA	NA	NA	NA	NA
A. Change in forest & other woody biomass stocks	18730	87284	NA	NA	NA	NA	NA	NA
B. Forest & grassland conversion	NA	NA	NA	NA	NA	NA	NA	NA
C. Abandonment of managed lands	NA	NA	NA	NA	NA	NA	NA	NA
D. Emission from soils	NA	NA	NA	NA	NA	NA	NA	NA
Waste	NA	NA	472.5	8.1	NA	NA	NA	NA
A. Solid waste disposal on land	NA	NA	447.5	NA	NA	NA	NA	NA
B. Waste water handling	NA	NA	25.0	NA	NA	NA	NA	NA
C. waste incineration	-	-	-	-	-	-	-	-
D. Other (human sewage)	NA	NA		8.1	NA	NA	NA	NA
Net National Emissions		104939.3	5132.3	193.1	628.1	1322.8	1599.8	2.4

P= Potential emissions  
N.A= Not Applicable  
- = Not Available

Source:-SUPARCO, Karachi

Socio-economic Activities and Natural Events

**Table A-78: Month Wise Analysis of Air Quality at Quaid-e-Azam Town, Township, Lahore- 2009**

	Wind speed	Wind Direction	Temp	RH	Radiation	NO	NO <sub>2</sub>	NO <sub>x</sub>	CH <sub>4</sub>	NMHC	THC	CO	SO <sub>2</sub>	O <sub>3</sub>	PM 2.5
Units	m/s	Degrees	°C	%	W/m <sup>2</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	ppb	µg/m <sup>3</sup>	ppb	ppb	Mg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>
*NAAQS						40 24 Hrs		80 24 Hrs				5 8 Hrs	120 24 Hrs	180 1 Hr	40 24 Hr
NAAQS Annual															
January	1.2	255	13.5	72	80	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	1.5	85	126.5	A.N.O
February	1.6	232	18	61.5	160	A.N.O	67	30	A.N.O	A.N.O	A.N.O	A.N.O	91	130.5	A.N.O
March	1.6	219	23.2	52.2	215.1	A.N.O	62.9	33.6	A.N.O	A.N.O	A.N.O	A.N.O	75	145.7	A.N.O
April	1.9	204.4	29.8	35.5	289.0	10.4	49.9	34.5	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	163.0	A.N.O
May	1.9	189.6	34.2	30.4	292.2	13.1	54.9	39.3	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	184.3	A.N.O
June	2.1	214	34.3	36.4	242.1	3.5	44.5	26.2	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	190.1	A.N.O
July	2.0	164	32.7	62.3	232.5	1.6	29.2	16.6	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	189	A.N.O
August	1.88	173.09	31.71	68.7	211.76	1.94	22.27	13.22	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	145.28	A.N.O
September	1.6	197	30.1	66.6	217.6	2.9	28.1	20.5	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	168	A.N.O
October	1.3	222	25.3	55.3	139	37.9	70.5	132.5	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	138	A.N.O
November	1.26	202.19	19.37	60.1	120.56	24.20	85.56	64.13	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	31.03	426.31
December	1.12	244.79	15.32	61.5	96.65	26.18	79.21	62.48	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	17.29	173.08
Average	1.6	209.8	25.7	55.2	191.4	13.5	54.0	43.0	-	-	-	-	-	135.7	299.7

Source: Environment Protection Department, Govt. of Punjab, Lahore

A.N.O= Analyzer not operational

\*(Proposed) NAAQS: National Ambient Air Quality Standard

Socio-economic Activities and Natural Events

**Table A-78: Month Wise Analysis of Air Quality at Lower Mall, Town Hall, Lahore- 2009**

	Wind speed	Wind Direction	Temp	RH	Radiation	NO	NO <sub>2</sub>	NO <sub>x</sub>	CH <sub>4</sub>	NMHC	THC	CO	SO <sub>2</sub>	O <sub>3</sub>	PM 2.5
Units	m/s	Degrees	°C	%	W/m <sup>2</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	ppb	µg/m <sup>3</sup>	ppb	ppb	Mg/ m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>
*NAAQS						40 24 Hrs						5 8 Hrs	120 24 Hrs	180 1 Hr	40 24 Hr
NAAQS Annual															
January	1.1	301	18.7	50.1	112	108	85	120	A.N.O	A.N.O	A.N.O	0.746	77.1		176
February	1.3	297	16.2	47	133	A.N.O			A.N.O	A.N.O	A.N.O	2.03	67.4		128
March	1.2	226	22.4	61.2	224	35	65	62	A.N.O	A.N.O	A.N.O	1.3.	48	45	108
April	1.25	197.21	25.43	49.4	197.81	70.91	77.97	93.72	4127	1119	7035	2.3	77.09	54.2	84
May	1.5	191.2	33.4	30.0	273.3	34.9	70.4	60.6	A.N.O	A.N.O	A.N.O	1.7	58.6	88.4	121.0
June	1.6	-	34.1	34.0	278.8	23.1	47.2	57.7	A.N.O	A.N.O	A.N.O	1.006	51.8	88.6	105.6
July	1.3	-	30.2	74.1	140	14.2	44.2	34.5	A.N.O	A.N.O	A.N.O	0.801	45.2	124.5	92.4
August	1.5	180.9	33.7	62.6	272.4	17.1	36.6	32.9	A.N.O	A.N.O	A.N.O	0.7	32.0	41.4	62.9
September	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O
October	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O
November	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O	A.N.O
December	1.4	259.7	17.7	51.3	110.1	65.4	76.9	93.7	A.N.O	A.N.O	A.N.O	2.2	A.N.O	31.6	163.1
Average	1.35	236.14	25.76	51.0	193.49	46.08	62.91	69.39	-	-	-	1.42	57.15	67.67	115.7

Source: Environment Protection Department, Govt. of Punjab, Lahore

A.N.O= Analyzer not operational

\*(Proposed) NAAQS: National Ambient Air Quality Standard

Socio-economic Activities and Natural Events

**Table A- 79: State of Air Quality in Urban Centers of Punjab (From 2008 to Jan 2010)**

Name of City	Location	Type of site	Date	Ozone Ug/m <sup>3</sup>	SO <sub>2</sub> Ug/m <sup>3</sup>	Co mg/m <sup>3</sup>	No Ug/m <sup>3</sup>	NO <sub>x</sub> Ug/m <sup>3</sup>	PM2.5 ug/m <sup>3</sup>	Humi-dity %	W. Speed M/sec	NMHC ppb
1	2	3	4	5	6	7	8	9	10	11	12	13
Lahore	Gulberg Area	Urban Area	12.01.10	18	26.8	1.5	33.9	48.8	259.1	91.3	0.85	-
Lahore	Township	Residential near Industrial	15.01.10	-	-	0.91	32.4	70.9	138.3	69.4	1.5	-
Lahore	Defence Road	Near Air port	19.01.10	15	31	1.2	14	54	202	89	1	-
Lahore	Lytton Road	Busy Road side/Commercial	20.01.10	24	52	1.9	94	146	294	84	1.07	-
Multan	Shah Rukn-e-Alam	Residential/Road side	12.01.10	18.04	26.83	1.56	34	76	-	91.41	0.86	1321
Multan	Hussain Agahi Chowk	Busy road side/Commercial	12.01.10	15	29	1.78	33	77	170	91	1	1588
Multan	Shafiabad	Residential	13.01.10	30	35	0.75	18	40	90	82	1	550
Bahawalpur	Fawara Chowk	Busy Road side/Commercial	15.01.10	17.2	20.4	3.0	108.7	151.6	298.6	88.8	0.6	2399
Bahawalpur	Fareed Gate	Busy Road Side	16.01.10	18.2	38.9	2.0	47.0	94.4	209.4	84.1	0.8	1961
Muzaffargarh	Thermal Power Station Colony	Industries	17.01.10	36	18	1.0	20	62	189	84	1	606
Muzaffargarh	Kachehry Chowk	Busy Road side/Commercial	18.01.10	18	24	1.9	72	131	242	87	0.8	-
Rawalpindi	Westridge Colony	Residential Area	23.01.10	14.9	49	2.12	90	189	183	55.1	0.93	2159
Rawalpindi	Dist. Hospital Raja Bazaar	Urban Area	24.01.10	37	41	1.8	80	162	167	51	0.84	-
Rawalpindi	RDA Office	Urban Area near Murree Road	25.01.10	23	31	2.3	107	191	166	52	0.8	-
Rawalpindi	Attock Oil Refinery	Industrial	26.01.10	46	74	2	109	177	128	55	0.8	2721
Faisalabad	Peoples Colony	Residential Area	25.11.08	60	161	4.8	-	472	240	56.6	1.6	2900
Faisalabad	Katchery Bazar	Commercial	27.11.08	58	140	5.52	-	380	235	55	1.52	3700
Faisalabad	Bus Stand	Busy Road Side	29.11.08	57	176	3.03	-	450	230	55.9	1.2	3500

Contd...



**Table A-79: State of Air Quality in Urban Centers of Punjab (From 2008 to Jan 2010)**

Name of City	Location	Type of site	Date	Ozone Ug/m <sup>3</sup>	SO <sub>2</sub> Ug/m <sup>3</sup>	Co mg/m <sup>3</sup>	No Ug/m <sup>3</sup>	NO <sub>x</sub> Ug/m <sup>3</sup>	PM2.5 ug/m <sup>3</sup>	Humi-dity %	W. Speed M/sec	NMHC ppb
1	2	3	4	5	6	7	8	9	10	11	12	13
Sheikhupura	Civil line near DCO Office	Residential	20.01.09	24.46	26.40	0.12	27	78	90	80	1.1	451
Sheikhupura	Lahore Sheikhupura Road	Busy Road Side	24.01.09	35.8	106	0.30	55	153	177	68.8	2.2	720
Gujranwala	DCO Office Road	Busy Road Side	07.02.10	103	103	0.25	-	28	70	50	1.42	500
Gujranwala	Baghbaan Pura	Residential	10.02.09	78	52	0.85	-	82	201	84.1	1.14	722
Gujrat	G.T road	Busy Road Side	11.02.09	73	42	0.30	-	70	130	75	1.10	1050
Gujrat	Fawara Chowk	Residential	12.02.09	101	35	0.31	-	36	78	50	1.10	727

\*NAAQS National Ambient Air Quality Standard (Proposed)

Ozone	180 for 1 Hrs
SO <sub>2</sub>	120 for 24 Hrs
CO	5 for 8 Hrs
NO	40 for 24 Hrs
NO <sub>x</sub>	80 for 24 Hrs
PM <sub>2.5</sub>	40 for 24 Hrs
NMHC	240US Standards

**Note:-**

Ppb= Ug/m <sup>3</sup>	Part per Billion Microgram per Cubic meter	SO <sub>2</sub>	Sulfur dioxide
DB	Decibel	CO	Carbon monoxide
No <sub>x</sub>	Oxide of Nitrogen	NO <sub>2</sub>	Nitrogen dioxide
		PM <sub>2.5</sub>	Particulate matter below 2.5 micron size

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

Socio-economic Activities and Natural Events

**Table A-80: 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
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

Contd...

## Socio-economic Activities and Natural Events

**Table A-80: 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	0.85	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	2.37	0.61	1.49	2.36	0.62	1.49	2.59	0.69	1.64
October	2.44	0.67	1.56	2.42	0.68	1.55	2.59	0.72	1.66
November	2.49	0.75	1.62	2.49	0.72	1.61	2.51	0.77	1.64
December	2.50	0.77	1.64	2.49	0.75	1.62	2.51	0.82	1.67
Month	2004			2005			2006		
	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	2.54	0.80	1.67	2.56	0.83	1.69	2.54	0.78	1.66
February	2.60	0.80	1.70	2.61	0.79	1.70	2.62	0.81	1.72
March	2.59	0.86	1.72	2.64	0.82	1.73	2.66	0.78	1.72
April	2.60	0.87	1.74	2.60	0.87	1.74	2.61	0.86	1.74
May	2.62	0.90	1.76	2.61	0.89	1.75	2.61	0.88	1.75
June	2.65	0.87	1.76	2.65	0.88	1.77	2.62	0.90	1.76
July	2.68	0.80	1.74	2.65	0.84	1.74	2.65	0.82	1.73
August	2.67	0.71	1.69	2.62	0.77	1.69	2.62	0.77	1.70
September	2.55	0.71	1.63	2.57	0.72	1.65	2.56	0.73	1.65
October	2.52	0.74	1.63	2.51	0.78	1.64	2.49	0.77	1.63
November	2.48	0.81	1.65	2.47	0.81	1.64	2.49	0.79	1.64
December	2.49	0.84	1.67	2.52	0.82	1.67	2.52	0.81	1.67

Contd...

**Table A-80: Tide Data off Seashore Karachi**

(Metres)

Month	2007			2008			2009		
	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
<b>January</b>	2.47	0.82	1.65	2.54	0.82	1.68	2.58	0.80	1.69
<b>February</b>	2.60	0.80	1.70	2.60	0.79	1.70	2.60	0.79	1.70
<b>March</b>	2.61	0.81	1.71	2.57	0.83	1.70	2.62	0.81	1.71
<b>April</b>	2.61	0.87	1.74	2.58	0.89	1.74	2.61	0.87	1.74
<b>May</b>	2.61	0.92	1.77	2.62	0.91	1.76	2.62	0.88	1.75
<b>June</b>	2.63	0.91	1.77	2.66	0.87	1.77	2.66	0.85	1.76
<b>July</b>	2.66	0.82	1.74	2.68	0.80	1.74	2.66	0.81	1.74
<b>August</b>	2.66	0.72	1.69	2.66	0.71	1.68	2.62	0.76	1.69
<b>September</b>	2.60	0.70	1.65	2.57	0.71	1.64	2.56	0.73	1.65
<b>October</b>	2.53	0.73	1.63	2.50	0.74	1.62	2.50	0.76	1.63
<b>November</b>	2.49	0.81	1.65	2.47	0.80	1.64	2.49	0.79	1.64
<b>December</b>	2.50	0.83	1.66	2.51	0.81	1.66	2.54	0.79	1.66

Source:- National Institute of Oceanography Karachi

**Table A-81: Films Released by Language**

(Number)

Year	Number of films released						
	Total	Urdu	Sindhi	Punjabi	Pushto	Sariaiki	Gujrati
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	-	-
2005	42	11	-	11	20	-	-
2006	42	8	-	12	22	-	-
2007	39	10	-	15	14	-	-
2008	35	7	-	12	16	-	-
2009	23	5	-	9	9	-	-

Source:- Pakistan Film Producer's Association

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

## Socio-economic Activities and Natural Events

**Table A-82: 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
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	-	-
2004-05	1	1	9	8	-	-
2005-06	1	1	9	8	-	-
2006-07	-	-	7	5	4	4
2007-08	5	-	4	4	-	-
2008-09	1	1	1	-	-	-
Year	Khyber Pakhtunkhwa		Balochistan			
	No. of Films Produced	No. of Films Released	No. of Films Produced	No. of Films Released		
1996-97	-	-	-	-		
1997-98	-	-	-	-		
1998-99	-	-	-	-		
1999-00	-	-	-	-		
2000-01	-	-	-	-		
2001-02	-	-	-	-		
2002-03	-	-	-	-		
2003-04	-	-	-	-		
2004-05	-	-	-	-		
2005-06	-	-	-	-		
2006-07	-	-	-	-		
2007-08	-	-	-	-		
2008-09	-	-	-	-		

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

**Table A-83: 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
2005	535	471	195	515
2006	433	345	214	1148
2007	629	595	704	2438
2008	324	324	98	280
2009	219	219	105	290
2010	644	479	95	280

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

**Table A-84: Cinemas and Seating Capacity therein by Province**

(Number)

Years	PAKISTAN	BALUCHISTAN	Khyber Pakhtunkhwa	PUNJAB	SINDH
<b>Cinemas</b>					
1996-97	503	16	34	312	141
1997-98	493	16	34	306	137
1998-99	471	15	35	297	124
1999-00	457	16	35	292	114
2000-01	433	15	35	281	102
2001-02	413	14	35	273	91
2002-03	406	14	35	268	89
2003-04	375	13	33	247	82
2004-05	337	10	30	241	56
2005-06	285	8	28	198	51
2006-07	282	8	35	179	60
2007-08	250	9	30	148	63
2008-09	205	4	22	125	54
2009-10	126	-	17	88	21
<b>Seating Capacity of Cinemas</b>					
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
2004-05	200,909	3,762	14,448	143,615	39,084
2005-06	159,789	3,722	12,521	106,670	36,876
2006-07	162,864	3,722	20,200	101,134	37,808
2007-08	159,157	5,120	21,812	96,274	35,951
2008-09	124,980	2,400	15,650	77,200	29,730
2009-10	37,650	3,600	10,000	15,400	8,650

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

Note:- Federal Capital Area Islamabad is included in Punjab



**Table A-85: 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		
<b>Karachi Zoo</b>						
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	16,600,847
2002-03	1,071,000	900,000	389	468	5,427,761	15,955,988
2003-04	1,125,000	1,000,000	389	487	5,916,000	17,426,701
2004-05	1,449,322	1,027,642	419	369	4,636,135	20,062,108
2005-06	1,500,000	840,000	414	311	3,577,091	21,220,552
2006-07	1,447,623	600,000	432	404	5,991,799	19,313,884
2007-08	1,207,640	1,320,600	388	434	5,567,895	21,048,742
2008-09	1,800,000	70,000	512	501	27,100,000	24,303,194
2009-10	1,562,960	1,128,400	387	473	9,182,875	26,460,096
<b>Hyderabad Zoo</b>						
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
2004-05	75,000	50,000	48	160	1,400,000	810,000
2005-06	50,000	65,000	33	100	1,500,000	625,000
2006-07	-	-	-	-	-	-
2007-08	***	***	***	***	***	***

Contd...

**Table A-85: 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		
<b>Bahawalpur Zoo</b>						
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
2004-05	411,901	82,378	204	659	4,107,000	4,210,000
2005-06	**	**	194	682	4,347,000	5,338,235
2006-07	**	**	194	563	4,599,836	4,055,000
2007-08	601,069	131,568	175	616	4,700,000	5,870,686
2008-09	642,488	142,514	179	614	16,509,000	7,479,000
2009-10	655,948	133,526	177	702	7,043,000	7,922,000
<b>Lahore Zoo</b>						
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
2004-05	1,949,588	700,034	313	747	6,588,798	34,458,772
2005-06	2,036,748	837,500	322	780	--	44,204,063
2006-07	2,874,248	2,665,510	325	616	17,609,703	47,633,708
2007-08	1,998,007	658,236	286	751	8,660,012	49,590,700
2008-09	1,936,036	733,724	43	71	41,040,012	50,105,989
2009-10	1,873,100	684,700	277	705	48,192,172	63,345,191

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

\*\* Sale of tickets leased out to private contractor.

\*\*\* Zoological Garden Hyderabad has been shifted to Karachi.

# Section B

## **Environmental Impacts of Socio-Economic Activities and Natural Events**

Rapid population growth impacts directly all facets of environment, whether natural or man made. Some major problems include food shortages, sub-division of landholding to the level of uneconomical size, deforestation, reduction in agricultural land due to expansion of cities, pressure on housing units unaffordable increase in energy consumption, shortages of natural resources for the development of industrial sector and degradation of environment.

The predecessor publication contained some paragraphs on human settlement and other allied/consequential factors, based on National Conservation Strategy (NCS) 1994. These could not be updated as no follow-up or new version of NCS has so far been prepared and as such, the last Compendium can be referred to for this purpose. This section briefly dwells on certain aspects of economic activities, which bear nexus with population growth and, by the same token, environment.

Thus, this section includes tabulations on area under, as well as production of, agricultural crops, import/export of, agricultural commodities, milk and milk products, fertilizers, wood and wood products, petroleum product and coal. In order to allude towards deforestation, revenue earned by forest department is also tabulated. Further, as an explicit consequences of population pressure, some tables on waste generation, chemical analysis of river waters, water logging and salinity and different types of pollutants on coast of Pakistan are included. Similarly, a record of nature's unsavoury expressions i.e. natural disasters, which bear uncanny relationship with human actions, is given at the end.

Environmental Impact of Socio-economic Activities and Natural Events  
**Table B-01: Area under Agricultural Crops and Fruits Indices**  
**(1996-97=100)**

Year	Rice	Wheat	Bajra	Jowar	Maize	Barley	Gram	Masoor
1996-97	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
1997-98	102.94	103.03	151.87	105.60	100.53	106.97	100.19	93.24
1998-99	107.66	101.49	152.72	103.54	103.72	90.20	97.88	83.17
1999-00	111.74	104.36	103.33	96.70	103.66	81.26	88.33	78.99
2000-01	105.58	100.88	128.62	95.67	101.77	74.29	82.26	66.33
2001-02	93.92	99.36	137.70	96.75	101.50	72.72	84.88	64.46
2002-03	98.85	99.07	115.32	91.48	100.84	70.81	87.53	70.50
2003-04	109.31	101.32	178.05	106.20	102.09	66.80	89.28	74.24
2004-05	111.93	103.07	113.34	83.20	105.83	61.34	99.43	62.45
2005-06	116.45	104.18	145.49	68.83	112.32	59.11	93.52	48.78
2006-07	114.66	105.78	166.42	78.90	109.62	61.80	95.65	56.12
2007-08	111.74	105.43	175.17	76.14	113.37	59.89	100.60	43.74
2008-09	131.59	111.55	155.07	71.08	113.41	56.54	98.22	44.46
Year	Mash	Mung	Other Pulses (a)	Rapeseed & mustard	Sesamum	Linseed	Groundnut	Cotton
1996-97	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
1997-98	85.37	101.56	98.46	95.93	96.58	96.39	102.96	94.00
1998-99	79.79	103.69	102.31	94.29	71.46	92.77	93.03	92.83
1999-00	75.61	105.35	83.08	92.48	72.06	86.75	88.26	94.74
2000-01	79.79	113.93	83.08	76.89	101.51	56.63	77.77	92.98
2001-02	95.30	124.32	78.46	75.98	136.28	74.70	94.85	98.96
2002-03	96.52	133.94	60.77	79.29	88.34	71.08	82.44	88.73
2003-04	84.84	133.06	81.54	79.06	60.00	74.70	97.90	94.94
2004-05	65.33	117.15	61.54	72.68	66.83	65.06	100.95	101.40
2005-06	60.28	108.37	63.85	64.23	82.41	69.88	89.41	98.55
2006-07	57.84	113.20	71.54	75.11	71.76	62.65	89.22	97.66
2007-08	56.62	127.81	89.23	66.29	76.78	55.42	90.46	97.01
2008-09	48.08	114.19	70.00	69.20	91.16	65.06	88.55	89.56

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

Contd...

Environmental Impact of Socio-economic Activities and Natural Events  
**Table B-01: Area under Agricultural Crops and Fruits Indices**  
**(1996-97=100)**

Year	Jute	Sunhemp	Sugar cane	Tobacco	Potato	Vegetables (b)	Garlic	Chillies
1996-97	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
1997-98	100.00	91.18	109.51	108.98	122.03	102.37	103.53	103.67
1998-99	66.67	82.35	119.76	116.94	127.62	103.94	108.24	101.72
1999-00	66.67	82.35	104.70	115.10	128.79	102.37	101.18	99.54
2000-01	66.67	91.18	99.62	93.06	118.30	102.74	92.94	96.90
2001-02	66.67	94.12	103.65	100.82	122.61	104.04	82.35	55.85
2002-03	66.67	70.59	114.01	95.10	134.97	104.22	82.35	64.68
2003-04	0.00	67.65	111.40	93.06	127.86	109.79	81.18	63.99
2004-05	0.00	50.00	100.20	103.06	130.54	110.77	77.65	55.85
2005-06	0.00	55.88	94.07	115.10	136.83	114.29	82.35	74.08
2006-07	0.00	44.12	106.67	103.88	155.48	113.92	91.76	54.24
2007-08	0.00	41.18	128.70	104.90	179.84	117.77	95.29	73.62
2008-09	0.00	35.29	106.73	101.43	169.00	117.35	98.82	84.63
Year	Onion	Citrus Fruit	Banana	Mango	Apple	Guava	Grapes	Dates
1996-97	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
1997-98	100.74	100.87	103.59	102.65	102.53	101.43	102.35	100.81
1998-99	105.82	101.34	105.18	103.43	105.52	104.46	104.71	101.34
1999-00	135.89	101.70	111.55	104.09	118.85	107.68	122.35	103.22
2000-01	130.69	102.21	120.72	107.30	133.79	113.21	147.06	105.50
2001-02	128.47	99.90	124.30	109.51	111.72	114.82	149.41	105.37
2002-03	133.66	93.42	118.33	113.72	109.20	112.14	149.41	104.56
2003-04	134.90	90.79	125.90	114.05	254.71	110.00	150.59	100.40
2004-05	158.17	94.55	131.87	167.59	256.55	113.39	152.94	109.66
2005-06	184.03	98.92	129.48	173.23	257.47	110.36	152.94	110.07
2006-07	162.62	99.38	139.04	181.97	258.85	111.61	162.35	113.83
2007-08	189.48	102.57	141.43	183.85	259.77	113.04	180.00	120.94
2008-09	160.40	102.83	143.43	188.16	259.77	111.07	180.00	121.74

Source:- Agricultural Statistics of Pakistan, 2008-09

Environmental Impact of Socio-economic Activities and Natural Events  
**Table B-02: Production of Agricultural Crops and Fruits Indices**  
**(1996-97=100)**

Year	Rice	Wheat	Bajra	Jowar	Maize	Barley	Gram	Masoor
1996-97	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
1997-98	100.66	112.27	145.12	105.52	101.78	116.07	129.05	106.00
1998-99	108.57	107.25	146.22	103.92	111.69	91.60	117.41	107.71
1999-00	119.76	126.59	106.87	100.55	110.81	78.33	94.97	101.43
2000-01	111.56	114.25	136.68	99.50	110.23	65.93	66.79	76.86
2001-02	90.18	109.47	148.63	101.09	111.64	66.53	60.92	74.86
2002-03	104.04	115.21	129.95	92.43	116.52	66.40	113.59	83.43
2003-04	112.61	117.11	187.98	108.62	127.27	65.07	102.81	88.86
2004-05	116.73	129.80	132.76	85.04	187.62	61.13	146.06	74.00
2005-06	128.86	127.78	151.65	69.62	208.59	58.33	80.67	51.14
2006-07	126.33	139.90	163.46	81.89	207.16	61.80	140.95	60.29
2007-08	129.24	125.87	209.48	77.60	241.80	58.27	79.85	41.71
2008-09	161.49	144.34	203.57	75.05	241.01	54.33	124.58	41.14
Year	Mash	Mung	Other Pulses(a)	Rapeseed & mustard	Sesamum	Linseed	Groun-dnut	Cotton (000 bales)
1996-97	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
1997-98	90.85	99.33	101.52	102.07	94.65	97.83	95.74	97.97
1998-99	88.38	101.12	110.61	98.74	71.49	106.52	87.82	93.77
1999-00	83.45	105.92	90.91	104.10	78.84	97.83	84.41	119.90
2000-01	90.49	116.76	93.94	80.74	112.92	58.70	77.77	114.48
2001-02	97.18	128.94	84.85	77.49	155.01	65.22	86.03	113.21
2002-03	102.11	154.64	66.67	82.28	42.76	65.22	76.75	108.92
2003-04	86.62	157.32	86.36	83.40	55.01	67.39	97.70	107.18
2004-05	64.79	145.25	69.70	75.56	66.37	56.52	65.08	152.18
2005-06	58.10	127.26	69.70	63.31	78.17	60.87	58.86	138.88
2006-07	55.99	154.75	72.73	77.38	67.71	78.26	62.95	137.14
2007-08	60.92	198.55	109.09	64.81	73.05	67.39	71.04	124.33
2008-09	47.89	175.87	92.42	69.64	91.31	78.26	72.83	126.08

Contd...

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

Environmental Impact of Socio-economic Activities and Natural Events  
**Table B-02: Production of Agricultural Crops and Fruits Indices**  
**(1996-97=100)**

Year	Jute	Sunhemp	Sugar cane	Tobacco	Potato	Vegetables* (b)	Garlic	Chilies
1996-97	0	100.00	100.00	100.00	100.00	100.00	100.00	100.00
1997-98	0	90.91	126.44	107.64	147.93	103.11	104.86	100.07
1998-99	0	86.36	131.41	118.78	187.88	104.81	108.67	97.50
1999-00	0	86.36	110.32	117.58	193.90	100.18	100.26	82.44
2000-01	0	95.45	103.83	92.90	172.86	100.06	83.97	124.63
2001-02	0	100.00	114.39	103.17	178.67	100.55	74.24	66.60
2002-03	0	77.27	123.95	96.29	201.98	100.78	75.82	70.59
2003-04	0	72.73	127.19	94.10	201.13	105.96	74.24	68.81
2004-05	0	50.00	112.49	109.72	210.14	106.66	73.46	64.60
2005-06	0	54.55	106.35	122.93	162.71	109.34	75.30	87.72
2006-07	0	45.45	130.34	112.77	267.91	109.80	81.87	49.61
2007-08	0	45.45	152.20	117.69	263.49	109.76	83.84	82.87
2008-09	0	45.45	119.16	114.52	305.24	112.45	88.30	133.98
Year	Onion	Citrus fruits	Banana	Mango	Apple	Guava	Grapes	Dates
1996-97	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
1997-98	95.18	101.72	112.50	100.25	100.81	101.61	100.27	100.58
1998-99	100.64	92.95	113.70	100.21	103.66	104.60	102.29	101.07
1999-00	145.71	97.03	150.48	102.54	66.37	110.45	54.39	108.51
2000-01	138.22	94.76	167.55	108.23	77.20	117.38	68.96	114.61
2001-02	122.46	91.40	179.93	113.41	64.57	120.28	70.99	117.95
2002-03	126.22	85.00	171.75	113.13	55.48	118.74	69.91	116.95
2003-04	128.12	87.90	185.10	115.46	58.72	122.76	68.56	79.87
2004-05	156.05	97.06	189.90	182.74	61.90	127.72	66.26	116.47
2005-06	181.76	122.76	196.51	191.79	61.79	123.34	65.86	92.87
2006-07	160.61	73.52	180.89	187.99	61.27	124.03	62.75	79.77
2007-08	178.18	114.58	189.90	191.77	77.68	120.37	101.62	104.32
2008-09	150.67	106.47	189.06	188.94	77.57	114.43	102.70	106.01

Source:- Agricultural Statistics of Pakistan, 2008-09

Environmental Impact of Socio-economic Activities and Natural Events  
**Table B-03: Quantity and Value of Export of Major Agricultural Commodities**

(Quantity in '000' tonnes)

(Value in million Rs.)

Year	2005-06		2006-07		2007-08		2008-09	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
<b>A. Primary Commodities</b>								
<b>Rice (all)</b>	3688.7	69325.1	3129.1	68285.9	2809.1	117088.1	2729.4	154762.9
Rice Basmati	839.0	28714.1	907.9	33732.7	1138.1	68231.6	974.3	83252.6
Rice other varieties	2849.7	40611.0	2221.2	34553.2	1671.0	48856.5	1755.1	71510.3
Fish & Fish Preparation	128.5	11624.5	123.6	11419.1	132.3	13327.5	127.4	18464.9
Fruit & Veg. Incl. Juice	582.2	9928.6	578.5	11292.3	652.0	13659.8	906.3	19353.4
Fruits	455.3	7508.2	343.4	6893.6	411.2	9084.4	465.9	12313.6
Vegetables	111.7	1757.5	217.6	3335.9	222.9	3524.9	424.8	5785.3
Fruits & Veg. Juice	15.2	662.9	17.5	1062.8	17.9	1050.1	15.6	1254.5
Wheat	0	0	457.8	5862.2	29.7	446.7	142.5	3064.7
Wheat Flour	470.6	5839.6	517.8	6697.1	255.9	3420.9	0	0
Spices (Incl.Chillies)	20.0	1409.5	17.8	1458.1	14.8	1699.3	13.8	2557.0
Oil seed, Nuts, Kernals	17.3	664.9	24.8	1074.2	39.8	2460.7	36.6	3317.8
Leguminous Veg.	199.1	4643.6	17.2	470.0	4.1	125.1	3.8	270.1
Flowers	0.1	11.2	0.0	0.0	0.0	0.0	0.0	0.0
Raw hides and skin	*	1.6	0.1	15.0	-	-	0.1	2.4
Raw Wool & Animal Hair	4.2	202.1	5.8	295.8	7.2	432.8	4.2	331.0
Raw wool	2.5	127.6	2.2	123.6	4.1	249.7	2.3	191.0
Animal hair	1.7	74.5	3.6	172.2	3.1	183.1	1.9	140.0
Crude Animals material	5.7	1014.1	6.1	926.2	9.6	1318.3	7.4	2025.9
Crude fertilizer	0.1	0.1	0.0	0.0	3.3	33.2	6.4	76.6
Molasses	497.2	2612.3	373.2	1704.0	780.8	3490.8	936.3	7486.6
Raw cotton	62.7	4079.7	45.1	3047.8	55.9	4426.1	78.2	6826.5
Cotton waste	87.1	2621.5	70.5	2501.9	61.7	2476.1	26.8	1706.4
Tobacco	-	386.3	-	570.2	-	454.1	-	978.1
UN-manufactured	3.7	328.2	5.3	529.9	4.3	426.0	4.6	938.1
Manufactured Excl. cigarette	1.1	36.9	0.5	13.9	0.4	23.8	0.1	25.2
Cigarettes (Million Nos.)	22.3	21.2	26.9	26.3	4.1	4.3	11.0	14.9
<b>Sub-Total (A):</b>		<b>114364.7</b>		<b>115619.8</b>		<b>164859.5</b>		<b>221224.3</b>

Contd....



Environmental Impact of Socio-economic Activities and Natural Events  
**Table B-03: Quantity and Value of Export of Major Agricultural Commodities**

(Quantity in '000' tonnes)

(Value in million Rs.)

Year	2005-06		2006-07		2007-08		2008-09	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
<b>B. Textile Manufactures</b>								
Cotton yarn	504.7	62749.4	671.7	82794.3	665.5	86587.9	523.7	87353.9
Cotton Cloth (Million sq.M)	2399.5	110578.7	2634.0	126195.4	2211.7	122863.2	1898.5	153037.4
Cotton thread	0.2	56.3	0.1	18.5	0.4	81.8	2.1	459.2
Tents & other canvas goods	26.4	3951.2	17.1	2330.4	25.9	4187.8	199.5	4394.3
Bed wear	264.4	86063.9	375.2	121997.7	367.0	121006.0	326.2	136.1
Towels	139.2	30900.0	158.8	35179.8	159.5	36525.4	171.8	50386.1
Textile madeups (excl. towels)	-	27637.2	-	25012.0	-	28578.3	-	37640.1
<b>Sub-Total (B):</b>		<b>321936.7</b>		<b>393528.1</b>		<b>399830.4</b>		<b>333407.1</b>
<b>C. Other Manufactures</b>								
Leather (Million sq.M)	17.4	17504.5	19.2	19474.5	24.2	26026.3	19.5	23393.0
Leather manuf. Excl. footwear	-	43246.8	-	33590.5	-	43764.8	-	43471.9
Carpets (Million sq.M)	4.2	15398.3	3.9	14147.6	3.7	13529.7	2.7	11391.2
Feeding stuff for animals	45.8	229.3	56.8	341.9	97.6	749.5	121.6	1238.2
Fertilizers manufactures	25.0	314.0	1.0	13.3	-	-	0.3	9.8
Rubber Manufactures	-	167.8	-	222.6	-	340.8	-	307.8
Guar & guar products	16.1	1108.7	7.0	519.7	29.8	2299.7	25.8	2206.4
Foot wears (Million pairs)	22.2	8693.6	15.1	6940.8	13.6	7810.7	14.5	10043.8
Sports goods	-	20560.1	-	17482.8	-	19012.9	-	21391.3
Furniture	-	660.9	-	637.7	-	690.5	-	662.2
<b>Sub-Total (C):</b>		<b>107884.0</b>		<b>93371.4</b>		<b>114224.9</b>		<b>114115.6</b>
<b>Total (A+B+C)</b>		<b>544185.4</b>		<b>602519.3</b>		<b>678914.8</b>		<b>668747.0</b>
<b>Total Exports</b>		<b>854087.7</b>		<b>984840.6</b>		<b>1029311.7</b>		<b>1196637.6</b>

Source:- Agricultural Statistics of Pakistan, 2008-09

Environmental Impact of Socio-economic Activities and Natural Events  
**Table B-04: Import of other Agricultural Commodities**

(Quantity 000 Tonnes)  
(Value in Million Rs)

Item	2006-07		2007-08		2008-09	
	Quantity	Value	Quantity	Value	Quantity	Value
Milk and cream	35.1	3609.2	26.5	2683.1	27.3	3484.3
Potato Seed	10.2	393.7	6.1	267.2	5.6	345.2
Pulses	520.9	14838.7	336.0	12689.3	379.8	18544.2
Maize Seed	5.8	1104.0	9.7	2264.2	7.0	1221.4
Cotton	461.1	39233.6	223.2	21754.9	138.0	17008.4
Dry Fruits	115.1	4137.6	115.9	4963.0	118.1	6629.2
Sugar Refined	586.5	15721.1	36.7	367.0	125.7	4505.4
Tea	112.1	12965.0	100.4	12653.2	96.9	17417.3
Spices	86.2	3274.6	134.2	5378.4	105.4	5543.1
Milk food for babies infnt. Invld	4.5	1498.5	5.4	1948.0	4.1	2176.4
Palm oil	1701.4	55528.8	1763.9	101971.1	1773.6	109052.6
Soyabean oil	48.5	2467.6	108.3	6456.2	91.8	698.4
Agriculture machinery & implements	0.0	10097.6	0.0	8442.5	8744.8	8481.7
Jute	126.4	2963.3	128.7	2967.7	114.3	4330.8
Fertilizer manufactured	1466.4	27109.0	1997.7	55164.7	1199.1	42381.1
Insecticides	29.1	5848.4	27.8	6330.2	28.8	8980.6
Feeding stuff for animals	441.8	6743.3	228.2	5856.9	259.7	9994.2
Hides & skins & fur skins Raw	26.0	1723.5	40.5	3152.3	44.3	4375.3
Oil seeds & oleagionous Fruits	1192.1	25561.8	852.1	28840.3	638.0	26361.0
Rubber crude incl. Synth/reclaimed	82.0	6957.7	83.5	8819.7	67.8	10885.1
Wood and cork	0.0	2799.3	0.0	3266.9	0.0	4275.0
Pulp & waste paper	169.1	3725.2	201.7	5517.4	165.6	6762.7
Fertilizer crude	346.4	1627.1	466.9	3477.2	204.6	4255.7
Crude animal & vegetable materials	84.0	4225.3	94.2	6030.5	85.5	5342.7
Animal oils and fats	83.7	2289.4	78.7	3566.6	54.8	4174.3
Animal/veg/fat oil wax etc nes	109.3	2474.5	46.1	1801.3	71.9	2200.2
Cork/wood mfg. (excl. furniture)	115.1	2680.3	85.4	3154.8	88.2	3437.8
Paper & paper board & manf. thereof	417.6	18096.4	427.8	217.3	367.1	24940.1
Foot wear (pair)	8.6	1526.2	10.9	2280.1	11.8	3094.1
<b>Total</b>		281220.7		322282.0		360898.3
<b>Total Imports</b>		1851805.9		2512071.7		2723569.9

Source:- Agricultural Statistics of Pakistan, 2008-09

Environmental Impact of Socio-economic Activities and Natural Events  
**Table B-05: Import of Edible Oil**

(Quantity in Tonnes)

(Value in Million Rs.)

Year	Quantity				Value			
	Soyabean	Palm oil	Other	Total	Soyabean	Palm oil	Other	Total
1995-96	158.4	984.4		1142.8	3897.0	24777.7		28674.7
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		34288.5
2003-04	80.8	1280.0		1360.8	2622.8	35294.4		37917.2
2004-05	73.3	1531.2		1604.5	3244.3	41730.7		44975.0
2005-06	32.6	1663.2		1695.8	1285.6	42926.5		44212.1
2006-07	48.5	1720.7	17.9	1787.1	2467.6	55919.7	1119.6	59506.9
2007-08	108.3	1772.8	819.7	2700.8	6456.2	102568.5	27778.7	136803.4
2008-09	91.8	1783.0	614.2	2489.0	6989.5	109929.3	25166.9	142085.7

Source:- Agricultural Statistics of Pakistan, 2008-09

Environmental Impact of Socio-economic Activities and Natural Events  
**Table B-06: Import of Milk and Milk Products**

(Quantity in Tonnes)  
(Value in 000 Rs.)

Items	2005-06		2006-07		2007-08		2008-09	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Milk and Cream of a Fat upto 1%	16.2	1743	13.2	1393	41.6	4304	37.5	4552
Milk and Cream of a Fat 1% to 6%	-	-	0.1	4	1.1	110	0.4	50
Milk and Cream of a Fat >6%	0.9	39	0.4	40	27.3	2714	38.7	4231
Milk in powder Fat 1.5 %	8867.3	1026844	6720	776080	5504.2	1011809	7597.8	1907265
Milk in powder >1.5% Fat	909	108785	4490.7	619571	2477.2	437678	2786.8	639608
Other Milk in powder >1.5% Fat	1878.1	26334	3051.3	597119	2477.6	403013	133.0	29615
Other Milk/cream not solid/sweet	3592.2	476487	7823.2	1039308	157.1	19498	206.3	29516
Other Milk/Cream solid, Sweetend	511.5	38908	166.0	13050	234.4	21227	279.2	29021
Yogurt	41.1	3668	59.1	3023	32.8	1930	46.4	3249
Butter Milk, Curdled Milk/Cream	188.3	24637	53.7	7792	98.2	13935	4.7	587
Whey powder	13424.1	507168	11983.5	458123	14857.1	637035	15877.0	786523
Other whey preserve concent/Sweet	1.4	83	1.8	78	0.2	12	0.4	22
Other product consist Nature Milk	216.9	21437	690.7	77907	987.5	114151	240.8	34937
Butter	53.7	6477	244.0	29922	91.0	10812	65.3	9057
Dairy spreads	-	-	0.8	73	5.3	757	0.1	4
Other fats & oil Derived from Milk	1.1	194	5.8	735	2.3	474	27.2	6033
Fresh cheese	22.4	4156	446.2	87012	192.6	37639	92.2	18466
Other cheese & Curd Fresh	0.7	85	3.6	470	17.3	2291	3.4	488
Grated or Powder cheese	10.5	2827	74.8	17474	84.3	22557	637.1	216183
Processed Cheese not grated	202.6	33687	201.8	34765	315.9	51886	411.9	75741
Other Cheese	789.3	165630	326.8	67715	1068.6	186204	1.1	194

Source:- Agricultural Statistics of Pakistan, 2008-09

## Environmental Impact of Socio-economic Activities and Natural Events

**Table B-07: Import of Fertilizers**

Year	Quantity ( 000 Nutrient Tonnes )				Value
	N	P	K	Total	(Million Rs.)
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	8839.9
1994-95	73.0	186.0	2.0	261.0	2911.7
1995-96	248.8	280.6	51.6	581.0	9427.0
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
2004-05	309.7	458.2	16.9	784.8	-
2005-06	603.4	639.8	25.1	1268.3	-
2006-07	307.6	476.2	12.1	795.9	-
2007-08	286.7	565.7	23.9	876.3	-
2008-09	456.6	111.5	0.04	568.1	-
2009-10	901.0	522.0	21.0	1444.0	-

Source:- National Fertilizer Development Centre, Islamabad

**Table B-08: Import of Wood and Wood Products**

(Value in Million Rs.)

Items	Unit	2006-07		2007-08		2008-09	
		Quantity	Value	Quantity	Value	Quantity	Value
Wood Tret With Paint,Stain etc	CUMB	146832	343.4	30026	257.9	28618	294.2
Othwood Oak Logs Non-conifer	CUMB	543	4.9	45	0.2	-	-
Wood Of Other Non-Conf Species	CUMB	142401	1043.0	90600	757.3	55374	635.1
Oth Railway Sleepers Of Wood	CUMB	3558	22.6	9597	19.6	27920	86.0
Coniferous Wood Speci Saw/Chip	CUMB	520	3.8	962	8.9	6789	84.8
Tropical Wood White Lauan Ecc	CUMB	20002	170.2	27795	262.9	12025	183.7
Other Tropical Wood Non-Conf Saw	CUMB	92532	759.2	140405	1247.0	158642	2033.6
Oak Wood, Swan/Chipped Len Wise	CUMB	512	3.8	-	-	60	0.6
Beech Wood Swan/Chipped L/Wise	CUMB	4544	36.3	3064	27.9	3302	41.9
Oth Wood Non-Conf.Species	CUMB	42854	340.7	53316	498.4	57872	732.5
Pol Cream/Prep,Wood Furniture	Kg	9285	1.0	9315	1.6	9986	2.1
Residual Lye From Wood Pulp Ns	Kg	1174288	44.7	1736188	84.2	1014716	126.5
Gum,Wood,Sulphat Turpentine Oil	Kg	133358	5.5	94098	3.9	52573	7.5
Oth Terpenic Oil Conifer Wood	Kg	188343	20.2	268417	28.9	242066	46.5
Wood In Chips Or Particles Con	Kg	48500	1.5	-	-	2520	0.3
Saw Dust & Wood Waste & Scrap	Kg	44582	2.0	20604	1.1	22014	2.3
Wood Charcoal W/Or Not Agglome	Kg	19072	1.7	29680	1.9	24215	1.7
Coniferous Sheet for Veneering	Kg	93175	6.4	226439	11.6	137154	9.0
Oth Veneer Sheet/Tropical Wood	Kg	410131	31.8	445652	32.7	313942	34.3
Wood State	Kg	3299781	274.3	2049824	215.9	1008035	163.7

Contd...

Environmental Impact of Socio-economic Activities and Natural Events  
**Table B-08: Import of Wood and Wood Products**

(Value in Million Rs.)

Items	Unit	2006-07		2007-08		2008-09	
		Quantity	Value	Quantity	Value	Quantity	Value
Other Laminated Wood	Kg	242240	19.2	385894	26.4	387710	34.1
Unworked Oriented Stand Board	Kg	9760358	174.8	-	-	-	-
Oth Board & Wafer Board Of Wood	Kg	651099	26.5	142202	6.3	45845	3.9
Oth Board Ligneous Material	Kg	683269	33.9	188497	15.1	345368	23.4
Oth(Mdf)Density Exc 0.8g/Cm3	Kg	480410	8.4	46147	1.6	2912	0.2
Fibre Board Density>0.5-G-0.8g	Kg	73390116	1328.0	1655778	39.3	717973	22.1
Oth, Fibre Board Density0.8g/Cm3	Kg	21187352	377.8	16293752	427.6	19459394	577.1
Oth, (Mdf) Density Not>0.5/Cm3	Kg	12800	0.3	64816	3.8	182068	13.1
Densified Wood Block,Plate.Etc	Kg	525602	33.4	925858	61.9	739694	63.7
Wooden Frames For Paintings	Kg	60677	6.7	224569	18.1	142714	13.6
Oth Builders Joinery/Carp Wood	Kg	151741	18.1	142971	24.2	114125	20.8
Tableware & Kitchenware Of Wood	Kg	82636	9.1	51773	5.9	66577	9.7
Statuettes/Oth Ornament Wood	Kg	2573	0.3	2017	0.3	1478	0.3
Oth Wood Marquetry & Inland Wood	Kg	31563	4.5	19346	3.2	42545	9.0
Clothes Hangers Of Wood	Kg	11263	2.7	23537	4.1	58519	11.9
Other,Articles Of Wood	Kg	533422	60.0	853566	122.9	626163	118.8
<b>Total</b>			5220.4		4222.9		5408.0

Source:- Agricultural Statistics of Pakistan, 2008-09

## Environmental Impact of Socio-economic Activities and Natural Events

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

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

Products	Year						
	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Crude Oil	240444	110000	40599	-	-	-	-
	(45.79)	-	(14.76)	-	-	-	-
Energy Products Naphtha	630421	608929	742959	851687	917844	944898	726504
	673542	650580	793777	909942	980625	1009529	776197
	(159.02)	(113.07)	(218.01)	(299.67)	(536.43)	(778.16)	(412.87)
Motor Spirit	643	20726	1164	4715	88670	41392	3034
	687	22144	1244	5038	94735	44223	3242
	(0.26)	(7.79)	(0.67)	(3.02)	(44.28)	(35.36)	(2.82)
HSD	1138	74936	34221	60612	33481	20052	62014
	1196	78780	35977	63721	35199	21081	65195
	(0.30)	(25.73)	(16.82)	(43.31)	(25.78)	(21.51)	(53.80)
Kerosene	31	1275	552	51	-	-	-
	32	1315	569	53	-	-	-
	(0.01)	(0.43)	(0.34)	(0.03)	-	-	-
JP-1	2942	160103	217105	333525	303025	330827	419493
	3035	165162	223966	344064	312601	341281	432749
	(0.96)	(56.76)	(118.97)	(250.23)	(242.20)	(374.60)	(352.77)
Furnace oil	-	-	352	645	89	169	686
	-	-	343	628	87	165	668
	-	-	(0.11)	(0.24)	(0.04)	(0.09)	(0.28)
ASPHALT	-	25727	15642	14644	5114	-	-
	-	(6.97)	(4.27)	(5.49)	(2.43)	-	-
LUBES	-	402	-	-	-	-	-
	-	(0.39)	-	-	-	-	-

Source:- Pakistan Energy Year Book-2009, Published by Hydrocarbon Development Institute of Pakistan.

Environmental Impact of Socio-economic Activities and Natural Events  
**Table B-10: Import of Petroleum Products**

(Unit:Qty. in Tonnes)

(Qty. in TOE)

(Value in Million US \$)

Products	Year						
	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
100/LL	-	-	-	-	48,680	121,499	253,024
	-	-	-	-	50,729	126,614	263,676
	-	-	-	-	(31.83)	(122.75)	(162.00)
HSD	4,103,623	4,504,053	4,219,632	4,103,787	3,972,081	4,507,873	43,95,427
	4,314,139	4,735,111	4,436,099	4,314,311	4,175,849	4,739,127	4,620,912
	(936.28)	(1192.02)	(1707.85)	(2205.06)	(2282.89)	(3863.08)	(2862.00)
High Sulphur Furnace Oil	4,067,964	665,592	1,456,353	1,905,614	4,109,776	3,921,425	5,077,096
	3,960,977	648,087	1,418,051	1,855,496	4,001,689	3,818,292	4,943,568
	(707.71)	(125.51)	(290.41)	(643.02)	(1283.00)	(1913.94)	(2022.00)
Low Sulphur Furnace Oil*	265,474	-	-	-	199,322	346,906	-
	258,492	-	-	-	194,080	337,782	-
	(51.74)	-	-	-	(73.65)	(199.76)	-
Motor Spirit	-	-	-	-	-	127,386	248,637
	-	-	-	-	-	136,099	265,644
	-	-	-	-	-	(106.44)	(151.00)
Total:	8,437,061	5,169,645	5675985	6009401	8329859	9025089	9974184
	8,533,607	5,383,198	5854150	6169808	8422347	9157914	10093801
	(1,695.73)	(1,317.53)	(1998.26)	(2848.62)	(3671.36)	(6205.97)	(5197.00)
Annual Growth Rate of Qty	-6.49%	-38.73%	9.79%	5.87%	38.61%	8.35%	10.52%

Source:- Pakistan Energy Year Book, 2009 Published by Hydrocarbon Development Institute of Pakistan.

\* For convenience of calculations, the conversion factors for HSFO & LSFO has been assumed as same.



Environmental Impact of Socio-economic Activities and Natural Events  
**Table B-11: Import of Crude Oil**

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

Refinery	Year						
	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
<b>Bosicor Refinery</b>	-	211,333	546378	696348	712719	790760	875233
	-	220,167	564846	719885	736809	817488	904816
	-	(50.19)	(168.25)	(304.37)	(323.88)	(550.59)	(495.82)
<b>Pakistan Refinery</b>	1,020,558	781,385	854828	910574	783679	849852	1304743
	1,055,053	807,796	883721	941351	810167	878577	1348843
	(201.61)	(178.81)	(284.85)	(413.49)	(367.07)	(567.72)	(595.56)
<b>National Refinery</b>	3,240,942	2,472,785	2373681	2393069	2365249	2223469	2317995
	3,350,486	2,556,365	2453911	2473955	2445194	2298622	2396343
	(636.79)	(559.41)	(733.59)	(1042.43)	(1087.35)	(1518.52)	(1172.31)
<b>PARCO</b>	2,881,473	4,369,758	4502413	4600570	4364385	4559532	3562684
	2,978,867	4,517,456	4654595	4756079	4511901	4713644	3683103
	(562.09)	(1,012.63)	(1418.90)	(2042.51)	(1998.44)	(3104.03)	(1980.02)
<b>Total:</b>	7,142,973	7,835,261	8277300	8600579	8226032	8423613	8060655
	7,384,405	8,101,783	8557073	8891269	8504072	8708331	8333105
	(1,400.49)	(1,801.04)	(2605.58)	(3802.81)	(3776.74)	(5740.86)	(4243.71)
<b>Annual Growth Rate</b>	0.96%	9.69%	5.64%	3.91%	-4.35%	2.40%	-4.31%

Source:- Pakistan Energy Year Book, 2009 Published by  
 Hydrocarbon Development Institute of Pakistan

Environmental Impact of Socio-economic Activities and Natural Events  
**Table B-12: Import of Coal**

Unit <sup>®</sup> Year -	Tonnes	TOE	Annual Growth Rate
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%
2004-05	3307168	2175786	18.57%
2005-06	2842829**	1870297	-14.04%
2006-07	4251195	2796861	49.54%
2007-08	5986940	3938808	40.83%
2008-09	4651751	3060387	-22.30%
<b>ACGR</b>	30.6%	-	-

Source:- Pakistan Energy Year Book,2009 Published by  
Hydrocarbon Development Institute of Pakistan

Include 458356 tonnes of metallurgical cock imported by Pakistan steel.

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

Environmental Impact of Socio-economic Activities and Natural Events  
**Table B-13: Revenue Earned by Forest Department**

(Million Rs.)

Year	Total	Balochistan	KP	Punjab	Sindh	North Areas
1995-96	405.160	5.540	44.300	299.180	46.040	10.100
1996-97	730.838	6.286	355.285	297.157	34.143	37.967
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	1074.56	2.020	613.660	405.360	53.520	N.A
2001-02	1122.840	8.280	638.240	427.350	48.970	N.A
2002-03	1275.714	5.570	727.150	483.300	59.694	N.A
2003-04	1474.780	11.180	710.490	691.440	61.670	N.A
2004-05	1666.914	6.084	879.170	708.850	72.810	N.A
2005-06 (R)	1058.15	1.120	343.010	665.950	48.070	N.A
2006-07 (R)	1121.641	N.A	559.640	513.240	48.761	N.A
2007-08(R)	1577.288	N.A	539.258	977.480	60.550	N.A
2008-09 (P)	1574.121	N.A	584.771	989.350	N.A	N.A

Source:- Agricultural Statistics of Pakistan-2008-09

R= Revised  
P= Provisional  
N.A=Not available

**Table B-14: Solid Waste Generation Estimates**

City	Generation Rate		Waste Generated	
	Kg/capita/day	Kg/h/day	Tons/day	Tons/year
<b>2002 Years</b>				
<b>Karachi</b>	0.613	4.201	6,450	2,354,250
<b>Peshawar</b>	0.5 (For 1.0 Million pop.)	-	500	182,500
<b>Bannu</b>	0.445	3.00	38.00	13,870
<b>Quetta</b>	1.00	2.50	750	273,750
<b>Sibi</b>	0.570	2.15	37	13,505
<b>Total</b>	-	-	17787.55	6492,654
<b>2009 Years</b>				
<b>Gujranwala</b>	0.469	3.424	824.0	300,760
<b>Faisalabad</b>	0.48	3.52	1170	427,050
<b>Lahore</b>	0.70	6.72	6,720	2,419,200
<b>Bahawalpur</b>	0.50	-	253	91,070
<b>Hyderabad</b>	-	-	200	-

Source:- Tehsil Municipal Administration of each district

## Environmental Impact of Socio-economic Activities and Natural Events

**Table B-15: Physical Composition of Waste**

Cites/ ® Waste -	2002 Years					
	Karachi	Peshawar	Bannu	Quetta	Sibi	Hyderabad
Plastic & Rubber	3.60	3.70	7.80	9.00	8.00	3.20
Metals	0.75	0.30	0.90	1.20	0.70	0.50
Paper	2.40	2.10	4.00	1.20	1.00	3.40
Cardboard	1.50	1.90	2.00	1.30	1.40	1.50
Rags	4.70	4.30	2.90	5.10	5.30	4.30
Glass	1.60	1.30	1.60	1.50	1.30	3.40
Board Papers	2.00	1.70	0.30	2.00	1.00	2.00
Food Waste	20.00	13.80	5.80	14.30	9.32	22.00
Animal Waste	5.80	7.50	2.80	3.00	4.00	6.00
Leaves Grass etc.	13.50	13.50	14.75	10.20	14.50	3.50
Wood	2.25	0.60	0.60	2.00	1.00	2.25
Fines	38.90	42.00	45.80	44.00	25.50	30.00
Stones	3.00	7.30	4.50	7.80	7.70	3.50
Cites/ ® Waste -	2009 Years					
	Gujranwala	Faisalabad	Lahore	Bahawalpur		
Plastic & Rubber	5.00	6.60	5.63	2.65		
Metals	0.30	1.00	0.32	0.40		
Paper	2.50	7.67	2.70	2.20		
Cardboard	1.80	2.40		2.15		
Rags	3.20	6.53	7.45	2.15		
Glass	1.50	2.43	0.70	2.00		
Board Papers	3.20	-		0.50		
Food Waste	14.70	33.81	30.72	0.75		
Animal Waste	1.00	2.34	2.53	19.00		
Leaves Grass etc.	12.80	7.36	20.02	18.00		
Wood	0.80	1.07	1.24	2.00		
Fines	47.50	-		38.00		
Stones	5.70	28.79	27.65	10.20		

Source:- Tehsil Municipal Administration of each districts

**Table B-16: Waste Generation Rate and Amount**

City	Generation rate (Kg/Capita/Day)	Waste Generation (Tons/Day)
<b>2002</b>		
Karachi	0.613	6,450.0
Peshawar	0.489	809.3
Bannu	0.439	36.0
Quetta	1.000	750.0
Sibbi	0.570	37.0
<b>2009</b>		
Gujranwala	0.469	824.0
Faisalabad	0.48	1170
Lahore	0.700	6,720
Bahawalpur	0.50	253
Hyderabad	-	200.0

Source:- Tehsil Municipal Administration of each district

Environmental Impact of Socio-economic Activities and Natural Events  
**Table B-17: Results of Chemical Analysis of Water Samples from River Sutlej**

Location	Reference Values	6-9	1.5dS/m	10	2.5	0.2 mg/l	0.2 mg/l	5 mg/l	2.0 mg/l
		Chemical parameters				Trace metals			
	Period	pH	EC dS/m	SAR	RSC me/l	Cu mg/l	Ni mg/l	Pb mg/l	Zn mg/l
Sulemanki Head works	Dec-06	7.70	0.51	1.69	0.00				
	Feb-07	7.55	0.58	2.80	0.20				
	Apr-07	7.61	0.48	1.80	0.00				
	Jun-07	7.58	0.41	1.85	0.10				
	Aug-07	7.66	0.31	1.13	0.20				
	Oct-07	7.89	0.48	1.93	0.10				
	Dec-07	7.32	0.55	2.41	0.00	0.08	0.01	0.01	0.11
	Feb-08	8.00	0.67	2.27	0.10	0.07	0.01	0.01	0.15
	Apr-08	8.20	0.37	1.21	0.00	0.12	0.01	0.01	0.16
	Jun-08	8.16	0.35	1.54	0.00	0.06	0.01	0.01	0.13
	Aug-08	8.18	0.34	1.14	0.00	0.09	0.00	0.00	0.12
Oct-08	8.11	0.36	1.60	0.10	0.04	0.01	0.01	0.14	
Islam Head works	Dec-06	7.54	0.53	1.10	0.00				
	Feb-07	7.68	0.63	2.92	0.90				
	Apr-07	8.00	0.78	3.96	0.50				
	Jun-07	8.01	0.67	2.96	0.60				
	Aug-07	7.89	0.43	1.64	0.40				
	Oct-07	7.46	0.58	1.81	0.00				
	Dec-07	7.19	0.64	2.82	0.50	0.11	0.01	0.00	0.19
	Feb-08								
	Apr-08	8.42	0.43	1.49	0.00	0.08	0.00	0.00	0.13
	Jun-08	8.21	0.37	1.33	0.00	0.11	0.01	0.00	0.12
	Aug-08	8.36	0.36	1.36	0.10	0.02	0.00	0.01	0.09
Oct-08									
Panjanad Head works	Dec-06								
	Feb-07								
	Apr-07								
	Jun-07								
	Aug-07								
	Oct-07								
	Dec-07	7.01	0.86	4.18	0.80	0.13	0.01	0.00	0.16
	Feb-08	7.20	0.70	2.25	0.00	0.19	0.01	0.01	0.21
	Apr-08	7.38	0.54	1.96	0.00	0.10	0.00	0.00	0.13
	Jun-08	7.41	0.47	1.60	0.00	0.09	0.00	0.00	0.11
	Aug-08	7.76	0.47	1.07	0.00	0.14	0.01	0.01	0.13
Oct-08									

Source: Annual Report, 2009, Directorate of Land Reclamation Punjab

**Table- B-17: Results of Chemical Analysis of Water Samples from River Ravi**

Location	Reference Values	6-9	1.5dS/m	10	2.5	0.2 mg/l	0.2 mg/l	5 mg/l	2.0 mg/l
		Chemical parameters				Trace metals			
	Period	pH	EC dS/m	SAR	RSC me/l	Cu mg/l	Ni mg/l	Pb mg/l	Zn mg/l
Shahdara	Dec-06	8.30	0.37	0.68	0.00				
	Feb-07	8.27	0.41	1.48	0.50				
	Apr-07	8.30	0.48	1.92	0.40				
	Jun-07	7.93	0.30	1.41	0.00				
	Aug-07	7.44	0.34	1.39	0.00				
	Oct-07	8.16	0.62	2.32	0.20				
	Dec-07	8.18	0.43	0.98	0.40	0.13	0.01	0.00	0.10
	Feb-08	6.69	0.55	1.99	0.40	0.22	0.02	0.00	0.13
	Apr-08	7.28	0.25	0.61	0.00	0.13	0.01	0.00	0.11
	Jun-08	7.79	0.18	0.94	0.00	0.22	0.01	0.00	0.10
	Aug-08	7.15	0.28	0.86	0.10	0.05	0.01	0.00	0.13
	Oct-08	7.42	0.36	1.74	0.10	0.09	0.02	0.00	0.18
Balloki Head works	Dec-06	7.40	0.47	1.33	0.30				
	Feb-07	7.52	0.52	2.65	0.70				
	Apr-07	7.90	0.56	1.39	0.30				
	Jun-07	7.26	0.35	1.40	0.10				
	Aug-07	7.26	0.32	1.42	0.10				
	Oct-07	7.51	0.59	2.28	0.29				
	Dec-07	6.89	0.54	2.34	1.30	0.22	0.02	0.01	0.13
	Feb-08	7.70	0.58	1.98	0.00	0.19	0.02	0.00	0.15
	Apr-08	7.16	0.48	2.06	0.40	0.07	0.02	0.00	0.13
	Jun-08	7.30	0.29	1.16	0.00	0.09	0.01	0.00	0.14
	Aug-08	7.84	0.34	1.44	0.00	0.03	0.01	0.00	0.11
	Oct-08	7.82	0.39	1.78	0.20	0.11	0.02	0.00	0.16
Sidhnai Head works	Dec-06	7.20	0.79	3.48	0.00				
	Feb-07	7.32	0.65	3.21	0.80				
	Apr-07	7.50	0.68	3.18	0.20				
	Jun-07	8.04	0.44	1.96	0.40				
	Aug-07	8.13	0.33	2.05	0.40				
	Oct-07	7.48	0.62	2.13	0.30				
	Dec-07	8.15	1.04	5.53	0.10	0.07	0.06	0.00	0.16
	Feb-08	8.06	1.06	5.52	0.20	0.19	0.06	0.00	0.15
	Apr-08	8.18	0.56	1.89	0.00	0.08	0.02	0.00	0.13
	Jun-08	8.10	0.56	3.24	0.00	0.11	0.03	0.00	0.16
	Aug-08	8.16	0.40	2.67	0.00	0.05	0.03	0.00	0.11
	Oct-08	8.02	0.81	5.07	0.30	0.18	0.05	0.00	0.14

Source: Annual Report, 2009, Directorate of Land Reclamation Punjab

Environmental Impact of Socio-economic Activities and Natural Events

**Table B-17: Results of Chemical Analysis of Water Samples from River Chenab**

Location	Reference Values	6-9	1.5dS/m	10	2.5	0.2 mg/l	0.2 mg/l	5 mg/l	2.0 mg/l
		Chemical parameters				Trace metals			
	Period	pH	EC dS/m	SAR	RSC me/l	Cu mg/l	Ni mg/l	Pb mg/l	Zn mg/l
Marala Head works	Dec-06	7.10	0.33	0.53	0.00				
	Feb-07	7.91	0.34	1.10	0.00				
	Apr-07	7.42	0.32	0.98	0.00				
	Jun-07	7.01	0.22	0.42	0.00				
	Aug-07	7.49	0.32	0.97	0.00				
	Oct-07	7.59	0.35	0.93	0.00				
	Dec-07	7.93	0.40	1.25	0.10	0.08	0.00	0.00	0.11
	Feb-08	6.84	0.44	1.06	0.00	0.09	0.00	0.00	0.10
	Apr-08	6.97	0.27	1.60	0.00	0.11	0.00	0.00	0.20
	Jun-08	7.79	0.18	0.94	0.00	0.16	0.00	0.00	0.28
Aug-08	7.66	0.23	0.78	0.00	0.04	0.00	0.00	0.11	
Oct-08	7.71	0.23	0.19	0.00	0.09	0.00	0.00	0.18	
Khanki Head works	Dec-06	7.91	0.33	0.24	0.00				
	Feb-07	8.10	0.38	1.17	0.00				
	Apr-07	7.66	0.38	1.06	0.00				
	Jun-07	7.88	0.31	0.52	0.00				
	Aug-07	7.53	0.34	1.10	0.00				
	Oct-07	7.62	0.37	0.94	0.00				
	Dec-07	7.02	0.38	1.07	0.00	0.05	0.00	0.00	0.15
	Feb-08	6.41	0.41	0.99	0.10	0.07	0.00	0.00	0.09
	Apr-08	7.14	0.32	0.95	0.20	0.12	0.00	0.00	0.13
	Jun-08	7.50	0.23	0.65	0.00	0.09	0.00	0.00	0.19
Aug-08	7.58	0.26	0.87	0.00	0.11	0.00	0.00	0.08	
Oct-08	7.09	0.28	0.75	0.00	0.03	0.00	0.00	0.18	
Qadirabad Head work	Dec-06	8.07	0.29	0.17	0.00				
	Feb-07	8.13	0.41	1.32	0.10				
	Apr-07	7.73	0.39	1.12	0.00				
	Jun-07	8.02	0.38	0.69	0.00				
	Aug-07	7.67	0.39	1.32	0.00				
	Oct-07	7.69	0.39	0.98	0.00				
	Dec-07	7.31	0.65	2.91	0.00	0.03	0.00	0.00	0.16
	Feb-08	7.16	0.44	0.78	0.00	0.10	0.00	0.00	0.21
	Apr-08	7.71	0.30	1.13	0.00	0.10	0.00	0.00	0.15
	Jun-08	8.03	0.27	1.55	0.00	0.12	0.00	0.00	0.13
Aug-08	8.37	0.27	0.98	0.00	0.08	0.00	0.00	0.07	
Oct-08	7.89	0.26	0.82	0.10	0.02	0.00	0.00	0.17	
Trimmu Head works	Dec-06	7.10	0.54	1.69	0.00				
	Feb-07	8.12	0.98	4.81	0.40				
	Apr-07	8.43	1.38	3.16	0.40				
	Jun-07	8.05	0.40	1.81	0.20				
	Aug-07	8.20	0.51	2.83	0.20				
	Oct-07	7.82	0.40	0.99	0.10				
	Dec-07	8.04	0.35	0.60	0.00	0.15	0.00	0.00	0.18
	Feb-08	8.11	0.48	1.10	0.00	0.11	0.00	0.00	0.13
	Apr-08	8.33	0.40	1.01	0.00	0.08	0.00	0.00	0.12
	Jun-08	8.02	0.37	1.43	0.00	0.11	0.00	0.00	0.09
Aug-08	8.30	0.61	2.13	0.00	0.05	0.00	0.00	0.11	
Oct-08	7.88	1.00	5.15	0.00	0.06	0.00	0.00	0.14	

Source: Annual Report, 2009, Directorate of Land Reclamation Punjab



**Table B-17: Results of Chemical Analysis of Water Samples from River Jhelum**

Location	Reference Values	6-9	1.5dS/m	10	2.5	0.2 mg/l	0.2 mg/l	5 mg/l	2.0 mg/l
		Chemical parameters				Trace metals			
	Period	pH	EC dS/m	SAR	RSC me/l	Cu mg/l	Ni mg/l	Pb mg/l	Zn mg/l
Mangla Head work	Dec-06	8.00	0.34	1.10	0.00				
	Feb-07	7.92	0.38	1.16	0.00				
	Apr-07	7.89	0.38	1.09	0.00				
	Jun-07	7.93	0.37	1.43	0.00				
	Aug-07	7.98	0.23	0.92	0.00				
	Oct-07	8.10	0.32	1.12	0.00				
	Dec-07	8.09	0.45	0.86	0.00	0.15	0.00	0.00	0.13
	Feb-08	8.09	0.23	0.65	0.00	0.10	0.00	0.00	0.19
	Apr-08	8.06	0.23	0.54	0.00	0.18	0.00	0.00	0.14
	Jun-08	8.21	0.27	0.74	0.00	0.03	0.00	0.00	0.09
	Aug-08	8.25	0.23	0.91	0.10	0.07	0.00	0.00	0.15
Oct-08	7.88	1.00	5.15	0.00	0.06	0.01	0.01	0.14	
Rasool Head works	Dec-06	7.60	0.24	0.43	0.00				
	Feb-07	8.18	0.39	0.92	0.00				
	Apr-07	8.13	0.41	1.10	0.00				
	Jun-07	8.03	0.44	1.70	0.10				
	Aug-07	8.13	0.25	0.98	0.00				
	Oct-07	8.16	0.36	1.13	0.00				
	Dec-07	8.26	0.43	1.91	0.00	0.10	0.00	0.00	0.23
	Feb-08	8.00	0.45	1.14	0.00	0.09	0.01	0.00	0.14
	Apr-08	8.13	0.23	0.65	0.00	0.19	0.01	0.00	0.11
	Jun-08	8.10	0.22	0.67	0.00	0.07	0.00	0.00	0.14
	Aug-08	8.19	0.29	1.08	0.00	0.05	0.00	0.00	0.11
Oct-08	8.38	0.23	1.13	0.01	0.06	0.00	0.00	0.16	

Source: Annual Report, 2009, Directorate of Land Reclamation Punjab

**Table B-17: Results of Chemical Analysis of Water Samples from River Indus**

Location	Reference Values	6-9	1.5dS/m	10	2.5	0.2 mg/l	0.2 mg/l	5 mg/l	2.0 mg/l
		Chemical parameters				Trace metals			
	Period	pH	EC dS/m	SAR	RSC me/l	Cu mg/l	Ni mg/l	Pb mg/l	Zn mg/l
Jinnah BR	Dec-06	7.00	0.28	0.27	0.0				
	Feb-07	7.46	0.39	0.29	0.0				
	Apr-07	7.46	0.42	0.38	0.0				
	Jun-07	7.12	0.21	0.46	0.0				
	Aug-07	7.16	0.24	0.51	0.0				
	Oct-07	7.39	0.26	0.53	0.0				
	Dec-07	7.92	0.332	1.05	0.0	0.15	0.000	0.000	0.15
	Feb-08	7.90	0.334	0.93	0.0	0.11	0.000	0.000	0.21
	Apr-08	7.80	0.365	0.98	0.0	0.1	0.000	0.000	0.13
	Jun-08	7.75	0.368	1.1	0.0	0.15	0.004	0.006	0.16
Aug-08	8.25	0.557	1.85	0.0	0.03	0.006	0.004	0.11	
Oct-08	8.08	1.086	6.02	0.0	0.07	0.002	0.003	0.13	
Chashma BR	Dec-06	8.20	0.3	0.36	0.0				
	Feb-07	8.02	0.52	2.1	0.0				
	Apr-07	7.51	0.48	2.36	0.0				
	Jun-07	7.43	0.23	0.52	0.0				
	Aug-07	7.53	0.26	0.6	0.0				
	Oct-07	7.52	0.31	0.58	0.0				
	Dec-07	7.98	0.352	0.6	0.0	0.11	0.000	0.000	0.17
	Feb-08	8.02	0.379	0.76	0.0	0.14	0.000	0.000	0.13
	Apr-08	8.06	0.384	1.05	0.0	0.10	0.000	0.000	0.19
	Jun-08	7.98	0.352	0.6	0.0	0.11	0.006	0.006	0.18
Aug-08	8.25	0.557	1.85	0.0	0.03	0.003	0.002	0.13	
Oct-08	8.08	0.69	4	0.7	0.05	0.005	0.005	0.08	
Taunsa BR	Dec-06	8.12	0.28	0.27	0.0				
	Feb-07	8.18	0.69	2.93	0.0				
	Apr-07	7.52	0.57	2.61	0.3				
	Jun-07	7.56	0.29	0.71	0.0				
	Aug-07	7.89	0.29	0.76	0.0				
	Oct-07	7.59	0.34	0.62	0.0				
	Dec-07	8.01	0.409	1.23	0.0	0.09	0.004	0.009	0.11
	Feb-08	8.12	0.362	1.09	0.0	0.1	0.007	0.004	0.14
	Apr-08	8.14	0.374	0.96	0.0	0.11	0.008	0.006	0.13
	Jun-08	8.09	0.378	0.86	0.0	0.06	0.008	0.006	0.1
Aug-08	8.29	0.252	1.15	0.1	0.07	0.005	0.005	0.12	
Oct-08	8.34	0.297	0.56	0.0	0.07	0.004	0.006	0.14	
Kot Mithen	Dec-06	7.3	0.42	1.34	0.0				
	Feb-07	8.1	0.63	2.69	0.1				
	Apr-07	7.68	0.51	2.72	0.3				
	Jun-07	8.01	0.39	1.03	0.1				
	Aug-07	8.13	0.32	0.98	0.0				
	Oct-07	7.92	0.42	0.79	0.0				
	Dec-07								
	Feb-08	7.87	0.473	1.6	0.1	0.08	0.006	0.006	0.11
	Apr-08	8.16	0.513	1.82	0.0	0.13	0.007	0.006	0.15
	Jun-08	6.86	0.319	1.2	0.0	0.09	0.006	0.004	0.17
Aug-08	8.22	0.286	1.3	0.0	0.03	0.009	0.004	0.11	
Oct-08	8.31	0.301	0.76	0.0	0.11	0.004	0.005	0.13	

Source: Annual Report, 2009, Directorate of Land Reclamation Punjab

Environmental Impact of Socio-economic Activities and Natural Events

**Table B-18: Who Installed the Water Delivery System by Province**

PROVINCE	WATER DELIVERY SYSTEM 2007-08 PSLM					
	Piped Water	Hand Pump	Motor Pump	Open well	Closed Well	TOTAL
<b>Punjab</b>						
Local Government	72	2	2	0	0	22
Non-Government	5	8	1	15	4	5
Household it self	24	89	97	76	86	73
Don't know	0	1	0	10	9	1
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
<b>Sindh</b>						
Local Government	81	1	2	1	0	41
Non-Government	6	19	7	87	100	15
Household it self	19	80	91	10	0	45
Don't know	0	0	0	2	0	0
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
<b>Khyber Pakhtunkhwa</b>						
Local Government	75	2	17	1	0	47
Non-Government	6	9	8	21	19	9
Household it self	19	89	74	77	81	44
Don't know	0	0	0	1	0	0
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
<b>Balochistan</b>						
Local Government	91	66	14	9	1	63
Non-Government	5	1	49	26	16	12
Household it self	4	33	38	65	82	25
Don't know	0	0	0	0	0	0
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
<b>Pakistan</b>						
Local Government	76	3	3	2	0	30
Non-Government	5	11	3	38	24	8
Household it self	19	85	94	57	73	61
Don't know	0	1	0	3	3	0
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Source: Pakistan Social and Living Standards Measurement Survey, FBS.

- Notes:-
1. Households having the type of water delivery system indicated, expressed as a percentage of the total number of households.
  2. Local Government includes Public Health Engineering department, LG&RDD Municipality/District/Union Councils 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 pumps 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

Environmental Impact of Socio-economic Activities and Natural Events

**Table B-19: Extent of Water logging and Salinity**

(000 Hectare)

Year/ Month	Province				
	Total	Balochistan	Khyber Pakhtunkhwa	Punjab	Sindh
<b>0 to 5 Feet or 150 Cm Water Table Depth</b>					
2000 June October	544 3215	- 95	32 51	228 280	284 2789
2001 June October	174 2854	- 95	15 20	114 211	45 2528
2002 June October	1401 2472	* 399	19 25	114 184	1268 1864
2006 June October	453 4014	11 398	16 19	187 563	240 3035
2007 June October	1170 3558	- -	15 18	475 596	680 2944
2008 June October	853 *	5 *	16 *	313 *	519 *
2009 June October	1108 3915	5 148	16 14	388 476	698 3277
<b>0 to 10 Feet or 300 Cm Water Table Depth</b>					
2000 June October	6536 6778	95 95	183 203	1719 1856	4539 4624
2001 June October	4079 5939	* 95	136 152	1062 1294	2881 4398
2002 June October	3629 5217	* 399	150 165	878 1186	2601 3467
2006 June October	5587 5173	327 15	135 146	1374 1795	3752 3216
2007 June October	6312 7072	- -	144 153	1850 2209	4318 4710
2008 June October	6209 *	118 *	156 *	1728 *	4206 *
2009 June October	6649 7249	118 253	156 150	1980 1930	4395 4916

Source:- Scraps Monitoring, WAPDA, Lahore

\* Not Observed

Environmental Impact of Socio-economic Activities and Natural Events

**Table B-20: Summary of Different Types of Pollutants on the Coast of Pakistan, 2009**

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	++	-	+	+	+	+	-
Korangi Creek	+	-	+	++	++	++	+
Port Qasim	++	+	+	++	+	+++	+++
Indus Delta	-	-	-	-	+	++	-

Source:- National Institute of Oceanography, Karachi.

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

Environmental Impact of Socio-economic Activities and Natural Events

**Table B-21: Major Natural Disasters in Pakistan (Since 1994)**

Year	Type of Disaster	Persons Died	Population Affected	Houses Destroyed/ Damaged	Cattle Head Lost
	1	2	3	4	5
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
2005	Rain/Snow fall/Flood	824	-	47,540	84,413
2005	Earthquake	73,338	3,500,000	5,88,272	-
2008	Rain Flood	164	3,81,004	29,826	2,118

Source:- Cabinet Division

**Table B-22:** Environmental Impact of Socio-economic Activities and Natural Events  
**Damages Causes by 8<sup>th</sup> October, 2005 Earthquake in Pakistan**

Death	73,338
Injured	128,304
Families affected	500,000
Population affected	3.5 million
Area affected	30,000 sq km
Educational institutions destroyed	6,298
Health units destroyed	796
Houses destroyed	600,000
Road damaged	6,440 km
Services such as Telecommunication, Power, Water and Sanitation	50-70 %

Source: Annual Review, 2005-06, ERRRA

**Table B-23: Total Destroyed and Damaged Housing Units Due to Earthquake, 2005**

District	Azad Jammu and Kashmir		
	Destroyed	Damaged	Negligible Damage
Muzaffarabad	121,995(89%)	12, 499 (9%)	2,891 (2%)
Bagh	79,514 (96%)	2,716 (3%)	627 (1%)
Ponch	39,190 (83%)	7,209 (15%)	1,084 (2%)
<b>Sub-Total</b>	<b>240,699</b>	<b>22,424</b>	<b>-</b>
District	Khyber Pakhtunkhwa		
	Destroyed	Damaged	Negligible Damage
Shangla	14,141 (54%)	8,514 (33%)	3,277 (13%)
Mansehra	106,523 (70%)	32,702 (22%)	11,933 (8%)
Kohistan	6,323 (46%)	4,850 (35%)	2,646 (19%)
Abbottabad	19,704 (31%)	17,982 (28%)	22,585 (35%)
Battagram	49,345 (85%)	7,035 (12%)	1,777 (3%)
<b>Sub-Total</b>	<b>196,036</b>	<b>71,083</b>	<b>42,218</b>
<b>Grand Total</b>	<b>436,735 (76%)</b>	<b>93,507 (16%)</b>	<b>46,820 (8%)</b>

Source: Annual Review, 2005-06, ERRRA

## Environmental Impact of Socio-economic Activities and Natural Events

**Table B-24: Damaged Water Supply Schemes Due to Earthquake, 2005**

Damaged Schemes	Azad Jammu and Kashmir					
	Bagh	Muzaffarabad	Neelum	Poonch	Sudhanoti	Total
Gravity	536	1163	73	178	7	1957
Pumping/Tube Wells	1	2	0	0	0	3
Hand Pump	11	0	0	3	4	18
Total Number Schemes	548	1165	73	181	11	1978
Number of PHED Owned Schemes	3	7	0	0	0	10
Number of TMA Schemes	545	1158	73	181	11	1968
Damaged Schemes	Khyber Pakhtunkhwa					
	A.Abad	Battagram	Kohistan	Mensehra	Shangla	Total
Gravity	137	359	123	552	397	1568
Pumping/Tube Wells	38	0	0	15	0	53
Hand Pump	105	7	0	168	1	281
Total Number Schemes	280	366	123	735	398	1902
Number of PHED Owned Schemes	92	61	38	99	108	398
Number of TMA Schemes	188	305	85	636	290	1504

Source: Annual Review, 2005-06, ERRA

**Table B-25: Summary of Roads/Bridges Damaged Due to Earthquake, 2005**

District	Azad Jammu and Kashmir							
	Major Road km	Link Road km	Rural Roads km			No of Structures		
			Fair Weather	Stone	Black Top	Total	Bridges	Culverts
Muzaffarabad	58	343.5	731	25	122	878	28	36
Bagh 40	100	423	30	101	554		20	17
Neelum	40	70	67	-	-	67	17	16
Sudhnoti	-	-	15	36	11	62	-	1
Poonch	35.5	95	126	59	23	208	4	5
<b>Total</b>	<b>173.5</b>	<b>608.5</b>	<b>1362</b>	<b>150</b>	<b>257</b>	<b>2551</b>	<b>69</b>	<b>75</b>
District	Khyber Pakhtunkhwa							
	Provincial High ways km	District Roads Damaged Length in km			Tehsil Roads Damaged Length in km			No of Structure
		Shingle	Black Top	Total	Shingle/kach	Black Top	Total	Bridge Culvert
Abbottabad	-	484	236	720	229.5	109.25	338.75	44
Mansehra	-	724	516	1226	378	97.75	475.75	24
Battagram	-	130	73	203	85.42	-	85.42	-
Shangla	33	173	70	243	127.2	10.53	137	-
Kohistan	-	147	45	192	56	30	86	-
<b>Total</b>	<b>33</b>	<b>1658</b>	<b>940</b>	<b>2598</b>	<b>876.12</b>	<b>247.53</b>	<b>1123.65</b>	<b>68</b>

Source: Annual Review, 2005-06, ERRA



**Table B-26: Damage Caused to Hotels and Tourist Lodges Due to Earthquake, 2005**

City	No of Hotels/ Tourist Lodges	Estimated Covered Area (Sqft)	Estimated Reconstruction Cost @ 1600/Sqft (In Million Rs.)
<b>Khyber Pakhtunkhwa</b>			
Paras	19	74300	118.880
Naran	12	83500	133.600
Shogran/Kawai	25	241432	386.291
Besham	8	78900	126.240
Battagram	2	8000	12.800
Balakot	43	223000	356.800
Mansehra	4	10000	16.000
<b>Sub-Total</b>	<b>113</b>	<b>719132</b>	<b>1150.611</b>
<b>Azad Jammu and Kashmir</b>			
Bagh	17	35620	56.992
Muzaffarabad	30	263329	421.326
Rawalakot	19	141934	227.094
Neelum	2	7431	11.889
<b>Sub-Total</b>	<b>68</b>	<b>448314</b>	<b>717.302</b>
<b>Grand Total</b>	<b>181</b>	<b>1167448</b>	<b>1867.912</b>

Source: Annual Review, 2005-06, ERRA



# 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. It may be kept in view that secular climatic changes unfurl in long intervals of time. So the studies to size up the normal's of say, temperature, pressure, rainfall and other formative climatic variables are repeated after long period of time. Thus, the pertinent tables included in the last compendium (C-06 to C-12) come for updating in a cycle of thirty (30) years. The, interested user is advised to refer to previous publication(s). However, certain tables on the quality of groundwater in some selected centres in the four provinces of Pakistan and Gilgit Baltistan (GB) are included.

The following paragraphs provide a generalized scenario regarding climate, temperature, rainfall and air pressure.

### C-I Climate

The following factors characterize the climate of Pakistan:-

1. The major area of the country is dominated by dry climate while small areas in south experience tropical climate.
2. The subtropical location of Pakistan extends approximately from  $23\frac{1}{2}^{\circ}$  N to  $37^{\circ}$  N latitudes. This tends to keep the temperature high, particularly in summer.
3. The oceanic influence of the Arabian Sea keeps down the temperature contrast between summer and winter at the coasts.
4. The continental effect emphasizes the differences in temperature between summer and winter in the interior of the country.
5. 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.
6. 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 generally.
7. 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.
8. Thunderstorms cause some amount of rainfall particularly in the north.
9. 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 <sup>0</sup> C or more	(90 <sup>0</sup> F or more)
Warm:	21 <sup>0</sup> C to 32 <sup>0</sup> C	(70 <sup>0</sup> F to 89 <sup>0</sup> F)
Mild:	10 <sup>0</sup> C to 21 <sup>0</sup> C	(50 <sup>0</sup> F to 69 <sup>0</sup> F)
Cold:	0 <sup>0</sup> C to 10 <sup>0</sup> C	(32 <sup>0</sup> F to 49 <sup>0</sup> F)
Cold below:	0 <sup>0</sup> C	( 32 <sup>0</sup> F)

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

1. **Hot summer and mild winter:** The temperature varies between 32<sup>0</sup> C to 44<sup>0</sup> or more in summer while 10<sup>0</sup> C to 21<sup>0</sup> C in winter.
2. **Warmer summer and mild winter:** Summer temperature lies between 21<sup>0</sup> C and 32<sup>0</sup> C, and winter's between 10<sup>0</sup> C and 21<sup>0</sup> C.
3. **Warm summer and cool winter:** Summer between 21<sup>0</sup> C and 32<sup>0</sup> C and coolest month temperature between 0<sup>0</sup> C and 10<sup>0</sup> C.
4. **Mild summer and cool/cold winter:** Summer temperature between 10<sup>0</sup> C and 21<sup>0</sup> C and the coolest month (January) temperature less than 0<sup>0</sup> C in some areas and between 0<sup>0</sup> C and 10<sup>0</sup> C in other areas.

The data on temperature at selected centres for various cities do not seem to be indicating some long term trend the last 18 years in the country. However, marginal variations of temperature are 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 content with an annual rainfall of less than 125 mm. To the North of Sahiwal 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).

## 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 northward and southward. This low pressure areas attracts winds from the Indian Ocean. Some colonic

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 pressures 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). Certain observations are summarised below:-

- A lowest air pressure (825.6 mbs) at mean station level was recorded in 2008 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 (6.2 mbs) was recorded in 2004 at Dalbadin, which is the lowest vapour pressure among 15 selected centres (Table C-05).
- A highest vapour pressure (25.0 mbs) was recorded in 2001 at Chhor, which is the highest vapour pressure among 15 selected centres (Table C-05).

**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)
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
2003	...	64.6	62.5	...	66.7
2004	...	66.3	62.8	...	64.4
2005	...	65.3	59.8	...	70.3
2006	...	64.1	...	...	63.1
2007	64.2	...	...	...	70.7
2008	58.2	...	...	78.2	65.7
2009	61.2	...	...	79.6	69.8

Source:- Pakistan Meteorological Department.

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

Responses to Environmental Impacts

**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)	Islama- bad (507)	Jhelum (232)	Sarg- odha (187)
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	30.5	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	31.8
2002	32.2	37.4	35.0	35.2	31.1	33.5	30.1	31.8	32.3
2003	32.8	36.0	34.0	34.3	29.9	32.7	28.8	30.2	31.1
2004	32.8	37.1	35.0	35.0	30.8	33.1	29.5	31.4	32.3
2005	32.1	35.7	33.9	33.5	29.9	31.7	28.3	30.3	30.7
2006	32.3	36.4	34.1	34.5	30.6	32.9	29.3	30.9	31.7
2007	32.9	36.0	34.3	34.2	30.5	32.5	29.1	30.5	31.5
2008	32.0	35.8	33.7	34.0	30.2	32.0	28.7	30.2	31.3
2009	32.9	35.7	34.3	34.3	31.1	32.8	29.5	31.4	32.2

Contd...

Responses to Environmental Impacts

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

( Centigrade)

Year/ Station	Faisal- Abad (183)	Baha- walpur (116)	Pesha- war (359)	D.I. Khan (173)	Quetta (1600)	Zhob (Fort Sandeman) (1405)	Dalban- Din (848)	Khuzdar (1231)	Panjgur (980)
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	...	31.4
2002	32.0	34.5	29.6	32.7	25.9	27.6	33.4	30.1	31.3
2003	31.0	33.5	29.1	31.6	25.2	26.8	32.8	29.1	30.3
2004	31.8	34.2	30.2	32.4	26.3	28.5	33.7	30.1	31.4
2005	30.6	32.7	28.7	30.7	23.9	26.5	...	...	29.8
2006	31.4	33.5	29.7	31.8	26.3	27.3	33.8	29.1	31.3
2007	31.5	33.0	29.6	31.4	25.1	26.9	32.8	28.4	29.9
2008	31.1	32.4	29.5	31.4	25.8	27.0	33.1	28.9	30.6
2009	31.7	33.1	29.8	31.9	25.4	27.6	33.0	28.9	31.0

Contd...



Responses to Environmental Impacts

**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)	Islama- bad (507)	Jhelum (232)	Sarg- Odha (187)
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
2003	21.2	18.0	20.9	20.6	19.5	18.5	14.9	17.5	18.0
2004	21.9	18.7	21.3	21.0	20.3	19.1	15.4	17.8	18.6
2005	21.8	17.9	20.7	20.5	19.4	18.1	14.6	17.1	17.5
2006	22.5	18.9	21.0	21.6	20.3	19.6	16.0	18.4	18.8
2007	22.2	17.4	21.4	21.3	19.8	19.0	15.1	17.1	18.0
2008	21.6	16.1	21.2	20.9	19.8	18.8	15.6	17.2	17.8
2009	22.3	19.0	21.7	21.0	20.0	18.9	15.6	17.3	17.9

Contd...

Responses to Environmental Impacts

**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)	Khuz- dar (1231)	Panj- gur (980)
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	8.9	12.8	...	15.9	15.9
2002	18.2	19.0	17.5	17.2	9.1	...	...	16.1	15.8
2003	17.7	18.3	16.7	15.9	8.9	...	...	...	15.9
2004	18.1	19.9	17.3	17.2	9.3	11.9	...	16.5	16.1
2005	17.0	18.4	16.3	16.5	8.8	10.9	...	15.4	14.6
2006	18.3	19.7	17.7	16.8	10.9	10.8	...	15.5	15.6
2007	17.4	19.4	16.9	16.8	8.6	10.2	14.2	15.4	15.3
2008	17.4	18.7	16.9	17.4	8.5	8.7	...	15.8	15.1
2009	17.0	18.6	16.9	16.4	9.4	12.6	15.3	14.8	16.0

Source:- Pakistan Meteorological Department

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

Responses to Environmental Impacts

**Table C-03: Rainfall at Selected Centres**

(Millimeter)

<b>Year/ Station</b>	<b>Karachi (Airport)</b> ( 21 )	<b>Nawab- Shah</b> ( 37 )	<b>Hyde- rabad</b> ( 40 )	<b>Jacob- Abad</b> ( 55 )	<b>Lahore</b> ( 213 )	<b>Multan</b> ( 122 )	<b>Islama- bad</b> ( 507 )	<b>Jhelum</b> ( 232 )	<b>Sarg- Odha</b> ( 187 )
<b>1993</b>	36	50	61	38	375	301	830	762	303
<b>1994</b>	482	552	487	366	542	303	1,698	1,000	360
<b>1995</b>	260	213	96	95	826	265	1,615	1,158	319
<b>1996</b>	99	5	16	96	1,189	212	1,376	989	447
<b>1997</b>	150	107	57	272	1,233	264	1,414	1,336	629
<b>1998</b>	82	61	49	39	493	136	1,412	961	411
<b>1999</b>	15	21	79	89	474	177	1,012	628	373
<b>2000</b>	47	46	55	19	557	83	999	840	452
<b>2001</b>	100	57	171	18	536	298	1178	747	612
<b>2002</b>	56	4	9	17	334	101	931	533	530
<b>2003</b>	325	340	406	210	628	160	1247	962	424
<b>2004</b>	66	30	130	50	495	190	1026	859	362
<b>2005</b>	97	58	52	62	652	301	979	662	645
<b>2006</b>	301	294	525	94	751	154	1598	1233	481
<b>2007</b>	466	243	242	183	660	262	1828	833	718
<b>2008</b>	122	109	157	188	614	248	1388	826	591
<b>2009</b>	280	107	202	43	372	119	607	542	266

Contd...

Responses to Environmental Impacts

**Table C-03: Rainfall at Selected Centres**

(Millimeter)

Year Station	Faisal- Abad ( 1 83 )	Baha- walpur ( 116 )	Pesha- war ( 369 )	D.I. Khan ( 173 )	Quetta ( 1600 )	Zhob(Fort Sandeman) ( 1405 )	Dalban- Din ( 848 )	Khuz- dar ( 1231 )	Panjour ( 980 )
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
2003	379	185	905	249	250	243	174	199	38
2004	377	147	454	305	122	185	86	92	74
2005	518	197	625	497	311	360	...	383	166
2006	444	168	498	213	207	304	67	269	123
2007	352	228	685	416	297	357	154	274	163
2008	657	221	817	486	135	305	83	302	76
2009	377	147	623	282	289	270	62	234	60

Source:- Pakistan Meteorological Department

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

**Table C-04: Air Pressure at Selected Centres**

Year Station	Units	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
		mbs	hpa/gpm	mbs	hpa/gpm	mbs	hpa/gpm
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
2003		1,006.0	1,008.7	1,002.3	1,007.2	1,000.9	1,007.2
2004		1,005.8	1,008.5	1,002.4	1,007.0	1,000.4	1,006.7
2005		1,006.0	1,008.7	1,002.5	1,007.4	1,001.0	1,007.3
2006		1,005.7	1,008.4	1,002.0	1,006.8	1,000.5	1,006.7
2007		1,005.3	1,008.0	1,002.0	1,006.9	1,000.7	1,006.7
2008		1,005.4	1,008.1	1,002.0	1,006.9	1,000.1	1,006.4
2009		1,005.6	1,008.4	1,002.2	1,005.8	1,000.6	1,006.9

Contd...

**Table C-04: Air Pressure at Selected Centres**

Year Station	Units	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
		mbs	hpa/gpm	mbs	hpa/gpm	mbs	hpa/gpm
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
2003		915.4	1,485.5	1,002.1	1,008.5	900.9	1,481.4
2004		915.0	1,488.1	1,001.7	1,008.1	901.1	1,485.4
2005		...	...	1,001.8	1,008.2	900.4	1,480.0
2006		914.5	1,483.2	1,001.5	1,007.9	900.2	1,476.1
2007		914.7	1,483.9	1,001.3	1,007.7	900.6	1,477.0
2008		914.3	1,477.9	1,001.3	1,007.7	900.2	1,474.3
2009		914.4	1,473.5	1,001.2	1,007.8	900.6	1,480.4

Contd...

**Table C-04: Air Pressure at Selected Centres**

Year Station	Units	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
		mbs	hpa/gpm	mbs	hpa/gpm	mbs	hpa/gpm
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
2003		967.4	1,007.8	826.8	1,485.0	981.1	1,007.6
2004		967.7	1,008.1	826.6	1,486.3	980.7	1,007.2
2005		968.2	1,008.7	826.4	1,485.3	981.2	1,007.8
2006		968.0	1,008.3	826.8	1,488.8	980.0	1,007.5
2007		967.6	1,008.0	826.6	1,489.7	980.8	1,007.3
2008		967.2	1,006.4	825.6	1,476.8	980.7	1,007.3
2009		967.9	1,008.2	...	...	981.0	1,007.4

Contd...

**Table C-04: Air Pressure at Selected Centres**

Year Station	Units	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
		mbs	hpa/gpm	mbs	hpa/gpm	mbs	hpa/gpm
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
2003		987.7	1,007.3	983.2	1,007.5	838.8	1,474.5
2004		987.4	1,006.9	982.9	1,007.1	840.8	1,492.7
2005		988.0	1,007.6	983.3	1,007.6	840.6	1,492.9
2006		987.7	1,007.2	983.2	1,007.5	841.4	1,491.7
2007		987.4	1,006.9	982.9	1,007.2	840.5	1,491.9
2008		987.2	1,006.8	982.8	1,007.1	840.3	1,489.1
2009		987.7	1,007.3	983.2	1,007.4	840.7	1,492.1

Contd...



**Table C-04: Air Pressure at Selected Centres**

Year Station	Units	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
		mbs	hpa/gpm	mbs	hpa/gpm	mbs	hpa/gpm
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	994.6	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
2003		1,007.0	1,007.7	856.1	1,464.8	993.7	1,007.7
2004		1,006.7	1,007.4	855.8	1,463.3	993.5	1,007.8
2005		1,007.0	1,007.6	856.0	1,463.9	994.1	1,008.2
2006		1,006.5	1,007.1	856.0	1,465.5	993.8	1,008.1
2007		1,006.3	1,006.9	855.9	1,459.5	993.5	1,007.7
2008		1,006.3	1,006.9	855.6	1,460.4	993.4	1,007.6
2009		1,006.4	1,007.0	855.0	1,469.1	993.7	1,007.9

Source:- Pakistan Meteorological Department.

Responses to Environmental Impacts

**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)
1993	16.6	9.1	17.8	...	18.8	18.7	7.2	18.9
1994	17.5	10.2	17.6	9.9	18.9	18.4	9.0	19.0
1995	16.6	9.3	17.6	9.9	18.6	18.7	9.3	18.8
1996	16.8	9.5	18.1	9.9	18.3	18.2	8.8	18.3
1997	17.7	10.2	18.0	11.2	18.7	18.5	9.9	18.7
1998	18.4	9.5	19.4	...	18.9	18.8	8.1	18.9
1999	17.6	9.7	18.1	8.8	18.5	18.3	7.4	18.5
2000	16.7	9.7	18.3	7.8	19.0	18.1	5.6	17.8
2001	16.8	9.8	18.1	8.2	20.0	19.2	6.4	19.5
2002	16.4	9.2	17.1	7.4	19.0	18.3	7.1	17.9
2003	18.0	9.2	17.9	7.9	19.5	18.3	8.1	17.7
2004	17.2	9.5	18.1	7.9	19.3	18.7	8.4	18.0
2005	17.3	9.5	17.7	8.4	18.7	18.4	10.5	17.9
2006	17.8	11.0	18.8	9.1	20.6	19.4	11.1	18.4
2007	17.3	10.5	18.9	9.1	20.3	19.1	9.7	18.8
2008	17.3	10.0	18.9	9.2	20.0	19.9	9.0	18.6
2009	16.2	...	16.5	9.0	18.7	17.9	9.5	18.7

Contd...

Responses to Environmental Impacts

**Table C-05: Vapour Pressure at Selected Centers**

(mbs)

Year/Station	Dalbadin (850)	Jacobabad (56)	Panjgur (981)	Jiwani (56)	Hyderabad (30)	Chhor (6)	Karachi (22)
1993	9.0	19.1	12.8	22.0	19.6	19.6	20.8
1994	11.1	19.7	13.5	23.8	20.1	19.8	21.5
1995	6.9	19.8	14.1	22.9	19.6	19.8	21.2
1996	6.5	18.5	12.2	21.7	20.5	19.6	20.2
1997	7.6	18.7	14.1	22.7	19.8	19.9	21.1
1998	9.1	19.8	12.8	23.3	19.6	21.1	21.4
1999	7.7	19.4	12.2	22.7	18.1	21.4	20.9
2000	8.7	19.2	12.5	23.3	18.5	20.6	21.4
2001	7.1	20.8	11.7	23.0	18.5	25.0	21.3
2002	7.3	19.5	12.1	22.8	18.2	19.1	20.9
2003	7.3	20.8	10.9	23.7	18.6	20.1	20.6
2004	6.2	18.6	13.1	23.5	18.3	20.4	21.0
2005	...	19.4	12.6	22.4	18.4	18.9	20.6
2006	6.7	19.9	11.0	23.3	21.0	22.2	22.6
2007	9.6	19.7	8.9	22.6	20.2	22.6	22.7
2008	8.1	19.0	9.8	22.2	19.2	21.4	21.3
2009	9.5	18.6	10.0	23.5	19.6	21.9	22.7

Source:- Pakistan Meteorological Department

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

... Data not available

**Table C-06: Area of Crops Covered by Ground Plant Protection Measures in Pakistan**

Area '000 hectares

Year	Cropped area	Area sprayed		Spray hectare
		Actual	Percent	
1995-96	22,590	7,167	32	NA
1998-99	22,860	7,477	31.72	16,201
1999-00	22,740	8,654	32.70	16,198
2003-04	22,940	7,519	32.77	16,387
2004-05	22,780	7,776	34.13	23,333
2005-06	23,130	7,704	33.30	23,287
2006-07	23,560	16,476	69.93	30,273
2007-08	23,850	16,433	68.90	30,224
2008-09	23,798	16,438	69.07	30,223

Source:- Agricultural Statistics of Pakistan, 2008-09

**Table C-07: Area Covered by Aerial Plant Protection Operation in Pakistan**

Area '000 hectares

Year	Cropped area	Area Sprayed	% Area Sprayed	Spray hectare
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
2001-02	22,120	35	0.16	35
2002-03	21,850	28	0.13	28
2003-04	22,940	11	0.048	11
2004-05	22,780	4	0.017	4
2005-06	23,130	9	0.039	9
2006-07	23,560	-	-	-
2007-08	23,850	5	0.02	5
2008-09	23,798	10	0.042	10

Source:- Agricultural Statistics of Pakistan, 2008-09.

Responses to Environmental Impacts

**Table C-08: Area Irrigated by Different Sources**

(Million Hectares)

Year	Total	Canals		Tubewells	Wells	Canal Tubewells	Canal Wells	Tanks	Others
		Government	Private						
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	(*)	0.21
2003-04	18.78	6.78	0.44	3.48	0.22	7.50	0.15	(*)	0.21
2004-05	18.84	6.56	0.44	3.46	0.25	7.70	0.19	(*)	0.24
2005-06	19.12	6.54	0.52	3.58	0.28	7.78	0.20	(*)	0.22
2006-07	19.59	6.36	0.42	3.89	0.67	7.78	0.22	(*)	0.25
2007-08	19.29	6.52	0.39	3.83	0.31	7.79	0.17	(*)	0.28
2008-09	19.49	6.47	0.39	3.88	0.33	7.94	0.20	(*)	0.21

Source:- Agricultural Statistics of Pakistan, 2008-09

Note: - (\*) Nominal

## Responses to Environmental Impacts

**Table C-09: River Flow Availability (Kharif and Rabi)**

(Million Acre Feet)

Year	Kharif				Rabi			
	Jhelum at Mangla	Chenab at Marala	Indus at * Kalabagh	Total	Jhelum at Mangla	Chenab at Marala	Indus at Kalabagh	Total
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
2004-05	11.74	14.90	55.42	82.06	6.71	6.41	17.32	30.44
2005-06	17.71	21.11	82.37	121.19	5.46	4.02	14.46	23.94
2006-07	16.43	21.38	74.02	111.83	6.78	6.32	17.73	30.83
2007-08	13.51	16.98	75.40	105.89	4.18	3.62	12.39	20.19
2008-09	13.77	16.21	65.89	95.87	5.88	3.61	13.51	23.00
2009-10	16.48	14.47	68.09	99.04	4.57	3.43	13.22	21.22
Year	Total (Kharif & Rabi)							
	Jhelum at Mangla	Chenab at Marala	Indus at Kalabagh	Total				
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				
2004-05	18.45	21.31	72.74	112.50				
2005-06	23.17	25.13	96.83	145.13				
2006-07	23.21	27.70	91.75	142.66				
2007-08	17.69	20.60	87.79	126.08				
2008-09	19.65	19.72	79.48	118.85				
2009-10	21.05	17.90	81.31	120.26				

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

\* Un-regulated

**Table C-10: Summary of Protected Areas in Pakistan (based on NCCW data) 2009**

Region/Province	National Parks	Wildlife Sanctuaries	Game Reserves	Community Reserves	Total PAs	Total Area Conserved (ha)
Azad Jammu Kashmir	6	0	12	0	18	113355
Balochistan	2	16	6	3	27	1653810
Punjab	4	37	24	0	65	4161170
Khyber Pakhtunkhwa	5	3	38	52	98	482182
Sindh	1	35	14	0	50	1306927
Federal Territory	1	1	1	0	3	94186
Gilgit/Baltistan	4	5	9	9	27	2040376
<b>Totals</b>	<b>23</b>	<b>97</b>	<b>104</b>	<b>64</b>	<b>288</b>	<b>9852006</b>

Source:- Ministry of Environment,

Note:- NCCW = National Council for Conservation of Wildlife

PAs = Protected Areas

**Table C-11: Forest Area (2007-08)**

(000 ha)

Forest Type	Punjab	KP	Sindh	Baloch- -istan	Azad Kashmir	Northern Areas	Total
Coniferous Forests	49	845	-	131	408	285	1718
Irrigated Plantations	150	-	90	6	-	8	254
Rive rain Forests	55	-	216	2	-	-	273
Scrub Forests	260	88	1	598	9	652	1608
Coastal Forests	-	-	280	216	-	-	496
Linear Plantations	17	2	-	1	-	1	21
Mazri	-	24	-	-	-	-	24
Range Land	2671	150	458	371	150	2104	5904
Miscellaneous	-	734	--	-	-	-	734
<b>Grand Total</b>	<b>3202</b>	<b>1843</b>	<b>1045</b>	<b>1325</b>	<b>567</b>	<b>3050</b>	<b>11032</b>

Source:- Agricultural Statistics of Pakistan-2008-09

**Table C-12: Share of Forestry in Value Added of Agriculture Sector**

(Rs. In Million)

Year	GDP-CF	Agriculture	Forestry	% Share of Forestry in Agriculture	% Share of Forestry in GDP
<b>(BASE = 1980-81)</b>					
1991-92	480413	125,425	1,139	0.91	0.24
1992-93	491325	118,795	1,132	0.95	0.23
1993-94	513635	125,005	1,192	0.95	0.23
1994-95	540528	133,215	1,211	0.91	0.22
1995-96	577080	148,832	909	0.61	0.16
1996-97	588191	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
<b>(BASE = 1990-2000)</b>					
1999-00	3,562,018	923,609	23,447	2.54	0.66
2000-01	3,632,091	903,499	25,571	2.83	0.71
2001-02	3,745,118	904,433	24,436	2.70	0.66
2002-03	3,922,104	941,942	27,150	2.88	0.70
2003-04	4,215,608	964,827	26,293	2.72	0.62
2004-05	4,593,230	1,027,403	17,785	1.73	0.39
2005-06	4,860,476	1,092,098	17,596	1.61	0.40
2006-07	5,191,709	1,137,037	16,697	1.10	0.30
2007-08	5,404,986	1,149,270	14,771	1.00	0.30
2008-09	5,512,445	1,203,308	12,457	1.00	0.22

Source:- Agricultural Statistics of Pakistan 2008-09



Responses to Environmental Impacts

**Table C-13: Area of Forests and Range Lands under the Control of Forest Department- by Legal Category in 2007-08**

(000Hectares)

Category	Total	Balochis- tan	KP	Punjab	Sindh	Northern Areas	AJK
1	2	3	4	5	6	7	8
<b>Total</b>	<b>11032</b>	<b>1325</b>	<b>1843</b>	<b>3202</b>	<b>1045</b>	<b>3050</b>	<b>567</b>
State	1290	707	16	-	-	-	567
Reserved	631	-	81	323	227	-	-
Protected	4587	378	614	2726	802	67	-
Unclassed	123	-	50	62	11	-	-
Resumed	40	-	26	9	5	-	-
Guzara	339	-	298	41	-	-	-
Communal	2993	-	10	-	-	2983	--
Section 38	32	-	14	18	-	-	-
Chose Act	2	1	-	1	-	-	-
Miscellaneous	995	239	734	22	-	-	-

Source:- Agricultural Statistics of Pakistan, 2008-09

**Table C-14: Forest Area under the Control of Forest Departments by Types of Vegetation in 2007-08**

(000 Hectares)

Category	Total	Balochistan	KP	Punjab	Sindh	Northern Areas	AJK
1	2	3	4	5	6	7	8
<b>Total</b>	<b>11032</b>	<b>1325</b>	<b>1843</b>	<b>3202</b>	<b>1045</b>	<b>3050</b>	<b>567</b>
Coniferous	1718	131	845	49	-	285	408
Irrigated- plantation	254	6	-	150	90	8	-
Riverain	273	2	-	55	216	-	-
Scrub	1608	598	88	260	1	652	9
Coastal	496	216	-	-	280	-	-
Linear Plantation	21	1	2	17	-	1	-
Range Lands	5904	371	150	2671	458	2104	150
Mazri	24	-	24	-	-	-	-
Miscellaneous	734	-	734	-	-	-	-

Source:- Agricultural Statistics of Pakistan, 2008-09

Responses to Environmental Impacts

**Table C-15: Area Afforested**

(000 Hectares)

Year	Total	Balochistan	KP	Punjab	Sindh
1990-91	22.1	N.A	13.9	4.5	3.7
1991-92	29.4	N.A	19.7	5.8	3.9
1992-93	34.9	1.2	28.4	3.7	1.6
1993-94	13.1	N.A	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	N.A	15.1	1.9	2.9
1997-98	20.9	N.A	6.9	2.3	11.7
1998-99	18.9	N.A	8.2	3.9	6.8
1999-00	15.1	N.A	10.5	3.9	0.7
2000-01 (R)	22.9	4.5	7.6	3.9	6.9
2001-02 (R)	16.5	4.9	6.5	1.1	4.0
2002-03 (R)	17.5	4.4	5.7	1.4	6.0
2003-04 (R)	21.9	6.9	7.7	1.9	5.4
2004-05 (R)	19.9	2.0	11.3	3.2	3.4
2005-06 (R)	11.7	0.8	5.5	3.0	2.4
2006-07 (R)	15.1	0.8	8.1	4.2	2.0
2007-08 (R)	19.5	N.A	7.9	3.6	8.0
2008-09 (P)	12.9	N.A	9.7	3.2	N.A

Source:- Agricultural Statistics of Pakistan, 2008-09

R= Revised P= Provisional N.A= Not Available

## Responses to Environmental Impacts

**Table C-16: Area Regenerated**

( 000 Hectares )

Year	Total	Balochistan	KP	Punjab	Sindh
1990-91	19.3	N.A	4.4	3.4	11.5
1991-92	19.6	N.A	6.3	1.3	12.0
1992-93	29.9	N.A	-	4.6	25.3
1993-94	29.3	0.2	1.9	2.3	24.9
1994-95	31.8	N.A	2.0	4.2	25.6
1995-96	31.7	0.1	2.5	4.5	25.6
1996-97	18.1	0.1	1.9	3.6	12.5
1997-98	18.3	N.A	0.6	1.6	16.1
1998-99	19.8	N.A	0.5	1.0	18.3
1999-00	7.0	N.A	0.5	0.6	5.9
2000-01	7.1	N.A	2.6	0.4	4.1
2001-02	16.3	N.A	3.9	0.9	11.5
2002-03	5.5	N.A	2.7	0.8	2.0
2003-04	12.6	N.A	3.4	1.2	8.0
2004-05	11.4	N.A	1.0	0.9	9.5
2005-06	11.4	N.A	1.1	2.5	7.8
2006-07 (R)	12.1	N.A	1.4	1.1	9.6
2007-08 (R)	10.0	N.A	1.2	0.8	8.0
2008-09 (P)	4.5	N.A	3.5	1.0	N.A

Source:- Agricultural Statistics of Pakistan, 2008-09

R= Revised P= Provisional N.A= Not Available

Responses to Environmental Impacts

**Table- C-17: Quality of Ground Water at Various Locations of Islamabad, (Physical and Aesthetic Examination)**

S. No.	S. Code	Site ID	Location	Source	Colour	E.C.	Odour	pH	Taste	Turbidity
Units				-	-	µS/cm	-	-	-	NTU
Maximum Permissible Limits				-	-	NGVS	-	5-8.5	-	5
1	ISL-01	5	T. Well No.193, F-6 NEFDEC Cinema	T. Well	C. Less	713	Less	7.0	Unobjec.	0.12
2	ISL-02	2	Quaid-e-Azam Univ. (Simly dam)	W. Supply	C. Less	347	Less	7.6	Unobjec.	4.20
3	ISL-03	1	Noorpur Shahan (Simly dam)	W. Supply	C. Less	493	Less	7.9	Unobjec.	0.71
4	ISL-04	4	T. Well No.37, G-5	T. Well	C. Less	680	Less	7.1	Unobjec.	0.26
5	ISL-05	7	IMCG, F-7/4 Boring	Bore	C. Less	799	Less	7.3	Unobjec.	0.01
6	ISL-06	6	T. Well Polyclinic Hostel	T. Well	C. Less	680	Less	7.4	Unobjec.	1.69
7	ISL-07	8	T. Well No.61, G-7/3-2	T. Well	C. Less	670	Less	7.0	Unobjec.	0.10
8	ISL-08	10	T. Well PIMS Near Storage	T. Well	C. Less	688	Less	7.0	Unobjec.	0.17
9	ISL-09	9	T. Well-64, St.37, F-8/1, (New Site)	T. Well	C. Less	783	Less	7.0	Unobjec.	0.02
10	ISL-10	17	T. Well-2, E-8, GE Navy, MES off.	T. Well	C. Less	618	Less	7.1	Unobjec.	0.89
11	ISL-11	11	T. Well-200, F-9, Fatima Jinnah Park	T. Well	C. Less	706	Less	7.1	Unobjec.	0.01
12	ISL-12	13	T. Well-105, F-10/2	T. Well	C. Less	799	Less	7.0	Unobjec.	0.01
13	ISL-13	12	T. Well-41, G-9/3	T. Well	C. Less	678	Less	7.2	Unobjec.	0.43
14	ISL-14	16	T. Well-100, G-11/2	T. Well	C. Less	812	Less	6.9	Unobjec.	0.01
15	ISL-15	15	T. Well-103, F-11/3	T. Well	C. Less	712	Less	7.2	Unobjec.	0.02
16	ISL-16	22	T. Well-194, Lunda Mustan, H-11	T. Well	C. Less	692	Less	7.0	Unobjec.	0.01
17	ISL-17	14	T. Well-151, G-10/2	T. Well	C. Less	823	Less	6.9	Unobjec.	2.96
18	ISL-18	20	T. Well-10/48, PCSIR Lab H-9	T. Well	C. Less	715	Less	7.0	Unobjec.	0.01
19	ISL-19	18	National Inst. Of Science & Tech. Edu.	T. Well	C. Less	766	Less	6.9	Unobjec.	0.41
20	ISL-20	19	T. Well-118, I-8/2, Deep turbine	T. Well	C. Less	723	Less	6.9	Unobjec.	0.59
21	ISL-21	21	T. Well-139, I-9/4, Pindora	T. Well	C. Less	765	Less	7.0	Unobjec.	0.37
22	ISL-22	23	T. Well-137, I-10/4	T. Well	C. Less	743	Less	7.0	Unobjec.	0.02
23	ISL-23	3	7 MGR, F-5/2	Reservoir	C. Less	319	Less	7.7	Unobjec.	1.43
24	ISL-24	3	Tap water, MoST, D Block	Tap	C. Less	442	Less	7.7	Unobjec.	0.25
25	ISL-25	5	Tap water, H-2, St.15, F-6/3	Tap	C. Less	352	Less	8.2	Unobjec.	3.96
26	ISL-26	7	H-63, Gomal Rd., E-7	Cistern	C. Less	428	Less	8.0	Unobjec.	1.76
27	ISL-27	6	H-16, St. 83, G-6/4	Tap	C. Less	351	Less	7.8	Unobjec.	2.62
% age sample exceeding permissible limits				-	0	-	0	0	0	0
<b>Max.</b>				-	-	823	-	8.2	-	4.20
<b>Min.</b>				-	-	319	-	6.9	-	0.01

Source:- Fifth Water Quality Monitoring Report, 2005-06 Pakistan (PCRWR).

**Table C-18: Quality of Ground Water at Various Locations of Islamabad (Chemical & Inorganic Constituents Analysis)**

S. No.	Sample Code	Alk.	HCO <sub>3</sub>	CO <sub>3</sub>	Ca	Mg	Hard
	Units	m.mol/l	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
		1	2	3	4	5	6
<b>Maximum Permissible Limits</b>		<b>NGVS</b>	<b>NGVS</b>	<b>NGVS</b>	<b>75</b>	<b>150</b>	<b>500</b>
1	ISL-01	6.20	310	Nil	88	22	310
2	ISL-02	2.80	140	-	40	15	160
3	ISL-03	3.60	180	-	48	22	210
4	ISL-04	5.40	270	-	82	23	300
5	ISL-05	5.60	280	-	84	12	260
6	ISL-06	5.20	260	-	80	19	280
7	ISL-07	5.20	260	-	68	22	260
8	ISL-08	5.60	280	-	96	19	320
9	ISL-09	5.60	280	-	80	24	300
10	ISL-10	4.80	240	-	56	24	240
11	ISL-11	5.80	290	-	90	11	270
12	ISL-12	6.20	310	-	80	22	290
13	ISL-13	7.00	350	-	80	17	270
14	ISL-14	7.70	385	-	90	21	310
15	ISL-15	5.80	290	-	92	17	300
16	ISL-16	6.20	310	-	52	29	250
17	ISL-17	7.30	365	-	90	27	350
18	ISL-18	6.20	310	-	74	25	290
19	ISL-19	6.40	320	-	92	22	320
20	ISL-20	7.10	355	-	90	23	320
21	ISL-21	7.70	385	-	92	27	340
22	ISL-22	7.20	370	-	85	26	320
23	ISL-23	3.00	150	-	34	13	140
24	ISL-24	3.20	160	-	44	19	190
25	ISL-25	3.00	150	-	32	17	150
26	ISL-26	3.40	170	-	36	20	170
27	ISL-27	3.00	150	-	36	15	150
<b>%age Sample Exceeding permissible Limits</b>		-	-	-	59	0	0
<b>Min.</b>		7.70	385	-	96	29	350
<b>Max.</b>		2.80	140	-	32	11	150

Contd...

**Table C-18: Quality of Ground Water at Various Locations of Islamabad (Chemical & Inorganic Constituents Analysis)**

S.No	Sample Code	Cl	Na	K	SO <sub>4</sub>	Na(N)	PO <sub>4</sub>	TDS
	Units	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
		7	8	9	10	11	12	13
<b>Maximum Permissible Limits</b>		<b>250</b>	<b>200</b>	<b>12</b>	<b>250</b>	<b>10</b>	<b>NGVS</b>	<b>1000</b>
1	ISL-01	23	21	1.0	35	1.30	0.07	499
2	ISL-02	14	11	2.7	19	1.10	0.05	215
3	ISL-03	14	12	4.2	26	0.10	0.04	205
4	ISL-04	20	26	0.8	33	1.80	0.05	476
5	ISL-05	16	30	2.0	37	3.10	0.05	560
6	ISL-06	18	17	1.4	25	1.70	0.08	435
7	ISL-07	14	11	1.5	26	1.90	0.07	469
8	ISL-08	16	16	1.7	21	1.90	0.17	481
9	ISL-09	21	32	1.1	34	3.80	0.13	548
10	ISL-10	14	20	1.0	31	1.10	0.12	432
11	ISL-11	14	40	1.7	34	1.10	0.08	494
12	ISL-12	20	38	1.2	60	2.60	0.07	559
13	ISL-13	12	25	1.7	31	2.50	0.10	475
14	ISL-14	25	60	1.4	40	3.80	0.09	568
15	ISL-15	18	26	1.5	42	5.10	0.07	498
16	ISL-16	14	34	1.2	14	1.70	0.09	484
17	ISL-17	20	42	1.4	60	5.20	0.12	576
18	ISL-18	21	32	1.4	36	2.30	0.07	500
19	ISL-19	21	27	1.6	41	3.10	0.11	536
20	ISL-20	18	21	1.5	24	1.80	0.08	506
21	ISL-21	23	28	1.5	27	1.90	0.07	535
22	ISL-22	16	29	1.5	14	2.70	0.08	520
23	ISL-23	9	9	1.8	23	0.45	0.01	191
24	ISL-24	11	11	2.2	37	1.70	0.10	265
25	ISL-25	11	11	2.2	27	1.30	0.11	211
26	ISL-26	14	11	2.3	21	1.10	0.08	258
27	ISL-27	12	12	2.7	24	0.40	0.08	212
<b>%age Sample Exceeding Permissible Limits</b>		0	0	0	0	0	0	0
<b>Max.</b>		25	60	4.2	60	5.20	0.17	576
<b>Min.</b>		9	9	0.8	14	0.10	0.01	191

Source:- Fifth Water Quality Monitoring Report, 2005-06 (PCRWR).

Responses to Environmental Impacts

**Table C-19: Quality of Ground Water at Various Locations at Rawalpindi, (Physical and Aesthetic Examination)**

S. No..	S. Code	Site ID	Location	Source	Colour	E.C.	Odour	PH	Taste	Turbidity
<b>Units</b>				-	-	µS/cm	-	-	-	NTU
<b>Maximum Permissible Limits</b>				-	-	NGVS	-	6.5-8.5	-	5
1	RAW-01	8	T. Well-30, Muslim Town Haji Chowk	T. Well	C. Less	555	Less	7.1	Unobjec.	0.02
2	RAW-02	7	T. Well-4, PAF Base, Minhas Camp	T. Well	C. Less	760	Less	7.8	Unobjec.	0.02
3	RAW-03	3	T. Well-148 Banni Thana	T. Well	C. Less	716	Less	6.9	Unobjec.	5.00
4	RAW-04	3	*Chitti Tanki, Saidpur Rd.	W. Sply.	C.Less	704	Less	7.0	Unobjec.	0.03
5	RAW-05	4	*T. Well-17 Dk. Kala Khan	T. Well	C. Less	626	Less	7.3	Unobjec.	0.02
6	RAW-06	2	T. Well-42 Football Grd. Westridge	T. Well	C. Less	1163	Less	6.8	Unobjec.	0.02
7	RAW-07	5	T. Well-25, Military Hospital (Bore Change)	T. Well	C. Less	803	Less	7.0	Unobjec.	0.42
8	RAW-08	6	T. Well-7 Hockey Stadium, Sadder	T. Well	C. Less	985	Less	6.9	Unobjec.	0.00
9	RAW-09	9	Rajgan Masjid, Dhamial Rd.	Bore	C. Less	1634	Less	6.8	Unobjec.	0.02
10	RAW-10	1	T. Well-53, Afshan Colony, Qasim Rd.	T. Well	C. Less	799	Less	7.0	Unobjec.	0.02
11	RAW-11	10	T. Well-41 Dheri Hasanabad	T. Well	C. Less	1067	Less	6.9	Unobjec.	1.02
12	RAW-12	11	T. Well-67 Civil Line Club, Jhanda	T. Well	C. Less	923	Less	7.0	Unobjec.	0.00
13	RAW-13	12	T. Well Chaklala Railway Station	T. Well	C. Less	819	Less	7.0	Unobjec.	0.02
14	RAW-14	14	T. Well Swan Nullah Near High Court	T. Well	C. Less	869	Less	7.0	Unobjec.	0.13
15	RAW-15	13	Bahria Town, Phase-II, St.49	T. Well	C. Less	768	Less	7.0	Unobjec.	0.00
<b>%age Sample Exceeding Permissible Limits</b>				-	0	-	0	0	0	0
<b>Max.</b>				-	-	1634	-	7.8	-	5.00
<b>Min.</b>				-	-	555	-	6.8	-	0.00

Source:- Fifth Water Quality Monitoring Report, 2005-06 Pakistan (PCRWR).

\* Mixing the ground water with surface water or WASA water

**Table C-20: Quality of Ground Water at Various Location of Rawalpindi, (Chemical & Inorganic Constituents Analysis)**

S. No.	Sample Code	Alk.	HCO <sub>3</sub>	CO <sub>3</sub>	Ca	Mg	Hard
	Units	m.mol/l	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
		1	2	3	4	5	6
<b>Maximum Permissible Limits</b>		<b>NGVS</b>	<b>NGVS</b>	<b>NGVS</b>	<b>75</b>	<b>150</b>	<b>500</b>
1	RAW-01	3.60	180	0.00	60	12	200
2	RAW-02	5.40	270	0.00	76	27	300
3	RAW-03	5.80	290	0.00	88	22	310
4	RAW-04	5.60	280	0.00	88	17	290
5	RAW-05	4.40	220	0.00	64	22	250
6	RAW-06	7.40	370	0.00	80	43	380
7	RAW-07	6.30	315	0.00	88	19	300
8	RAW-08	6.80	340	0.00	96	34	380
9	RAW-09	7.00	350	0.00	120	58	540
10	RAW-10	6.80	340	0.00	80	22	290
11	RAW-11	6.80	340	0.00	68	58	410
12	RAW-12	6.40	320	0.00	76	36	340
13	RAW-13	6.20	310	0.00	68	43	350
14	RAW-14	4.20	210	0.00	100	17	320
15	RAW-15	5.20	260	0.00	88	19	300
<b>%age Sample Exceeding Permissible Limits</b>		0	0	0.00	73	0	7
<b>Max.</b>		7.40	370	0.00	120	58	540
<b>Min.</b>		3.60	180	0.00	60	12	200

Contd...



**Table C-20: Quality of Ground Water at Various Location of Rawalpindi, (Chemical & Inorganic Constituents Analysis)**

S. No.	Sample Code	Cl	Na	K	SO <sub>4</sub>	NO <sub>3</sub> (N)	PO <sub>4</sub>	TDS
	Unit	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
		7	8	9	10	11	12	13
<b>Maximum Permissible Limits</b>		<b>250</b>	<b>200</b>	<b>12</b>	<b>250</b>	<b>10</b>	<b>NGVS</b>	<b>1000</b>
1	RAW-01	11	16	1.4	17	1.50	0.08	382
2	RAW-02	18	36	2.2	45	2.30	0.07	524
3	RAW-03	21	31	1.8	17	3.10	0.08	501
4	RAW-04	21	37	1.5	28	2.80	0.10	492
5	RAW-05	18	19	1.5	14	2.40	0.09	438
6	RAW-06	69	78	2.1	48	22.00	0.07	796
7	RAW-07	35	50	1.5	15	10.50	0.07	562
8	RAW-08	39	53	1.6	39	14.00	0.12	689
9	RAW-09	156	140	1.9	76	36.00	0.10	1041
10	RAW-10	32	58	1.5	17	1.20	0.09	559
11	RAW-11	60	55	1.6	44	31.00	0.07	746
12	RAW-12	43	40	1.6	36	13.00	0.01	646
13	RAW-13	18	37	2.2	24	6.80	0.10	572
14	RAW-14	53	42	5.8	27	21.00	0.07	608
15	RAW-15	27	30	2.0	28	2.40	0.08	537
<b>%age Sample Exceeding Permissible Limits</b>		0	0	0	0	47	-	7
<b>Max.</b>		156	140	5.8	76	36.00	0.12	1041
<b>Min.</b>		11	16	1.4	14	1.20	0.01	382

Source:- Fifth Water Quality Monitoring Report, 2005-06 Pakistan Council of Research in Water Resources (PCRWR).

Responses to Environmental Impacts

**Table- C-21: Quality of Ground Water at Various Locations of Faisalabad, (Physical and Aesthetic Examination)**

S. No.	S. Code	Site ID	Location	Source	Colour	E.C.	Odour	pH	Taste	Turbidity
<b>Units</b>				-	-	µS/cm	-	-	-	NTU
<b>Maximum Permissible Limits</b>				-	-	NGVS	-	6.5-8.5	-	5
1	FAI-01	3	Baghdadi Chowk Sidupura Near Masjid Noor	Tap	C. Less	786	Less	7.4	Unobjec.	1.07
2	FAI-02	1	Adda Chak 7JB, Sargodha Road (New bore)	H. Pump	C. Less	2740	Less	7.7	Unobjec.	2.42
3	FAI-03	4	Allied Hospital Punjab Medical College	Tap	C. Less	761	Less	7.7	Unobjec.	0.02
4	FAI-04	9	Shadab Colony, Shadab park	Water supply	C. Less	808	Less	7.4	Unobjec.	0.04
5	FAI-05	12	M.C Girls Middle School Samanabad (New site)	Inj. Pump	C. Less	4530	Less	7.4	Unobjec.	0.03
6	FAI-06	13	Ghosia General Store Near Goal Chowk	Inj. Pump	C. Less	2590	Less	7.2	Unobjec.	1.04
7	FAI-07	11	National College of Computer Sciences	Inj. Pump	C. Less	3760	Less	7.1	Unobjec.	1.36
8	FAI-08	10	Makhdoom Road Khalil abad	Water Supply	C. Less	789	Less	7.7	Unobjec.	0.20
9	FAI-09	7	Agriculture University, Faisalabad	Inj. Pump	C. Less	1813	Less	7.2	Unobjec.	0.04
10	FAI-10	5	Nishatabad Opp. Post Office (New bore)	Inj. T.Well	C. Less	2370	Less	7.5	Unobjec.	0.03
11	FAI-11	2	Treatment Plant Millat Town	T. Well	C. Less	230	Less	7.7	Unobjec.	0.02
12	FAI-12	6	Awan Chowk, Sadar Bazar	Water Supply	C. Less	750	Less	7.4	Unobjec.	0.01
13	FAI-13	8	T. Well-3, Canal Bank Road Farooqabad (New site)	T. Well	C. Less	3110	Less	7.5	Unobjec.	0.09
<b>% age Samples Exceeding Permissible Limits</b>					0	-	0	0		0
<b>Max. Conc.</b>				-	-	4530	-	7.7	-	2.42
<b>Min. Conc.</b>				-	-	230	-	7.1	-	0.01

Source:- Fifth Water Quality Monitoring Report, 2005-06 Pakistan (PCRWR).

**Table C-22: Quality of Ground Water at Various Locations of Faisalabad (Chemical & Inorganic Constituents Analysis)**

S. No.	Sample Code Units	Alk.	HCO <sub>3</sub>	CO <sub>3</sub>	Ca	Mg	Hard
		m.mol/l	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
		1	2	3	4	5	6
<b>Maximum Permissible Limits</b>		NGVS	NGVS	NGVS	75	150	500
1	FAI-01	4.60	230	0.00	60	27	260
2	FAI-02	10.40	520	0.00	8	19	100
3	FAI-03	4.40	220	0.00	56	27	250
4	FAI-04	4.30	215	0.00	64	27	270
5	FAI-05	11.30	565	0.00	92	126	750
6	FAI-06	9.00	450	0.00	104	87	620
7	FAI-07	12.40	620	0.00	172	78	750
8	FAI-08	4.40	220	0.00	52	39	290
9	FAI-09	8.60	430	0.00	92	53	450
10	FAI-10	12.80	640	0.00	44	46	300
11	FAI-11	1.80	90	0.00	33	7	110
12	FAI-12	4.20	210	0.00	12	56	260
13	FAI-13	8.40	420	0.00	56	51	350
<b>% age Sample Exceeding permissible Limits</b>		-	-	0.00	31	0	23
<b>Max. Conc.</b>		12.80	640	0.00	172	126	750
<b>Min. Conc.</b>		1.80	90	0.00	8	7	100

Contd...

**Table C-22: Quality of Ground Water at Various Locations of Faisalabad (Chemical & Inorganic Constituents Analysis)**

S. No.	Sample Code	Cl	Na	K	SO <sub>4</sub>	NO <sub>3</sub> (N)	PO <sub>4</sub>	TDS
	Unit	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
		7	8	9	10	11	12	13
<b>Maximum Permissible Limits</b>		<b>250</b>	<b>200</b>	<b>12</b>	<b>250</b>	<b>10</b>	<b>NGVS</b>	<b>1000</b>
1	FAI-01	52	64	5.10	128	1.50	0.08	542
2	FAI-02	338	600	10.10	407	2.30	0.08	1891
3	FAI-03	47	61	4.70	106	1.10	0.04	525
4	FAI-04	53	60	4.90	121	1.30	0.05	557
5	FAI-05	710	760	30.30	598	9.20	0.05	3162
6	FAI-06	371	320	30.10	361	2.10	0.07	1810
7	FAI-07	468	510	51.00	482	7.30	0.08	2594
8	FAI-08	59	61	5.00	127	1.20	0.05	544
9	FAI-09	239	215	32.10	178	5.80	0.06	1265
10	FAI-10	168	450	15.40	270	6.10	0.05	1636
11	FAI-11	7	5	3.40	23	0.60	0.04	156
12	FAI-12	52	53	4.70	122	1.20	0.06	517
13	FAI-13	383	520	11.60	443	1.50	0.07	245
<b>% age Sample Exceeding permissible Limits</b>		38	54	38	46	0	-	46
<b>Max. Conc.</b>		710	760	51.00	598	9.20	0.08	3162
<b>Min. Conc.</b>		7	5	3.40	23	0.60	0.04	156

Source:- Fifth Water Quality Monitoring Report, 2005-06 Pakistan (PCRWR).

**Table- C-23: Quality of Ground Water at Various Locations of Kasur, (Physical and Aesthetic Examination)**

S. No.	S. Code	Site ID	Location	Source	Colour	E.C.	Odour	pH	Taste	Turbidity
<b>Units</b>				-	-	µS/cm	-	-	-	NTU
<b>Maximum Permissible Limits</b>				-	-	NGVS	-	6.5-8.5	-	5
1	KSA-01	1	Govt. Primary School Mohalla Qadir	T. Well	C. Less	1045	Less	7.0	Unobjec.	0.88
2	KSA -02	2	Nafees Colony Chandni Chowk	T. Well	C. Less	905	Less	7.1	Unobjec.	1.17
3	KSA -03	3	Kot Azam Khan Near Islamia College (New bore)	Inj. Pump	C. Less	830	Less	7.3	Unobjec.	0.62
4	KSA -04	5	Chaki Piyarolal Opp. Railway station (New Bore)	Inj. Pump	C. Less	1780	Less	7.0	Unobjec.	0.46
5	KSA -05	8	Chowk Shahedan Kot Murad Khan (New bore)	Inj. Pump	C. Less	1885	Less	7.2	Unobjec.	0.67
6	KSA -06	7	Capt. Naseem Kot Ghulam Muhammad	T. Well	C. Less	1789	Less	7.5	Unobjec.	1.69
7	KSA -07	4	MCB Middle School Kot Munir Shaheed	T. Well	C. Less	690	Less	7.3	Unobjec.	0.59
8	KSA -08	6	Kot Osman Khan near MCP School	T. Well	C. Less	1680	Less	7.0	Unobjec.	0.53
9	KSA -09	9	Kot Mulvi Abdul Qadeer	T. Well	C. Less	790	Less	6.8	Unobjec.	1.25
10	KSA -10	10	Basti Barat Shah Ansari Mohalla	T. Well	C. Less	590	Less	7.8	Unobjec.	1.23
<b>% age Samples Exceeding Permissible Limits</b>					0	0	0	0	0	0
<b>Max. Conc.</b>				-	-	1885	-	7.8	-	1.69
<b>Min. Conc.</b>				-	-	590	-	6.8	-	0.46

Source:- Fifth Water Quality Monitoring Report, 2005-06 Pakistan (PCRWR).

**Table C-24: Quality of Ground Water at Various Locations of Kasur (Chemical & Inorganic Constituents Analysis)**

S. No.	Sample Code	Alk.	HCO <sub>3</sub>	CO <sub>3</sub>	Ca	Mg	Hard
	Units	m.mol/l	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
		1	2	3	4	5	6
<b>Maximum Permissible Limits</b>		NGVS	NGVS	NGVS	75	150	500
1	KSA-01	7.00	350	0.00	28	17	140
2	KSA -02	6.00	300	0.00	24	31	190
3	KSA -03	6.20	310	0.00	32	7	110
4	KSA -04	12.70	635	0.00	16	20	130
5	KSA -05	13.00	650	0.00	40	34	240
6	KSA -06	13.40	670	0.00	18	13	100
7	KSA -07	4.40	220	0.00	12	17	100
8	KSA -08	13.00	650	0.00	28	10	110
9	KSA -09	5.40	270	0.00	44	7	140
10	KSA -10	4.20	210	0.00	17	14	100
<b>% age Sample Exceeding permissible Limits</b>		-	-	0.00	0	0	0
<b>Max. Conc.</b>		13.40	670	0.00	44	34	240
<b>Min. Conc.</b>		4.20	210	0.00	12	7	100

Contd...

**Table C-24: Quality of Ground Water at Various Locations of Kasur (Chemical & Inorganic Constituents Analysis)**

S. No.	Sample Code	Cl	Na	K	SO <sub>4</sub>	NO <sub>3</sub> (N)	PO <sub>4</sub>	TDS
	Units	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
		7	8	9	10	11	12	13
<b>Maximum Permissible Limits</b>		<b>250</b>	<b>200</b>	<b>12</b>	<b>250</b>	<b>10</b>	<b>NGVS</b>	<b>1000</b>
1	KSA-01	60	201	4.10	105	1.60	0.09	730
2	KSA -02	57	140	3.60	79	2.10	0.06	632
3	KSA -03	37	154	3.90	70	1.30	0.08	580
4	KSA -04	82	385	14.10	147	1.70	0.10	1245
5	KSA -05	100	350	11.50	260	14.60	0.09	1318
6	KSA -06	57	390	6.60	258	1.90	0.08	1250
7	KSA -07	43	118	2.40	76	0.60	0.07	482
8	KSA -08	57	375	6.20	142	0.90	0.08	1175
9	KSA -09	39	148	5.10	58	0.80	0.07	545
10	KSA -10	32	116	2.30	43	0.90	0.08	411
<b>% age Sample Exceeding permissible Limits</b>		0	50	10	20	10	0	40
<b>Max. Conc.</b>		100	390	14.10	260	14.60	0.10	1318
<b>Min. Conc.</b>		32	116	2.30	43	0.60	0.06	411

Source:- Fifth Water Quality Monitoring Report, 2005-06 Pakistan (PCRWR).

Responses to Environmental Impacts

**Table-C-25: Quality of Ground Water at Various Locations of Lahore, (Physical and Aesthetic Examination)**

S. No.	S. Code	Location	Source	Colour	E.C.	Odour	pH	Taste	Turbidity
Units			-	-	µS/cm	-	-	-	NTU
Maximum Permissible Limits			-	-	NGVS	-	6.5-8.5	-	5
1	LAH-01	Goharabad TW Shalimar Town (New bore)	T. Well	C. Less	510	Less	8.1	Unobjec.	0.95
2	LAH -02	Sultanpura TW Near Chah Meeran Shah	T. Well	C. Less	645	Less	7.8	Unobjec.	3.95
3	LAH -03	Ali park TW-1 Fort Road (New bore)	T. Well	C. Less	335	Less	7.8	Unobjec.	0.66
4	LAH -04	Old Shahdara Town Centre Tubewell	T. Well	C. Less	329	Less	8.0	Unobjec.	0.77
5	LAH -05	Goal Bagh TW Wahdat Colony	T. Well	C. Less	429	Less	8.2	Unobjec.	0.46
6	LAH -06	Guromanget TW Gulberg-III	T. Well	C. Less	965	Less	8.0	Unobjec.	2.23
7	LAH -07	TW Cantonment Board Asghari Flats	T. Well	C. Less	792	Less	7.5	Unobjec.	2.53
8	LAH -08	TW Tufail Road Saddar Bazar	T. Well	C. Less	552	Less	8.0	Unobjec.	1.29
9	LAH -09	TW-12 Ravi Block, Allama Iqbal Town	T. Well	C. Less	510	Less	8.0	Unobjec.	0.87
10	LAH -10	TW Federal Lodge, Chamba House (New bore)	T. Well	C. Less	563	Less	8.2	Unobjec.	1.29
11	LAH-11	PCSIR Housing Society Canal Bank Road	T. Well	C. Less	685	Less	7.8	Unobjec.	0.86
12	LAH-12	LDA Flats Opp Faisal Town, Ghosia Masjid	T. Well	C. Less	519	Less	7.5	Unobjec.	0.53
13	LAH-13	TW Riwarz Garden	T. Well	C. Less	990	Less	7.7	Unobjec.	0.96
14	LAH-14	Farooq Colony, Walton Road, Police Line	T. Well	C. Less	680	Less	8.1	Unobjec.	0.79
15	LAH-15	Punjab Govt. Co.Operative Housing Society	T. Well	C. Less	683	Less	7.6	Unobjec.	2.13
16	LAH-16	Govt. Housing Scheme Township A-I	T. Well	C. Less	1090	Less	8.2	Unobjec.	1.75
% age Samples Exceeding Permissible Limits					0	0	0	0	0
Max. Conc.			-	-	1090	-	8.2	-	3.95
Min. Conc.			-	-	329	-	7.5	-	0.46

Source:- Fifth Water Quality Monitoring Report, 2005-06 (PCRWR).



**Table C-26: Quality of Ground Water at Various Locations of Lahore (Chemical & Inorganic Constituents Analysis)**

S. No.	Sample Code	Alk.	HCO <sub>3</sub>	CO <sub>3</sub>	SO <sub>4</sub>	Cl	NO <sub>3</sub> (N)
	Units	m.mol/l	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
		1	2	3	4	5	6
<b>Maximum Permissible Limits</b>		<b>NGVS</b>	<b>NGVS</b>	<b>NGVS</b>	<b>250</b>	<b>250</b>	<b>10</b>
1	LAH-01	4.20	210	0.00	36	12	1.20
2	LAH -02	3.60	180	0.00	73	57	1.10
3	LAH -03	2.80	140	0.00	18	14	0.90
4	LAH -04	2.80	140	0.00	17	9	0.70
5	LAH -05	3.50	175	0.00	25	9	0.70
6	LAH -06	5.80	290	0.00	77	32	1.80
7	LAH -07	6.80	340	0.00	45	16	0.90
8	LAH -08	4.50	225	0.00	40	14	1.30
9	LAH -09	3.80	190	0.00	43	21	1.20
10	LAH -10	4.00	200	0.00	50	18	1.10
11	LAH-11	5.40	270	0.00	56	14	1.90
12	LAH-12	4.00	200	0.00	35	12	1.80
13	LAH-13	5.40	270	0.00	101	90	0.80
14	LAH-14	5.00	250	0.00	64	25	0.70
15	LAH-15	5.40	270	0.00	75	14	2.00
16	LAH-16	8.20	410	0.00	104	34	0.80
<b>% age Sample Exceeding permissible Limits</b>		-	-	0.00	0	0	0
<b>Max. Conc.</b>		8.20	410	0.00	104	90	2.00
<b>Min. Conc.</b>		2.80	140	0.00	17	9	0.70

Contd...

**Table C-26: Quality of Ground Water at Various Locations of Lahore, (Chemical & Inorganic Constituents Analysis)**

S. No.	Sample Code	Ca	Mg	Hard	Na	K	PO <sub>4</sub>	TDS
	Units	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
		7	8	9	10	11	12	13
<b>Maximum Permissible Limits</b>		<b>75</b>	<b>150</b>	<b>500</b>	<b>200</b>	<b>12</b>	<b>NGVS</b>	<b>1000</b>
1	LAH-01	25	19	150	62	2.60	0.07	351
2	LAH -02	48	32	250	42	4.30	0.09	445
3	LAH -03	40	11	145	12	3.10	0.05	214
4	LAH -04	32	17	150	13	2.10	0.08	198
5	LAH -05	15	15	100	78	1.30	0.11	296
6	LAH -06	40	31	230	132	5.50	0.09	675
7	LAH -07	24	24	160	122	5.50	0.09	540
8	LAH -08	20	15	110	80	2.50	0.08	381
9	LAH -09	34	13	140	62	2.50	0.12	352
10	LAH -10	16	14	100	94	1.50	0.10	388
11	LAH-11	32	31	210	76	4.50	0.11	479
12	LAH-12	16	14	100	92	1.90	0.09	358
13	LAH-13	72	29	300	106	4.30	0.09	692
14	LAH-14	14	16	100	120	2.40	0.13	470
15	LAH-15	28	19	150	90	3.90	0.12	478
16	LAH-16	48	34	260	152	5.70	0.12	762
<b>% age Sample Exceeding permissible Limits</b>		0	0	0	0	0	-	-
<b>Max. Conc.</b>		72	34	300	152	5.70	0.13	762
<b>Min. Conc.</b>		14	11	100	12	1.30	0.05	198

Source:- Fifth Water Quality Monitoring Report, 2005-06 (PCRWR).

**Table-C-27: Quality of Ground Water at Various Locations of Multan, (Physical and Aesthetic Examination)**

S. No.	S. Code	Site ID	Location	Source	Colour	E.C.	Odour	pH	Taste	Turbidity
Units				-	-	µS/cm	-	-	-	NTU
Maximum Permissible Limits				-	-	NGVS	-	6.5-8.5	-	5
1	MUL-01	1	Chah keemay Wala Opp. Zakaria Univ.	H. Pump	Muddy	1012	Less	7.1	Objec.	42.32
2	MUL -02	2	Bahauddin Zakariya University	T. Well	C. Less	620	Less	7.5	Unobjec.	2.06
3	MUL -03	3	Punjab police Line, Malital Road	T. Well	C. Less	678	Less	7.1	Unobjec.	0.63
4	MUL -04	4	Jamia Qasim-ul-Uloom Gul Gusht Colony	T. Well	C. Less	769	Less	7.7	Unobjec.	4.35
5	MUL -05	5	Jamia Masjid Bilal, Tariqabad	H. Pump	C. Less	647	Less	7.8	Unobjec.	0.89
6	MUL -06	6	Well-9, C-20, Pak Arab Fertilizer Corp.	T. Well	C. Less	839	Less	7.6	Unobjec.	0.67
7	MUL -07	7	WAPDA(NGPS) Piran Ghaib	Well	C. Less	788	Less	7.4	Unobjec.	0.56
8	MUL -08	8	Shah Rukan Alam Colony, G Block	W. Supply	C. Less	678	Less	7.6	Unobjec.	0.11
9	MUL -09	9	Nishter Hospital, Multan	T. Well	C. Less	687	Less	7.6	Unobjec.	0.61
10	MUL -10	10	Well-1, Cantt. Board, Metro Plaza	T. Well	C. Less	418	Less	7.5	Unobjec.	0.78
11	MUL -11	11	Ch. Medical Store, Basti Khudadad	H. Pump	C. Less	1184	Less	7.1	Unobjec.	21.60
12	MUL -12	12	Munir Hotel Opp. Solkex Factory	H. Pump	C. Less	855	Less	7.2	Unobjec.	24.23
13	MUL -13	13	WAPDA Colony, Qasim pur	T. Well	C. Less	703	Less	7.5	Unobjec.	1.45
14	MUL -14	14	132KV Grid Station, Vehari Road	T. Well	C. Less	940	Less	7.8	Unobjec.	1.95
15	MUL -15	15	Ismail Textile Mills(Pvt.) Ltd.	H. Pump	C. Less	546	Less	7.4	Unobjec.	0.14
16	MUL -16	16	Lucky Linker Pesticide Company	H. Pump	C. Less	578	Less	7.4	Unobjec.	0.68
% age Samples Exceeding Permissible Limits					6	0	0	0	6	19
Max. Conc.				-	-	1184		7.8	-	42.32
Min. Conc.				-	-	418		7.1	-	0.11

Source:- Fifth Water Quality Monitoring Report, 2005-06 Pakistan (PCRWR).

**Table C-28: Quality of Ground Water at Various Locations of Multan (Chemical & Inorganic Constituents Analysis)**

S.No.	Sample Code	Alk.	HCO <sub>3</sub>	CO <sub>3</sub>	Ca	Mg	Hard
	Units	m.mol/l	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
		1	2	3	4	5	6
<b>Maximum Permissible Limits</b>		<b>NGVS</b>	<b>NGVS</b>	<b>NGVS</b>	<b>75</b>	<b>150</b>	<b>500</b>
1	MUL-01	6.40	320	0.00	16	29	160
2	MUL -02	3.80	190	0.00	28	34	210
3	MUL -03	4.20	210	0.00	36	27	200
4	MUL -04	4.70	235	0.00	48	24	220
5	MUL -05	3.80	190	0.00	32	12	130
6	MUL -06	4.80	240	0.00	52	19	210
7	MUL -07	4.00	200	0.00	26	29	260
8	MUL -08	3.90	195	0.00	20	17	120
9	MUL -09	4.60	230	0.00	20	12	100
10	MUL -10	3.00	150	0.00	26	22	140
11	MUL -11	4.60	230	0.00	88	22	310
12	MUL -12	5.50	275	0.00	36	44	270
13	MUL -13	3.80	190	0.00	64	21	250
14	MUL -14	5.60	280	0.00	48	11	165
15	MUL -15	4.00	200	0.00	60	15	210
16	MUL -16	3.20	160	0.00	20	14	110
<b>% age Sample Exceeding permissible Limits</b>		-	-	0.00	6	0	0
<b>Max. Conc.</b>		6.40	320	0.00	88	44	310
<b>Min. Conc.</b>		3.00	150	0.00	16	11	100

Contd...

**Table C-28: Quality of Ground Water at Various Locations of Multan (Chemical & Inorganic Constituents Analysis)**

S.No.	Sample Code	Cl	Na	K	SO <sub>4</sub>	NO <sub>3</sub> (N)	PO <sub>4</sub>	TDS
	Units	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
		7	8	9	10	11	12	13
<b>Maximum Permissible Limits</b>		<b>250</b>	<b>200</b>	<b>12</b>	<b>250</b>	<b>10</b>	<b>NGVS</b>	<b>1000</b>
1	MUL-01	38	182	4.40	149	2.60	0.08	698
2	MUL -02	17	49	4.30	81	2.90	0.09	428
3	MUL -03	27	76	5.10	123	2.60	0.09	468
4	MUL -04	32	73	8.30	120	2.70	0.12	530
5	MUL -05	16	76	4.90	83	1.90	0.12	440
6	MUL -06	28	104	5.10	160	2.20	0.11	579
7	MUL -07	47	62	4.60	119	1.80	0.11	544
8	MUL -08	26	108	5.10	106	2.70	0.06	468
9	MUL -09	15	106	4.60	80	2.80	0.17	474
10	MUL -10	8	29	4.00	70	3.90	0.12	288
11	MUL -11	79	126	4.10	230	4.50	0.09	828
12	MUL -12	24	75	4.40	142	4.20	0.08	598
13	MUL -13	41	42	4.10	117	1.40	0.08	485
14	MUL -14	32	144	5.10	132	6.80	0.08	656
15	MUL -15	15	23	3.40	42	5.20	0.12	376
16	MUL -16	25	80	3.20	73	1.40	0.06	399
<b>% age Sample Exceeding permissible Limits</b>		0	0	0	0	0	-	0
<b>Max. Conc.</b>		79	182	8.30	230	6.80	0.17	698
<b>Min. Conc.</b>		8	23	3.20	42	1.40	0.06	288

Source:- Fifth Water Quality Monitoring Report, 2005-06 (PCRWR).

**Table- C-29: Quality of Ground Water at Various Locations of Hyderabad, (Physical and Aesthetic Examination)**

S. No.	S. Code	Site ID	Location	Source	Colour	E.C.	Odour	pH	Taste	Turbidity
<b>Units</b>				-	-	$\mu\text{S/cm}$	-	-	-	<b>NTU</b>
<b>Maximum Permissible Limits</b>				-	-	<b>NGVS</b>	-	<b>6.5-8.5</b>	-	<b>5</b>
1	HYD-01	15	Sapphair Cotton Mill Khurshid Colony (New Site)	W. Supply	Muddy	305	Less	7.7	Object.	155.00
2	HYD-02	10	City Water Supply Tank Kotri	W. supply	Muddy	307	Less	7.8	Object.	180.00
3	HYD-03	11	Hussainabad Pacca Tank HAD-8	W. supply	Muddy	450	Less	7.2	Object.	450.00
4	HYD-04	12	B.I.S.E, Hyderabad	Tap	Muddy	316	Less	7.9	Object.	65.00
5	HYD-05	13	Tayab Masjid Unit-12 Latifabad	Tap	Muddy	312	Less	7.7	Unobjec.	110.00
6	HYD-06	5	New Wahdat Colony Qasimabad	Tap	Muddy	323	Less	7.4	Unobjec.	33.95
7	HYD-07	2	Al-Mustafa Town, Hyderabad	Tap	Muddy	365	Less	8.0	Unobjec.	19.30
8	HYD-08	3	Near Poultry Shop Jail Road Hirabad	Tap	Muddy	364	Less	7.0	Unobjec.	31.23
9	HYD-09	7	Haji shah Chowk Cantt. Area	Tap	Muddy	327	Less	8.0	Unobjec.	125.00
10	HYD-10	4	Prit Abad Govt. Hospital	Tap	Muddy	323	Less	8.1	Unobjec.	70.00
11	HYD-11	8	Near Bachal Bhatti Goth Changrha Mori (New Site)	H. Pump	C. Less	927	Less	7.1	Unobjec.	0.02
12	HYD-12	14	Custom Post Office Pocket Colony	Tap	Muddy	405	Less	7.8	Objec.	565.00
13	HYD-13	9	Pump Station behind Karachi Wah Site Kotri (New Site)	W. Supply	Muddy	336	Less	7.3	Unobjec.	1620.00
14	HYD-14	1	Naseem Nagar Chowk	Tap	Muddy	354	Less	7.8	Unobjec.	65.00
15	HYD-15	6	Tando Jehanian Defence Society	Tap	Muddy	309	Less	8.0	Objec.	2463.00
<b>% age Samples Exceeding Permissible Limits</b>					93	-	0	0	47	93
<b>Max. Conc.</b>				-	-	927	-	8.1	-	2463.00
<b>Min. Conc.</b>				-	-	305	-	7.0	-	0.02

Source:- Fifth Water Quality Monitoring Report, 2005-06 (PCRWR).

**Table C-30: Quality of Ground Water at Various Locations of Hyderabad (Chemical & Inorganic Constituents Analysis )**

S.No.	Sample Code	Alk.	HCO <sub>3</sub>	CO <sub>3</sub>	Ca	Mg	Hard
	Units	m.mol/l	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
		1	2	3	4	5	6
<b>Maximum Permissible Limits</b>		<b>NGVS</b>	<b>NGVS</b>	<b>NGVS</b>	<b>75</b>	<b>150</b>	<b>500</b>
1	HYD-01	2.00	100	0.00	40	10	140
2	HYD-02	2.20	110	0.00	40	12	150
3	HYD-03	1.20	60	0.00	8	29	140
4	HYD-04	1.40	70	0.00	20	12	100
5	HYD-05	2.00	100	0.00	26	16	130
6	HYD-06	2.00	100	0.00	32	12	130
7	HYD-07	2.00	100	0.00	40	12	150
8	HYD-08	2.10	105	0.00	20	26	160
9	HYD-09	2.20	110	0.00	40	12	150
10	HYD-10	2.00	100	0.00	44	10	150
11	HYD-11	6.00	300	0.00	104	46	450
12	HYD-12	2.20	110	0.00	48	10	160
13	HYD-13	2.40	120	0.00	52	5	150
14	HYD-14	2.20	110	0.00	36	12	140
15	HYD-15	1.80	90	0.00	12	17	100
<b>% age Sample Exceeding permissible Limits</b>		-	-	0.00	7	0	0
<b>Max. Conc.</b>		6.00	300	0.00	104	46	450
<b>Min. Conc.</b>		1.20	60	0.00	8	5	100

Contd...

**Table C-30: Quality of Ground Water at Various Locations of Hyderabad (Chemical & Inorganic Constituents Analysis)**

S. No.	Sample Code	Cl	Na	K	SO <sub>4</sub>	NO <sub>3</sub> (N)	PO <sub>4</sub>	TDS
	Units	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
		7	8	9	10	11	12	13
<b>Maximum Permissible Limits</b>		<b>250</b>	<b>200</b>	<b>12</b>	<b>250</b>	<b>10</b>	<b>NGVS</b>	<b>1000</b>
1	HYD-01	12	12	4.70	34	1.20	0.03	185
2	HYD-02	14	12	4.50	40	1.20	0.04	201
3	HYD-03	71	30	5.00	65	1.10	0.03	270
4	HYD-04	18	13	4.40	44	1.20	0.04	190
5	HYD-05	13	12	4.80	41	1.80	0.04	196
6	HYD-06	20	13	4.40	42	0.90	0.03	206
7	HYD-07	20	19	4.60	58	1.20	0.03	220
8	HYD-08	17	18	4.80	17	1.20	0.03	218
9	HYD-09	14	13	4.60	48	1.10	0.04	196
10	HYD-10	18	14	4.30	42	1.20	0.05	194
11	HYD-11	78	21	6.90	118	2.10	0.06	649
12	HYD-12	21	20	4.80	82	1.70	0.05	243
13	HYD-13	14	11	4.60	39	1.30	0.03	201
14	HYD-14	18	18	4.70	51	1.30	0.03	230
15	HYD-15	14	18	4.30	36	1.20	0.04	191
<b>% age Sample Exceeding permissible Limits</b>		0	0	0	0	0	-	0
<b>Max. Conc.</b>		78	30	6.90	118	2.10	0.06	649
<b>Min. Conc.</b>		12	11	4.30	17	0.90	0.03	185

Source:- Fifth Water Quality Monitoring Report, 2005-06 Pakistan (PCRWR).



**Table- C-31: Quality of Ground Water at Various Locations of Sukkur, (Physical and Aesthetic Examination)**

S. No.	S. Code	Site ID	Location	Source	Colour	E.C.	Odour	pH	Taste	Turbidity
<b>Units</b>				-	-	µS/cm	-	-	-	NTU
<b>Maximum Permissible Limits</b>				-	-	NGVS	-	6.5-8.5	-	5
1	SUK-01	1	MAKA Goth Near Sheraz Hospital	W. Supply	C. Less	1019	Less	7.8	Unobjec.	0.05
2	SUK-02	2	Masjid Opp. Indus Marble, Golimar Road	Tap	Muddy	306	Less	7.4	Unobjec.	31.11
3	SUK-03	3	Mastoi Hotel Opp. Al-Faisal Med. Center	H. Pump	C. Less	2310	Less	7.7	Unobjec.	1.64
4	SUK-04	4	Water Supply Scheme Barrage Colony	W. Supply	C. Less	1093	Less	7.1	Unobjec.	0.14
5	SUK-05	5	Rahmania Masjid Pathan Colony	Tap	Muddy	270	Less	7.6	Unobjec.	23.89
6	SUK-06	6	Jamia Masjid Police line SRTC Bus Stop	Tap	Muddy	311	Less	7.1	Unobjec.	65.00
7	SUK-07	7	Khalil Photo Near Al-Habib Hotel	H. Pump	C. Less	939	Less	6.8	Unobjec.	0.03
8	SUK-8	8	Dar-ul-Uloom Nimash Ground	Tap	Muddy	316	Less	7.5	Unobjec.	29.36
9	SUK-09	9	Humayoon Gymkhana	Tap	Muddy	309	Less	7.1	Unobjec.	10.31
10	SUK-10	10	Hotel Sukkur Inn. Clock Tower	H. Pump	C. Less	2160	Less	7.1	Unobjec.	0.04
11	SUK-11	11	Mustafa-I-Masjid, Nusrat Colony-5	Tap	Muddy	312	Less	7.6	Unobjec.	55.00
12	SUK-12	12	Mosque Near Mukhtiar Kar Office	Tap	C. Less	307	Less	7.5	Unobjec.	2.83
<b>% age Samples Exceeding Permissible Limits</b>				-	50	-	0	0	0	50
<b>Max. Conc.</b>				-	-	2310	-	7.8	-	65.00
<b>Min. Conc.</b>				-	-	270	-	6.8	-	0.03

Source:- Fifth Water Quality Monitoring Report, 2005-06 Pakistan (PCRWR).

**Table C-32: Quality of Ground Water at Various Locations of Sukkur, (Chemical & Inorganic Constituents Analysis)**

S.No.	Sample Code	Alk.m.	HCO <sub>3</sub>	CO <sub>3</sub>	Ca	Mg	Hard
	Units	mol/l	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
		1	2	3	4	5	6
<b>Maximum Permissible Limits</b>		<b>NGVS</b>	<b>NGVS</b>	<b>NGVS</b>	<b>75</b>	<b>150</b>	<b>500</b>
1	SUK-01	4.00	200	0.00	28	24	170
2	SUK -02	2.10	105	0.00	28	14	130
3	SUK -03	8.20	410	0.00	76	18	265
4	SUK -04	5.50	275	0.00	70	40	340
5	SUK -05	1.60	80	0.00	24	9	100
6	SUK -06	2.30	115	0.00	40	14	160
7	SUK -07	8.40	420	0.00	88	46	410
8	SUK-8	2.20	110	0.00	26	16	130
9	SUK -09	2.20	110	0.00	36	14	150
10	SUK -10	5.20	260	0.00	200	73	800
11	SUK -11	1.90	95	0.00	32	17	150
12	SUK-12	2.20	110	0.00	36	14	150
<b>% age Sample Exceeding permissible Limits</b>		-	-	0.00	25	0	8
<b>Max. Conc.</b>		8.40	420	0.00	200	73	800
<b>Min. Conc.</b>		1.60	80	0.00	24	9	100

Contd...

**Table C-32: Quality of Ground Water at Various Locations of sukkur (Chemical & Inorganic Constituents Analysis)**

S.No.	Sample Code	Cl	Na	K	SO <sub>4</sub>	NO <sub>3</sub> (N)	PO <sub>4</sub>	TDS
	Units	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
		7	8	9	10	11	12	13
<b>Maximum Permissible Limits</b>		<b>250</b>	<b>200</b>	<b>12</b>	<b>250</b>	<b>10</b>	<b>NGVS</b>	<b>1000</b>
1	SUK-01	120	152	4.60	149	1.40	0.08	713
2	SUK -02	9	10	4.50	35	0.90	0.06	184
3	SUK -03	253	445	5.20	504	20.00	0.08	1617
4	SUK -04	79	94	5.10	201	1.10	0.08	754
5	SUK -05	9	10	5.00	34	0.90	0.05	171
6	SUK -06	9	10	4.70	43	22.00	0.06	186
7	SUK -07	46	42	6.70	48	1.30	0.07	657
8	SUK-8	11	12	5.30	34	1.30	0.07	187
9	SUK -09	9	8	4.60	34	1.10	0.08	185
10	SUK -10	127	124	30.40	702	12.20	0.09	1490
11	SUK -11	9	11	4.70	58	1.20	0.09	187
12	SUK-12	9	9	4.80	33	1.20	0.07	184
<b>% age Sample Exceeding permissible Limits</b>		8	8	8	17	25	-	17
<b>Max. Conc.</b>		253	445	30.40	702	22.00	0.09	1617
<b>Min. Conc.</b>		9	8	4.50	33	0.90	0.05	171

Source:- Fifth Water Quality Monitoring Report, 2005-06 Pakistan (PCRWR).

**Table- C-33: Quality of Ground Water at Various Locations of Karachi, (Physical and Aesthetic Examination)**

S. No.	S. Code	Site ID	Location	Source	Colour	E.C.	Odour	pH	Taste	Turbidity
<b>Units</b>				-	-	µS/cm	-	-	-	NTU
<b>Maximum Permissible Limits</b>				-	-	NGVS	-	6.5-8.5	-	5
1	KAR-01	11	KBCA Civic Center	Tap	C. Less	494	Less	7.4	Unobjec.	1.01
2	KAR -02	5	Jamai Masjid Saddique Akbar Churangi	H. Pump	C. Less	515	Less	7.7	Unobjec	0.48
3	KAR -03	1	Darweshabad Hotel, Yousaf Goth	Tap	C. Less	547	Less	7.9	Unobjec	0.17
4	KAR -04	2	Mamoor Masjid, Z-6, Gulshin-e-Maymar	Tap	C. Less	481	Less	7.4	Unobjec	1.09
5	KAR -05	6	Hamidia Rizvi Univ. Near PCSIR Lab.	Tap	C. Less	505	Less	7.0	Unobjec.	0.80
6	KAR -06	12	Muslim Masjid, C-16, Near Safari Park	Tap	C. Less	481	Less	7.4	Unobjec.	0.48
7	KAR -07	7	* KNS Poultry Farm, Safura Goth	Tap	C. Less	1424	Less	7.2	Unobjec.	2.88
8	KAR-08	8	MP Check post-4, Malir Cantt.	Tap	C. Less	481	Less	7.4	Unobjec.	1.53
9	KAR -09	13	* Bachelor Flat A-7, CDA Colony Airport	Tap	C. Less	1099	Less	7.7	Unobjec.	1.33
10	KAR -10	14	Muhammadi Masjid H Area Khokhrapar	Tap	C. Less	2900	Less	8.0	Unobjec.	0.03
11	KAR -11	20	Rabani Masjid, Quaidabad Chowk	Tap	C. Less	482	Less	7.2	Unobjec.	2.89
12	KAR-12	22	Masjid Aqsa block-5, Clifton	Tap	C. Less	1278	Less	8.0	Unobjec.	1.37
13	KAR-13	23	Kafe Gulshin Mani Stop, Akhtar Colony	Tap	C. Less	561	Less	7.3	Unobjec.	0.05
14	KAR-14	17	Ahmad General Hospital Tipu Sultan Road	Tap	C. Less	493	Less	8.0	Unobjec.	0.19

Contd..

\* Mixing of surface and ground water

**Table- C-33: Quality of Ground Water at Various Locations of Karachi,(Physical and Aesthetic Examination)**

S. No.	S. Code	Site ID	Location	Source	Colour	E.C.	Odour	pH	Taste	Turbidity
<b>Units</b>				-	-	$\mu\text{S/cm}$	-	-	-	<b>NTU</b>
<b>Maximum Permissible Limited</b>				-	-	<b>NGVS</b>	-	<b>6.5-8.5</b>	-	<b>5</b>
15	KAR-15	10	Masjid Usmania Opp. MCB Market Poposh	Tap	C. Less	622	Less	7.4	Unobjec.	0.20
16	KAR-16	4	* Masjid Rabani, Mango Pir Road	H. Pump	C. Less	444	Less	7.8	Unobjec.	1.50
17	KAR-17	3	* Faizan-UI-Tegia Sec. 11/2, Orangi Town	Tap	C. Less	684	Less	8.1	Unobjec.	0.00
18	KAR-18	9	Police Station Saeedabad	Tap	C. Less	674	Less	8.2	Unobjec.	0.10
19	KAR-19	15	Kafi Nasir, Gulbai Chowk	Tap	C. Less	501	Less	6.8	Unobjec.	0.52
20	KAR-20	16	* Markazi Jamia Masjid Jacob Line Jinnah Road	H. Pump	C. Less	989	Less	7.6	Unobjec.	1.59
21	KAR-21	19	Seraj-Al-Masjid,Opp., P.S Malir City	Tap	C. Less	483	Less	7.2	Unobjec.	1.15
22	KAR-22	21	Manzoor Petrol Pump, Highway	Tap	C. Less	499	Less	7.3	Unobjec.	1.84
23	KAR-23	18	Shoukat U.M Hospital Shah Faisal Colony-3	Tap	C. Less	585	Less	7.2	Unobjec.	0.02
24	KAR-24	25	Madina Furniture Main Market Landhi-5	Tap	C. Less	639	Less	7.3	Unobjec.	0.01
25	KAR-25	24	Sindh Govt. Dispensary Korangi	Tap	C. Less	479	Less	7.3	Unobjec.	0.34
26	KAR-26	28	DHA, SKBZ College, Dep. Housing Society	Tap	C. Less	481	Less	7.9	Unobjec.	0.02
27	KAR-27	26	* Usmania Masjid Gul Ahmad Bilal Colony	W. Supply	C. Less	521	Less	7.2	Unobjec.	4.08
28	KAR-28	27	Pak. Machine Tool Factory Landhi	Tap	C. Less	486	Less	7.3	Unobjec.	2.17
<b>% age Samples Exceeding Permissible Limits</b>				-	0	-	0	0	0	0
<b>Max. Conc.</b>				-	-	2900	-	8.2	-	4.08
<b>Min. Conc.</b>				-	-	444	-	7.0	-	0.00

Source:- Fifth Water Quality Monitoring Report, 2005-06 Pakistan (PCRWR).

\* Mixing of surface and ground water

**Table C-34: Quality of Ground Water at Various Locations of Karachi, (Chemical & Inorganic Constituents Analysis)**

S.No.	Sample Code	Alk.	HCO <sub>3</sub>	CO <sub>3</sub>	Ca	Mg	Hard
	Units	m.mol/l	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
		1	2	3	4	5	6
<b>Maximum Permissible Limits</b>		<b>NGVS</b>	<b>NGVS</b>	<b>NGVS</b>	<b>75</b>	<b>150</b>	<b>500</b>
1	KAR-01	2.10	105	0.00	40	12	150
2	KAR -02	2.40	120	0.00	48	10	160
3	KAR -03	1.80	90	0.00	32	19	160
4	KAR -04	2.00	100	0.00	25	21	160
5	KAR -05	2.20	110	0.00	40	19	180
6	KAR -06	2.00	100	0.00	40	10	140
7	KAR -07	3.00	150	0.00	69	24	270
8	KAR-08	2.20	110	0.00	26	21	160
9	KAR -09	5.20	260	0.00	56	45	300
10	KAR -10	8.70	435	0.00	78	154	830
11	KAR -11	2.00	100	0.00	28	24	170
12	KAR-12	6.40	320	0.00	40	90	180
13	KAR-13	2.30	115	0.00	40	19	180
14	KAR-14	2.10	105	0.00	44	15	170
15	KAR-15	2.20	110	0.00	48	17	190
16	KAR-16	2.20	110	0.00	44	34	250
17	KAR-17	1.80	90	0.00	40	19	180
18	KAR-18	2.40	120	0.00	44	36	260
19	KAR-19	2.40	120	0.00	56	8	170
20	KAR-20	2.30	115	0.00	44	12	160
21	KAR-21	2.00	100	0.00	24	17	130
22	KAR-22	2.20	110	0.00	44	12	160
23	KAR-23	2.40	120	0.00	40	22	190
24	KAR-24	2.80	140	0.00	40	27	210
25	KAR-25	2.40	120	0.00	44	12	160
26	KAR-26	2.00	100	0.00	32	17	150
27	KAR-27	2.10	105	0.00	24	24	160
28	KAR-28	2.10	105	0.00	40	17	170
<b>% age Sample Exceeding permissible Limits</b>		-	-	0.00	4	4	4
<b>Max. Conc.</b>		8.70	435	0.00	78	154	830
<b>Min. Conc.</b>		1.80	90	0.00	24	8	130

Contd..

**Table C-34: Quality of Ground Water at Various Locations of Karachi, (Chemical & Inorganic Constituents Analysis)**

S.No.	Sample Code	Cl	Na	K	SO <sub>4</sub>	NO <sub>3</sub> (N)	PO <sub>4</sub>	TDS
	Units	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
		7	8	9	10	11	12	13
<b>Maximum Permissible Limits</b>		<b>250</b>	<b>200</b>	<b>12</b>	<b>250</b>	<b>10</b>	<b>NGVS</b>	<b>1000</b>
1	KAR-01	48	43	5.50	56	11.80	0.05	296
2	KAR -02	43	41	5.50	87	2.80	0.04	355
3	KAR -03	55	44	5.50	85	4.10	0.04	377
4	KAR -04	49	40	6.20	79	2.70	0.03	309
5	KAR -05	48	40	5.90	69	5.20	0.03	330
6	KAR -06	46	40	6.10	63	5.40	0.03	388
7	KAR -07	254	178	6.80	165	5.20	0.01	997
8	KAR-08	43	40	5.80	65	2.80	0.05	310
9	KAR -09	127	124	8.70	77	4.80	0.02	758
10	KAR -10	368	315	13.50	356	16.80	0.02	2030
11	KAR -11	46	41	5.40	65	3.60	0.03	290
12	KAR-12	96	208	6.30	204	3.70	0.04	881
13	KAR-13	57	49	7.10	96	4.10	0.04	336
14	KAR-14	43	40	5.60	78	14.70	0.02	296
15	KAR-15	57	52	5.70	107	6.10	0.06	374
16	KAR-16	82	65	5.90	119	3.90	0.02	278
17	KAR-17	85	65	3.10	98	4.90	0.06	470
18	KAR-18	89	49	2.60	91	4.70	0.05	465
19	KAR-19	46	40	5.40	80	3.20	0.05	346
20	KAR-20	46	140	5.30	264	8.70	0.04	680
21	KAR-21	40	40	5.40	60	4.20	0.04	290
22	KAR-22	43	41	5.30	70	1.20	0.02	300
23	KAR-23	64	50	6.20	77	9.00	0.05	351
24	KAR-24	60	61	5.70	96	4.80	0.03	384
25	KAR-25	43	40	5.60	69	4.10	0.04	287
26	KAR-26	43	39	5.60	81	3.90	0.03	289
27	KAR-27	53	49	5.60	69	5.90	0.05	335
28	KAR-28	46	40	5.40	90	2.70	0.02	291
<b>% age Sample Exceeding permissible Limits</b>		7	7	4	7	11	-	4
<b>Max. Conc.</b>		368	315	13.50	356	16.80	0.06	2030
<b>Min. Conc.</b>		40	39	2.60	56	1.20	0.01	278

Source:- Fifth Water Quality Monitoring Report, 2005-06 Pakistan (PCRWR).

Responses to Environmental Impacts

**Table- C-35: Quality of Ground Water at Various Locations of Abbottabad, (Physical and Aesthetic Examination)**

S. No.	S. Code	Site ID	Location	Source	Colour	E.C.	Odour	pH	Taste	Turbidity
<b>Units</b>				-	-	µS/cm	-	-	-	NTU
<b>Maximum Permissible Limits</b>				-	-	NGVS	-	6.5-8.5	-	5
1	ABT-01	2	Kung Ground opp D.C.Wo	T. Well	C. Less	566	Less	7.3	Unobjec.	0.30
2	ABT -02	1	T.W Jinnah Park	T. Well	C. Less	840	Less	7.0	Unobjec.	0.01
3	ABT -03	6	Military Reservoir Officer Mess	W. Supply	C. Less	411	Less	7.7	Unobjec.	0.47
4	ABT -04	4	Technical Vocational Centre Murree Road	T. Well	C. Less	520	Less	7.5	Unobjec.	0.53
5	ABT -05	9	T.W 5 GE(A)PMA Habibullah Colony	T. Well	C. Less	628	Less	7.2	Unobjec.	0.01
6	ABT -06	10	Medical College Hostel	T. Well	C. Less	503	Less	7.8	Unobjec.	0.01
7	ABT -07	11	Water Supply meerpur scheme 1974	w. Supply	C. Less	556	Less	7.3	Unobjec.	0.54
8	ABT -08	5	CMH Hospital, Abbottabad	T. Well	C. Less	638	Less	7.0	Unobjec.	0.02
9	ABT -09	8	Army Burn Hall College for Boys	T. Well	C. Less	587	Less	7.4	Unobjec.	0.07
10	ABT -10	3	Takkia Camp All Pakistan Scout Ground	H. Pump	L.Muddy	535	Less	7.1	Unobjec.	8.31
11	ABT -11	7	Banda Dilazak Lami Deri	T. Well	C. Less	623	Less	7.0	Unobjec.	0.01
<b>% age Samples Exceeding Permissible Limits</b>				-	9	-	-		0	9
<b>Max. Conc.</b>				-	-	840	-	7.8	-	8.31
<b>Min. Conc.</b>				-	-	411	-	7.0	-	0.01

Source:- Fifth Water Quality Monitoring Report, 2005-06 Pakistan (PCRWR).



**Table C-36: Quality of Ground Water at Various Locations of Abbottabad (Chemical & Inorganic Constituents Analysis)**

S.No.	Sample Code	Alk.	HCO <sub>3</sub>	CO <sub>3</sub>	SO <sub>4</sub>	Cl	NO <sub>3</sub> (N)
	Units	m.mol/l	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
		1	2	3	4	5	6
<b>Maximum Permissible Limits</b>		<b>NGVS</b>	<b>NGVS</b>	<b>NGVS</b>	<b>250</b>	<b>250</b>	<b>10</b>
1	ABT-01	4.90	245	0.00	8	10	3.80
2	ABT -02	6.50	325	0.00	15	30	18.10
3	ABT -03	3.70	185	0.00	4	5	2.70
4	ABT -04	4.20	210	0.00	9	18	4.30
5	ABT -05	5.80	290	0.00	10	11	4.20
6	ABT -06	4.40	220	0.00	18	12	3.10
7	ABT -07	4.80	240	0.00	5	9	2.90
8	ABT -08	4.70	235	0.00	19	24	2.70
9	ABT -09	5.20	260	0.00	12	16	3.40
10	ABT -10	5.00	250	0.00	8	7	2.60
11	ABT -11	4.80	240	0.00	12	24	3.10
<b>% age Sample Exceeding permissible Limits</b>		-	-	0.00	0	0	9
<b>Max. Conc.</b>		6.50	325	0.00	18	30	18.10
<b>Min. Conc.</b>		3.70	185	0.00	4	5	2.60

Contd...

**Table C-36: Quality of Ground Water at Various Locations of Abbottabad, (Chemical & Inorganic Constituents Analysis)**

S.No.	Sample Code	Ca	Mg	Hard	Na	K	PO <sub>4</sub>	TDS
	Units	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
		7	8	9	10	11	12	13
<b>Maximum Permissible Limits</b>		<b>75</b>	<b>150</b>	<b>500</b>	<b>200</b>	<b>12</b>	<b>NGVS</b>	<b>1000</b>
1	ABT-01	53	29	250	7	1.20	0.07	290
2	ABT-02	100	31	380	23	1.10	0.07	530
3	ABT-03	56	15	200	2	0.60	0.08	279
4	ABT-04	64	22	250	9	1.80	0.09	358
5	ABT-05	64	36	310	7	1.20	0.09	433
6	ABT-06	60	12	200	29	2.20	0.10	304
7	ABT-07	20	46	240	4	2.40	0.08	380
8	ABT-08	28	49	270	11	0.90	0.08	440
9	ABT-09	80	17	270	21	1.10	0.03	399
10	ABT-10	80	19	280	4	0.70	0.78	369
11	ABT-11	104	18	290	10	1.10	0.07	428
<b>% age Sample Exceeding permissible Limits</b>		36	0	0	0	0	-	0
<b>Max. Conc.</b>		104	49	380	29	2.40	0.78	530
<b>Min Conc.</b>		20	12	200	2	0.60	0.03	279

Source:- Fifth Water Quality Monitoring Report, 2005-06 Pakistan (PCRWR).

**Table- C-37 : Quality of Ground Water at Various Locations of Mardan, (Physical and Aesthetic Examination)**

S. No.	S. Code	Site ID	Location	Source	Colour	E.C.	Odour	pH	Taste	Turbidity
<b>Units</b>				-	-	$\mu\text{S/cm}$	-	-	-	<b>NTU</b>
<b>Maximum Permissible Limits</b>				-	-	<b>NGVS</b>	-	<b>6.5-8.5</b>	-	<b>5</b>
1	MAR-01	9	MDA TW Sh. Maltoon Colony	T.Well	C. Less	654	Less	8.0	Unobjec.	0.01
2	MAR -02	10	Govt. High School Lab.	T.Well	C. Less	685	Less	7.7	Unobjec.	1.78
3	MAR -03	11	Govt. College No.1 Mardan	T.Well	C. Less	786	Less	7.6	Unobjec.	0.02
4	MAR -04	6	Eidgah	T.Well	C. Less	663	Less	7.6	Unobjec.	0.03
5	MAR -05	7	TW-12, Dang Baba	T.Well	C. Less	860	Less	7.7	Unobjec.	0.11
6	MAR -06	2	Hujra Mehrzada	T.Well	C. Less	1264	Less	7.3	Unobjec.	0.29
7	MAR -07	1	Hujra Haji Zareen Khan	Bore	C. Less	1043	Less	7.5	Unobjec.	0.12
8	MAR -08	5	Hujra Haji Shamas New Islamabad	Bore	C. Less	1202	Less	7.3	Unobjec.	0.34
9	MAR -09	4	TW-18 Nawi Road Kaskoruna	T.Well	C. Less	875	Less	7.5	Unobjec.	0.36
10	MAR -10	8	TW-19 Baghdada	T.Well	C. Less	713	Less	7.6	Unobjec.	0.03
11	MAR -11	12	TW-3 Younas Stadium CMH	T.Well	C. Less	831	Less	7.5	Unobjec.	0.11
12	MAR -12	14	TW-2SCARP Colony WAPDA	T.Well	C. Less	890	Less	7.7	Unobjec.	0.11
<b>% age Samples Exceeding Permissible Limits</b>				-	0	-	0		0	0
<b>Max. Conc.</b>				-	-	1264	-	8.0	-	1.78
<b>Min. Conc.</b>				-	-	663	-	7.3	-	0.01

Source:- Fifth Water Quality Monitoring Report, 2005-06 Pakistan (PCRWR).

**Table C-38: Quality of Ground Water at Various Locations of Mardan, (Chemical & Inorganic Constituents Analysis)**

S.No.	Sample Code	Alk.	HCO <sub>3</sub>	CO <sub>3</sub>	SO <sub>4</sub>	Cl	NO <sub>3</sub> (N)
	Units	m.mol/l	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
		1	2	3	4	5	6
<b>Maximum Permissible Limits</b>		<b>NGVS</b>	<b>NGVS</b>	<b>NGVS</b>	<b>250</b>	<b>250</b>	<b>10</b>
1	MAR-01	5.20	260	0.00	31	30	1.60
2	MAR -02	5.60	280	0.00	28	21	1.10
3	MAR -03	5.40	270	0.00	74	53	1.20
4	MAR -04	5.40	270	0.00	32	23	1.40
5	MAR -05	5.30	265	0.00	58	60	2.40
6	MAR -06	5.60	380	0.00	124	46	1.10
7	MAR -07	7.00	350	0.00	25	24	1.50
8	MAR -08	8.10	405	0.00	79	26	16.80
9	MAR -09	5.80	290	0.00	47	31	3.90
10	MAR -10	5.00	250	0.00	39	18	2.00
11	MAR -11	5.60	280	0.00	56	43	3.10
12	MAR -12	6.00	300	0.00	79	25	2.70
<b>% age Sample Exceeding permissible Limits</b>		0	0	0.00	0	0	8
<b>Max. Conc.</b>		8.10	405	0.00	124	60	16.80
<b>Min. Conc.</b>		5.00	250	0.00	25	18	1.10

Contd...

**Table C-38: Quality of Ground Water at Various Locations of Mardan, (Chemical & Inorganic Constituents Analysis)**

S.No.	Sample Code	Ca	Mg	Hard	Na	K	PO <sub>4</sub>	TDS
	Units	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
		7	8	9	10	11	12	13
<b>Maximum Permissible Limits</b>		<b>75</b>	<b>150</b>	<b>500</b>	<b>200</b>	<b>12</b>	<b>NGVS</b>	<b>1000</b>
1	MAR-01	24	22	150	93	3.20	0.03	458
2	MAR -02	8	46	210	65	3.40	0.02	480
3	MAR -03	28	53	290	63	4.20	0.15	550
4	MAR -04	20	41	20	44	3.80	0.06	480
5	MAR -05	20	46	240	80	4.00	0.00	601
6	MAR -06	8	56	250	146	4.20	0.03	885
7	MAR -07	8	80	350	32	2.30	0.09	730
8	MAR -08	12	53	250	148	5.80	0.05	885
9	MAR -09	8	44	200	91	5.00	0.08	612
10	MAR -10	16	41	210	60	3.90	0.10	498
11	MAR -11	44	48	310	51	4.30	0.09	581
12	MAR -12	22	32	190	116	5.10	0.01	614
<b>% age Sample Exceeding permissible Limits</b>		0	0	0	0	0	-	0
<b>Max. Conc.</b>		44	80	350	148	5.80	0.15	885
<b>Min Conc.</b>		8	22	150	32	2.30	0.00	458

Source:- Fifth Water Quality Monitoring Report, 2005-06 Pakistan (PCRWR).

**Table C-39: Quality of Ground Water at Various Locations of Peshawar, (Physical and Aesthetic Examination)**

S. No.	S. Code	Site ID	Location	Source	Colour	E.C.	Odour	pH	Taste	Turbidity
<b>Units</b>				-	-	µS/cm	-	-	-	NTU
<b>Maximum Permissible Limits</b>				-	-	NGVS	-	6.5-8.5	-	5
1	PES-01	3	Children Hospital Near Haji Camp	T.Well	C.Less	1458	Less	7.3	Unobjec	0.35
2	PES -02	5	Khatak Chowk	T.Well	C.Less	550	Less	7.4	Unobjec.	0.23
3	PES -03	2	Soraizai Payan Inqilab Road	T.Well	C.Less	528	Less	7.5	Unobjec.	0.63
4	PES -04	10	Ahmad Khail	T.Well	C.Less	830	Less	7.1	Unobjec.	0.45
5	PES -05	4	Dabgary Garden Colony	T.Well	C.Less	784	Less	7.2	Unobjec.	0.41
6	PES-06	9	Afgan Colony Latif abad	T.Well	C.Less	820	Less	7.1	Unobjec.	0.18
7	PES -07	12	Irrigation Colony Warsk Road	T.Well	C.Less	835	Less	7.1	Unobjec.	0.25
8	PES -08	13	Nothia Road Gulberg No.1	T.Well	C.Less	794	Less	7.1	Unobjec.	0.54
9	PES -09	8	Univ. Town Gul Mehr Road	T.Well	C.Less	592	Less	7.4	Unobjec.	0.15
10	PES -10	7	Agri. University Campus	T.Well	C.Less	587	Less	7.5	Unobjec.	0.52
11	PES -11	1	Hamid Khan Hujra Village Regi	T.Well	C.Less	590	Less	7.4	Unobjec.	0.52
12	PES -12	6	St.4 TW-2,Kacha Garhi	T.Well	C.Less	582	Less	7.3	Unobjec.	0.22
13	PES-13	11	7-D-4/PH-1, Super Market	T.Well	C.Less	490	Less	7.4	Unobjec.	0.30
<b>% age Samples Exceeding Permissible Limits</b>				-	0	-	0	0	0	0
<b>Max. Conc.</b>				-	-	1458	-	7.5	-	0.63
<b>Min. Conc.</b>				-	-	490	-	7.1	-	0.15

Source:- Fifth Water Quality Monitoring Report, 2005-06 Pakistan (PCRWR).

**Table C-40: Quality of Ground Water at Various Locations of Peshawar, (Chemical & Inorganic Constituents Analysis)**

S.No.	Sample Code	Alk.	HCO <sub>3</sub>	CO <sub>3</sub>	SO <sub>4</sub>	Cl	NO <sub>3</sub> (N)
	Units	m.mol/l	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
		1	2	3	4	5	6
<b>Maximum Permissible Limits</b>		NGVS	NGVS	NGVS	250	250	10
1	PES-01	7.40	370	0.00	94	130	0.80
2	PES -02	4.10	205	0.00	32	18	2.40
3	PES -03	4.00	200	0.00	34	6	1.30
4	PES -04	5.80	290	0.00	80	15	4.50
5	PES -05	5.40	270	0.00	56	20	5.60
6	PES-06	5.60	280	0.00	54	23	4.20
7	PES -07	5.50	275	0.00	57	33	7.80
8	PES -08	5.40	270	0.00	42	21	8.00
9	PES -09	4.60	230	0.00	23	13	6.40
10	PES -10	4.60	230	0.00	35	8	4.10
11	PES -11	4.30	215	0.00	38	14	6.00
12	PES -12	4.20	210	0.00	35	21	5.00
13	PES-13	4.00	200	0.00	28	7	2.80
<b>% age Sample Exceeding permissible Limits</b>		-	-	0.00	0	0	0
<b>Max. Conc.</b>		7.40	370	0.00	94	130	8.00
<b>Min. Conc.</b>		4.00	200	0.00	23	6	0.80

Contd...

**Table C-40: Quality of Ground Water at Various Locations of Peshawar, (Chemical & Inorganic Constituents Analysis)**

S. No.	Sample Code	Ca	Mg	Hard	Na	K	PO <sub>4</sub>	TDS
	Units	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
		7	8	9	10	11	12	13
<b>Maximum Permissible Limits</b>		<b>75</b>	<b>150</b>	<b>500</b>	<b>200</b>	<b>12</b>	<b>NGVS</b>	<b>1000</b>
1	PES-01	82	67	480	115	4.60	0.09	1020
2	PES -02	46	31	245	24	2.10	0.07	379
3	PES -03	20	27	160	32	2.50	0.11	369
4	PES -04	74	36	350	29	4.40	0.10	580
5	PES -05	80	22	290	31	2.90	0.08	540
6	PES-06	70	30	300	31	3.20	0.18	567
7	PES -07	70	42	350	33	2.80	0.13	576
8	PES -08	82	30	330	20	2.30	0.09	547
9	PES -09	45	31	240	13	2.10	0.12	480
10	PES -10	45	32	250	22	2.20	0.09	406
11	PES -11	40	31	230	28	2.20	0.02	407
12	PES -12	40	34	240	19	2.00	0.05	398
13	PES-13	42	26	210	18	2.00	0.01	338
<b>% age Sample Exceeding permissible Limits</b>		23	0	0	0	0	0	8
<b>Max. Conc.</b>		82	67	480	115	4.60	0.18	1020
<b>Min Conc.</b>		20	22	160	13	2.00	0.01	338

Source:- Fifth Water Quality Monitoring Report, 2005-06 Pakistan (PCRWR).



**Table- C-41: Quality of Ground Water at Various Locations of Khuzdar, (Physical and Aesthetic Examination)**

S. No.	S. Code	Site ID	Location	Source	Colour	E.C.	Odour	pH	Taste	Turbidity
<b>Units</b>				-	-	$\mu\text{S/cm}$	-	-	-	<b>NTU</b>
<b>Maximum Permissible Limits</b>				-	-	<b>NGVS</b>	-	<b>6.5-8.5</b>	-	<b>5</b>
1	KHU-01	1	Dy. Commissioner Office	T. Well	C. Less	755	Less	7.9	Unobjec.	1.20
2	KHU -02	2	Irrigation Colony	T. Well	C. Less	955	Less	7.8	Unobjec.	0.03
3	KHU -03	3	Park near Public School	T. Well	C. Less	1270	Less	7.8	Unobjec.	0.02
4	KHU -04	4	Civil Hospital Faqirabad	T. Well	C. Less	1327	Less	7.9	Unobjec.	0.04
5	KHU -05	5	Madrisa Jamai-e-Rizivia Khalilia Khund (New source)	Well	C. Less	1091	Less	8.3	Unobjec.	3.25
6	KHU -06	6	Filtration Plant Khuzdar Cantt.	W. Supply	C. Less	818	Less	8.1	Unobjec.	0.05
7	KHU -07	7	Madrisa Tajweed-ul-Quran Katan	Well	C. Less	1108	Less	8.0	Unobjec.	2.63
8	KHU -08	8	Pir Umar Mazar	Spring	C. Less	881	Less	7.8	Unobjec.	0.03
9	KHU -09	9	Super Shashan Hotel Karachi Road (New site)	Tap	C. Less	1015	Less	7.9	Unobjec.	0.03
10	KHU -10	10	Engineering University Khuzdar (New site)	Cistern	C. Less	960	Less	8.0	Unobjec.	0.03
11	KHU -11	11	Rahim Abad Near BRC College (New site)	W. Supply	C. Less	593	Less	8.2	Unobjec.	0.02
<b>% age Samples Exceeding Permissible Limits</b>				-	0	0	0		0	0
<b>Max. Conc.</b>				-	-	1327	-	8.3	-	3.25
<b>Min. Conc.</b>				-	-	593	-	7.8	-	0.02

Source:- Fifth Water Quality Monitoring Report, 2005-06 Pakistan (PCRWR).

**Table C-42: Quality of Ground Water at Various Locations of Khuzdar (Chemical & Inorganic Constituents Analysis)**

S.No.	Sample Code	Alk.	HCO <sub>3</sub>	CO <sub>3</sub>	Ca	Mg	Hard
	Units	m.mol/l	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
		1	2	3	4	5	6
<b>Maximum Permissible Limits</b>		<b>NGVS</b>	<b>NGVS</b>	<b>NGVS</b>	<b>75</b>	<b>150</b>	<b>500</b>
1	KHU-01	4.20	210	0.00	28	24	170
2	KHU -02	4.00	200	0.00	44	34	250
3	KHU -03	3.80	190	0.00	64	46	350
4	KHU -04	6.10	305	0.00	84	30	330
5	KHU -05	4.80	240	0.00	64	30	280
6	KHU -06	4.80	240	0.00	60	22	240
7	KHU -07	4.80	240	0.00	28	38	230
8	KHU -08	5.00	250	0.00	76	19	270
9	KHU -09	5.40	270	0.00	71	32	310
10	KHU -10	5.20	260	0.00	60	29	270
11	KHU -11	4.10	205	0.00	44	24	210
<b>% age Sample Exceeding permissible Limits</b>		-	-	0.00	18	0	0
<b>Max. Conc.</b>		6.10	305	0.00	84	46	350
<b>Min. Conc.</b>		3.80	190	0.00	28	19	170

Contd...

**Table C-42: Quality of Ground Water at Various Locations of Khuzdar (Chemical & Inorganic Constituents Analysis)**

S.No.	Sample Code	Cl	Na	K	SO <sub>4</sub>	NO <sub>3</sub> (N)	PO <sub>4</sub>	TDS
	Units	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
		7	8	9	10	11	12	13
<b>Maximum Permissible Limits</b>		<b>250</b>	<b>200</b>	<b>12</b>	<b>250</b>	<b>10</b>	<b>NGVS</b>	<b>1000</b>
1	KHU-01	57	106	2.40	32	6.00	0.04	520
2	KHU -02	90	108	4.60	112	14.00	0.03	649
3	KHU -03	151	120	3.20	172	23.00	0.02	876
4	KHU -04	101	154	3.70	183	9.00	0.02	916
5	KHU -05	89	120	3.20	152	5.00	0.03	753
6	KHU -06	51	93	2.70	112	7.00	0.04	564
7	KHU -07	94	150	3.00	151	6.00	0.04	764
8	KHU -08	74	88	3.10	109	2.00	0.03	604
9	KHU -09	96	97	2.80	113	4.00	0.05	700
10	KHU -10	76	102	2.60	109	6.00	0.04	662
11	KHU -11	30	41	2.40	63	1.20	0.04	409
<b>% age Sample Exceeding permissible Limits</b>		0	0	0	0	18	0	0
<b>Max. Conc.</b>		151	154	4.60	183	23.00	0.05	916
<b>Min. Conc.</b>		30	41	2.40	32	1.20	0.02	409

Source:- Fifth Water Quality Monitoring Report, 2005-06 Pakistan (PCRWR).

Responses to Environmental Impacts

**Table C-43: Quality of Ground Water at Various Locations of Quetta, (Physical and Aesthetic Examination)**

S. No.	S. Code	Site ID	Location	Source	Colour	E.C.	Odour	pH	Taste	Turbidity
<b>Units</b>				-	-	µS/cm	-	-	-	NTU
<b>Maximum Permissible Limits</b>				-	-	NGVS	-	6.5-8.5	-	5
1	QTA-01	17	Agri. Deptt.Rani Bagh, Saryab Raod	T. Well	C. Less	1065	Less	7.4	Unobjec.	0.43
2	QTA -02	6	WRRRCQuetta Tajak abad	Tap	C. Less	642	Less	7.4	Unobjec.	0.69
3	QTA -03	14	Railway Housing Society	T. Well	Dried					
4	QTA -04	15	Nasirabad Maidani, Mariabad	T. Well	C. Less	500	Less	7.6	Unobjec.	0.33
5	QTA -05	9	Pumping Station Ayub Stadium	W. Supply	C. Less	514	Less	7.6	Unobjec.	0.35
6	QTA -06	9	WASA Chaman Phatak	T. Well	Dried					
7	QTA -07	15	Haji Ghabi Road	T. Well	C. Less	500	Less	7.3	Unobjec.	0.37
8	QTA -08	1	Kharot Abad-I, Samugly Road	T. Well	C. Less	618	Less	7.7	Unobjec.	0.28
9	QTA -09	1	Killi Khaizy Sumgly Road	T. Well	C. Less	847	Less	7.5	Unobjec.	0.27
10	QTA -10	12	Met office Breyay	Spring	C. Less	615	Less	7.6	Unobjec.	2.79
11	QTA -11	13	Bolan Medical Complex	W. Supply	C. Less	803	Less	8.0	Unobjec.	2.87
12	QTA -12	22	Gugrai Karez near Kechi Beg	Karez	Muddy	560	Less	7.7	Object.	945
13	QTA -13	17	Mosque Near Helpa Hospital	Well	Dried					
14	QTA -14	10	Lourds Hotel	T. Well	Less	590	Less	7.6	Unobjec	3.20
15	QTA -15	14	Gawalmandi Chowk	T.Well	C.Less	515		7.6	Unobjec	0.73
16	QTA -16	14	Khanwari Road near Children Hospital	H. Pump	C.Less	1960		7.1	Unobjec	1.04
17	QTA -17	17	Block-5, Satellite Town	T.Well	C.Less	728	Less	7.5	Unobjec	0.61
18	QTA -18	18	Taro Chowk Reservoir Pashtoon abad	W. Supply	C.Less	425	Less	7.5	Unobjec	0.65
19	QTA -19	17	Rehmat Colony Gali-1, Sirki Road	T.Well	C.Less	580	Less	7.7	Unobjec	1.68
20	QTA -20	14	Civil Hospital Near Abdul Malik Ward	T.Well	C.Less	755	Less	7.4	Unobjec	1.03
21	QTA -21	7	Army Purification Plant ordinance Chowk	W. Supply	C.Less	432	Less	7.6	Unobjec	1.41

Contd.

**Table C-43: Quality of Ground Water at Various Locations of Quetta, (Physical and Aesthetic Examination)**

S. No.	S. Code	Site ID	Location	Source	Colour	E.C.	Odour	pH	Taste	Turbidity
Units				-	-	µS/cm	-	-	-	NTU
Maximum Permissible Limits				-	-	NGVS	-	6.5-8.5	-	5
22	QTA -22	8	Staff College Purification Plant	T.Well	C.Less	406	Less	7.5	Unobjec	2.77
23	QTA -23	8	Staff College Urak Road	T.Well	C.Less	Dried				
24	QTA-24	8	Chiltan Booster Near Cavalry Zamzama Road	W. supply	C.Less	498	Less	7.7	Unobjec	0.35
25	QTA -25	11	Govt. Girls College cantt.	T. Well	C.Less	614	Less	7.7	Unobjec	0.87
26	QTA-26	16	Forest Park, Sabzal Rd.	T.Well	S. Muddy	3180	Less	7.3	Unobjec	12.65
27	QTA-27	19	Mosque Haji Ghaffar, killi Ahmad Zai	Well	C.Less	1030	Less	7.7	Unobjec	0.74
28	QTA-28	4	Jamia masjid Nawan Killi	T.Well	C.Less	775	Less	7.9	Unobjec	2.98
29	QTA-29	3	Killi Hotwal	T. Well	C.Less	480	Less	7.8	Unobjec	1.26
30	QTA -30	3	Killi Gul Muhammad	T.Well	C.Less	1025	Less	7.5	Unobjec	0.73
31	QTA -31	1	Air port	T.Well	Muddy	732	Less	7.8	Unobjec	31.21
32	QTA-32	20	Irrigation Colony	T.Well	C.Less	769	Less	7.8	Unobjec	0.65
33	QTA -33	19	D.G WAPDA, Office	W. Supply	C.Less	728	Less	7.8	Unobjec	1.30
34	QTA-34	21	Killi Habib	T.well	C.Less	588		7.7	Unobjec	0.91
35	QTA-35	16	Muhammad Masjid Podgali Chowk	Well	C.Less	3010	Less	7.6	Unobjec	0.23
36	QTA-36	23	PEPSI Cola Factory Industrial Area	T. Well	C.Less	815	Less	7.9	Unobjec	0.04
37	QTA-37	5	Killi Paid Khan	T.Well	C.Less	1073	Less	7.6	Unobjec	1.94
38	QTA-38		Urak spring Cantt.	Spring	C.Less	268	Less	8.1	Unobjec	1.21
% age Samples Exceeding Permissible Limits					9		0		3	9
Max. Conc.				-	-	3180	-	8.1	-	945
Min. Conc.				-	-	268	-	7.1	-	0.04

Source:- Fifth Water Quality Monitoring Report, 2005-06 Pakistan (PCRWR).

**Table C-44: Quality of Ground Water at Various Locations of Quetta (Chemical & Inorganic Constituents Analysis)**

S. No.	Sample Code	Alk	HCO <sub>3</sub>	CO <sub>3</sub>	Ca	Mg	Hard
	Units	m.mol/l	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
		1	2	3	4	5	6
<b>Maximum Permissible Limits</b>		<b>NGVS</b>	<b>NGVS</b>	<b>NGVS</b>	<b>75</b>	<b>150</b>	<b>500</b>
1	QTA-01	3.40	170	0.00	92	36	380
2	QTA -02	3.30	165	0.00	52	27	240
3	QTA -03	Dried					
4	QTA -04	3.40	170	0.00	52	21	220
5	QTA -05	3.40	170	0.00	48	17	190
6	QTA -06	Dried					
7	QTA -07	3.40	170	0.00	40	23	195
8	QTA -08	3.60	180	0.00	48	27	230
9	QTA -09	3.40	170	0.00	56	38	295
10	QTA -10	3.60	180	0.00	48	31	250
11	QTA -11	3.80	190	0.00	36	22	180
12	QTA -12	3.50	175	0.00	50	20	210
13	QTA -13	Dried					
14	QTA -14	3.60	180	0.00	76	7	220
15	QTA -15	3.30	165	0.00	60	19	230
16	QTA -16	12.40	620	0.00	132	102	750
17	QTA -17	3.10	155	0.00	52	29	250
18	QTA -18	3.40	170	0.00	64	7	190
19	QTA -19	3.60	180	0.00	40	24	200
20	QTA -20	4.00	200	0.00	56	34	280
21	QTA -21	2.60	130	0.00	40	12	150
22	QTA -22	2.30	115	0.00	40	7	130
23	QTA -23	Dried					
24	QTA-24	3.90	190	0.00	44	24	210
25	QTA -25	4.00	200	0.00	60	24	250
26	QTA-26	6.60	330	0.00	272	146	1280
27	QTA-27	3.90	190	0.00	80	52	415
28	QTA-28	3.20	160	0.00	48	26	225
29	QTA-29	3.20	160	0.00	40	22	190
30	QTA -30	4.80	240	0.00	84	41	380
31	QTA -31	3.00	150	0.00	16	29	160
32	QTA-32	3.00	150	0.00	44	13	165
33	QTA -33	3.30	165	0.00	80	13	255
34	QTA-34	3.70	185	0.00	48	20	205
35	QTA-35	7.00	350	0.00	112	165	960
36	QTA-36	3.30	165	0.00	44	27	220
37	QTA-37	5.10	255	0.00	84	43	390
38	QTA-38	2.60	130	0.00	32	10	120
<b>% age Sample Exceeding permissible Limits</b>		-	-	-	26	3	9
<b>Max. Conc.</b>		12.40	620	0.00	272	165	1280
<b>Min. Conc.</b>		2.30	115	0.00	16	7	120

Contd..

**Table C-44: Quality of Ground Water at Various Locations of Quetta  
(Chemical & Inorganic Constituents Analysis)**

S. No.	Sample Code	Cl	Na	K	SO <sub>4</sub>	NO <sub>3</sub> (N)	PO <sub>4</sub>	TDS
	Units	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
		7	8	9	10	11	12	13
<b>Maximum Permissible Limits</b>		<b>250</b>	<b>200</b>	<b>12</b>	<b>250</b>	<b>10</b>	<b>NGVS</b>	<b>1000</b>
1	QTA-01	110	75	2.10	209	11.00	0.04	734
2	QTA -02	46	41	1.60	71	11.00	0.05	442
3	QTA -03	Dried						
4	QTA -04	32	23	1.40	41	6.00	0.04	341
5	QTA -05	28	32	1.60	47	3.00	0.06	350
6	QTA -06	Dried						
7	QTA -07	25	28	1.40	62	7.00	0.03	440
8	QTA -08	41	41	1.80	70	6.00	0.06	426
9	QTA -09	70	62	1.80	132	6.40	0.05	584
10	QTA -10	20	49	2.10	156	3.00	0.04	424
11	QTA -11	70	116	140	165	1.20	0.04	554
12	QTA -12	31	39	1.80	71	2.20	0.05	386
13	QTA -13	Dried						
14	QTA -14	34	41	1.70	71	6.30	0.05	405
15	QTA -15	27	23	1.30	65	5.40	0.04	355
16	QTA -16	128	124	10.70	165	39.00	0.02	1352
17	QTA -17	61	62	1.70	130	4.60	0.04	500
18	QTA -18	22	19	1.10	25	4.20	0.05	276
19	QTA -19	39	52	1.50	74	1.90	0.06	390
20	QTA -20	55	44	2.00	66	10.30	0.05	491
21	QTA -21	18	29	2.00	49	9.20	0.05	279
22	QTA -22	19	29	2.00	56	4.00	0.05	263
23	QTA -23	Dried						
24	QTA-24	25	30	1.20	45	4.30	0.04	325
25	QTA -25	39	31	1.50	52	9.20	0.05	421
26	QTA-26	256	305	3.90	60	4.80	0.04	2226
27	QTA-27	75	77	2.10	240	9.00	0.05	710
28	QTA-28	50	78	2.70	132	13.00	0.06	527
29	QTA-29	30	23	1.70	21	12.20	0.04	312
30	QTA -30	91	63	2.20	123	8.10	0.05	707
31	QTA -31	43	104	1.60	154	5.10	0.06	498
32	QTA-32	66	94	2.00	132	1.90	0.05	520
33	QTA -33	69	60	1.90	120	4.00	0.04	495
34	QTA-34	46	43	1.50	58	2.10	0.05	399
35	QTA-35	195	310	11.10	1020	20.30	0.04	2076
36	QTA-36	75	93	1.80	121	6.00	0.04	560
37	QTA-37	91	77	2.40	140	13.00	0.05	240
38	QTA-38	7	9	0.70	13	0.62	0.06	174
<b>% age Sample Exceeding permissible Limits</b>		3	6	0	3	24	-	9
<b>Max. Conc.</b>		256	310	11.10	1020	39.00	0.06	2226
<b>Min. Conc.</b>		7	9	0.70	13	0.62	0.02	174

Source:- Fifth Water Quality Monitoring Report, 2005-06 Pakistan (PCRWR).

**Table C-45: Water Quality Analysis Results Collected from District Gilgit, 2005-06**

S. No.	Location	Source	Bact. Count	Color	E.C	Odor	pH	Taste	Turb.	As.	HCO <sub>3</sub>	Cl
	Units			-	(μS/cm)	-	-	-	(NTU)	(ppb)	(mg/l)	(mg/l)
		1	2	3	4	5	6	7	8	9	10	11
<b>Maximum Permissible limits</b>				-	NGVS	-	6.5-8.5	-	5	50	NGVS	250
1	Misqar Village	WSS	+ve	Muddy	397	Odor less	8	Obj.	61	9.96	110	7
2	Muhd. Musa Khan house, khudaabad	SW	+ve	Color less	553	Odor less	7.9	Unob.	1.3	9.41	190	11
3	Chapersan Nala	SW	+ve	Color less	368	Odor less	8.1	Unob.	3.8	0.01	100	9
4	Morkhram	SW	+ve	Muddy	71	Odor less	7.7	Obj.	29	2.96	25	3
5	Karim house, Karimabad	SW	+ve	Muddy	246	Odor less	7.7	Obj.	39.3	3.82	40	9
6	Aliabad main bazar	WSS	+ve	Color less	298	Odor less	8.2	Unob.	10.6	0.01	80	9
7	Bar Nala	SW	+ve	Muddy	380	Odor less	8.1	Obj.	187	34.40	120	7
8	Chalt village	WSS	+ve	Color less	166	Odor less	8.1	Unob.	0.6	7.99	60	5
9	Juglot village	WSS	+ve	Color less	386	Odor less	8.2	Unob.	0	0.95	80	7
10	Juglot village	WSS	+ve	Color less	134	Odor less	7.5	Unob.	9.3	0.31	50	7
11	Shatot	WSS	+ve	Color less	44	Odor less	7.7	Unob.	4.1	0.01	10	2
12	Gilgit district	WSS	+ve	Color less	133	Odor less	7.9	Unob.	0.9	0.01	45	9
13	Nomal village	WSS	+ve	Color less	233	Odor less	8.3	Unob.	9.5	1.17	80	7
14	Haider house Jutyal	WSS	+ve	Color less	506	Odor less	8	Unob.	1.8	0.77	70	7
<b>% age of sample exceeding permissible limit</b>			100	29	0	0	0	29	50	0	0	0
<b>Max. Concentration</b>			-	-	553	-	8.3	-	187	34.4	190	11
<b>Min. Concentration</b>			-	-	44	-	7.5	-	0	.01	10	2

Contd...



**Table C-45: Water Quality Analysis Results Collected from District Gilgit, 2005-06**

S. No.	Location	Hard	Ca	CO <sub>3</sub>	F	Fe	Mg	NO <sub>3</sub>	K	Na	SO <sub>4</sub>	TDS
	Units	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)
		12	13	14	15	16	17	18	19	20	21	22
<b>Maximum Permissible limits</b>		500	75	NGVS	1.5	0.3	150	10	12	200	250	1000
1	Misqar Village	170	40	Nil	0.49	0.01	17	0.0	1.6	12	80	224
2	Muhd. Musa Khan house, khudaabad	230	60	Nil	0.30	0.05	19	0.5	0.7	20	86	313.4
3	Chapersan Nala	150	40	Nil	0.29	0.03	12	0.2	1.2	20	84	227
4	Morkhram	35	5	Nil	0.00	0.00	5	0.6	3.0	1	11	46
5	Karim house, Karimabad	140	32	Nil	0.28	0.01	14.5	0.2	3.0	2	81	167
6	Aliabad main bazar	120	40	Nil	0.29	0.02	5	0.0	5.0	1	68	188
7	Bar Nala	170	40	Nil	0.15	0.00	17	1.0	2.8	8	70	221
8	Chalt village	80	28	Nil	0.05	0.01	2	0.6	1.1	1	16	92.2
9	Juglot village	180	40	Nil	0.28	0.01	19	0.6	5.1	3	98	223
10	Juglot village	80	20	Nil	0.11	0.00	7	0.8	1.8	2	20	92
11	Shatot	15	4	Nil	0.15	0.04	1	0.7	2.5	1	5	25
12	Gilgit district	55	16	Nil	0.01	0.01	4	0.6	1.3	6	14	29
13	Nomal village	90	30	Nil	0.08	0.05	4	0.6	3.0	10	31	135
14	Haider house Jutyal	260	60	Nil	0.39	0.01	27	0.5	6.0	11	195	350
<b>% age of sample exceeding permissible limit</b>		0	0	0	0	0	0	0	0	0	0	0
<b>Max. Concentration</b>		260	60	0	0.49	0.05	27	1.0	6.0	20	195	350
<b>Min. Concentration</b>		0	4	0	0.00	0.00	1	0.0	0.7	1	5	46

Source:- Water Quality Status of Upper KP &amp; Northern Areas of Pakistan.

WSS- Water supply scheme,  
SW- Surface water

**Table C-46: Water Quality Analysis Results Collected from District Skardu, 2005-06**

S. No.	Location	Source	Bact. Count	Color	E.C	Odor	pH	Taste	Turb.	As.	HCO <sub>3</sub>	Cl
	Units				(µS/cm)				(NTU)	(ppb)	(mg/l)	(mg/l)
		1	2	3	4	5	6	7	8	9	10	11
<b>Maximum Permissible limits</b>				-	NGVS	-	6.5-8.5	-	5	50	NGVS	250
1	Thorga main road	SW	+ve	Color less	114	Odor less	7.3 2.5	Unob.	2.5	0.3	30	4
2	Gumba Makpum market	WSS	+ve	Color less	345	Odor less	8	Unob.	1.8	0	140	7
3	Kushura barige	WSS	+ve	Color less	344	Odor less	7.9	Unob	3.5	0.1	170	11
4	Shengous Anat hotel main road Skardu	WSS	+ve	Color less	536	Odor less	8.1	Unob	2	0	120	5
5	Astak Nala	WSS	+ve	Color less	675	Odor less	8.1	Unob	0.9	0	170	11
6	Dampu Das Hospital	WSS	+ve	Muddy	223	Odor less	8	Obj.	25.7	0	60	7
7	Haji Ghulam Muhammad House, Ustar, Skardu	WSS	+ve	Color less	117	Odor less	7.9	Unob.	6.3	7.2	40	5
8	Manthomul main bazar	WSS	+ve	Color less	72	Odor less	7.6	Unob.	1.3	3.8	25	3
9	Bagicha Village	WSS	+ve	Color less	114	Odor less	8.1	Unob	1.8	0.4	40	5
10	Olding Army base camp	WSS	+ve	Color less	39	Odor less	7.4	Unob	1.5	0	15	3
11	Indus river	SW	+ve	Muddy	149	Odor less	7.8	Obj.	57	0.5	60	5
12	Muhammad Ashraf, House Chhurka	WSS	-ve	Color less	505	Odor less	8.3	Unob	4.9	0.2	130	7
13	Shigar Madarasa Imamia	WSS	-ve	Muddy	297	Odor less	8.1	Obj.	95	1.7	90	5
14	Tissar main road	WSS	+ve	Color less	310	Odor less	8.2	Unob	4.7	2.4	100	7
<b>%age of sample exceeding permissible limit</b>			86	21	0	0	0	21	28	0	0	0
<b>Max. Concentration</b>			-	-	675	-	8.3	-	95	7.2	170	11
<b>Min. Concentration</b>			-	-	39	-	7.4	-	0.9	0	15	3

Contd...

**Table C-46: Water Quality Analysis Results Collected from District Skardu, 2005-06**

S. No.	Location	Hard	Ca	CO <sub>3</sub>	F	Fe	Mg	NO <sub>3</sub>	K	Na	SO <sub>4</sub>	TDS
		(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)
		12	13	14	15	16	17	18	19	20	21	22
<b>Maximum Permissible limits</b>		500	75	NGVS	1.5	0.3	150	10	12	200	250	1000
1	Thorga main road	40	8	Nil	0.32	0.01	5	0.6	2.2	10	25	75
2	Gumba Makpum market	160	56	Nil	0.31	0.02	5	0.7	3.1	8	31	208
3	Kushura barige	170	52	Nil	0.2	0.01	10	0	2.5	7	9	193
4	Shengous anat hotel main road Skardu	240	74	Nil	2.02	0.01	12	0.4	8.4	15	158	348
5	Astak Nala	250	60	Nil	0.95	0.06	24	0	6	33	170	406
6	Dampu Das Hospital	100	28	Nil	0.28	0	7	0.4	4.4	8	50	143
7	Haji Ghulam Muhammad House, Ustar, Skardu	55	16	Nil	0.19	0.01	3.6	0	0.8	2	14	66
8	Manthomul main bazar	30	10	Nil	0.14	0	12	0.2	1	3	8	42
9	Bagicha Village	50	18	Nil	0.16	0.2	1	1	1.3	5	9	68
10	Olding Army Base Camp	10	4	Nil	0.15	0.01	0	0.3	0.6	5	6	26
11	Indus river	60	20	Nil	0.18	0.04	2.4	0.3	0.9	8	12	86
12	Muhammad Ashraf-House, Chhurka	240	48	Nil	4.3	0	17	0.5	5.2	5	120	295
13	Shigar Madarasa Imamia	130	40	Nil	0.25	0	7	0.6	2.8	2	80	206
14	Tissar main road	150	40	Nil	2.7	0.01	12	0.5	3	6	67	197
% age of sample exceeding permissible limit		0	7	0	21	0	0	0	0	0	0	0
<b>Max. Concentration</b>		250	76	0	4.3	0.2	24	1	8.4	33	170	406
<b>Min. Concentration</b>		10	4	0	0.14	0	0	0	0.6	1	6	26

Source:- Water Quality Status of Upper KP &amp; Northern Areas of Pakistan

WSS- Water supply scheme

SW- Surface water

**Table C-47: Quality of Ground Water at Various Locations of Faisalabad during Oct, 2010 (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	30	-	690	-	0
2. Well-field area near River Chenab Faisalabad Sample No.2	Col	Good	Odl	30	-	660	-	0
3. Well-field area near River Chenab Faisalabad Sample No.3	Col	Good	Odl	30	-	670	-	0
4. Well-field area near River Chenab Faisalabad Sample No.4	Col	Good	Odl	30	-	688	-	0
5. Well-field area near River Chenab Faisalabad Sample No.5	-	-	-	30	-	550	-	0
6. Well-field area near River Chenab Faisalabad Sample No.6	Col	Good	Odl	30	-	490	-	0

Source:- Faisalabad Development Authority

Note: Col = Colourless Odl = Odorless

**Table C-48: Quality of Ground Water at Various Locations of Faisalabad during Nov. 2010 (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	320	94	24	NIL	110	75
2. Well-field area near River Chenab Faisalabad Sample No.2	448	84	23	NIL	150	55
3. Well-field area near River Chenab Faisalabad	520	76	4	NIL	100	70
4. Well-field area near River Chenab Faisalabad Sample No.4	450	164	35	NIL	120	85
5. Well-field area near River Chenab Faisalabad Sample No.5	522	76	23	NIL	120	65
6. Well-field area near River Chenab Faisalabad Sample No.6	350	44	37	NIL	130	25
6. Madina Town T/W 4.	1668	72	72	NIL	240	700
7. Mansoor Abad T/W 4.	1132	86	86	NIL	260	195

Source:- Faisalabad Development Authority

**Table C-49: CFC (Chlorofluorocarbons) Phase Out Project Implemented by World Bank, 2002 to 2009**

Name of Project	Sector	Location	Status	Implementing Agency
Master Enterprises	Foam	Karachi	Implemented	The World Bank
Razi Sons	Foam	Karachi	Implemented	The World Bank
Diamond Industrial Enterprises	Foam	Karachi	Implemented	The World Bank
Synthetic Product Enterprises, (Pvt) Ltd.	Foam	Lahore	Implemented	The World Bank
Cool Industries (Pvt) Ltd.	Foam	Lahore	Implemented	The World Bank
Singer Pakistan Limited	Foam+Refrigeration	Karachi	Implemented	The World Bank
Koldkraft Pvt. Ltd.	Foam+Refrigeration	Lahore	Implemented	The World Bank
Shadman Electronics	Foam	Karachi	Implemented	The World Bank
United Foam Industries (Pvt) Ltd.	Foam+Refrigeration	Lahore	Implemented	The World Bank
Jaguar Industries	Foam	Karachi	Implemented	The World Bank
PAECO	Foam+Refrigeration	Karachi	Implemented	The World Bank
Mumtaz Engineering (Pvt) Ltd.	Foam+Refrigeration	Lahore	Implemented	The World Bank
Hepco )Pvt) Ltd.	Foam	Hattar	Implemented	The World Bank
Indus Plastic Industry	Foam	Rawalpindi	Implemented	The World Bank
Pak Insulation (Pvt) Ltd.	Foam	Karachi	Implemented	The World Bank
Simpson Wire (Pvt) Ltd.	Foam	Karachi	Implemented	The World Bank
Thermocraft Engineering Corporation	Foam	Karachi	Implemented	The World Bank
Workman Furniture	Foam	Lahore	Implemented	The World Bank
Dawlance (Pvt) Ltd.	Foam+Refrigeration	Karachi	Implemented	The World Bank
United Refrigeration Industries	Foam+Refrigeration	Hyderabad	Implemented	The World Bank
Ice-Age Industries (Pvt) Ltd.	Foam+Refrigeration	Okara	Implemented	The World Bank

Source:- Ozone Cell, Ministry of Environment

**Table C-50: CTC Phase Out Project Implemented by UNIDO, 2004 to 2009**

S. No.	Name of Industry	Phase out Plan in ODP Tons	Application	Location	Industrial Sector	Status
1.	Breeze Frost Industries	33.2	Metal Cleaning	Lahore	Light Engineering	Completed
2.	Hira Farooq Industries	37.5	Metal Cleaning	Lahore	Light Engineering	Completed
3	Riaz Electric	10.0	Metal Cleaning	Lahore	Light Engineering	Completed
4	Himont Chemicals	80.0	Process	Lahore	Chemical Base	Completed
5.	PEL	26.0	Metal Cleaning	Lahore	Light Engineering	Completed
6	M.J.Industries (Pvt) Ltd.	2.6	Metal Cleaning	Sialkot	Surgical Instrument	Completed
7	Zulfiqar Surg. (Pvt) Ltd.	2.0	Metal Cleaning	Sialkot	Surgical Instrument	Completed
8	AMECO Z.E (Pvt) Ltd.	2.8	Metal Cleaning	Sialkot	Surgical Instrument	Completed
9	Go Go Traders	3.8	Metal Cleaning	Sialkot	Surgical Instrument	Completed
10	G.T Surgical (Pvt) Ltd.	2.8	Metal Cleaning	Sialkot	Surgical Instrument	Completed
11	Euromed Industries (Pvt) Ltd.	1.2	Metal Cleaning	Sialkot	Surgical Instrument	Completed
12	Mohsan Surgical Instr.	1.8	Metal Cleaning	Sialkot	Surgical Instrument	Completed
13	Bashir Printing Industries	2.8	Metal Cleaning	Faisalabad	Textile	Completed
14	Sitara Textile Industries Ltd.	2.5	Metal Cleaning	Faisalabad	Textile	Completed
15	Hussain Dying & Printing	0.5	Metal Cleaning	Faisalabad	Textile	Completed
16	Saeed Textile Industries	3.6	Metal Cleaning	Faisalabad	Textile	Completed
17	Habib Fabrics (Pvt) Ltd.	3.0	Metal Cleaning	Faisalabad	Textile	Completed
18	Kausar Processing Industries	2.0	Metal Cleaning	Faisalabad	Textile	Completed
19	Hilal Textile Corporation	2.5	Metal Cleaning	Faisalabad	Textile	Completed
20	Ever Green	3.6	Metal Cleaning	Wazirabad	Cutlery	Completed
21	Tariq Industries	6.0	Metal Cleaning	Wazirabad	Cutlery	Completed
22	Golden Industries	7.0	Metal Cleaning	Wazirabad	Cutlery	Completed
23	Constant Star	1.8	Metal Cleaning	Wazirabad	Cutlery	Completed
24	Asif & Brothers	1.4	Metal Cleaning	Wazirabad	Cutlery	Completed
25	Arif Usman Industries	1.5	Metal Cleaning	Wazirabad	Cutlery	Completed
26	Omair Enterprises	1.6	Metal Cleaning	Wazirabad	Cutlery	Completed
27	Mabson Industries	1.7	Metal Cleaning	Wazirabad	Cutlery	Completed
28	SGS Electrical Co.	2.7	Metal Cleaning	Gujrat	Light Engineering	Completed
29	Golden Star Fan	2.0	Metal Cleaning	Gujrat	Light Engineering	Completed
30	Simpson Wires	5.2	Metal Cleaning	Karachi	Light Engineering	Completed
31	Noor Fatima Fabrics	3.0	Metal Cleaning	Faisalabad	Textile	Completed
32	Admn Fabrics	3.0	Metal Cleaning	Faisalabad	Textile	Completed
33	Latif International	3.0	Metal Cleaning	Faisalabad	Textile	Completed
34	Monza Impex	6.0	Metal Cleaning	Sialkot	Surgical Instrument	Completed
35	Beauty Care	2.0	Metal Cleaning	Sialkot	Cutlery/Surgical	Completed
36	Society De-Zulco	2.0	Metal Cleaning	Sialkot	Cutlery/Surgical	Completed

Source: Ozone Cell, Ministry of Environment

# Section D

## Inventories, Stocks and Background Conditions

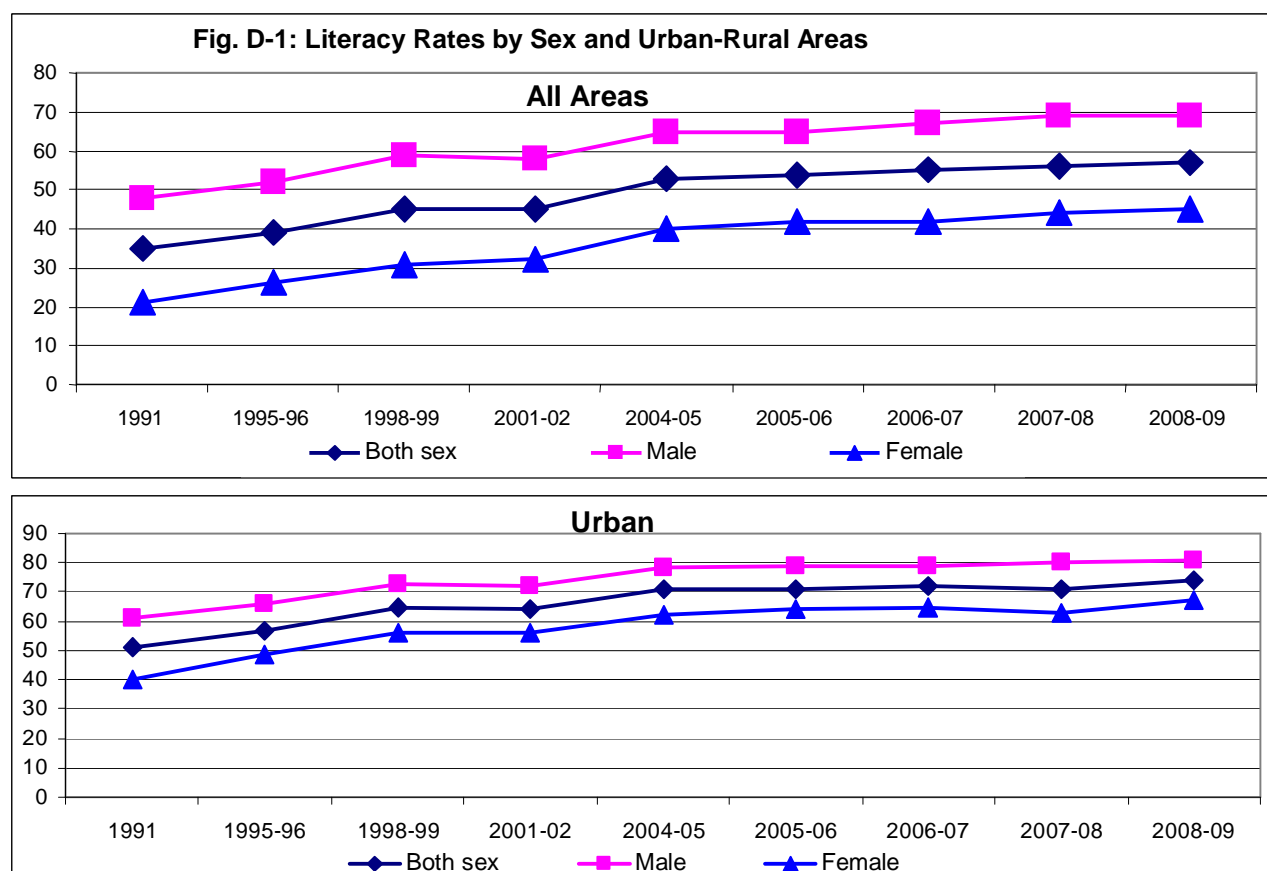
This section presents historical background and development in education and health sectors. In addition to the literacy levels, educational infrastructure by type, enrollment at various stages, availability of teachers and student - teacher ratios are worked out. It also highlights availability of health facilities to the population in terms of doctors, nurses, midwives, hospitals, dispensaries, hospitals beds, family planning statistics, immunization coverage, etc. Moreover, the tabular part also includes data on electricity, natural/associated gas reserves, and coal reserves.

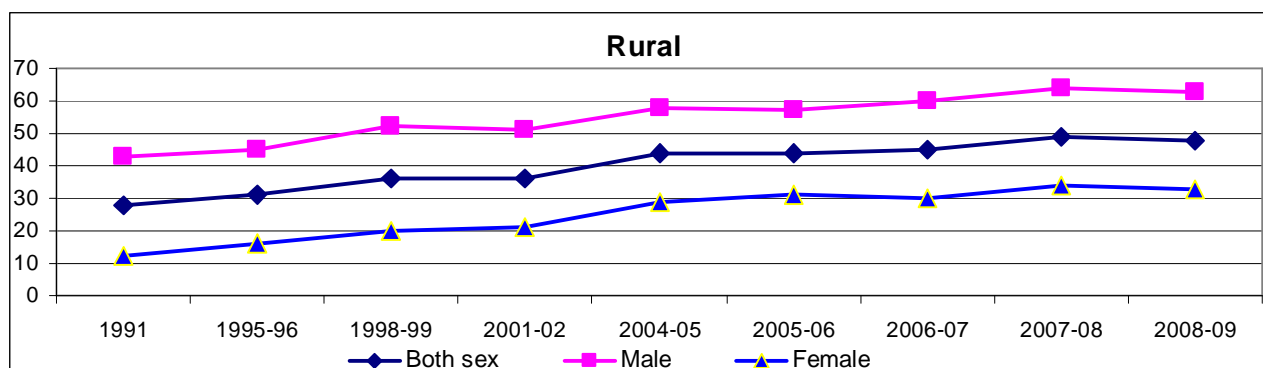
### D-I Education

Education is the major cause and consequence of economic and social development and considered as the investment in human capital which is leading 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 is one of the basic driver to catalyze change in socio-economic milieu for better. According to PSLM Survey, literacy rate improved from 45% in 2001-02 to 57% in 2008-09. The comparative literacy rates by sex and area, given in the parenthesis, also scale up, more in the case of females (32%, 45%) than males (58%, 69%) and rural (36%, 48%) than urban (64%, 74%). However, the male - female and rural-urban disparities remain quite positive but seem to be converging down the time lane though with sub-optimal speed, more in urban than rural areas. The relevant data is presented in the table (Fig. D-1) D-01.

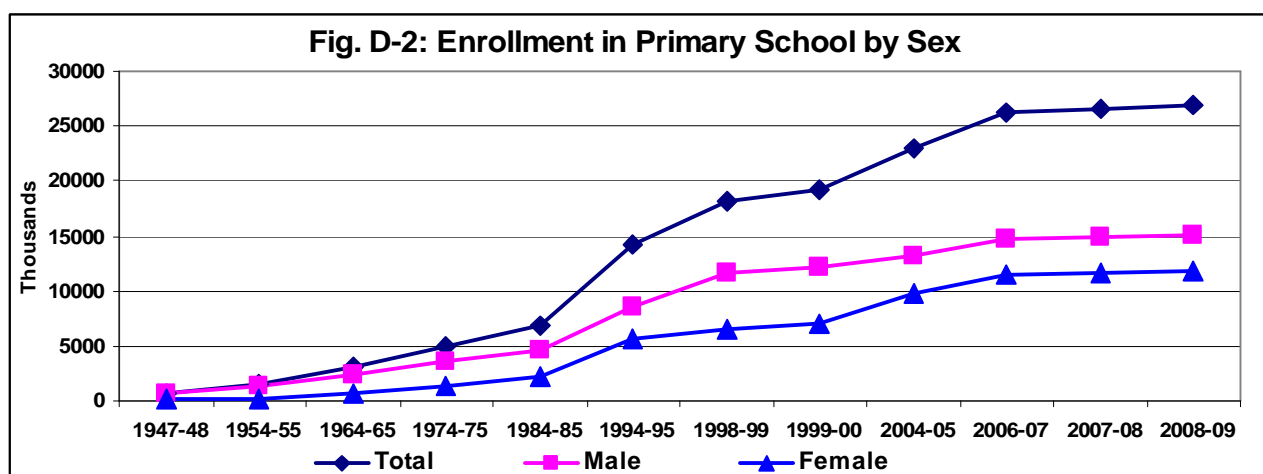




## D-I.ii Enrollment

### a. Primary Schools

At the time of independence, the primary level enrollment (class I-V) was 0.770 million which increased to 26.903 million in 2008-09 (Table D-2). It indicates more than 34 times increase in 61 years. In the linear perspective, the annual average growth rate of primary level enrollment (6.0 percent) is almost double of the population growth rate during this period. Nevertheless, expanse of the base and consequential time series fall short of exhaustive outreach of primary education. This notwithstanding, population per school (Table D-I) of the 5-9 year aged, has been decreasing down the time lane from 555 in 1950-51 to 118 in 2008-09. As for sex disaggregated data, growth rate of female enrolment during the period (8%) outpaced that of males (5%).



**Table D-I: 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	556
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
2002-03*	150809	20080	133
2007-08*	156592	18580	119
2008-09 (P)	156653	18520	118

Source:- Population: i) Population Census Organization ii) Planning & Development Division  
Enrolment: Academy of Educational Planning & Management, Islamabad

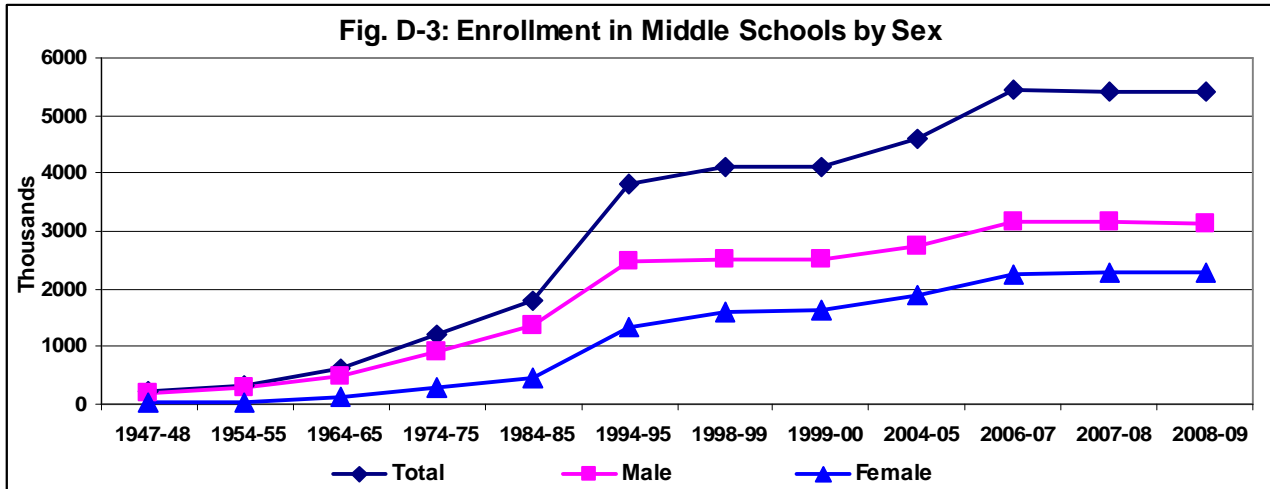
\* Pre-Primary Schools figures not included



**b. Middle Schools**

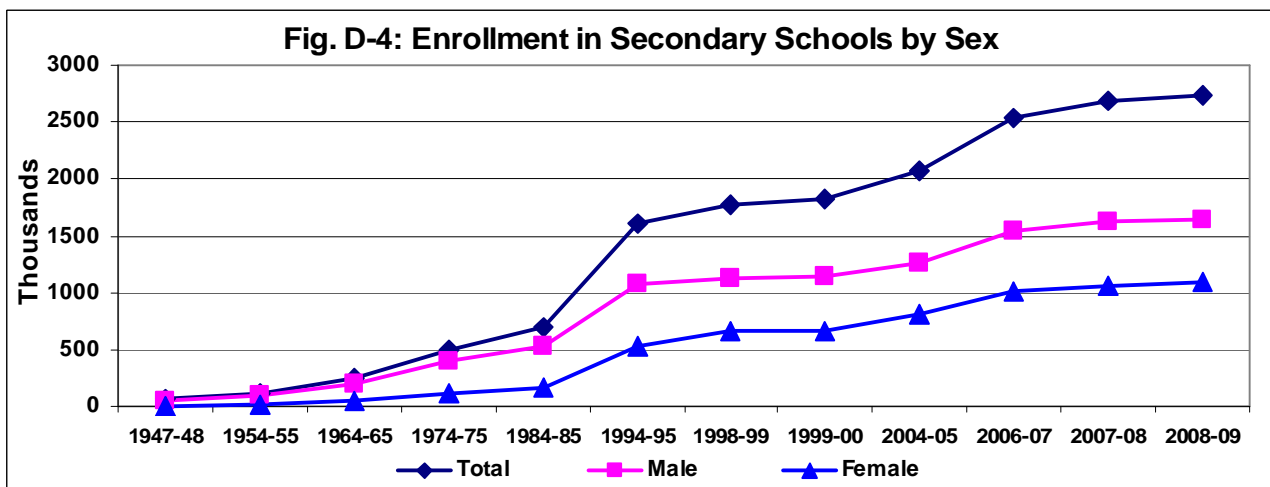
The middle level enrollment ( class VI-VIII) registered twenty four fold rise, from 221 thousand in 1947-48 to 5,414 in 2008-09 (Table D-02). The average annual growth rate (5.4 percent) is slightly lower as compared to that in primary schools enrollment.

As for sex-wise enrollment (Fig D-3) male enrollment during the period increased at an annual growth rate of 4.6 percent vis a vis 8.0 percent of females. Thus, male-female disparity has been receding owing, probably to attitudinal shift.



**c. High and Secondary Vocational Institutions**

Enrollment in high school or secondary level school (IXth and Xth classes) or equivalent vocational classes indicates increase at an average annual growth rate of 6.4 percent during 1947-48 to 2008-09. About 62 thousand students were enrolled in high school level classes in 1947-48 compared to 2,743 thousand during the year 2008-09 (Table D-02). As for male - female gap (Fig D-4) it has been closing as female enrollment at High School level increased from 14.8 percent of the male enrollments in 1947-48 to 67% in 2008-09.



**d. Arts and Science Colleges**

The arts and science colleges include enrollment of class XI and XII (Intermediate) and B.A/B.Sc. students. The enrollment in arts and science colleges registered 28 fold increase in 54 years from 43 thousand in 1954-55 to 1215 thousand in 2008-09 (Table D-02). This level of trending up augurs well for cultivating progressive socio-cultural attitudes.

Auspiciously, gender gap has been shrinking during the period as females enrollment rose 96 fold, from 16% of males enrollment in 1947-48 to 90 % of the same in 2008-09.

**e. Professional Colleges**

The professional colleges focus on the education of Agriculture, Medical, Engineering, Law, Commerce, Tibb and Homeopathy. The enrollment in the professional colleges increased from 4.4 thousand at the time of independence to 251 thousands in 2008-09 at an average annual growth rate of 7.0 percent during the period . Gender gap has been receding as female enrollment witnessed 249 fold increase vis a vis 17 fold of males and fared at 90% of males enrollment in 2008-09 in comparison with 7% at the time of independence (Table D-02).

**f. Universities**

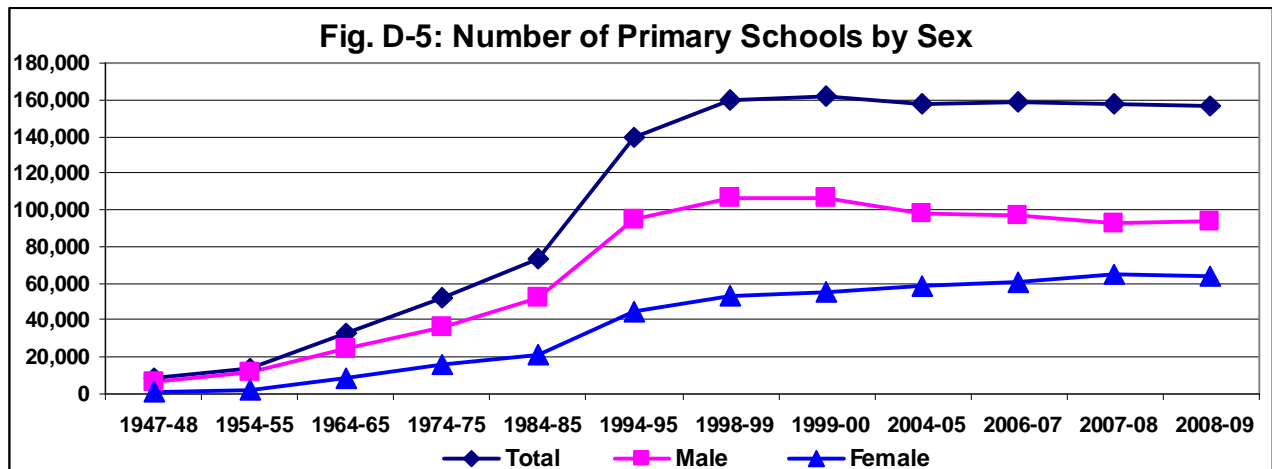
There were 644 students enrolled in 2 Universities existed in the country at the time of independence. This includes degree and post graduate level enrollments in various subjects. The enrollments in 2008-09 is estimated at about 312.2 thousand in 67 universities of the country (Table D-02). This shows an increase at an annual growth rate of 10.7 percent, the highest among all level of education during the period. Seemingly, 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 rate.

**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. Their number increased to 156,653 during 2008-09. Thus primary schools increased with lower average annual growth rate of 4.9 percent as against 6.0 percent of enrollment therein during the same period. Nevertheless population per primary school declined from 555 in 1950-51 to 118 population in 2008-09 (Table D-1)..

The number of primary schools for females (1549) at the time of independence fared at one-fourth of the number of boys primary school (6864). As of 2008-09, the girls primary school have increased 41 fold ((63000) vis a vis 14 times (93000) increase in the number of boys primary schools. The former now number more than one-half of the latter's (Fig. D-5).



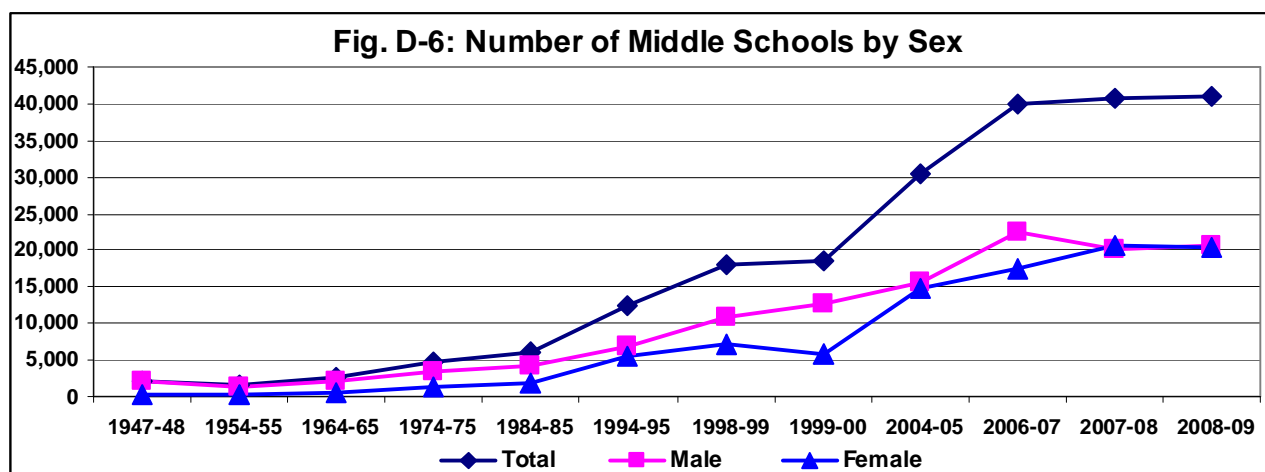
There were about 18 thousand primary school teachers available for 8,413 primary schools in 1947-48 i.e. two teachers per school and-one teacher for 43 students. The number of teachers increased to 465.3 thousands in 2008-09. Thus ratio of teachers per school has slightly increased to 3 teachers per school though number of students per teacher also increased from 43 in 1947-48 to 58 in 2008-09.

Availability of male primary school teachers increase 17 fold as against 90 fold observed in case of female teachers during 61 years between 1947-48 and 2008-09. The number of teachers per primary school increased from 2.2. to 2.7 in the case of males while 1.5 to 3.4 for female teachers. However student- teacher ratio has also increased, more for males (43 to 60) than females (46 to 55) (Table D-02).

**b. Middle Schools**

The availability of middle schools increased 19 times from 2190 at the time of independence (1947-48) to 40,919 schools in 2008-09 (Table D-02). Concomitantly, enrollment per middle school increased from 100 students in 1947-48 to 132 students in 2008-09. Though, number of teachers per middle school increased from 5.5 in 1947-48 to 7.8 teachers in 2008-09, students - teacher ratio also scaled up from 18 in 1947-48 to 28 in 2008-09.

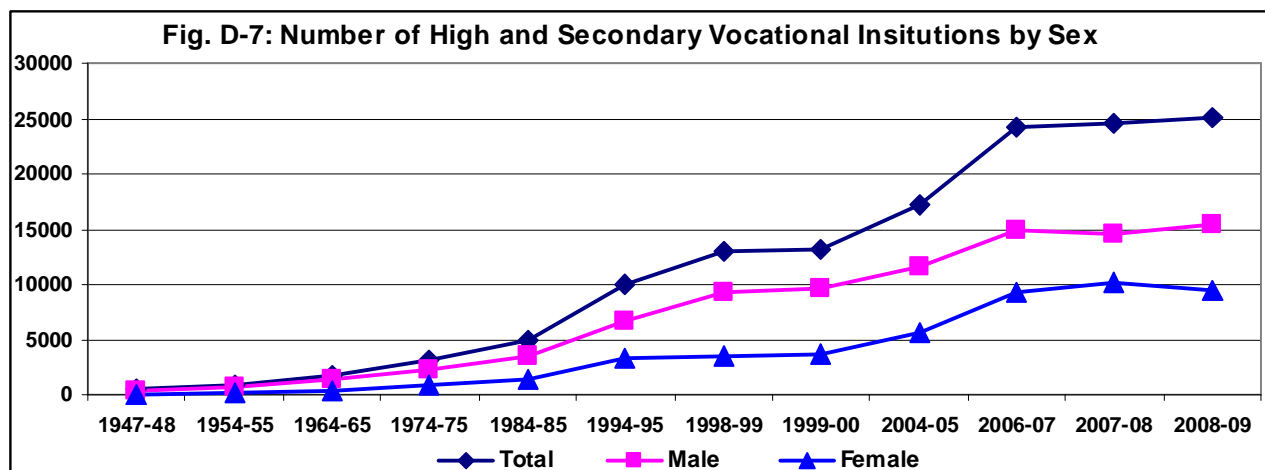
Sex wise, the availability of boys middle schools in 1947-48 (2037) fared at 13 times of girls middle schools (153), increased 10 times (20526) in 2008-09 vis a vis 133 time of girls middle school (20393) to situate the latter with the former almost equivalently.



**c. High and Secondary Vocational Institutions**

Number of high/secondary schools at the time of independence (454) grew at an average annual growth rate of 6.8 percent to 25013 in 2008-09. The corresponding high school numbers resolve into 372 vs.15508 for boys and 82 vs 9505 for girls. The latter's numbers fare at 22 percent and 61 percent of the former which betokens receding gender gap.

As for enrollment per school, it decreased from 137 to 110 during the period. The corresponding sex wise figures are 145 vs 106 for boys and 98 vs 116 for girls which bespeak declining availability of high schools for fair sex. However number of teachers per school in 2008-09 (18) do indicate higher number per girl high school (24) vis a vis boys high schools (14). This may, interalia, due to lower number of the former (Table D-02).



#### d. Arts and Science Colleges

The number of arts and science colleges grew 35 fold from 40 in 1947-48 to 1393 in 2008-09 during the span of 61 years. The corresponding number resolves into 35 & 790 for boys and 5 & 603 for girls. The latter's relative profile increased from 14 percent to 76 percent of the former. Enrollment per college more than doubled from 350 to 872 during the period. The corresponding figures for girls (200,957) and, boys (371, 808) indicates that former's size more than quadrupled while the latter's more than doubled during the comparative periods (Table D-02)

#### e. Professional Colleges

Professional colleges were not available at the time of independence. However, there were 24 professional colleges (Agriculture, Medical, Engineering, Law, Tibb, Commerce and Homeopathic) in the country in 1954-55, which increased nineteen fold to 466 in 2008-09. Professional college practice co-education. This notwithstanding, five girls professional colleges were established in 1964-65 which increased to 21 in 2008-09 (Table D-02). Since professional colleges are infrastructure-heavy establishments, their number down the time lane increase modestly (Table D-02). As of 2008-09, there are 30 teachers per college and 18 student per teacher. Out of the total teachers (14000), more than one-fourth (28%) are females (3900).

#### f. Universities

The number of universities increased thirty three fold from two (2) in 1947-48 to 67 in 2008-09. The ratio of teachers per university increased from 217 for 6 universities available in 1964-65 to 285 for 67 universities in 2008-09. However, student-teacher ratio also increased from 10 to 16 during the comparative periods. This indicates rising clientele for universities.

### D-II Health

#### D-II.i Historical Background

Like other socio-economic sectors, the country inherited very inadequate health infrastructure and manpower at the time of independence. Though a lot of health facilities dot the country's expanse, the 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 2009-10 was Rs.79.00 billion (0.54 % of GDP), out of which Rs 38.00 billion (48.10%) only were allocated for development expenditure. However, new National Health Policy 2009 has seeks to improve:-

1. Health manpower.

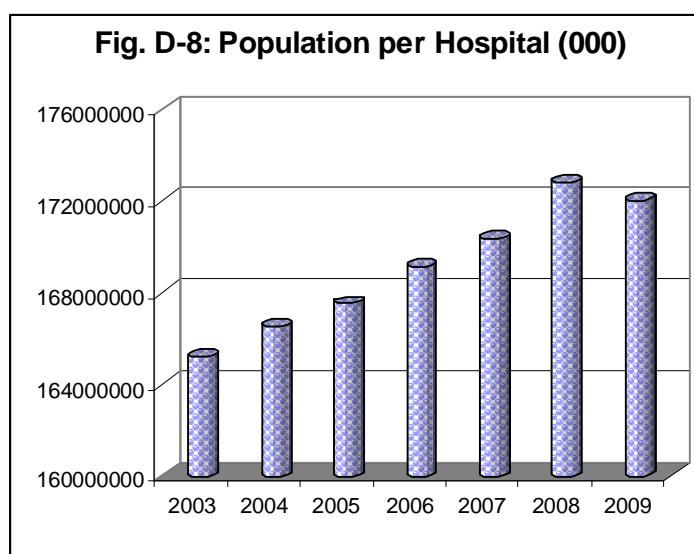
2. Gathering and Using reliable health information.
3. Strategic use of emerging technologies.
4. Health status of the population.
5. Access to essential health services.
6. Measurable reduction in the burden of diseases.
7. Protecting the poor and under privileged population.

The achievement of Millennium Development Goals (MDGs) is a priority area for Pakistan, especially in the health sector. Pakistan is committed to meeting these goals by 2015 by launching new policy initiatives. Through a major health intervention program and strategies, it is aimed to reduce the under-five mortality rate to 52 per 1000, infant mortality rate to 40 per 1000, and maternal mortality ratio to 140 by 2015. Whereas the proportion of 1 year-old children immunized against measles is targeted to be increased to 85% and the proportion of births attended by skilled health personnel to 90% by 2015. In addition, plans have been formulated to combat TB, Malaria, HIV/AIDS and Hepatitis, along with other communicable disease.

## 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 61 years to 968 in 2009 (Table D-08). The annual average growth rate of hospitals is 2.0 percent, which is below the annual population growth rate in the country during last 61 years. Thus, increasing population, as well as, pacy urbanization result into 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 171 thousand per hospital in 2009. (Fig D-8). However, population per hospital bed declined from 2,360 in 1947 to 1,605 in 2009 to indicate availability of more beds in the hospitals (Table D-08).



### b. Dispensaries

The dispensaries are normally supervised by an MBBS doctor and supported by a Lady Health Visitor, dispenser, midwife, aya, chowkidar and sweeper. There were 722 dispensaries in 1947, which increased to 4,813 in 2009. It shows more than 6 times increase in number of dispensaries in 61 years (Table D-08). The annual average growth rate of dispensaries was higher i.e. 3.2 percent as against 2.0 percent for hospitals.

### c. Maternal and Child Health Centre (MCH)

The Maternal and Child Health Centres (MCH) are established mostly in the rural areas, to provide services to expectant mothers and new born babies. Centres are supervised by Lady Health Visitors. The number of MCHs increased 10 times from 91 in 1947-48 to 906 in 2009 with an annual average growth rate of 3.8 percent

during the comparative periods.

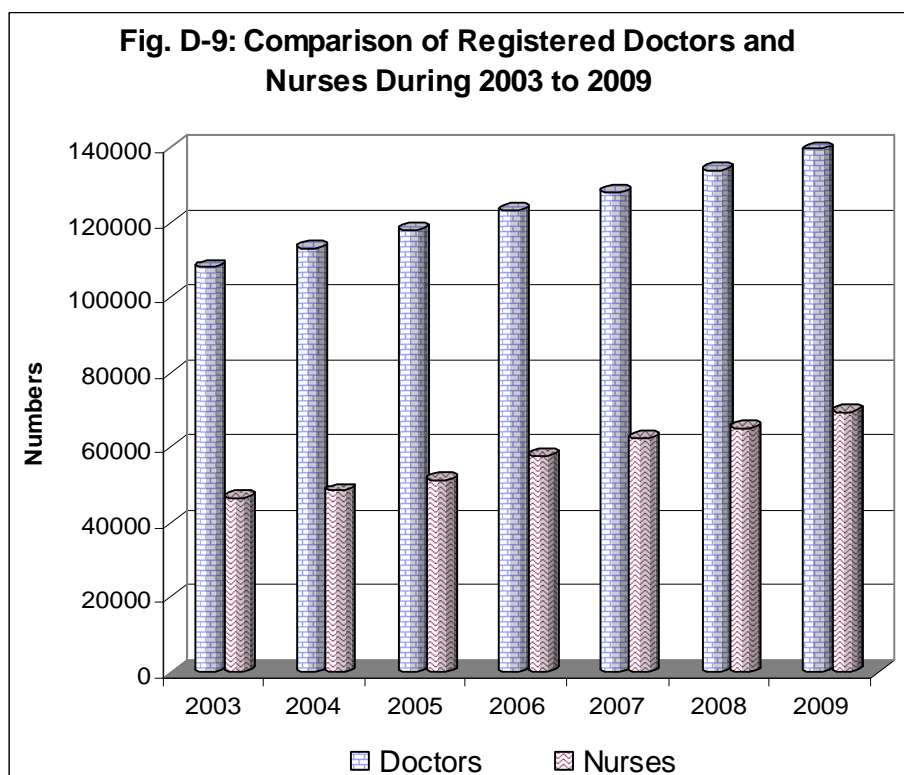
#### d. Beds in Hospitals and Dispensaries

The hospitals and dispensaries have the facilities to admit patients in need of continued medical care or surgical treatment. There were about 14 thousand beds in the hospitals and dispensaries in 1947 which increased more than seven (7) times in last 61 years to 104 thousand in 2009. Similarly, the number of beds per population also increased from one bed for about two thousand four hundred people in 1947-8 to high one thousand and six hundred people in 2009.

### 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 to one doctor available for about nine thousand population in 1956. However as of 2009 there are more than 139 thousand registered doctors in the public and private sectors in the country, translating into one doctor for 1183 persons (Table D-07). The number of registered doctors grew with an average annual growth rate of 8.0 percent during 1948 to 2009.



#### b. Nurses

The nurses play very important role in the health care services. The number of registered nurses grew with an average annual growth rate of 11.6 percent from 88 in 1948 to 69313 in 2009. This translates impressively in to improved availability of nurses from one per 0.41 million people in 1948 to one per twenty four hundred people. However, the number of nurses is one-half of the number of doctors in 2009 (Table D-07) which falls short of the desirable calculus of health manpower.

### c. Dentists

The number of registered dentists registered 10 fold increase with an annual growth rate of 8.5 percent from 1012 in 1981 to 9,822 in 2009. This translates into one dentist for about eighty three thousand population in 1981 as against 17 thousand per dentist in 2009 (Table D-07). However, population per dentist is still very high. The dentists are available mainly in big hospitals and large cities, and as such, rural population which is almost 67 percent of the total population in the country seems short shrifted in this regard.

### D-II.iv Basic Health Indicators

Table below gives a comparison of some basic demographic indicators of a few Asian countries for 2009. It 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 India and Bangladesh, however, it is lower than that of Nepal, Sri Lanka, Thailand, Indonesia China, Philippines and Malaysia.

**Table D-II: Basic Health Indicators, Pakistan and Other Countries of Region**

Country	Life Expectancy (year 2008)	Infant Mortality Rate per 1000 (year 2009)	Mortality Rate under 5 per 1000 (year 2009)	Population Avg. Annual (%) Growth (2009)
<b>Pakistan</b>	<b>66.5</b>	<b>65.1</b>	<b>95.2</b>	<b>2.1</b>
India	63.7	30.1	78.6	1.55
Sri Lanka	74.1	18.5	12.9	0.94
Bangladesh	66.1	59.0	69.3	1.29
Nepal	66.7	47.5	71.6	1.28
China	73.1	20.2	29.4	0.66
Thailand	68.9	17.6	15.1	0.62
Philippines	71.1	20.5	27.2	1.96
Malaysia	74.4	15.8	11.3	1.72
Indonesia	70.8	29.9	31.8	1.14

Source:- Pakistan Economic Survey 2009-10.

### D-III Family Planning

The Family Planning Programme in the country was first introduced in 1953 by a non-governmental organization " Family Planning Association of Pakistan". However, the Population Welfare Programme in the public sector has been operating since 1960. The achievement of family planning programme has been modest but seem to be attracting more people in matrimonial bond. The last population census indicates decline in fertility as intercensal growth rate decreased from 3.06 during 1972-81 to 2.6 during 1981-98.

At present the population welfare programme is operating both in the public and private sectors and a network of service delivery out-lets 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 16-17 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 2007 (Pakistan Demographic and Health Survey 2006-07). Table below presents method specific knowledge of currently-married women aged 15-49 years.

**Table D-III: Currently Married Women by Knowledge of Specific Method****(Percent)**

Contraceptive Method	PFFPS 1996-97	PRHFPS 2000-01	SWRHFPS 2003	PDHS 2006-07
Any Method	94.3	95.7	95.4	95.9
Female Sterilization	88.5	88.8	85.9	86.7
Male Sterilization	31.0	31.6	41.5	40.7
Injectables	86.0	90.2	88.2	89.5
IUD	82.4	84.4	82.1	74.8
Pill	86.6	91.1	90.7	91.7
Condom	61.2	69.9	65.2	68.1
Vaginal Method	13.8	-	-	-
Ryehm	33.7	23.8	25.4	49.2
Withdrawal	40.7	42.4	35.7	48.9
Other Method	3.7	1.9	1.7	2.9

Source:- National Institute of Population Studies, 2006-07

**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-VI. According to the latest survey conducted in 2006-07, the contraceptive prevalence rate among the currently married women aged 15-49 years was 29.6 percent. Table below gives contraceptive prevalence rates by method.

**Table D-IV: Current Contraceptive Prevalence Rates by Method and Sources****(Percent)**

Method	PCPS 1994-95	PFFPS 1996-97	PRHFPS 2000-01	SWRHFPS 2003	PDHS 2006-07
Any Method	17.7	23.7	27.6	32.1	29.6
Method for Women	8.8	12.5	-	18.7	-
Pill	0.7	1.6	1.9	3.1	2.1
IUD	2.1	3.4	3.5	4.4	2.3
Injectables	1.0	1.4	2.6	3.4	2.3
Vaginal Methods	0.0	0.1	0.0	-	-
Female Sterilization	5.0	6.0	6.9	7.5	8.2
Implant	-	-	-	0.3	0.1
Method for Men	7.9	8.8	-	11.5	-
Condom	3.7	4.2	5.5	6.4	6.8
Withdrawal	4.2	4.6	5.3	4.9	4.1
Male Sterilization	-	-	-	0.2	0.1
Method for either use	1.0	2.4	-	2	-
Periodic Abstinence	1.0	1.9	1.6	1.7	-
Other	-	0.5	0.5	0.3	0.2

Source:- National Institute of Population Studies, 2006-07.

**D-IV Extended Programme of Immunization (EPI)**

This programme was launched 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 extends service delivery from all health facilities in public and private sectors and by special outreach and mobile approach. Twice in a year, special campaigns are launched 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's recollection than written records. The service statistics also falls short of adequacy and reliability. However, the survey results of Pakistan Social & Living Standards Measurement are given in the table below to draw up the perspective. A sort of improvement towards universal coverage seems to be in reach in medium term.

**Table D-01 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
<b>PAKISTAN</b>									
1995-96	39	52	26	57	66	49	31	45	16
1998-99	45	59	31	65	73	56	36	52	20
2001-02	45	58	32	64	72	56	36	51	21
2004-05	53	65	40	71	78	62	44	58	29
2005-06	54	65	42	71	79	64	44	57	31
2006-07	55	67	42	72	79	65	45	60	30
2007-08	56	69	44	71	80	63	49	64	34
2008-09	57	69	45	74	81	67	48	63	33
<b>PUNJAB</b>									
1995-96	40	52	29	58	65	50	33	46	20
1998-99	46	57	34	64	71	58	38	52	24
2001-02	47	57	36	66	71	60	38	51	26
2004-05	55	65	44	72	78	66	47	59	35
2005-06	56	66	47	73	80	67	47	58	37
2006-07	58	67	48	73	79	68	50	61	38
2007-08	59	70	48	72	78	66	53	66	40
2008-09	59	69	50	76	82	71	51	63	39
<b>SINDH</b>									
1995-96	45	57	31	60	68	53	29	47	10
1998-99	51	65	35	69	79	58	35	53	15
2001-02	46	60	31	64	74	54	33	51	14
2004-05	56	68	41	72	80	62	38	56	18
2005-06	55	67	42	72	80	65	37	54	17
2006-07	55	67	42	73	80	65	36	52	16
2007-08	56	69	42	73	81	64	40	57	20
2008-09	59	71	45	73	81	65	43	61	22
<b>KHYBER PAKHTUNKHWA</b>									
1995-96	28	43	14	45	58	31	25	40	11
1998-99	37	56	20	53	66	40	34	54	16
2001-02	38	57	20	56	70	41	35	55	16
2004-05	45	64	26	61	75	47	41	61	23
2005-06	46	64	30	59	73	45	44	62	27
2006-07	47	67	28	61	75	46	44	65	24
2007-08	49	68	33	64	79	51	46	65	29
2008-09	50	69	31	62	76	48	47	67	27
<b>BALUCHISTAN</b>									
1995-96	30	47	11	41	58	23	28	45	8
1998-99	36	54	16	56	72	39	33	51	12
2001-02	36	53	15	54	71	36	32	49	11
2004-05	37	52	19	60	74	42	32	47	13
2005-06	38	54	20	59	77	40	31	46	13
2006-07	42	58	22	61	76	42	35	52	15
2007-08	46	66	23	64	84	41	39	58	16
2008-09	45	62	23	64	78	47	38	57	16

Source Federal Bureau of Statistics (PIHS 1995-96 to 1998-99 &amp; PSLM 2004-05 to 2008-09)

**Table D-02: 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
<b>Primary Schools</b>						
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	95,234	44,400	14,264	8,626	5,638
1998-99	159,330	106,272	53,058	18,169	11,719	6,450
1999-00	162,076	107,032	55,044	19,148	12,104	7,044
2004-05	157,157	98,414	58,743	23,051	13,218	9,833
2006-07	158,375	96,480	60,895	26,223	14,700	11,523
2007-08	157,407	92,466	64,941	26,579	14,907	11,672
2008-09 P	156,653	93,277	63,376	26,903	15,009	11,894
<b>Middle Schools</b>						
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	6,888	5,683	3,816	2,469	1,347
1998-99	18,072	10,884	7,188	4,098	2,512	1,586
1999-00	18,435	12,668	5,767	4,112	2,497	1,615
2004-05	30,418	15,662	14,756	4,612	2,727	1,885
2006-07	40,094	22,622	17,472	5,431	3,167	2,264
2007-08	40,829	20,234	20,595	5,427	3,148	2,279
2008-09 P	40,919	20,526	20,393	5,414	3,116	2,298
<b>Secondary Schools</b>						
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	6,626	3,379	1,611	1,082	529
1998-99	12,931	9,357	3,574	1,778	1,122	656
1999-00	13,211	9,601	3,610	1,817	1,147	670
2004-05	17,233	11,644	5,589	2,074	1,265	809
2006-07	24,206	14,993	9,213	2,544	1,539	1,005
2007-08	24,620	14,479	10,141	2,683	1,625	1,058
2008-09 P	25,013	15,508	9,505	2,743	1,643	1,100

i) Primary Schools include pre-primary schools data as well

Contd...

ii) Secondary Schools include both high school and secondary vocational institutions

iii) Schools include Public &amp; Private sector data

iv) P = Provisional

**Table D-02: 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
<b>Arts and Science Colleges</b>						
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
2004-05	1174	659	515	1009	514	495
2006-07	1231	692	539	1097	544	553
2007-08	1283	717	566	1076	530	546
2008-09	1393	790	603	1215	638	577
<b>Professional Colleges</b>						
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	101.0	73.3	27.7
1998-99	308	290	18	163.4	122.3	41.1
1999-00	324	309	15	161.0	120.0	41.0
2004-05	408	387	21	186.8	138.5	48.3
2006-07	420	401	19	207.4	151.5	55.9
2007-08	451	428	23	246.8	171.7	75.1
2008-09	466	445	21	250.6	175.9	74.7
<b>Universities</b>						
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	86.6	27.4
2004-05	52	49	3	234.1	145.0	89.1
2006-07	61	56	5	296.8	185.3	111.5
2007-08	67	62	5	318.3	196.3	122.0
2008-09	67	62	5	312.2	194.1	118.1

Note:- (a) There is co-education system in universities

Contd...

- (i) Arts & Science colleges, Professional Colleges and Universities contain public sector data only.

**Table D-02: Number of Institutions, Enrollment and Number of Teachers by Sex and Level of Educational Institutions**

Institute/Year	Number of Teachers (000 No.)			Student Per Teacher		
	Total	Male	Female	Total	Male	Female
	7	8	9	10	11	12
<b>Primary Schools</b>						
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	375.2	228.5	146.7	38	38	38
1998-99	422.6	248.8	173.8	43	47	37
1999-00	402.4	232.6	169.8	48	52	42
2004-05	450.1	243.6	206.5	51	54	48
2006-07	456.0	243.4	212.6	58	60	54
2007-08	452.6	236.6	216.0	59	63	54
2008-09 P	465.3	249.1	216.2	58	60	55
<b>Middle Schools</b>						
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	144.6	63.7	80.9	26	39	17
1998-99	178.5	70.3	108.2	23	36	15
1999-00	193.9	76.3	117.6	21	33	14
2004-05	246.7	95.2	151.5	19	29	12
2006-07	313.5	110.2	203.3	17	29	11
2007-08	320.6	112.4	208.2	17	28	11
2008-09 P	320.5	111.5	209.0	17	28	11
<b>Secondary Schools</b>						
1947-48	6.8	6.0	0.8	9	9	10
1954-55	12.7	10.4	2.3	9	10	8
1964-65	29.2	22.8	6.4	8	8	8
1974-75	53.6	37.7	15.9	9	10	7
1984-85	82.7	57.3	25.4	8	9	7
1994-95	234.5	130.1	104.4	7	8	5
1998-99	238.7	129.5	109.2	7	9	6
1999-00	257.1	139.3	117.8	7	8	6
2004-05	290.8	150.3	140.5	7	8	6
2006-07	430.5	215.6	214.9	6	7	5
2007-08	439.3	217.6	221.8	6	8	5
2008-09 P	449.0	221.5	227.5	6	7	5

Contd...

P = Provisional

**Table D-02: Number of Institutions, Enrollment and Number of Teachers by Sex and Level of Educational Institutions**

Institute/Year	Number of Teachers (000 No.)			Student Per Teacher		
	Total	Male	Female	Total	Male	Female
	7	8	9	10	11	12
<b>Arts and Science Colleges</b>						
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	8.1	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
2004-05	31.0	18.0	13.0	33	29	38
2006-07	33.4	19.8	13.6	33	28	41
2007-08	34.4	20.9	13.5	31	25	40
2008-09	35.8	21.5	14.3	34	30	40
<b>Professional Colleges</b>						
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	8.9	7.1	1.8	18	17	23
1999-00	9.0	7.2	1.8	18	17	23
2004-05	10.0	8.0	2.0	19	18	24
2005-06	11.2	8.5	2.7	18	18	19
2006-07	12.4	9.4	3.0	17	16	19
2007-08	13.6	10.2	3.4	18	17	22
2008-09	14.0	10.1	3.9	18	17	19
<b>Universities</b>						
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	4.7	1.2	19	18	23
2004-05	13.2	9.6	3.6	18	15	25
2005-06	14.0	9.9	4.1	16	14	23
2006-07	16.2	11.2	5.0	18	16	23
2007-08	19.1	13.4	5.7	17	15	21
2008-09	19.1	13.1	6.0	16	15	20

Source:- 1 Central Bureau of Education  
2. Federal Bureau of Statistics  
3. Academy of Educational Planning & Management, lbd.  
4. Provincial Bureaus of Statistics.

Note:- Professional Colleges include Agriculture, Engineering, Medical, Commerce, Law, Home Economics, Education, Educational Research, Physical Education, Tibb, Homeopathic and Fine Arts Institutions.

**Table D-03: 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
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
2004-05	408	21	4	15	30	2	100	56	4	20	4	179
2005-06	432	23	4	13	31	2	105	58	4	23	4	194
2006-07	420	19	6	5	33	3	95	58	4	21	3	198
2007-08	451	23	6	4	33	3	117	62	4	24	3	201
2008-09	466	21	7	5	33	3	128	62	4	24	1	203

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, Sindh and also Colleges of Physical Education.
  - (f) Includes Tibb, Homoeopathic and Fine Arts.

**Table D-04: 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
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	3,031	781	2,185	241
2004-05	9,961	2,048	126	5	873	36	2,805	684	1,908	194
2005-06	11,158	2,706	82	3	843	29	3,558	1,114	2,350	310
2006-07	12,377	3,009	822	109	779	106	3,829	1,133	2,380	323
2007-08	13,621	3,405	876	129	749	126	3,634	984	3,142	651
2008-09	14,043	3,883	1,058	171	994	203	3,869	1,130	3,114	719
Year	Law		Home Economics		Education		All Others (a)			
	Total	Female	Total	Female	Total	Female	Total	Female		
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		
2004-05	978	127	232	230	510	225	2,529	547		
2005-06	955	127	255	253	612	229	2,503	641		
2006-07	965	161	243	241	520	202	2,839	734		
2007-08	968	161	227	225	455	211	3,570	918		
2008-09	934	174	213	213	400	203	3,461	1,070		

Source:- i) Central Bureau of Education.  
ii) Provincial Bureaus of Statistics

(a) = All others include Tibb, Homoeopathic and Fine Arts.



**Table D-05: Number of Secondary Vocational Institutions by Kind**

Year	Commerce/ Commercial	Industrial / Vocational	Polytechnics / Technical
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	181	235	87
2004-05	178	234	91
2005-06	180	220	103
2006-07	182	222	104
2007-08	181	234	98
2008-09	180	265	100

Source:- i). Ministry of Education  
ii). Provincial Directorates of Technical Education

**Table D-06: Enrollment in Secondary Vocational Institutions by Kind and Sex**

(Number)

Year	Type of institutions								
	Commerce/Commercial			Industrial/Vocational			Polytechnic/Technical		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
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
2004-05	39180	37846	1334	21885	9834	12051	46292	42521	3771
2005-06	54570	52514	2056	33566	12529	21037	60937	56222	4715
2006-07	58796	56777	2019	23413	6644	16769	62456	58601	3855
2007-08	68823	65830	2993	28974	8531	20443	73626	68959	4667
2008-09	66055	63218	2837	25396	10679	14717	69382	65189	4193

Source:- i) Ministry of Education  
ii) Provincial Directorates of Technical Education

**Table D-07: Medical Personnel in Pakistan**

(Number)

Year	Doctors	Dentists	Nurses	Qualified Lady Health visitors	Registered Midwives	Pharmacists
1989	48327	1911	15861	2917	13779	3484
1990	52923	2068	16948	3106	15009	3718
1991	56606	2184	18150	3463	16299	3601
1992	61077	2269	19389	3796	17678	3772
1993	64036	2394	20245	3920	18641	-
1994	67228	2584	21419	4107	19759	-
1995	70731	2747	22299	4185	20910	-
1996	75261	2933	24776	4407	21662	-
1997	79497	3155	28661	4589	21840	-
1998	83721	3434	32938	4959	22103	-
1999	88142	3857	35979	5299	22401	-
2000	92863	4165	37528	5443	22525	-
2001	97286	4612	40019	5669	22711	-
2002	102671	5058	44520	6397	23084	-
2003	108190	5531	46331	6599	23318	-
2004	113333	6128	48446	6741	23559	-
2005	118140	6743	51270	7073	23897	-
2006	123184	7438	57646	8405	24692	-
2007	128093	8215	62651	9302	25261	-
2008	133984	9013	65387	10002	25534	-
2009	139555	9822	69313	10731	26225	-

Source:- Health Division

**Table D-08: 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
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
2005	919	4632	907	556	5334	289	101490
2006	924	4712	906	560	5336	288	102073
2007	945	4755	903	562	5349	290	103285
2008	948	4794	908	561	5310	293	103037
2009	968	4813	906	572	5345	293	103708

Source :- Health Division

**Table D-09: Electricity Balances (Public Utilities only)**

(GWh)

Sector	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
<b>Total Generation</b>	75682	80827	85629	93629	98213	95661	91616
<b>Auxiliary Consumption</b>	3007	3041	3303	3463	3623	3688	2067
<b>Net purchases from PASMIC</b>	23	4	70	203	137	30	10
<b>Imported</b>	-	73	109	146	171	199	227
<b>Net Supply</b>	72698	77862	82365	90109	94623	92142	89767
<b>Consumption</b>	52655	57491	61328	67603	72712	73400	70371
<b>T &amp; D Losses</b>	20043	20371	21037	22506	21912	18742	19396
<b>(as % of Net Supply)</b>	27.6%	26.2%	25.5%	25.0%	23.2%	20.3%	21.6%

Source:- Pakistan Energy Year Book-2009 published by Hydrocarbon Development Institute of Pakistan

## Inventories, Stock and Background Conditions

**Table D-10: Natural Gas Reserves as on June 30th, 2009**

(Trillion Cubic Feet)

	Non Associated Gas Fields	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.	Zamzama	BHP	2.32400	0.76532	1.55868	837
3.	Rodho	Dewan Petr	0.26100	0.02162	0.23938	1000
4.	Badhra	Enl Pak	0.11400	0.00900	0.10500	955
5.	Bhit	"	1.60500	0.73500	0.87000	840
6.	Kadanwri	"	0.49000	0.36600	0.12400	912
7.	Mari	MGCL	6.98800	3.62290	3.36510	733
8.	Mari Deep	"	1.21000		1.21000	560
9.	Zarghun South	"	0.09260		0.09260	890
10.	Makori	MOL	0.70000	0.02677	0.67323	1091
11.	Manzalai	"	1.88400	0.06340	1.82060	1027
12.	Bagla	OGDC	0.00837		0.00837	950
13.	Bhal Syedaan	"	0.00328	0.00322	0.00006	1156
14.	Bhulan Shah	"	0.00520	0.00089	0.00431	1080
15.	Bahu	"	0.09886		0.09886	533
16.	Bobi	"	0.07056	0.02207	0.04850	1303
17.	Chak-2	"	0.01900	0.0071	0.01829	1125
18.	Chak-7A	"	0.00319		0.00319	1176
19.	Chak-63	"	0.00980	0.00011	0.00969	1211
20.	Chak-63 SE	"	0.00136		0.00136	1261
21.	Chak-66	"	0.00150		0.00150	1223
22.	Chak-66 NE	"	0.02251	0.00038	0.02213	1280
23.	Chak-5 Dim South	"	0.00894	0.00452	0.00442	1085
24.	Chandio	"	0.02550		0.02550	1176
25.	Dakhni	"	0.35172	0.16367	0.18805	1060
26.	Dars & Dars Deep	"	0.14202		0.14202	1078/1095
27.	Dachrapur	"	0.00650		0.00650	928
28.	Daru	"	0.02680	0.01908	0.00772	1168
29.	Dhamraki	"	0.00600	0.00555	0.00045	1014
30.	Dhodak	"	0.40202	0.20376	0.19826	1019
31.	Hakeem Daho	"	0.06580		0.06580	1095
32.	Hundi	"	0.02793	0.02658	0.00134	860
33.	Jandran	"	0.01423		0.01423	1000
34.	Jhal Magsi South	"	0.06712		0.06712	934
35.	Kunar Deep	"	0.57768		0.57768	1029
36.	Lala Jamali	"	0.01060		0.01060	1126
37.	Lashari South	"	0.00130	0.00017	0.00113	1120
38.	Loti	"	0.31635	0.28130	0.03505	842
39.	Mela	"	0.08068	0.01038	0.07030	1168
40.	Mithrao	"	0.01873	0.00469	0.01403	1189
41.	Nim	"	0.0089		0.00089	1233
42.	Nim West	"	0.00197		0.00197	953
43.	Nandpur	"	0.10709	0.10158	0.00551	227
44.	NoraiJagir	"	0.01429	0.00738	0.00691	1202
45.	Nur	"	0.01341		0.01341	1013
46.	Panjpir	"	0.09622	0.05461	0.04160	227

Contd..

## Inventories, Stock and Background Conditions

**Table D-10: Natural Gas Reserves as on June 30th, 2009**

(Trillion Cubic Feet)

	Non Associated Gas Fields	Operator Company	Original Recoverable Reserves	Cumulative Production	Balance Recoverable Reserves	Heating Value Btu/cu. Ft
47.	Pasakhi Deep	"	0.26675		0.26675	895
48.	Pirkoh	"	1.62144	1.00772	0.61373	870
49.	Qadirpur	"	5.05685	1.97461	3.08224	890
50.	Resham	"	0.00450	0.00034	0.00416	1215
51.	Sadkal	"	0.07288	0.07050	0.00238	1162
52.	Sari	"	0.01834	0.01814	0.00001	860
53.	Tando Allah Yar	"	0.02461	0.00002	0.02459	888
54.	Tando Allah Yar North	"	0.00073		0.00073	888
55.	Uch	"	5.09890	0.74576	4.35314	425
56.	Unar	"	0.03435		0.03435	1243
57.	Miano	OMV	0.54200	0.37700	0.16500	920
58.	Sawan	"	1.50000	0.85600	0.64400	913
59.	Ratana	OPII	0.03437	0.03330	0.00106	1073
60.	Badar	PEL	0.03360	0.01837	0.01523	572
61.	Kandara	"	1.85800		1.85800	141
62.	Khanpur	"	0.02360	0.00463	0.01897	851
63.	Hamza	"	0.02260		0.02260	632
64.	Hasan	"	0.11644	0.03945	0.07699	639
65.	Sadiq	"	0.01187	0.00237	0.00950	654
66.	Adhi	PPL	0.50900	0.15400	0.35500	1250
67.	Adam	"	0.03700		0.03700	1162
68.	Chachar	"	0.03000	0.00800	0.02200	785
69.	Kandhkot	"	1.68000	0.77300	0.90700	835
70.	Mazarani	"	0.18300	0.02500	0.15800	1010
71.	Sui & Sui Deep	"	12.62500	9.57600	3.04900	975
72.	Rrehmat	Petronas	0.11370	0.03888	0.07482	1040
73.	Mehar	"	0.43400		0.43400	935
74.	Sara	Tullow	0.03000	0.02697	0.00303	802
75.	Suri	"	0.03200	0.02856	0.00345	807
76.	Yasin	Hycarbex	0.21700		0.21700	n.a
77.	Ali	BP	0.01335	0.00639	0.00696	1058
78.	Ahmad	"	0.00048	0.00048		944
79.	Bilal North	"	0.03100	0.01883	0.01217	986
80.	Bhatti & Nakurji	"	0.09890	0.08714	0.01176	1066
81.	Bukhari & Bukhari Deep	"	0.10774	0.10528	0.00246	1216
82.	Buzdar & Buzdar South	"	0.21684	0.15826	0.05858	943
83.	Buzdar South Deep	"	0.00756	0.00583	0.00174	975
84.	Feteah Shah & F.S. North	"	0.02410	0.00492	0.01918	1051
85.	Golarchi	"	0.08136	0.07500	0.00635	1021
86.	Jabo	"	0.01579	0.01190	0.00389	902
87.	Jalal	"	0.03127	0.02868	0.00259	1049
88.	Jhaberi	"	0.00896	0.00896		734
89.	Jogwani(Duphri-4)	"	0.03819	0.03248	0.00570	937
90.	Junathi South	"	0.00462	0.00462		1020
91.	Kamal North	"	0.00715	0.00166	0.00549	1092
92.	Kausar	"	0.10820	0.07818	0.03003	950
93.	Kato	"	0.00777	0.00647	0.00130	1225

Contd..

**Table D-10: Natural Gas Reserves as on June 30th, 2009**

	Non Associated Gas Fields	Operator Company	Original Recoverable Reserves	Cumulative Production	Balance Recoverable Reserves	Heating Value Btu/cu. Ft
94.	Khorewah	"	0.15788	0.14777	0.01011	1068
95.	Khorewah Deep	BP	0.01386	0.00841	0.00546	1049
96.	Koli	"	0.01777	0.01629	0.00148	1023
97.	Liari Deep	"	0.01426	0.00605	0.00821	1101
98.	Mahi	"	0.00488	0.00488		1028
99.	Missri	"	0.01138	0.00426	0.00712	753
100.	Mukhdumpur	"	0.05737	0.04930	0.00806	1104
101.	Mukhdumpur Deep	"	0.02464	0.01841	0.00623	865
102.	Matli	"	0.05257	0.04935	0.00321	1012
103.	Naimat Basal	"	0.03629	0.02545	0.01084	997
104.	Pir	"	0.00798	0.00790	0.00007	1045
105.	Raj	"	0.00558	0.00381	0.00177	966
106.	Rind	"	0.00251	0.00251		899
107.	Rahim	"	0.00026	0.00026		1409
108.	Sakhi deep	"	0.04080	0.02447	0.01633	1021
109.	Sakhi south deep	"	0.02062	0.01444	0.00618	1032
110.	Shah Dino	"	0.00072	0.00048	0.00024	820
111.	Sonro	"	0.02216	0.01853	0.00363	900
112.	Tando Ghulam Ali	"	0.00604	0.00526	0.00079	917
113.	Turk	"	0.17006	0.15862	0.01145	1118
114.	Turk Deep	"	0.11372	0.08647	0.02724	936
115.	Umar	"	0.00754	0.00537	0.00217	1124
116.	Zaur	"	0.03139	0.02698	0.00441	1221
117.	Zaur Deep	"	0.01428	0.01367	0.00062	1109
118.	Zaur West	"	0.00052	0.00051	0.00001	1127
119.	Zaur South	"	0.00104	0.00089	0.00015	1279
	<b>Associated Gases</b>	-	1.34986	1.01020	0.333966	
	<b>TOTAL: TCF</b>	-	<b>53.54775</b>	<b>24.64503</b>	<b>28.90271</b>	
	<b>Normalized TCF at 900 but/cu.ft.</b>	-	<b>49.29239</b>	<b>24.79875</b>	<b>24.49365</b>	
	<b>Million:TOE</b>	-	<b>1058.91</b>	<b>532.73</b>	<b>526.18</b>	

Source:- Pakistan Energy Year Book-2009 published by Hydrocarbon Development Institute of Pakistan



**Table D-11: Associated Gas Reserves as on 30th June, 2009**

(Trillion cubic feet)

Oil Field	Operator	Original Recoverable Reserves	Cumulative Production	Balance Recoverable Reserves	Heating Value Btu/cu.ft
01 Buzdar North	OGDCL	0.00015	0.00001	0.00014	1319
02 Chak Naurang	"	0.00050		0.00050	n.a.
03 Chanda	"	0.04892	0.01786	0.03106	1150
04 Fimkassar	"	0.01607	0.01239	0.00368	1250
05 Jakhro	"	0.00731		0.00731	845
06 Kal	"	0.00250	0.00204	0.00046	1326
07 Kunar	"	0.06758	0.01664	0.05094	1202
08 Lashari Centre	"	0.00403	0.00250	0.00153	1331
09 Missakaswal	"	0.02942	0.02094	0.00848	1220
10 Missan	"	0.00005	0.00003	0.00002	1078
11 Pali	"	0.00019	0.00002	0.00017	953
12 Pasaki	"	0.00916	0.00666	0.00250	1334
13 Rajian	"	0.00180	0.00166	0.00014	1335
14 Sono	"	0.00521	0.00290	0.00232	1553
15 Tando Alam	"	0.00765	0.00337	0.00428	1346
16 Thora	"	0.00663	0.00256	0.00407	1328
17 Toot	"	0.03759	0.03387	0.00372	1127
18 Bhangali	OPII	0.00933	0.00919	0.00014	1420
19 Dhurnal	"	0.12979	0.12958	0.00021	1268
20 Dhulian	POL	0.21718	0.21201	0.00517	1286
21 Meyal	"	0.29700	0.27420	0.02280	1254
22 Pariwali	"	0.10080	0.06068	0.04012	1180
23 Pindori	"	0.17220	0.06748	0.10472	1182
24 Turkwal	"	0.00404	0.00352	0.00052	1363
25 Ali Zaur	BP	0.00273	0.00185	0.00088	1513
26 Bachal	"	0.00199	0.00199		1052
27 Dabhi,Dhabi North & Sorth	"	0.04849	0.04708	0.00141	1017
28 Duphri	"	0.01262	0.00295	0.00968	945
29 Ghunghro	"	0.00099	0.00099		n.a.
30 Halipota	"	0.00690	0.00281	0.00409	1115
31 Jagir	"	0.00253	0.00188	0.00065	1253
32 Jhaberi South	"	0.01094	0.00367	0.00727	913
33 Liari	"	0.00277	0.00275	0.00002	1171
34 Mazari*	"	0.02264	0.02135	0.00129	1454
35 M.Ismail Deep	"	0.03570	0.02259	0.01312	1061
36 Nari	"	0.01032	0.00803	0.00229	996
37 Sakhi	"	0.01060	0.00696	0.00365	1450
38 Tangri	"	0.00555	0.00521	0.00033	1209
<b>TOTAL: TCF</b>	-	<b>1.34986</b>	<b>1.01020</b>	<b>0.33966</b>	
<b>Normalized TCF at 900 btu/cu.ft.</b>	-	<b>1.82799</b>	<b>1.38489</b>	<b>0.44310</b>	
<b>Million TOE</b>	-	<b>39.27</b>	<b>29.75</b>	<b>9.52</b>	

Source:- Pakistan Energy Year Book-2009 published by Hydrocarbon Development Institute of Pakistan

(\*) Includes Mazari South and Mazari South Deep

Table D-12: Pakistan Coal Resources as on 30th June, 2009

Province Coal Field	Seam Thickness Range (Metres)	Resources (Million Tonnes)						Status
		Total	Measured Reserved	Mine able Reserves	Indicated	Inferred	Hypothetical	
1	2	3	4	5	6	7	8	9
<b>Balochistan</b>								
Barkhan-Chamalang	0.3-2.0	6	1		-	5	-	Dev.
Duki	0.2-2.3	50	14		11	25	-	Dev.
Mach-Abegum	0.6-1.3	23	9		-	14	-	Dev.
Sor Range-Degari	0.3-1.3	50	15		-	19	16	Dev.
Pir Ismail Ziarat	0.4-0.7	12	2		2	8	-	Dev.
Khost-Sharig-Harnai	0.3-2.3	76	13		-	63	-	Dev.
<b>Sub-Total:</b>		217	54		13	134	16	
<b>Khyber Pakhtunkhwa</b>								
Hangu/Orakzai	0.43-0.6	82	1.0		4.5	76	-	Dev.
Cherat/Gulla Khel	0.8-1.2	9	0.5		-	8	-	Dev.
<b>Sub-Total:</b>		90	1.5		4.5	84	-	-
<b>Punjab</b>								
Makarwal	0.3-2.0	22	5		8	9	-	Dev.
Salt Range	0.15-1.2	213	50		16	2	145	Dev.
<b>Sub-Total:</b>		235	55		24	11	145	-
<b>Sindh</b>								
Lakhra	0.3-3.3	1328	244		629	455	-	Dev.
Sonda-Thatta	0.3-1.5	3700	60		511	2197	932	Non-Dev.
Jherruck	0.3-6.2	1823	106		810	907	-	Non-Dev.
Ongar	0.3-1.5	312	18		77	217	-	Non-Dev.
Indus East	0.3-2.5	1777	51		170	1556	-	Non-Dev.
Meting-Jhimpir	0.3-1.0	161	10		43	108	-	Dev.
Badin	0.55-3.1	850	150		0	200	500	Non-Dev.
Thar Coal*	0.2-22.81	175506	2700		9395	50706	112705	Non-Dev.
<b>Sub-Total:</b>		185457	3339		11635	56346	114137	-
<b>Azad Kashmir</b>								
Kotli	0.25-1.0	9	1		1	7	-	Dev.
<b>Sub-Total:</b>		9	1		1	7	-	-
<b>Total:</b>		186007	3450		11677	56582	114298	-

\* 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-12: Pakistan Coal Resources as on 30th June, 2009**

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
<b>Balochistan</b>							
<b>Barkhan-Chamalar</b>	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
<b>Duki</b>	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
<b>Mach-Abegum</b>	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
<b>Sor Range-Degari</b>	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
<b>Pir Ismail Ziarat</b>	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
<b>Khost-Sharig-Hamal</b>	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
<b>Khyber Pakhtunkhwa</b>							
<b>Hangu/Orakzai</b>	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
<b>Cherat/Gulla Khel</b>	0.1-7.1	14.0-31.2	37.0-76.9	6.1-39.0	1.1-3.5	SubC to hvAb	9386-14171
<b>Punjab</b>							
<b>Makarwal</b>	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
<b>Salt Range</b>	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
<b>Sindh</b>							
<b>Lakhra</b>	9.7-38.1	18.3-38.6	9.8-38.2	4.3-49.0	1.2-14.8	LigB to SubC	5503-9158
<b>Sonda-Thatta</b>	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
<b>Jherruck</b>	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
<b>Ongar</b>	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
<b>Indus East</b>	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
<b>Meting-Jhimpir</b>	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
<b>Badin</b>							11415-11521
<b>Thar Coal*</b>	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
<b>Azad Kashmir</b>							
<b>Kotli</b>	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-2009, Published by Hydrocarbon Development Institute of Pakistan

LigA: Lignite A coal

LigB: Lignite B coal

LigC: Lignite C coal

mmmf: Moist mineral matter free

**Table D-13: Bunkering of Petroleum Products**

(Unit:Qty. in Tonnes)

(QTY. IN TOE)

(Value in Million US \$)

Products	Year						
	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
JP-1	275,588	138,451	162731	206724	171032	164390	153600
	284,297	142,826	167873	213256	176437	169585	158454
	(84.19)	(45.38)	(79.23)	(144.77)	(123.58)	(164.12)	(122.95)
Motor Spirit	5,345	368	594	-	-	-	-
	5,711	393	635	-	-	-	-
	(2.11)	(0.16)	(0.34)	-	-	-	-
Kerosene	1,384	-	-	-	-	12	-
	1,428	-	-	-	-	12	-
	(0.41)	-	-	-	-	(0.01)	-
HSD	31,654	2,573	22418	15904	4929	283	24876
	33,278	2,705	23568	16720	5182	298	26152
	(9.44)	(1.04)	(11.29)	(12.50)	(3.09)	(0.29)	(13.30)
LDO	244	273	666	8125	12954	12209	12723
	254	284	694	8465	13495	12719	13255
	(0.09)	(0.09)	(0.21)	(4.36)	(7.04)	(7.07)	(7.14)
Furnace Oil	10,429	11,871	39527	56089	85131	120313	131677
	10,155	11,559	38487	54614	82892	117149	128214
	(2.53)	(2.15)	(9.20)	(19.80)	(27.81)	(59.48)	(55.19)
Total	324,644	153,536	225936	286842	274046	297207	322876
	335,122	157,767	231257	293055	278006	299763	326075
	(98.77)	(48.82)	(100.27)	(181.43)	(161.52)	(230.97)	(198.58)

Source:- Pakistan Energy Year Book-2009 Published by Hydrocarbon Development Institute of Pakistan

Table D-14: Immunization Coverage

(000 Number)

Year	B.C.G	Polio				D.P.T			
		I	II	III	BR	I	II	III	BR
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	4,698	4,163	3,831	63
1999	5,582	7,585	4,559	4,131	57	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
2005	5203	7484	4387	4160	49	4581	4127	3919	-
2006	5364	8097	4870	4739	33	5275	4886	4756	-
2007	5790	8743	5179	5070	47	1711	1523	1479	-
2008	5884	8985	5034	4819	61	-	-	-	-
2009	6133	9535	5403	5277	36	-	-	-	-
Year	HBV			T.T					Measles
	I	II	III	I	II	III	IV	V	
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
2005	4,458	4,065	3,841	4,539	2,858	793	519	157	4,387
2006	5,053	4,692	4,571	4,069	3,133	895	286	176	5,050
2007	1,618	1,441	1,401	3,878	3,048	810	239	141	5,386
2008	-	-	-	4,307	3,385	866	279	152	5,278
2009	-	-	-	4,920	3,792	938	285	169	5,297

Source:- Health Division

Note:- Since 2002 data for HBV started instead of DT

B.C.G= Bacillus + Calamus + Guerin

D.P.T= Diphtheria, Pertussis and Tetanus

T.T= Tetanus + Toxoid

H.B.V= Hepatitis B Vaccine

**Table D-15: Performance of Contraceptive Delivery Services through Population Welfare Programme, Pakistan**

Year	IUD (No. of cases)	Sterilization (No. of cases male/female)	Oral Pills (No. of cycles)	Condom (In gross)	Injectable (vials)	Foam (bottles)
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	1056743	124412	4189899	852058	1873495	...
2002-03	1146786	130412	5562431	970112	2014536	...
2003-04	1043951	143328	6641867	995932	1972259	...
2004-05	872302	157228	8066826	702560	2143917	...
2005-06	975015	170968	8022341	958427	2536885	...
2006-07	1262249	187724	8820538	1133404	3086735	...
2007-08	1365465	205440	6681477	1151950	3096786	...
2008-09	1309420	187542	5335096	920282	2792802	...
2009-10	1303437	178374	5746475	1126928	3185391	...

**Note:-** Total figures of Pakistan do not tally due to inclusion of the performance of NGOs, TGIs, SMC

Contd...

**Table D-15: Performance of Contraceptive Delivery Services through Population Welfare Programme, Balochistan**

Year	IUD (No. of cases)	Sterilization (No. of cases male/female)	Oral Pills (No. of cycles)	Condom (In gross)	injectable (vials)	Foam (bottles)
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	-
2004-05	14640	2201	128722	13096	42216	-
2005-06	15759	2163	156161	15556	44728	-
2006-07	18805	2069	173168	17537	46758	-
2007-08	19769	1984	193104	19948	46334	-
2008-09	20254	2017	191533	19732	46824	-
2009-10	18689	1876	190636	17447	47594	-

Contd...

**Table D-15: Performance of Contraceptive Delivery Services through Population Welfare Programme, Khyber Pakhtunkhwa**

Year	IUD (No. of Cases)	Sterilization (No. of cases male/female)	Oral Pills (No. of cycles)	Condom (In gross)	injectable (vials)	Foam (bottles)
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	-
2004-05	76093	7021	342512	35394	282955	-
2005-06	87572	6439	436662	46659	341848	-
2006-07	118928	6509	587885	61555	396873	-
2007-08	140219	6482	639163	66995	454519	-
2008-09	151725	6298	626712	67378	435459	-
2009-10	152678	5257	716291	63611	457117	-

Contd...



**Table D-15: Performance of Contraceptive Delivery Services through Population Welfare Programme, Punjab**

Year	IUD (No. of cases)	Sterilization (No. of cases male/female)	Oral Pills (No. of cycles)	Condom (In gross)	injectable (vials)	Foam (bottles)
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	-
2004-05	462311	90711	699573	112807	492206	-
2005-06	489508	92236	701847	107497	534462	-
2006-07	587937	104470	1049896	165002	629555	-
2007-08	679185	107897	1449589	226019	705671	-
2008-09	659179	97777	1391853	222681	705266	-
2009-10	550804	80059	1405201	191841	712742	-

Contd...

**Table D-15: Performance of Contraceptive Delivery Services through Population Welfare Programme, Sindh**

Year	IUD (No. of cases)	Sterilization (No. of cases male/female)	Oral Pills (No. of cycles)	Condom (In gross)	injectable (vials)	Foam (bottles)
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	-
2004-05	112342	37762	432566	62494	243740	-
2005-06	129563	43013	499424	70611	302468	-
2006-07	175419	42912	602928	84844	413412	-
2007-08	193369	45462	651746	94148	480752	-
2008-09	181391	45300	616985	91322	481131	-
2009-10	141763	38492	758353	83779	491690	-

Source:- Population Welfare Division



## **Concepts and Definitions**

### **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.

### **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 (CO<sub>2</sub>)**

It is colour less, odorless and non-poisonous gas that results from fossil fuel combustion and is normally a part of ambient air. It is also produce 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 (O<sub>2</sub>) actually present in water expressed in terms either of its presence in the volume of water (milligrams of O<sub>2</sub> 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.

## **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.

## **ppm./ppb./ppt.**

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 (O<sub>3</sub>)**

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.



## Abbreviations

ACGR	Annual Compound Growth Rate
AGR	Annual Growth Rate
AF	Acre feet
Amsl	Above mean sea level
ARL	Attock Refinery Limited
Avg.	Average
Alk	Alkalinity
As	Arsenic
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
Bm <sub>3</sub>	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
CaCo <sub>3</sub>	Calcium Carbonate
CH <sub>4</sub>	Methane
CO	Carbon Monoxide
CO <sub>2</sub>	Carbon Dioxide
CO <sub>3</sub>	Carbonate
COD	Chemical Oxygen Demand
Cft	Cubic feet
Cl	Chlorine
cm <sub>3</sub>	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
EC	Electrical Conductivity
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
ERRA	Earthquake Reconstruction & Rehabilitation Authority
FATA	Federally Administered Tribal Areas
Fe	Iron
F	Fluoride
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 <sub>3</sub>	Bicarbonate
HDIP	Hydrocarbon Development Institute of Pakistan
H.Hold	Household
HOBC	High Octane Blending Compound
hr	Hour
HSD	High Speed Diesel
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
K	Postassium
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 <sub>2</sub>	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	Nitrogeaneous 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
NH <sub>3</sub>	Ammonia
Ni	Nickel
nm/cm	Nanometer per centimeter
N-Meth	N-Methyl
NO <sub>2</sub>	Nitrite
NO <sub>3</sub>	Nitrate
NO <sub>x</sub>	Nitrogen Oxides
NRL	National Refinery Limited
NTU	Nephelometric turbidity unit
KP	Khyber Pakhtoonkhwa
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
PPFPS	Pakistan Fertility and Family Planning Survey
PCRWR	Pakistan Council of Research in Water Resources
pH	Power of Hydrogenion
PSLM	Pakistan Social & Living Standards Measurement Survey
PM10	Particles at matter having size 10-micron(Respirable dust)
PMDC	Pakistan Mineral Development Corporation
Po <sub>4</sub>	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	Setteable Solids
SGW	Saline Ground Water
SNGPL	Sui Northern Gas Pipelines Limited
SO <sub>2</sub>	Sulphur Dioxide
SO <sub>3</sub>	Sulphide
SO <sub>4</sub>	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/M <sub>2</sub>	Watt per square meter
W.SPD.m/s	Wind Speed Miles Per Second
Zn	Zinc
µg	Micro Gram
µg/m <sup>3</sup>	Microgram per cubic meter
µm	Micro Mhose
µs	Micro Sem

## References

- 1 Government of Pakistan, Statistical Year Book of Pakistan, Federal Bureau of Statistics, Islamabad.
- 2 Government of Pakistan, Statistical Pocket Book of Pakistan, Federal Bureau of Statistics, Islamabad.
- 3 Government of Pakistan, Pakistan Demographic Survey, Federal Bureau of Statistics, Islamabad.
- 4 Government of Pakistan, Labour Force Survey, Federal Bureau of Statistics, Islamabad.
- 5 Government of Pakistan, Pakistan Social & Living Standard Measurement Survey, 2008-09, Federal Bureau of Statistics, Islamabad.
- 6 Government of Pakistan, Agricultural Statistics of Pakistan, 2009-10 Ministry of Food, Agriculture & Livestock Economic Wing, Islamabad.
- 7 Government of Pakistan, Population Census 1998, Population Census Organization, Islamabad.
- 8 Government of Pakistan, Data Collection for Preparation for National Study on Privatization of Solid Waste Management in Eight Selected Cities of Pakistan, Environment and Urban Affairs Division,
- 9 Government of Pakistan, Pakistan Forest Institute, Peshawar.
- 10 Government of Pakistan, Karachi Port Trust & Port Qasim Authority, Karachi.
- 11 Government of Pakistan, Civil Aviation Authority, Karachi.
- 12 Government of Pakistan, WAPDA, Lahore.
- 13 Government of Pakistan, National Institute of Oceanography, Karachi.
- 14 Government of Pakistan, Annual Review, 2005-06 Earthquake Reconstruction and Rehabilitation Authority, Islamabad.
- 15 Government of Pakistan, Pakistan Meteorological Department, Karachi.
- 16 Government of Pakistan, Fifth Water Quality Monitoring Report, 2005-06 Pakistan Council of Research in Water Resources (PCRWR), M/O Science & Technology, Islamabad.
- 17 Faisalabad Development Authority, Faisalabad.
- 18 Provincial Bureaus of Statistics, Lahore, Karachi, Peshawar & Quetta.
- 19 Government of Pakistan, Health Division, Ministry of Health, Islamabad.
20. Government of Pakistan, Economic survey of Pakistan, Finance Division, Economic Advisor's Wing, Islamabad.
21. Government of Pakistan, Pakistan Energy Yearbook, 2009, Hydrocarbon Development Institute of Pakistan, Islamabad.
22. Government of Pakistan, Marine Fisheries Department Karachi, Pakistan.
23. Government of Punjab, Survey Report on Hazardous Chemical Industries and Safety Measures in Pakistan, PCSIR Laboratories, Lahore, Pakistan.
24. Government of Punjab, Annual Report, 2009, Directorate of Land Reclamation Irrigation and Power Department, Lahore, Pakistan.
25. Pakistan Population Review, National Institute of Population Studies, Islamabad.
26. The Pakistan National Conservation Strategy ( PNCS,1994 ).

### The list of excluded tables

The following tables included in the predecessor for 2004 of this publication could not be up-dated due either to being single time or cyclical activity or the source agencies did not have the pertinent data, have been excluded.

S.No.	Table No.	Title	Source
1	A-03	Population by Sex, Urban and Rural Areas, 1998, Census	Population Census Organization's reports table-4
2	A-04	District - Wise Population by Sex and Rural/Urban Areas 1998 Census	Population Census Organization
3	A-05	Population of Twelve Major Cities 1931-1998	Population Census Organization
4	A-06	Population by Age, Sex, Urban and Rural Areas, 1998 Census Pakistan	Population Census Organization
5	A-09	Disabled Population by Sex, Nature of disability, Urban-Rural Areas and Provinces, 1998 Census	Population Census Organization
6	A-14	Households by Region/Province and Urban/Rural Areas, 1998 Census	Population Census Organisation-1998 Census
7	A-15	Housing Units by Provinces and Urban/Rural Areas, Housing Censuses, 1960 to 1998	Population Census Organisation-1998 Census
8	A-16	Housing Units by Tenure and Household Size Housing Census, 1998	Population Census Organisation-1998 Census
9	A-17	Owned Housing Units by Period of Construction Population Census 1998	Population Census Organisation-1998 Census
10	A-18	Housing Units by Household Size, Number of Rooms Census-1998	Population Census Organisation-1998 Census
11	A-19	Housing Units by Material Used in Outer-walls Population Census-1998	Population Census Organisation-1998 Census
12	A-20	Housing Units by Material Used in Roofs Housing Census 1998	Population Census Organisation-1998 Census
13	A-21	Housing Units by Lighting Facilities in Urban-Rural Areas, Population Census Report, 1980 & 1998	a. Government of Pakistan, Housing, Census Report, 1980 Population Census organization, lbd. b. Census Report of Pakistan-1998, Population Census Organization, lbd.
14	A-22	Housing Units by Source of Lighting Used Population Census, 1998	Population Census Organisation-1998 Census
15	A-23	Housing Units by Type of Cooking Fuel Used in Urban/Rural Areas, Housing Census 1980 and Population Census-1998	a. Govt. of Pakistan, Housing Census report of Pakistan 1980, Population Census Organization, lbd. b. Population Census-1998, Pakistan Census Organization
16	A-24	Housing Units by Source of Cooking Fuel Used Population Census-1998	Population Census Organization
17	A-25	Housing Units by Facilities like Kitchen, Bathroom and Latrine in Urban/Rural Areas Population Census-1998	Population Census Organization
18	A-26	Housing Units by Water Facilities in Urban/Rural Areas, Housing Census, 1980 and Population Census, 1998	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

S.No.	Table No.	Title	Source
			Organization
19	A-28	Housing Units by Source of Drinking Water-Inside and Outside, Population Census-1998	Population Census Organization
20	A-38	Number and Area of Farms by Size of Farm – 2000	Agricultural Statistics of Pakistan
21	A-52	Increase in Forest Area between 1993 and 2018	Forestry Sector Master Plan (FSMP) National Perspective-Vol.1
22	A-88	Laboratory Test Results of Wastewater Quality in Lahore	Environment Protection Agency Laboratories, Govt. of Punjab, Lahore
23	A-89	Laboratory Test Results of Wastewater Quality in Rawalpindi/Islamabad	Environment Protection Agency Laboratories, Govt. of Punjab, Lahore
24	A-96	Concentration of Dust Fall in Big Cities of Punjab	Environment Protection Agency, Laboratories, Punjab
25	B-17	Rivers, Dams, Reservoirs, Lakes and Drains Water Quality Data 2004 (Physical and Aesthetic)	Pakistan Council of Research in Water Resources (PCRER)
26	B-18	Quality of 20 Sub Soil Water Samples of District <b>Bahawalpur, D.G. Khan, Faisalabad, Gujranwala, Gujrat, Jhang, Kasur, Lahore, Multan, Rawalpindi, Sahiwal, Sargodha, Sheikupur &amp; Sialkot</b> for the Period of 22-05-02 to 31-05-02	Environmental Protection Agency, Labortoreies, Govt. of Punjab
27	B-23	Damages/Losses Caused by Major Earthquakes	Cabinet Division
27	B-24	Losses/Damages Due to Drought Occurred in May, 2000	Cabinet Division
29	C-06	Monthly Average Normal Temperature at Selected Centres, 1961-90	Pakistan Meteorological Department
30	C-07	Normals of Maximum and Minimum Temperatures, 1961–90 Islamabad (Chaklala)	Pakistan Meteorological Department
31	C-08	Monthly Normals of Rainfall at Selected Centres, 1961–90	Pakistan Meteorological Department
32	C-09	Normals of Pressure, Temperature, Humidity and Vapour Pressure Islamabad (Chaklala), 1961 –90	Pakistan Meteorological Department
33	C-10	Mean Monthly Wind Velocities at Selected Centres, 1961-90	Pakistan Meteorological Department.
34	C-11	Normals of Wind Speed and Direction, 1961–90 Islamabad (Chaklala) Karachi (Airport), Lahore, Peshawar & Quetta (Samungli)	Pakistan Meteorological Department
35	C-12	Normals of cloud and precipitation, 1961-90 Islamabad (Chaklala), Karachi (Airport), Lahore, Peshawar & Quetta (Samungli)	Pakistan Meteorological Department
36	C-16	Thur and Sem Statement (Division & District wise) of the Punjab For the Year 2001-02	Directorate of Land Reclamation Punjab Irrigation & Power Department, Lahore
37	C-17	District Wise Detail of Industrial and Municipalities Discharge of the Punjab	Directorate Land Reclamation Punjab Irrigation and Power Department
38	C-33	List of Published Families as a Flora of Pakistan National Herbarium Programme	Pakistan Agriculture Research Council (PARC)

S.No.	Table No.	Title	Source
39	D-I	Literacy Rates (10 Years & above) by Province, Sex and Area	Population Census Organization.
40	D-I	Population Aged (5-9 Years) and Primary School Enrollment	1. Population: i) Population Census Organization ii) Planning & Development Division  2. Enrolment: Academy of Educational Planning & Management, Islamabad
41	D-VII	Percentage of Children Aged 12-23 Months that have been Immunized	Pakistan Social & Living Standards Measurement Survey, 2006-07 to 2008-09, Federal Bureau of Statistics.
42	D-01	Student Population (05 years and above) by Field of Educational Attainment, Sex Urban and Rural Areas, 1998-Census	Population Census Organization
43	D-03	Literate-Population 10 Years and older-by Region and Province, Censuses 1981 & 1998	Population Census Organization
44	D-04	Literacy Ratios of Population (10 years and above) by Age, Sex, Province, Urban and Rural Areas	Population Census Organization
45	D-19	Selected Wild Life of Pakistan	Provincial Departments of Wildlife.



Table 1: Rural population and land use

Country Name	Rural Population			Land area	Land use							
	% of Total		Average annual % growth	Thousand sq.km	Forest area		% of Land area Permanent Cropland		Arable Land		Arable land hectares per 100 people	
	1990	2006	1999-06	2006	1990	2005	1990	2005	1990	2005	1990-92	2003-05
Afghanistan	..	..	..	652.1	2.0	1.3	0.2	0.2	12.1	12.1	..	..
Argentina	13.0	9.7	-0.7	2736.7	12.9	12.1	0.4	0.4	9.6	10.4	75.2	74.0
Australia	14.6	11.6	-0.2	7682.3	21.9	21.3	0.0	0.0	6.2	6.4	248.9	240.6
Bangladesh	80.2	74.5	1.5	130.2	6.8	6.7	2.3	3.5	70.2	61.1	5.7	5.3
Brazil	25.2	15.3	-1.6	8459.4	61.5	56.5	0.8	0.9	6.0	7.0	33.1	32.0
Canada	23.4	19.8	0.0	9093.5	34.1	34.1	0.7	0.7	5.0	5.0	147.4	142.8
Egypt	56.5	57.0	1.9	995.5	0.0	0.1	0.4	0.5	2.3	3.0	4.2	4.1
France	25.9	23.1	-0.2	550.1	26.4	28.3	2.2	2.1	32.7	33.6	31.1	30.5
Germany	26.6	24.7	-0.2	348.8	30.8	31.8	1.3	0.6	34.3	34.1	14.3	14.4
India	74.5	71.0	1.4	2973.2	21.5	22.8	2.2	3.4	54.8	53.7	15.5	14.8
Indonesia	69.4	50.8	-0.6	1811.6	64.3	48.8	6.5	7.5	11.2	12.7	10.3	10.6
Iran	43.7	32.6	-0.3	1628.6	6.8	6.8	0.8	1.0	9.3	10.2	24.0	24.0
Iraq	30.3	..	..	437.4	1.8	1.9	0.7	0.6	12.1	13.1	22.0	..
Italy	33.3	32.2	0.0	294.1	28.5	33.9	10.1	8.6	30.6	26.3	14.7	13.6
Japan	36.9	34.0	-0.3	364.5	68.4	68.2	1.3	0.9	13.1	12.0	3.5	3.4
Korea Rpe.of	26.2	19.0	-1.3	98.7	64.5	63.5	1.6	2.0	19.8	16.4	3.6	3.4
Malaysia	50.2	31.8	-0.6	328.6	68.1	63.6	16.0	17.6	5.2	5.5	7.6	7.1
Mexico	27.5	23.7	0.5	1944.0	35.5	33.0	1.0	1.3	12.5	12.9	25.4	24.6
Netherlands	31.3	19.3	-2.5	33.9	10.2	10.8	0.9	1.0	25.9	26.8	5.7	5.6
PAKISTAN	69.4	64.7	2.0	770.9	3.3	2.5	0.6	1.0	26.6	27.6	15.2	14.1
Philippines	51.2	36.6	0.0	298.2	35.5	24.0	14.8	16.8	18.4	19.1	7.3	6.9
Saudi Arabia	23.4	18.8	0.9	2000.0	1.4	1.4	0.0	0.1	1.7	1.8	17.0	15.7
South Africa	48.0	40.2	0.8	1214.5	7.6	7.6	0.7	0.8	11.1	12.1	33.0	31.8
Spain	24.6	23.2	0.4	499.2	27.0	35.9	9.7	9.9	30.7	27.4	32.2	32.0
Sri Lanka	82.8	84.9	1.1	64.6	36.4	29.9	15.9	15.5	13.5	14.2	4.7	4.7
Sweden	16.9	15.7	-0.1	410.3	66.7	67.1	0.0	0.0	6.9	6.6	30.3	29.8
Thailand	70.6	67.4	0.7	510.9	31.2	28.4	6.1	7.0	34.2	27.8	25.9	22.7
Turkey	40.8	32.2	0.2	769.6	12.6	13.2	3.9	3.6	32.0	31.0	34.8	33.2
United Kingdom	11.3	10.2	-0.3	241.9	10.8	11.8	0.3	0.2	27.4	23.7	9.7	9.6
Un.Rpe.of Tanzania	81.1	75.4	2.3	885.8	46.8	39.8	1.1	1.3	10.2	10.4	25.9	24.5
United States of America	24.7	18.9	-0.5	9161.9	32.6	33.1	0.2	0.3	20.3	19.0	61.6	59.6

Source: World Development Indicators, 2008 World Bank

Table 2: Agriculture inputs

Country Name	Agricultural land		Irrigated land		Land under cereal production		Fertilizer Consumption		Agriculture employment		Agriculture machinery	
	% of land area		% of cropland		Thousand hectares		Hundred grams per hectare of arable land		% of total employment		Tractors per 100 sq.km. of arable land	
	1990-92	2003-05	1990-92	2003-05	1990-92	2004-05	1990-92	2003-05	1990-92	2003-05	1990-92	2001-03
Afghanistan	58.3	58.3	33.9	33.8	2283	2702	59	..	..	..	1	1
Argentina	46.6	47.2	5.6	4.7	8510	9309	73	480	0.4	1.2	103	107
Australia	60.5	57.5	4.2	4.9	12814	19004	275	469	5.5	3.8	67	65
Bangladesh	73.5	69.2	33.8	54.3	10985	11312	1136	2094	66.4	51.7	6	7
Brazil	28.9	31.2	4.6	4.4	19633	19368	656	1539	25.6	20.9	142	137
Canada	7.5	7.4	1.4	1.5	20864	16772	476	581	4.2	2.7	162	160
Egypt	2.7	3.5	100.0	100.0	2410	2918	3977	6707	36.2	29.9	251	309
France	55.3	53.9	11.0	13.3	9212	9226	2918	2162		4.0	784	685
Germany	49.8	48.8	4.0	4.0	6673	6829	2616	2208	4.0	2.4	1253	801
India	60.9	60.6	28.3	32.7	100760	97347	758	1140	68.1		65	141
Indonesia	23.5	26.3	14.5	12.7	13861	15151	1330	1449	54.9	44.5	18	41
Iran	38.5	36.1	39.9	47.2	9612	9056	750	571	25.6	24.9	136	158
Iraq	21.9	22.9	63.0	58.6	3506	3509	347			17.0	72	80
Italy	55.4	50.7	22.9	25.8	4347	4025	2195	1817	8.4	4.6	1619	2031
Japan	15.5	12.9	54.3	35.8	2439	2015	3779	3924	6.8	4.5	4297	4588
Korea Rpe.of	21.9	19.2	47.1	47.1	1368	1072	4932	4379	16.7	8.3	275	1239
Malaysia	22.7	24.0	4.8	4.8	699	692	5264	8536	23.9	14.6	161	241
Mexico	53.8	55.3	22.0	22.8	10075	9941	686	733	24.7	15.9	128	129
Netherlands	58.9	56.8	61.0	60.0	185	215	6298	5839	4.3	2.9	2056	1645
PAKISTAN	33.7	35.2	78.5	84.2	11777	12714	962	1621	48.9	42.7	133	149
Philippines	37.4	40.9	15.7	14.5	6957	6632	935	1579	45.3	37.1	20	20
Saudi Arabia			44.2	42.7	1062	666	1446	1060			20	28
South Africa	80.2	82.0	8.3	9.5	5736	3875	549	521		10.3	101	46
Spain	60.8	58.3	16.9	20.6	7588	6485	1186	1472	10.7	5.5	494	712
Sri Lanka	36.2	36.5	28.0	34.4	834	879	2010	2873	44.3	33.9	71	113
Sweden	8.2	7.8	4.1	4.3	1184	1040	1112	1051	3.3	2.1	604	615
Thailand	41.9	36.3	21.0	26.6	10594	11252	598	1411	61.7	43.3	39	144
Turkey	51.8	53.3	14.8	19.7	13760	13929	757	836	46.5	32.5	287	410
United Kingdom	75.0	70.2	2.5	3.0	3549	2970	3323	3020	2.2	1.3	762	878
Un.Rpe.of Tanzania	38.4	38.8	1.4	1.8	3003	3519	53	70	84.2		7	8
United States of America	46.6	45.3	11.3	12.5	64547	56333	1015	1153	2.9	1.6	245	270

Source: World Development Indicators, 2008 World Bank

Table 3: Agriculture output and productivity

Country Name	Crop production Index		Food production Index		Livestock production Index		Cereal yield		Agricultural productivity	
	1999-2001=100		1999-2001=100		1999-2001=100		Kilograms per hectare		Agriculture value added per worker 2000\$	
	1990-92	2002-04	1990-92	2004-06	1990-92	2002-04	1990-92	2004-06	1990-92	2003-05
Afghanistan	...	...	...	...	...	...	1153	1571	...	...
Argentina	67.2	106.4	73.6	102.0	89.2	92.0	2652	3857	6767	10072
Australia	59.7	81.6	69.2	91.9	83.3	96.9	1739	1560	22523	34880
Bangladesh	75.4	104.7	73.8	104.6	73.8	103.2	2567	3648	254	338
Brazil	77.2	119.6	70.4	124.3	65.5	116.8	1916	3076	1506	3126
Canada	87.9	93.8	84.1	101.6	78.3	103.6	2559	3114	28243	43055
Egypt	69.2	104.2	67.5	110.9	65.4	115.3	5738	7536	1528	2072
France	94.0	98.8	97.4	101.6	97.3	100.4	6370	7099	22234	4417
Germany	83.7	95.1	98.0	102.9	107.5	101.0	5578	6855	13724	26549
India	79.5	100.0	75.9	104.7	69.4	110.5	1947	2428	324	392
Indonesia	82.8	112.7	83.8	117.4	85.8	127.3	3826	4354	484	583
Iran	73.8	118.1	72.2	115.4	68.8	103.3	1523	2462	1954	2542
Iraq	...	...	...	...	...	...	872	1014	...	1756
Italy	97.3	92.6	97.0	98.1	95.1	99.4	4340	5368	11542	23967
Japan	112.9	95.0	108.4	97.7	106.8	100.2	5713	5983	20445	35517
Korea Rpe.of	88.2	91.3	79.8	92.1	68.1	100.4	5885	6400	5679	11286
Malaysia	74.4	114.0	70.5	120.0	81.3	115.1	2827	3317	3803	5126
Mexico	82.8	103.8	77.7	107.8	71.4	107.8	2520	3083	2256	2792
Netherlands	93.7	97.9	105.5	95.1	105.3	92.6	7145	8287	24914	42198
PAKISTAN	80.6	102.5	70.6	110.6	67.6	109.1	1818	2533	594	696
Philippines	84.2	109.6	77.9	115.5	62.1	120.7	2070	3074	905	1075
Saudi Arabia	120.7	114.8	105.2	118.6	67.8	104.9	4212	4545	7875	15780
South Africa	79.6	102.4	84.2	105.9	94.6	108.2	1602	3076	1786	2484
Spain	87.9	106.1	87.1	105.9	79.5	107.2	2310	3008	9511	19030
Sri Lanka	86.2	98.8	88.9	95.6	94.6	109.9	2950	3550	679	700
Sweden	102.2	102.1	97.9	99.4	95.7	97.7	4272	4711	21463	33023
Thailand	82.0	106.1	84.1	104.7	86.8	105.5	2186	2976	497	621
Turkey	88.0	104.0	89.5	103.9	92.2	101.6	2192	2514	1890	1891
United Kingdom	104.9	100.3	107.2	98.0	105.6	98.5	6321	7169	22659	26933
Un.Rpe.of Tanzania	92.7	103.6	88.7	105.6	82.9	109.4	1276	1477	238	295
United States of America	88.4	101.5	84.8	107.5	83.4	102.6	4875	6538	20793	41797

Source: World Development Indicators, 2008 World Bank

International Comparison

Table 4: Deforestation and biodiversity

Country Name	Forest area Thousand sq. km		Average annual deforestation %		Animal species		Higher plants		GEF Benefits Index for biodiversity 0-100 (no biodiversity to human biodiversity) 2005	Nationally protected area		Marine protected area	
	1990	2005	1999-00	2000-05	Total known species 2004	Threatened Species 2007	Total known species 2004	Threatened species 2007		Thousand sq. km 2004	% of total land area 2004	Thousand sq. km 2004	% of surface area 2004
Afghanistan	13	9	2.5	3.1	578	33	4000	2	3.6	2.2	0.3	...	...
Argentina	3 53	330	0.4	0.4	1413	152	9372	42	18.5	174.5	6.4	7.8	0.3
Australia	1679	1637	0.2	0.1	1227	568	15638	55	95.8	745.3	9.7	680.8	8.8
Bangladesh	9	9	0.0	0.3	735	89	5000	12	1.6	0.7	0.5	0.3	0.2
Brazil	5200	4777	0.5	0.6	2290	343	56215	382	100.0	1532.6	18.1	47.4	0.6
Canada	3101	3101	0.0	0.0	683	77	3270	1	22.2	628.7	6.9	362.7	3.6
Egypt	0	1	-3.0	-2.6	599	59	2076	2	3.2	56.0	5.6	76.7	7.7
France	145	156	-0.5	-0.3	665	117	4630	7	3.9	16.2	3.0	0.5	0.1
Germany	107	111	-0.3	0.0	613	59	2682	12	0.7	111.5	32.0	9.1	2.6
India	639	677	-0.6	0.0	1602	313	18664	247	43.9	156.3	5.3	16.1	0.5
Indonesia	1166	885	1.7	2.0	2271	464	29375	386	90.0	259.9	14.3	130.1	6.8
Iran	111	111	0.0	0.0	656	75	8000	1	7.9	105.5	6.5	6.2	0.4
Iraq	8	8	-0.2	-0.1	498	40	...	0	1.7	0.0	0.0	...	...
Italy	84	100	-1.2	-1.1	610	119	5599	19	4.4	32.4	11.0	1.5	0.5
Japan	250	249	0.0	0.0	763	190	5565	12	41.4	52.2	14.3	10.6	2.8
Korea Rpe.of	64	63	0.1	0.1	512	54	2898	0	1.8	3.5	3.6	3.5	3.5
Malaysia	224	209	0.4	0.7	1083	225	15500	686	14.8	100.8	30.7	5.0	1.5
Mexico	690	642	0.5	0.4	1570	579	26071	261	75.8	99.0	5.1	82.1	4.2
Netherlands	3	4	-0.4	-0.3	539	26	1221	0	0.1	9.5	28.0	0.8	1.9
PAKISTAN	25	19	1.8	2.1	820	78	4950	2	5.1	73.1	9.5	2.2	0.3
Philippines	106	72	2.8	2.1	812	253	8931	213	33.7	24.3	8.2	16.6	5.5
Saudi Arabia	27	27	0.0	0.0	527	45	2028	3	3.4	819.1	41.0	5.2	0.2
South Africa	92	92	0.0	0.0	1149	323	23420	73	23.5	74.0	6.1	3.4	0.3
Spain	135	179	-2.0	-1.7	647	170	5050	49	6.6	46.2	9.3	1.8	0.4
Sri Lanka	24	19	1.2	1.5	504	177	3314	280	6.6	17.7	27.3	2.3	3.5
Sweden	274	275	0.0	0.0	542	30	1750	3	0.3	44.8	10.9	4.3	1.0
Thailand	160	145	0.7	0.4	1271	157	11625	86	8.0	80.3	15.7	5.8	1.1
Turkey	97	102	-0.4	-0.2	581	121	8650	3	6.0	20.3	2.6	4.5	0.6
United Kingdom	26	28	-0.7	-0.4	660	38	1623	13	2.1	60.5	25.0	22.5	9.2
Un.Rpe.of Tanzania	414	353	1.0	1.1	1431	299	10008	240	15.1	374.3	42.3	2.3	0.2
United States of America	2986	3031	-0.1	-0.1	1356	937	19473	242	90.3	1490.1	16.3	909.5	9.4

Source: World Development Indicators, 2008 World Bank

## International Comparison

### Table 5: Freshwater

Country Name	Renewable internal freshwater resources		Annual freshwater withdrawals					Water productivity	Access to an improved water source	
	Flows billion cu. m 2005	Per capita cu. m 2005	Billion cu. m 1987-2002	% of internal resources 1987-2002	% for agriculture 1987-2002	% for industry 1987-2002	% for domestic 1987-2002	GDP/water use 2000 \$ per cu. Km 2002	% of urban population 2004	% of rural population 2004
Afghanistan	65	...	23.3	42.3	98	0	2	...	...	...
Argentina	276	7123	29.2	10.6	74	9	17	8.3	98	80
Australia	492	24118	23.9	4.9	75	10	15	17.9	100	100
Bangladesh	105	685	79.4	75.6	90	1	3	0.7	82	72
Brazil	5418	29000	59.3	11	62	18	20	11.3	96	57
Canada	2850	88203	46.0	1.6	12	69	20	16.5	100	99
Egypt	2	25	68.3	3794.4	86	6	8	1.6	99	97
France	179	2932	40.0	22.4	10	74	16	34.2	100	100
Germany	107	1297	47.1	44.0	20	68	12	40.9	100	100
India	1261	1152	545.8	51.2	86	5	8	0.8	95	83
Indonesia	2838	12867	82.8	2.9	91	1	8	2.2	87	69
Iran	129	1860	72.9	56.7	91	2	7	1.5	99	84
Iraq	35	...	42.7	121.3	92	5	3	0.5	...	...
Italy	183	3114	44.4	24.3	45	37	18	25.3	100	...
Japan	430	3365	88.4	20.6	62	18	20	53.0	100	100
Korea Rpe.of	65	1324	18.6	28.6	48	16	36	30.6	97	71
Malaysia	580	22609	9.0	1.6	62	21	17	10.5	100	96
Mexico	409	3967	78.2	19.1	77	5	17	7.5	100	87
Netherlands	11	374	7.9	72.2	34	60	6	49.5	100	100
PAKISTAN	52	336	169.4	323.3	96	2	2	0.5	96	89
Philippines	479	5664	28.5	6.0	74	9	17	2.8	87	82
Saudi Arabia	2	104	17.3	721.7	89	1	10	11.0	97	63
South Africa	45	955	12.5	27.9	63	6	31	11.3	99	73
Spain	111	2562	35.6	32.0	68	19	13	17.3	100	100
Sri Lanka	50	2542	12.6	25.2	95	2	2	1.3	98	74
Sweden	171	18949	3.0	1.7	9	54	37	84.3	100	100
Thailand	210	3333	87.1	41.5	95	2	2	1.5	98	100
Turkey	227	3150	37.5	16.5	74	11	15	5.3	98	93
United Kingdom	145	2408	9.5	6.6	3	75	22	157.9	100	100
Un.Rpe.of Tanzania	84	2183	5.2	62	89	0	10	2.0	85	49
United States of America	2800	9443	479.3	17.1	41	46	13	20.9	100	100

Source: World Development Indicators, 2008 World Bank

Table 6: Water pollution

Country Name	Emission of organic water pollutants				Industry shares of emissions of organic water pollutants % of total							
	Thousand kilograms per day		kilograms per day per worker		Primary metals	Paper and pulp	Chemicals	Food and beverages	Stone ceramics and glass	Textiles	Wood	Others
	1990	2004	1990	2004	2004	2004	2004	2004	2004	2004	2004	2004
Afghanistan	5.9	0.2	0.16	0.21	...	37.7	17.5	31.1	0.4	13.2	...	...
Argentina	186.7	164.3	0.20	0.23	5.6	14.6	8.6	58.9	0.1	7.6	1.1	3.5
Australia	186.1	111.7	0.18	0.18	12.4	22.8	6.7	43.5	0.2	5.3	2.8	6.3
Bangladesh	171.1	...	0.17	...	...	...	...	...	...	...	...	...
Brazil	780.4	...	0.19	...	...	...	...	...	...	...	...	...
Canada	321.5	312.5	0.17	0.16	9.6	22.1	8.6	39.5	0.1	5.8	5.4	8.9
Egypt	211.5	186.1	0.20	0.20	10.8	8.2	9.0	50.7	0.3	17.7	0.6	2.8
France	653.5	564.6	0.15	0.15	7.2	13.8	12.9	49.5	0.2	2.9	2.3	11.1
Germany	835.0	966.7	0.12	0.14	9.3	20.4	11.8	38.7	0.2	2.3	2.1	15.1
India	1410.6	1519.8	0.20	0.20	12.2	7.6	9.2	53.7	0.3	12.7	0.3	3.9
Indonesia	495.6	733.0	0.19	0.18	2.5	8.2	9.2	53.7	0.1	19.4	4.5	2.4
Iran	102.7	164.8	0.16	0.15	15.6	8.0	10.7	46.7	0.7	9.5	0.9	8.1
Iraq	26.7	...	0.19	...	...	...	...	...	...	...	...	...
Italy	358.1	488.9	0.13	0.12	9.4	16.6	10.7	30.8	0.3	15.0	3.9	13.3
Japan	1556.6	1184.7	0.14	0.15	7.1	19.0	9.4	45.7	0.2	4.8	1.6	12.3
Korea Rpe.of	369.2	315.2	0.12	0.12	11.4	18.9	13.0	25.8	0.2	13.6	1.5	15.7
Malaysia	104.7	183.8	0.13	0.12	7.8	14.9	15.5	33.7	0.2	8.3	6.8	12.8
Mexico	174.3	296.1	0.18	0.20	7.8	12.5	10.4	55.6	0.2	7.5	0.9	5.1
Netherlands	136.7	...	0.18	...	...	...	...	...	...	...	...	...
PAKISTAN	104.1	...	0.18	...	...	...	...	...	...	...	...	...
Philippines	228.3	...	0.21	...	...	...	...	...	...	...	...	...
Saudi Arabia	18.5	...	0.15	...	...	...	...	...	...	...	...	...
South Africa	261.6	181.7	0.17	0.17	6.8	7.4	10.4	16.7	5.0	7.1	4.7	41.9
Spain	230.3	352.9	0.17	0.15	7.5	20.6	9.5	39.6	0.4	8.6	4.3	9.8
Sri Lanka	53.0	78.4	0.19	0.18	0.5	7.2	6.6	51.5	0.2	31.6	1.1	1.2
Sweden	109.6	103.9	0.15	0.14	11.3	35.0	7.8	26.6	0.1	1.3	3.0	14.9
Thailand	291.6	...	0.17	...	...	...	...	...	...	...	...	...
Turkey	177.3	172.2	0.18	0.16	11.4	4.8	8.0	43.7	0.3	26.4	0.4	5.0
United Kingdom	739.6	331.0	0.15	0.12	9.0	48.0	17.5	0.6	0.3	5.2	4.0	15.4
Un.Rpe.of Tanzania	31.1	35.2	0.24	0.25	1.5	9.4	2.7	69.3	0.1	14.0	1.5	1.4
United States of America	2565.2	1805.9	0.15	0.13	9.6	10.6	14.0	42.1	0.2	5.4	4.2	13.9

Source: World Development Indicators, 2008 World Bank

Table 7: Energy production and use

Country Name	Total energy production		Energy use									
	Million metric tones of oil equivalent		Total million metric tones of oil equivalent		Per capita kilograms of oil equivalent		Fossil fuel		% of total Combustible renewable and waste		Clean energy	
	1990	2005	1990	2005	1990	2005	1990	2005	1990	2005	1990	2005
Afghanistan	...	...	...	...	...	...	...	...	...	...	...	...
Argentina	48.5	81.0	46.1	63.7	1415	1644	88.6	88.5	3.7	3.5	7.5	7.4
Australia	157.5	271.0	87.5	122.0	513.0	5978	94.0	94.5	4.5	4.3	1.4	1.1
Bangladesh	10.8	19.3	12.8	24.2	11.3	158	45.9	65.2	53.5	34.3	0.6	0.5
Brazil	98.1	187.8	134.0	209.5	896	1122	53.5	56.7	31.1	26.5	13.7	15.1
Canada	273.7	401.3	209.4	272.0	7535	8417	74.7	75.1	3.9	4.6	21.4	20.3
Egypt	54.9	76.0	31.9	61.3	578	841	94.0	95.9	3.3	2.3	2.7	1.8
France	112.4	136.9	227.8	276.0	4015	4534	56.9	51.4	5.1	4.3	38.0	44.3
Germany	186.2	134.5	356.2	344.7	4485	4180	87.0	82.9	1.3	3.5	11.6	12.9
India	291.1	419.0	319.9	537.3	377	491	55.8	68.0	41.7	29.7	2.4	2.4
Indonesia	170.3	263.4	103.2	179.5	579	814	54.9	67.8	43.6	28.5	1.5	3.7
Iran	179.7	303.8	68.8	162.5	1264	2352	98.2	98.6	1.0	0.5	0.8	0.9
Iraq	140.9	96.0	19.1	30.8	1029	...	98.7	99.4	0.1	0.1	1.2	0.1
Italy	25.3	27.6	148.0	185.2	2609	3160	93.5	91.2	0.6	2.3	3.8	4.1
Japan	75.2	99.8	444.5	530.5	3598	4152	84.7	81.9	1.1	1.2	13.9	16.8
Korea Rpe.of	22.6	42.9	93.4	213.8	2178	4426	83.9	80.9	0.8	1.0	15.3	18.0
Malaysia	50.3	93.9	23.3	61.3	1288	2389	89.4	94.6	9.1	4.5	1.5	0.8
Mexico	194.8	259.2	124.3	176.5	1494	1712	88.3	88.8	5.9	4.7	5.8	6.5
Netherlands	60.5	61.9	66.8	81.8	4464	5015	96.0	93.3	1.4	3.2	1.4	1.3
PAKISTAN	34.4	61.3	43.4	76.3	40.2	490	53.3	60.2	43.2	35.5	3.5	4.3
Philippines	13.7	24.2	26.2	44.7	427	528	50.8	54.9	29.2	24.2	20.0	20.7
Saudi Arabia	370.8	576.7	61.3	140.3	3744	6068	100.0	100.0	0.0	0.0	0.0	0.0
South Africa	114.5	158.6	91.2	127.6	2592	2722	68.1	87.0	11.4	10.5	2.5	2.5
Spain	34.6	30.3	91.1	145.2	2345	3346	77.6	83.8	4.5	3.5	17.9	11.5
Sri Lanka	4.2	5.3	5.5	9.4	324	477	24.1	43.9	71.0	52.9	4.9	3.2
Sweden	29.8	34.8	47.6	52.2	5557	5782	37.9	34.6	11.6	17.2	50.5	48.2
Thailand	26.5	54.0	43.9	100.0	808	1588	65.5	82.7	33.4	16.5	1.0	0.5
Turkey	25.8	23.6	53.0	85.2	943	1182	81.8	88.2	13.6	6.3	4.6	5.2
United Kingdom	208.0	204.3	212.2	233.9	3686	3884	90.9	88.6	0.3	1.7	8.3	9.3
Un.Rpe.of Tanzania	9.1	19.1	9.8	20.4	385	530	7.6	7.1	91.0	92.1	1.4	0.7
United States of America	1650.3	1630.7	1927.5	2340.3	7721	7893	86.5	86.2	3.2	3.2	10.2	10.4

Source: World Development Indicators, 2008 World Bank

International Comparison

**Table 8: Energy dependency and efficiency and carbon dioxide emission**

Country Name	Net energy imports		Energy use	GDP per unit of energy use		Carbon dioxide emission							
	% of energy use		Average annual % growth	2005 ppp \$ per kilogram of oil equivalent		Total million metric tons		From solid fuel consumption % of total		Per capita metric tons		Kilograms per 2005 ppp \$ of GDP	
	1990	2005	1990-2005	1990	2005	1990	2004	1990	2004	1990	2004	1990	2004
Afghanistan	...	...	...	...	...	2.6	0.7	10.7	13.2	...	...	...	0.0
Argentina	-5	-27	1.9	5.3	6.6	109.7	141.7	2.8	1.2	3.4	3.7	0.5	0.4
Australia	-80	-122	2.2	4.8	5.7	278.4	326.5	52.4	50.3	16.3	16.2	0.7	0.5
Bangladesh	16	20	4.5	6.1	6.8	15.4	37.1	6.9	3.6	0.1	0.2	0.2	0.2
Brazil	27	10	3.2	8.1	7.6	209.5	331.5	20.4	18.2	1.4	1.8	0.2	0.2
Canada	-31	-48	1.7	3.6	4.2	415.7	638.8	22.0	15.6	15.0	20.0	0.6	0.6
Egypt	-72	-24	4.6	5.7	5.4	75.4	158.1	4.5	2.1	1.4	2.2	0.4	0.5
France	51	50	1.2	6.2	6.7	363.7	373.4	21.7	15.1	6.4	6.2	0.3	0.2
Germany	48	61	0.0	5.5	7.3	980.3	808.0	48.6	41.4	12.3	9.8	0.5	0.3
India	9	22	3.5	3.2	4.5	681.5	1341.8	69.9	69.6	0.8	1.2	0.7	0.6
Indonesia	-65	-47	3.6	3.6	3.9	213.8	377.9	3.7	10.0	1.2	1.7	0.6	0.6
Iran	-161	-87	5.5	5.0	4.0	218.2	433.2	2.1	1.0	4.0	6.4	0.6	0.7
Iraq	-451	-212	3.3	...	...	48.5	81.6	0.0	0.0	2.6	...	...	...
Italy	8.3	85	1.6	9.1	8.8	389.6	449.5	13.1	14.5	6.9	7.7	0.3	0.3
Japan	83	81	1.2	7.2	7.3	1070.4	1256.8	28.5	38.0	8.7	9.8	0.3	0.3
Korea Rpe.of	76	80	5.6	4.9	4.8	241.1	465.2	38.7	43.8	5.6	9.7	0.5	0.5
Malaysia	-116	-53	6.0	5.2	4.9	55.3	177.4	9.8	19.8	3.1	7.0	0.5	0.6
Mexico	-53	-47	2.0	6.1	6.6	413.1	437.6	2.2	4.5	5.0	4.3	0.5	0.4
Netherlands	9	24	1.2	5.8	6.9	141.0	141.9	28.7	22.2	9.4	8.7	0.4	0.3
PAKISTAN	21	20	3.7	4.2	4.5	68.0	125.6	12.5	13.5	0.6	0.8	0.4	0.4
Philippines	48	46	4.0	5.7	5.6	43.9	80.4	13.0	28.7	0.7	1.0	0.3	0.3
Saudi Arabia	-505	-331	4.7	5.1	3.5	254.7	308.1	0.0	0.0	15.6	13.7	0.8	0.7
South Africa	-26	-24	2.1	3.0	3.1	331.7	436.6	79.9	82.8	9.4	9.4	1.2	1.2
Spain	62	79	3.4	8.4	8.1	212.1	330.2	35.6	25.2	5.5	7.7	0.3	0.3
Sri Lanka	24	24	3.8	6.0	7.2	3.8	11.5	0.1	2.2	0.2	0.6	0.1	0.2
Sweden	37	33	0.5	4.5	5.5	49.4	53.0	21.3	20.9	5.8	6.9	0.2	0.2
Thailand	40	26	5.2	5.1	4.4	95.7	267.8	14.2	21.6	1.8	4.3	0.4	0.6
Turkey	51	72	3.4	6.0	6.6	146.1	225.9	42.1	38.6	2.6	3.2	0.5	0.4
United Kingdom	2	13	0.6	6.2	8.1	579.2	586.7	41.5	25.8	10.1	9.8	0.4	0.3
Un.Rpe.of Tanzania	8	6	4.9	2.0	1.8	2.3	4.3	0.5	4.0	0.1	0.1	0.1	0.1
United States of America	14	30	1.4	4.1	5.3	4816.9	6044.0	37.1	35.7	19.3	20.6	0.6	0.6

Source: World Development Indicators, 2008 World Bank



Table 9: Traffic and congestion

Country Name	Motor vehicles				Passengers cars		Road density	Fuel prices		Particulate matter concentration	
	Per 1000 people		Per kilometer of road		Per 1000 people		Km of road per 100 sq.km of land area	\$ per liter		Urban population weighted PM 10 micrograms per cubic meter	
	1990	2005	1990	2005	1990	2005		Gasoline	Diesel		
	1990	2005	1990	2005	1990	2005	2005	2006	2006	1990	2005
Afghanistan	...	...	3	9	...	...	5	0.68	0.65	79	44
Argentina	181	...	27	...	134	146	8	0.62	0.48	105	76
Australia	530	671	11	17	450	542	11	0.93	0.94	22	15
Bangladesh	1	1	0	1	0	0	184	0.79	0.45	231	140
Brazil	88	170	8	18	84	136	21	1.26	0.84	40	26
Canada	...	582	20	13	468	561	15	0.84	0.78	25	19
Egypt	29	...	33	...	21	27	9	0.30	0.12	222	128
France	494	596	32	38	405	494	173	1.48	1.33	18	14
Germany	405	585	53	208	386	550	...	1.55	1.38	27	19
India	4	12	2	3	2	8	114	1.01	0.75	112	68
Indonesia	16	109	10	62	7	...	21	0.57	0.44	138	96
Iran	34	...	14	...	...	24	11	0.09	0.03	86	55
Iraq	14	...	6	...	1	...	10	0.03	0.01	146	126
Italy	529	667	99	81	476	595	165	1.56	1.49	42	28
Japan	469	586	52	63	283	441	323	1.09	0.90	43	31
Korea Rpe.of	79	319	60	151	48	230	104	1.65	1.33	51	37
Malaysia	124	272	26	72	101	225	30	0.53	0.40	37	25
Mexico	119	208	41	90	82	137	18	0.74	0.52	69	40
Netherlands	405	486	58	62	368	429	372	1.70	1.32	46	35
PAKISTAN	6	14	4	8	4	10	34	1.01	0.64	212	120
Philippines	10	34	4	14	17	9	67	0.7	0.67	55	26
Saudi Arabia	165	...	19	...	98	415	8	0.16	0.07	161	120
South Africa	139	143	26	16	97	98	30	0.85	0.84	34	22
Spain	360	550	43	35	309	445	133	1.15	1.10	42	34
Sri Lanka	21	550	4	9	7	13	151	0.88	0.55	95	94
Sweden	464	42	29	11	426	460	104	1.46	1.44	15	12
Thailand	46	513	36	...	14	54	11	0.70	0.65	88	77
Turkey	50	117	8	20	34	80	55	1.88	1.62	75	43
United Kingdom	400	517	64	80	341	457	160	1.63	1.73	25	16
Un.Rpe.of Tanzania	5	...	2	...	1	1	9	1.04	0.99	57	24
United States of America	756	814	30	31	536	461	71	0.63	0.69	30	22

Source: World Development Indicators, 2008 World Bank

## ***Compilers of Compendium on Environment Statistics***

<b><u>S.No.</u></b>	<b><u>Name</u></b>	<b><u>Designation</u></b>
1.	Mr. Munir Ahmed Aslam	Deputy Director General
2.	Mr. Khadim Hussain	Chief Statistical Officer
3.	Mr. Muhammad Zaiwar	Statistical Officer
4.	Mr. G. M Malik	Statistical Officer
5.	Miss Shahnaz Akhtar	Statistical Officer
6	Mr. Waqas Humayoon	Statistical Officer
7	Mr. Muhammad Azhar	Statistical Assistant
8.	Mr. Muhammad Sodagar	Statistical Assistant
9.	Mr. Muhammad Bukhsh	Statistical Assistant
10.	Mr. Shabbir Ali	Stenotypist