Foreword

Pakistan is among the developing countries which are facing natural resources degradation and pollution problems. Due to rapid population growth and development in various socio-economic sectors, specially in industry and transport sectors, the environmental problems such as air pollution, water pollution, disposal of solid waste alongwith poverty are arising, which needs immediate attention. Beside, there are other environmental impact such as water logging, land degradation and desertification. These problems have drawn the attention of planners, researchers and environmentalists to undertake research and monitor the environment indicators for suggestions to bring improvement in the environment. For such type of research and analysis, availability of environmental statistics is highly desirable. This publication is an attempt to provide relevant statistics compiled through secondary sources.

2. This Compendium is prepared under the Technical Assistance of Asian Development Bank and based on the guidelines of United Nations Framework for Development on Environment Statistics. Federal Bureau of Statistics has also developed a "Framework for Development of Environment Statistics, Pakistan" (FDES-PAK) which categories variables/indicators on various aspects on environment. All possible efforts have been made to collect available data for inclusion in the Compendium.

3. It is hoped that the Compendium would be found useful for researchers, planners and specially for environmentalists.

4. Since there is always scope for improvement in the format/presentation and contents, therefore, comments/suggestions would be welcome and highly appreciated.

Fazlullah Qureshi
Secretary

Statistics Division
Government of Pakistan
Islamabad
December, 1998

Preface

Human activities in the recent decades have considerably increased and their impact on the earth is causing global environmental problems. Environment plays important role in the quality of life, hence to monitor its problems the availability of Environment Statistics is essential. In the past Federal Bureau of Statistics published two brochures on Environment Statistics during the years 1984 and 1986. However, the publication of this brouchure was discontinued due to financial constraints and non-availability of related information.

2. This Compendium is the outcome of an Asian Development Bank funded project "Institutional Strengthening and Collection of Environment Statistics" which was launched simultaneously in eleven countries of the region.

3. This Compendium presents the data on Flora, Funa, Water, Air, Land and Soil, Energy and Human Settlements which are categorized in the following sections as recommended by United Nations. Besides, various concepts/definitions related to environment are also provided in the publication.

- Socio-economic Activities and Natural Events
- Environmental Impact of Socio-economic Activities and Natural Events
- Responses to Environmental Impact
- Inventories, Stocks and Background Conditions

4. Every possible efforts have been made to include the latest available data in the Compendium which will be useful for researchers, policy makers, environmentalists and other users.

5. Any suggestions/comments to improve the coverage and contents of Compendium will be highly appreciated.

Dr.Noor Muhammad Larik
Director General

Federal Bureau of Statistics
Statistics Division
Government of Pakistan
Islamabad
December, 1998

Acknowledgement

The Compendium of Environment Statistics of Pakistan, 1998 is an outcome of the Project "Institutional Strengthening and Collection of Environment Statistics" funded by Asian Development Bank, Manila. It would be a useful document for the Researchers, Policy Makers and especially for the Environmentalists.

2. For the preparation of this Compendium, Federal Bureau of Statistics appreciates all kind of cooperation including financial assistance extended by Asian Development Bank and technical assistance provided by Dr. I.P David, Assistant Chief Economist, Dr. Beshnu Dev Pant, Senior Statistician and Dr.Abra Cosa, Consultant, ADB, Manila for their cooperation.

3. Special thanks are due to Mr.Fazlullah Qureshi, Secretary, Statistics Division for providing valuable suggestions, guidance and encouragement towards completion of this Compendium.

4. I am extreamely grateful to the participants of Interagency Working Group on Environment Statistics for their valuable suggestions/comments for the improvement of this Compendium.

5. I am also grateful to the focal persons, officers and officials of the various organizations for their cooperation and in providing relevant data.

6. I profoundly acknowledge the guidance and supervision provided by Dr. Noor Muhammad Larik, Director General and Syed. Mazhar Hussain Hashmi, Deputy Director General from time to time in preparation and improvement of the Compendium.

7. Thanks are due to the officers of Environment Statistics Section including Mr. Imam-ud-din Sheikh, Chief Statistical Officer, M/s Shahid Iqbal, Muhammad Shahan Khattak, and Muhammad Zaiwar, Statistical Officers for their hard efforts in collection, compilation, analysis, interpretation of data and for the completion of this gigantic work.

8. I appreciate the efforts of Mr. Shabbir Ali, Stenotypist and Mr. Muhammad Farid, LDC for designing tables, graphs, typing and data entry on Personal Computer. Thanks are also due to Mr. Muhammad Arif, S.A and Mr. Zahoor Haider, Stenotypist for providing assistance time to time in completion of this Compendium.

Ch. Atta Muhammad
Director

Islamabad
December, 1998

Contents

Table No.	Title	Page No.
	Foreword	(i)
	Preface	(ii)
	Acknowledgement	(iii)
	Introduction	(xxi)
A.	**Socio-economic Activities and Natural Events**	
A-I	Demographic Situation	03
A-I.i	Population Density	05
A-I.ii	Urban Rural Population Distribution	05
A-I.iii	Fertility	06
A-I.iv	Mortality	07
A-I.v	Infant Mortality Rate	07
A-I.vi	Life Expectancy	08
A-II	Housing	08
A-II.i	Construction of Housing Units	10
A-II.ii	Housing Units by Lighting Facilities	11
A-II.iii	Housing Units by Type of Cooking Fuel Used	11
A-II.iv	Housing Units by Water Facilities	11
A-II.v	Housing Units with Latrine Facilities	11
A-III	Labour Force	12
A-IV	Land Utilization	12
A-V	Agriculture	13
A-V.i	Area under Agriculture Crops	13
A-V.ii	Production of Agriculture Crops	13
A-VI	Water	13
A-VI.i	Tubewells	13
A-VII	Livestock	14
A-VII.i	Livestock Population	14
A-VII.ii	Livestock Products	14
A-VIII	Forestry	14
A-IX	Transportation	15

STATISTICAL TABLES

A-01	Population of Pakistan by Region/Province, Land Area and Percentage Distribution, 1951 to 1998 Censuses	19

Contents

Table No.	Title	Page No.
A-02	Population Density by Region/Province, 1951 to 1998 Censuses	19
A-03	Population by Sex, Urban and Rural Areas, 1998 Census	20
A-04	District-Wise Population by Sex and Rural/Urban Areas, 1998 Census	
	- Pakistan	21
	- Islamabad	21
	- Balochistan	21
	- FATA	24
	- N.W.F.P	26
	- Punjab	29
	- Sindh	33
A-05	Population of Major Cities by Sex, 1998 Census	35
A-06	Population by Age, Sex, Urban and Rural Areas,1981 Census	
	- Pakistan	36
	- Federal Capital Area Islamabad	37
	- Balochistan	38
	- N.W.F.P	39
	- Punjab	40
	- Sindh	41
A-07	Percentage Distribution of Population (15 Years and over) by Marital Status Pakistan and Provinces, 1981 Census	42
A-08	Population (10 Years and above) by Age, Sex & Literacy, 1981 Census	43
A-09	Disabled Population by Sex,Nature of Disability, Urban-Rural Areas and Provinces, 1981 Census	
	- Pakistan	44
	- Federal Capital Area Islamabad	44
	- Balochistan	45
	- N.W.F.P	45
	- Punjab	46
	- Sindh	46
A-10	Population (10 Years and above)by Activity, Age, Sex, Urban and Rural Areas, 1981 Census	
	- All Areas	47
	- Urban Area	48
	- Rural Area	49

Contents

Table No.	Title	Page No.
A-11	Population (15 Years and above) by Age Groups, Sex and Marital Status for Urban and Rural Areas, 1981 Census	
	- All Areas	50
	- Urban Area	51
	- Rural Area	52
A-12	Population (10 Years and above) Working and Looking for Work by Occupation, Sex and Broad Age Group, 1981 Census	
	- All Areas	53
	- Urban Area	54
	- Rural Area	55
A-13	Working Population (10 Years and above) by Industry, Employment Status, Sex and Broad Age Group, 1981 Census	
	- All Areas	56
	- Urban Area	57
	- Rural Area	58
A-14	Households by Region/Province and Urban/Rural Areas, 1998 Census	59
A-15	Housing Units by Provinces and Urban/Rural Areas, Housing Censuses, 1960 to 1998	60
A-16	Housing Units by Tenure and Household Size, Housing Census 1980	61
A-17	Housing Units by Period of Construction Housing Census, 1980	62
A-18	Housing Units by Number of Rooms and Household Size, Housing Census 1980	63
A-19	Housing Units by Material Used in Outer-walls, Housing Census 1980	64
A-20	Housing Units by Material Used in Roofs,Housing Census 1980	65
A-21	Housing Units by Lighting Facilities in Urban-Rural Areas, HEDS 1973 & Housing Census 1980	66
A-22	Housing Units by Source of Lighting Used, Housing Census 1980	67
A-23	Housing Units by Type of Cooking Fuel Used in Urban-Rural, HEDS 1973 & Housing Census 1980	68
A-24	Housing Units by Source of Cooking Fuel Used, Housing Census 1980	69
A-25	Housing Units by Facilities like Kitchen, Bathroom and Latrine, Housing Census 1980	70
A-26	Housing Units by Water Facilities in Urban-Rural Areas, HEDS 1973 & Housing Census 1980	71

Contents

Table No.	Title	Page No.
A-27	Percentage Distribution of Households by Main Source of Drinking Water, Pakistan and Provinces	72
A-28	Housing Units by Source of Drinking Water-Inside and Outside, Housing Census 1980	73
A-29	Percentage Distribution of Housing Units by Type of Toilet Used and Urban/Rural Areas of Pakistan and Provinces	74
A-30	Percentage Distribution of Civilian Labour Force	75
A-31	Percentage Distribution of Population by Economic Category	76
A-32	Percentage Distribution of Employed Persons by Major Industry Division	
	- All Areas	78
	- Urban Area	79
	- Rural Area	80
A-33	Percentage Distribution of Employed Persons by Major Occupational Groups	
	- All Areas	81
	- Urban Area	82
	- Rural Area	83
A-34	Land Utilization Statistics	85
A-35	Area under Agricultural Crops	86
A-36	Production of Agricultural Crops	88
A-37	Number of Tubewells by Province	90
A-38	Number and Area of Farms by Size of Farm - 1990	91
A-39	Overall Water Availability at Farm Gate	92
A-40	Production of Chemical Fertilizers	94
A-41	Season-Wise Consumption of Fertilizers	95
A-42	Usage of Fertilizers by Crops	96
A-43	Consumption of Pesticides	97
A-44	Estimated Livestock Population	98
A-45	Estimated Livestock Products	100
A-46	Estimated Milk Production	103
A-47	Estimated Meat and Eggs Production	104
A-48	Fish Production	105
A-49	Total Catch of Fish and their Indices	107
A-50	Fishermen Engaged in Marine and Inland Fisheries	108
A-51	Number of Fishing Crafts	109

Contents

Table No.	Title	Page No.
A-52	FSMP Estimates of Land Use Based on Satellite Imagery Interpretation	110
A-53	Increase in Forest Area Between 1993 and 2018	111
A-54	Forest Products (Major & Minor)	112
A-55	Uses of Forest Resources (Estimated Wood Consumption in Various End-uses)	113
A-56	Average Consumption of Firewood by Source,1991-93	114
A-57	Consumption of Firewood by Area and Province, 1991-93	115
A-58	Production of Manufacturing Items	116
A-59	Mineral Production	122
A-60	Crude Oil Production by Field	124
A-61	Petroleum Energy Products Consumption by Sector	126
A-62	Petroleum Energy Products Consumption by Province	127
A-63	Consumption of Petroleum (Energy) Products by Fuel	128
A-64	Consumption of Charcoal and Average Price by Province	129
A-65	Consumption of Dung Cake by Area and Province	129
A-66	Consumption of Indigenous Coal by Sector	130
A-67	Associated Gas Production by Field	131
A-68	Non-Associated Gas Production by Field	132
A-69	Gas Consumption by Sector	134
A-70	Cumulative Number of Gas Consumption by Province	134
A-71	Gas Supplies to Fertilizer and Power Sector by Source	135
A-72	Installed Capacity and Electricity Generation by Type of Power Station	136
A-73	Generation of Electricity by Source	137
A-74	Installed Capacity of Electricity Generation by Type	138
A-75	Electricity Consumption by Sector (Public Utilities Only)	139
A-76	Electricity Consumption by Province (Public Utilities Only)	139
A-77	Fuel Consumption for Thermal Power Generation	140
A-78	Thermal Electricity Generation by Fuel	140
A-79	Field-wise Production of Coal	141
A-80	Energy Consumption by Fuel Type and Expenditure Level, 1991-93	143
A-81	Energy Consumption by Fuel Type and Province, 1991-93	144
A-82	International Shipping - Entered and Cleared at Karachi Port/Port Qasim	145
A-83	Number and Net Registered Tonnages of Native Crafts by Nationalities which Entered/Cleared in Coastal Shipping with Cargo Into/From Karachi Port	146

Contents

Table No.	Title	Page No.
A-84	Total Passengers Handled at Civil Airports (Scheduled and Non-scheduled)	147
A-85	Air Traffic of Passengers, Freight and Mail of Pakistan International Airlines	148
A-86	Transport Statistics	149
A-87	Number of Motor Vehicles Registered	150
A-88	Motor Vehicles on Road	151
A-89	Post and Telecommunications	152
A-90	Traffic Accidents	
	- Pakistan	154
	- Balochistan	155
	- N.W.F.P.	156
	- Punjab	157
	- Sindh	158
A-91	Characteristics of Rivers of Indus Basin	159
A-92	Per Capita Surface Water Availability	160
A-93	River In-flow at Rim Stations	161
A-94	Population Served with Water Supply and Sanitation Facilities in WASA Area, District Lahore	163
A-95	Population Served with Water Supply, Sewerage and Drainage Facilities of Various Cities	164
A-96	Selected Water Supply Characteristics of Communities	167
A-97	Existing Drainage Facilities by Type and Province, 1991	167
A-98	Analysis of Water and Wastewater of Drains and Handpumps	168
A-99	Noise Level and Concentration of Carbon Monoxide at Various Areas of Lahore, 1988-89 (At 3-5 ft. high from ground level)	172
A-100	Municipal Solid Waste Disposal System (Transportation) at Selected Cities During,1995	173
A-101	Municipal Solid Waste Disposal System (by Number of Employees) at Selected Cities During,1996	173
A-102	Municipal Solid Waste Disposal System (Sanitary, Landfill/Dumps) at Selected Cities During,1996	174
A-103	Garbage Collection Committees by Province	174
A-104	Type of Sanitation System Used by Province	175
A-105	Ambient Air Surveillance in Big Cities of Punjab	176
A-106	Average Concentration of Major Ambient Air Pollutants at Sub-urban Area of Karachi	178

Contents

Table No.	Title	Page No.
A-107	Mean Concentration of Heavy Metal Accumulation in Soils, compared with Deposits on Leaf and Street Dust in the Urban Area of Karachi	182
A-108	Average Wave Heights Off Seashore Karachi	183
A-109	Tide Data Off Seashore Karachi	184
A-110	Films Released by Language	188
A-111	Documentary Films Produced/Released	189
A-112	Dramas and Plays Produced/Released	190
A-113	Cinemas and Seating Capicity therein by Province	191
A-114	Visitors, Type of Attraction, Total Expenditure and Income by Zoo	192
B.	**Environmental Impact of Socio-economic Activities and Natural Events**	
B-I	Human Settlements	197
B-II	Population Growth and its Pressure on Resources	199
B-II.i	Water Supply and Sewerage	199
B-II.ii	Salinity and Waterlogging	200
B-II.iii	Water Pollution	200
B-III	Wastewater Discharges	200
B-III.i	Domestic and Human Wastewater Discharge	200
B-III.ii	Industrial Wastewater Discharge	201
B-IV	Air Pollution	202
B-V	Agricultural Run Off	202
	STATISTICAL TABLES	
B-01	Area under Agricultural Crops and Fruits Indices (1980-81=100)	207
B-02	Production of Agricultural Crops and Fruits indices(1980-81=100)	209
B-03	Quantity and Value of Export of Major Agricultural Commodities	211
B-04	Import of Other Agricultural Commodities	213
B-05	Import of Edible Oil	214
B-06	Import of Milk and Milk Products	215
B-07	Import of Fertilizers	217
B-08	Import of Wood and Wood Products	218
B-09	Export of Crude Oil and Petroleum Products	220
B-10	Import of Petroleum Products	221

Table No.	Title	Page No.
B-11	Import of Crude Oil	222
B-12	Import of Coal	223
B-13	Revenue Earned by Forest Department	224
B-14	Solid Waste Generation Estimates, 1995	225
B-15	Physical Composition of Waste, 1995-96	226
B-16	Waste Generation Rate and Amount	226
B-17	Tentative Comparative Data on Solid Wastes	227
B-18	Water Quality of River Ravi, 1996	228
B-19	Qualities and Quantities of Wastewater entering into River Ravi near Lahore, 1996	230
B-20	Hadyara Drain (Lahore) Chemical and Bacteriological Analysis (As on 13-04-1998)	232
B-21	Hadyara Drain (Lahore) Chemical and Bacteriological Analysis (As on 26-7-1997)	233
B-22	Concentration of Toxic Metals in River Ravi (Near Lahore) at Selected Areas (As on 26-7-1997)	234
B-23	Raw Water Quality Data of Warsak Dam	235
B-24	Raw Water Quality Data of Kabul River	236
B-25	Extent of Waterlogging and Salinity	241
B-26	Summary of Different Types of Pollutants on the Coasts	242
B-27	Damages/Losses Caused by Major Earthquakes	243
B-28	Details of Losses and Damages due to Rains and Floods by Area	244
C.	**Responses to Environmental Impact**	
C-I	Climate	251
C-II	Temperature	251
C-III	Rain Fall	252
C-IV	Pressure and Winds	253
	STATISTICAL TABLES	
C-01	Sunshine Hours at Selected Centres (Percentage of Long Term Average)	257
C-02	Temparature at Selected Centres	
	- Mean of Maximum	258
	- Mean of Minimum	260
C-03	Rainfall at selected Centres	262

Contents

Table No.	Title	Page No.
C-04	Air Pressure at selected Centres	264
C-05	Vapour Pressure at selected Centres	269
C-06	Monthly Average Normal Temperature at selected Centres, 1961-90	271
C-07	Normals of Maximum and Minimum Temperatures, 1961-90	
	- Islamabad (Chaklala)	273
	- Karachi (Airport)	275
	- Lahore	277
	- Peshawar	279
	- Quetta (Samungli)	281
C-08	Monthly Normals of Rainfall at selected Centres, 1961-90	283
C-09	Normals of Pressure, Temparature, Humidity and Vapour Pressure, 1961-90	
	- Islamabad (Chaklala)	285
	- Karachi (Airport)	286
	- Lahore	287
	- Peshawar	288
	- Quetta (Samungli)	289
C-10	Mean Monthly Wind Velocities at selected Centres, 1961-90	290
C-11	Normals of Wind Speed and Direction, 1961-90	
	- Islamabad (Chaklala)	293
	- Karachi (Airport)	297
	- Lahore	301
	- Peshawar	305
	- Quetta (Samungli)	309
C-12	Normals of Cloud and Precipitation, 1961-90	
	- Islamabad (Chaklala)	313
	- Karachi (Airport)	316
	- Lahore	319
	- Peshawar	322
	- Quetta (Samungli)	325
C-13	Area of Crops Covered by the Ground Plant Protection Measures	328
C-14	Area Covered by Aerial Plant Protection Operation	328
C-15	Area Irrigated by Different Sources	329
C-16	Tentative Reclamation Programme for Kharif, 1997 (Punjab)	330

Table No.	Title	Page No.
C-17	Tentative Reclamation Programme for Kharif, 1996 (Punjab)	331
C-18	River Flow Availability (Kharif and Rabi)	332
C-19	Summary of Protected Areas in Pakistan (based on NCCW data)	333
C-20	Forest Area	333
C-21	Sectoral Share of Forestry in Agriculture and GDP	334
C-22	Area of Forest and Range Lands Under the Control of Forest Departments by Legal Category in 1997-98	335
C-23	Forest Area under the Control of Forest Departments by Type of Vegetation in 1997-98	335
C-24	Area Afforested	336
C-25	Area Regenerated	337
C-26	Area Requiring Drainage Facilities by Province, 1991	338
C-27	Quality of Ground Water at Various Locations of Islamabad (Physical & Biological Parameters)	339
C-28	Quality of Ground Water at Various Locations of Islamabad (Chemical Parameters)	340
C-29	Quality of Ground Water at Various Locations of Faisalabad During 1996-97 (Physical and Biological Parameters)	341
C-30	Quality of Ground Water at Various Locations of Faisalabad During 1996-97 (Chemical Parameters)	341
C-31	List of Ozone Depleting Substance (ODS) Phase out Projects Approved by the multilateral Fund (MF)	342
C-32	List of Published Families as a Flora of Pakistan National Herbarium Programme	343

D- Inventories, Stocks and Background Conditions

D-I	Education		347
D-I.i	Literacy		347
D-I.ii	Enrollment		348
	a.	Primary Schools	348
	b.	Middle Schools	350
	c.	High and Secondary Vocational Institutions	350
	d.	Arts and Science Colleges	351
	e.	Professional Colleges	351
	f.	Universities	351

Contents

Table No.	Title	Page No.
D-I.iii	Educational Infrastructure	351
	a. Primary Level Schools	351
	b. Middle Schools	352
	c. High and Secondary Vocational Institutions	353
	d. Arts and Science Colleges	354
	e. Professional Colleges	354
	f. Universities	354
D-II	Health	354
D-II.i	Historical Background	354
D-II.ii	Health Infrastructure	355
	a. Hospitals	355
	b. Dispensaries	355
	c. Maternal and Child Health Centre (MCH)	355
	d. Beds in Hospitals and Dispensaries	355
D-II.iii	Health Manpower	356
	a. Doctors	356
	b. Nurses	356
	c. Dentists	356
D-II.iv	Basic Health Indicators	356
D-II.v	Unani System of Medicines (Hakeems)	357
D-II.vi	Programmes and Projects in Health Sector	359
D-III	Biomass	359
D-IV	Family Planning	359
D-IV.i	Knowledge of Methods	360
D-IV.ii	Contraceptive Performance and Use	360
D-V	Extended Programme of Immunization (EPI)	361
	STATISTICAL TABLES	
D-01	Population (10 years and above) by Level of Educational Attaintment, Sex, Urban and Rural Areas,1981 Census	365
D-02	Literacy - Population 10 Years and Older by Region and Province (PIHS)	366
D-03	Literacy - Population 10 Years and Older by Region and Province, Censuses 1981 and 1972	367

Contents

Table No.	Title	Page No.
D-04	Literacy Ratios of Population (10 years and above) by Age, Sex, Province, Urban and Rural Areas	
	- 1981 Census	368
	- 1972 Census	369
D-05	Number of Institutions, Enrollment and Number of Teachers by Sex and level of Educational Institutions	370
D-06	Professional Colleges by Type and Sex	374
D-07	Teachers in Professional Colleges by Type and Sex	375
D-08	Number of Secondary Vocational Institutions	376
D-09	Enrollment in Secondary Vocational Institutions by Kind and Sex	377
D-10	Registered Medical Personnel	378
D-11	Hospitals, Dispensaries, Maternity and Child Health Centres and Beds	379
D-12	Electricity Balances(Public Utilities Only)	380
D-13	Natural Gas Reserves as on June 30th, 1997	381
D-14	Associated Gas Reserves as on 30th June, 1997	383
D-15	Pakistan Coal Resources as on 30th June, 1997	384
D-16	Bunkering of Petroleum Products	385
D-17	Biomass Standing Stock and Productivity by Agro-ecological Zones	386
D-18	Biomass Standing Stock and Productivity by Province	387
D-19	Immunization Coverage	388
D-20	Performance of Contraceptive Delivery Services Through Population Welfare Programme	
	- Pakistan	389
	- Balochistan	390
	- N.W.F.P	391
	- Punjab	392
	- Sindh	393
D-21	Selected Wildlife	394

APPENDICES

Appendix-I	Concept and Definations	399
Appendix-II	Abbreviations	406
Appendix-III	References	411

INTRODUCTION

Pakistan is the seventh most populous country in the world and is ranked fourth in Asia after China, Indian and Indonesia. It covers an area of 796,095 Sq. Kilometers which shares only 0.67% of the world's land and 2% of the world population. Of the total area 468 thousand Sq. Km in the north and west form mountains terrain and table-land, whereas remaining 328 thousand Sq. Km comprises a level plain. The country can be divided into five major physical divisions, the Himalayas, Hindu Kush and the western boundary mountains, the Balochistan Plateau; the Potwar Plateau and the Salt Range and Indus Plain, among these there are number of sub-divisions. (Kureshy, 1991).

Pakistan inherited an old history which goes back to stone ages followed by Indus Valley Civilization around 3000-3500 B.C. The ruins of Moen-jo-daro and Harapa tells the story of development in agriculture, trade , art and architecture, cities, buildings, roads, religions and rites. Yet there was another civilization named Dravin Civilization which spread over to Indo-Pak Sub-continent with well developed agriculture, religion and social institutions (Khan, 1991). The process of development continued since ancient times, however, the natural environment has not registered any significant change. Despite of inheriting very old civilization, the Sub-continent remained behind in the development process, mainly due to more than hundred years of British rule, unstable political governments, limited financial resources and three wars on Kashmir dispute.

The country is divided into four Provinces, Balochistan, North West Frontier Province, Punjab and Sindh with about 96 percent Muslims, the minorities include Christians, Sikhs, Hindus, Buddhists and Parses. There are about 10 major languages spoken in the country include, Urdu, Punjabi, Sindhi, Balochi, Pushto, Siriaki, Hindko, Barahvi, Gujrati and English is used as an official language. Pakistan has all the four seasons found in the Sub-Continent, however, their duration varies from region to region.

Many global environmental problems have emerged since last two decades, like global climate change (green house effect), ozone layer depletion, loss of biodiversities, deforestation, desertification and rapid population growth. Pakistan's contribution to each of these problems whether its share is less or high, each problem has implication on the development of the country as well as on the quality of life of the population.

Pakistan faces the problem of rapid population growth, despite of three decades long family planning programme in the country, the intercensal population growth rate of 2.61 percent (1981-98) is still high in the region, many environmental problems are emerging because of the addition of about 3.4 million population each year.

However, the pressure of these numbers on global environment is surprisingly less. The average Pakistani consumes less than one-seventh of the energy as compared to energy used globally, similarly on the average each person in the world is responsible for 1.7 tonnes of Carbon per year being released into the atmosphere as Carbon Dioxide, Pakistani contributes only one tenth of a tonne and per capita Carbon Monoxide emissions are one-third of the global average, whereas, Pakistan contribution to emission of Sulphur dioxide is only 0.4 percent of the global total (PNSC, 94).

Agriculture sector shares 25 percent of the Gross Domestic Product (GDP) whereas share of forestry in GDP is 0.12 percent and the share of forestry in agriculture is 0.49 percent. Being agro-based country, the forests are much less than the required standards and depleting at faster rate. Pakistan has one of the lowest forest area in the world. It is ranked 113 among 140 countries. About 20-25 percent forest of the total land area is at the desired level. Thus situation warrants the immediate remedy.

All these indicate no immediate threat to the environment in the country, however, some problems are emerging and many are yet to be identified. The major problem is the non-availability of statistics required for developing the environmental indicators. Federal Bureau of Statistics, being a premier Statistical Organization at the national level, took the responsibility to compile related environment statistics with the technical assistance provided by the Asian Development Bank. The efforts have been made to compile all available data with different organizations including provisional results (Population and Households by districts) released by Population Census Organization for the Population and Housing Census, 1998. The Compendium would be updated as and when detailed information for Population Census, 1998 are available regarding age structure, literacy, employment, etc.

This publication includes a wide range of available statistics on various socio-economic sector, under four sections, Socio-economic Activities and Natural Events Section A whereas, Environment Impact of Socio-economic Activities and Natural Events are described in Section B and Responses to Environmental Impact are given in Section C. Inventories, Stocks and Background Conditions of population, natural resources, agriculture and industrial production are presented in Section D, in addition Concepts and Definitions, Abbreviations and References related to environment are presented at Appendices - I, II and III respectively.

A - Socio-economic Activities and Natural Events

Section A

Socio-economic Activities and Natural Events

Environment and man have always been interdependent on each other. The environment has nursed man as a caring mother, ever since it came into existence. It has been and will remain responsible for the welfare, growth and multiplication of the human race. Man in return has mostly disturbed and deteriorated the environment through his non-friendly environmental activities like, cutting of trees, removing vegetation, levelling ground for agriculture, industry or housing, besides, polluting soil, air and water. Man depends on environment and the environment is mostly affected by man. Thus, in this age-old association of man and environment mother nature has always been a sufferer.

Environmental problems are mainly caused by a variety of socio-economic activities, population growth, industrial development, government policies and poverty, due to their deep link with environment. Human activities are associated with environment where continuous exchange of materials takes place between them. Man exploited various resources for his own advantage, without realizing the effect of his activities on environment. Any disturbance or contamination caused by human activities in the environment ultimately produces harmful effects on living organisms.

Besides socio-economic policies that promote economic growth are not environment friendly, these may have detrimental effect on the environment. Similarly in a poor society where, people deal with day-to-day survival are forced to under value environmental effects and tend to favour consumption today over tomorrow and pay little attention to the contribution of the environment to economic activity and thus fail to take into account the impacts of their activities on the degradation of environment.

This section presents data on Population Growth, Housing, Labour Force, Land Utilization, Agriculture, Large Scale Manufacturing, Minerals, Energy, Transport and Communication, Water Quality, Noise Level, Waste Generation and Disposal, Air Quality, Wave Heights and Tides and Recreation.

A-I Demographic Situation

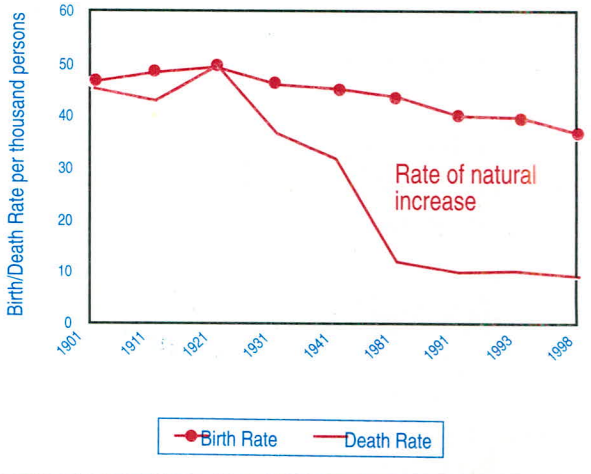
According to the latest Population Census, completed in March, 1998 the country's population was 130.579 million, with this population Pakistan stands seventh amongst the ten most populous countries of the world. It ranked 10th in the year 1991, below to Japan, Bangladesh and Nigeria. Among the Asian countries it is at fourth position. Pakistan has second highest average annual growth rate of 2.61 percent among these ten countries. With this annual growth rate, the population of the country would be doubled in the next 27 years (Table A-I). This situation is very alarming. On the average about 3.4 million people are being added annually to the country's population.

Table A-I Ten Most Populous Countries of the World, 1997

Country	Population (in million)	Rate of Natural increase	Population Doubling Time in years	Expected Population after 27 years (million)
China	1,236.7	1.0	70	1618
India	969.7	1.9	37	1612
USA	267.7	0.6	116	315
Indonesia	204.3	1.7	40	322
Brazil	160.3	1.4	48	233
Russia	147.3	(-) 0.5	-	129
Pakistan *	130.6	2.6	27	261
Japan	126.1	0.2	315	133
Bangladesh	122.2	2.0	35	209
Nigeria	107.1	3.0	23	238

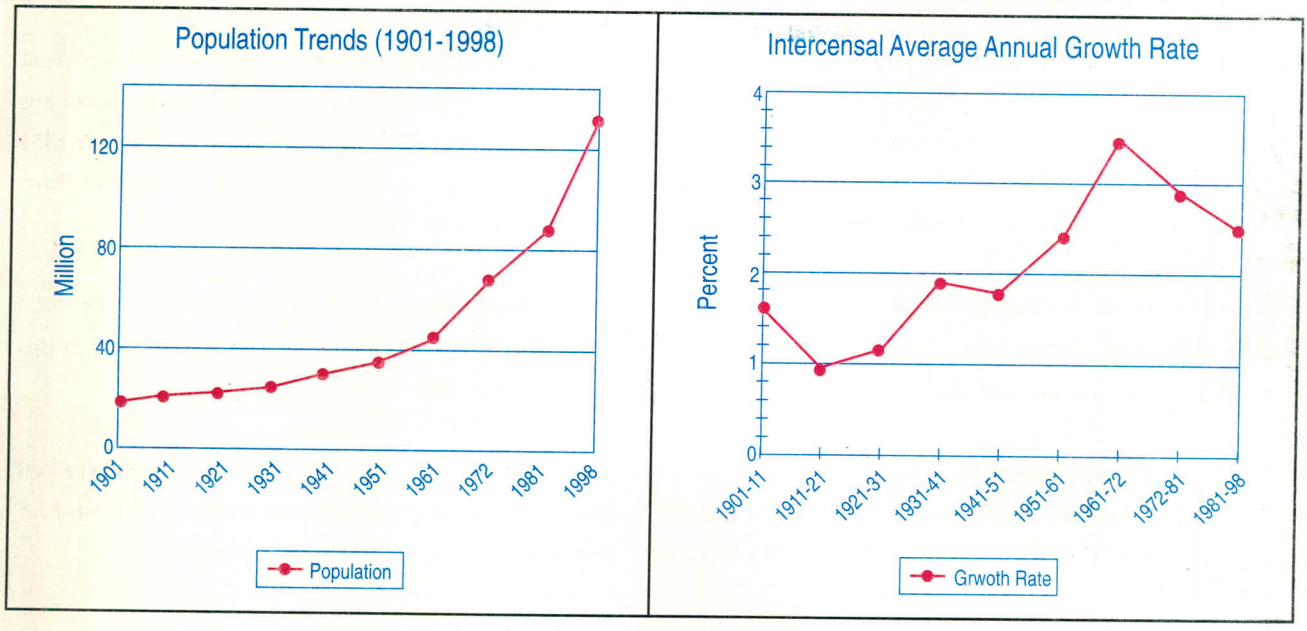
Sources: World Population Data Sheet, 1997.
Population Reference Bureau, Washington, D.C.
* = Population Census of Pakistan, 1998. (Provisional Results)

Fig. 1-1 Rate of Natural Increase (1901-1998)



The country is passing through the third stage of demographic transition, where both the birth and death rates are declining, Fig. A.1 indicates demographic transition in the country since 1901. It shows that at the beginning of the century, both the birth and death rates were very high and rate of natural increase was very low i.e. 0.86% during the intercensal period 1911-1921. Since 1941, the crude death rate started declining and reached to 31.2 per thousand population as compared to 48.6 per thousand population in 1921. It has further declined sharply to 11.8 per thousand population by 1981 due to improved health facilities and better nutrition, whereas, the crude birth rate (CBR) registered slow decline during this period. It declined from 49 per thousand population to 43.3 per thousand population and resulted in high population growth rate in the country. The population of the area now constitute Pakistan was 16.576 million in 1901 has increased to 130.579 million in 1998. Fig. A.2 reflects rapid population growth in the country since 1961.

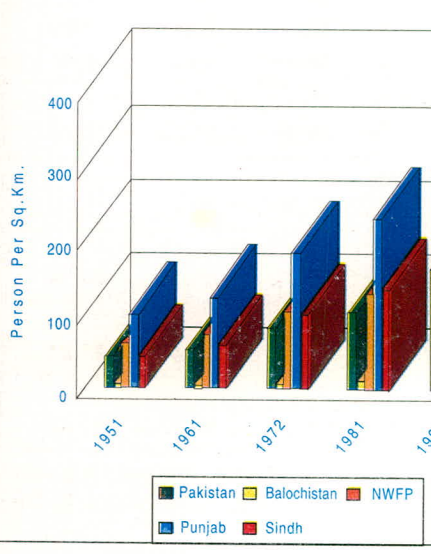
Fig. A-2 Population Trends (1901-1998)



A-1.1 Population Density

The population density in the country has increased three times i.e. from 54 persons per square kilometer in 1961 to 164 persons per sq. kilometer in 1998. Province-wise analysis indicates that Punjab is the most densely populated province (353 persons per sq.km.), followed by NWFP (236 persons per sq.km.), Sindh (213 persons per sq.km), and Balochistan (19 persons per sq.km) in 1998 (Table A-02). Figure A.3 gives province wise population density during 1951-1998. As a result of rapid population growth in the country during 1961-1998, the density per sq.km has also increased in all the provinces, however, it varied among the provinces. Punjab registered 2.85 times increase (from 124 persons to 353 persons per sq.km), Sindh 3.61 times (from 59 persons to 213 persons per sq.km) and NWFP 3.28 times (from 72 persons to 236 persons per sq.km)

Fig. A-3 Population Density by Province(1951-1998)



A-I.ii Urban-Rural Population Distribution

The urban population which was 17.8 percent of the total population in 1951 has increased to 32.5 percent in 1998, thus registering a high annual growth rate of 4.3 percent. As compared to this, the rural population has increased by 2.5 percent per year during the same period. The urban population which was 5.99 million in 1951 has increased to 42.46 million in 1998 i.e. about 7 times increase in 47 years, whereas, rural population has increased slightly over 3 times which indicates high pressure on urban areas (Table A-II).

In 1931, there were only seven cities which had over hundred thousand population. In 1981, there were 29 such cities. The number of cities with more than hundred thousand population must be more now, which at this stage can not be assessed due to non-availability of population census results.

The following table shows that the share of urban population which was 17.7 percent in 1951 has increased to 32.5 percent according to the Population Census 1998 while, the share of rural population decreased from 82.5 percent in 1951 to 67.5 percent in 1998, indicating that Pakistan is on the way of rapid urbanization.

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

				Growth Rates			Percentage Share		
Year	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	130.58	88.12	42.46	2.6	2.2	3.5	100.0	67.5	32.5

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

A-I.iii Fertility

In the absence of adequate data on vital statistics it is difficult to estimate accurate fertility rates in the country. However, some direct and indirect estimates of fertility under different assumptions were made through different surveys. One of the major source of such information is the Pakistan Demographic Survey (PDS)

conducted by Federal Bureau of Statistics. This survey indicates decline in total fertility rate (TFR) in the country. TFR which was around 7 per women in 1985 has declined to 5.6 in 1995, whereas, the crude birth rate (CBR) which was 43.3 per thousand population in 1985 has declined to 37.4 per thousand population in 1995. (Table A-III)

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

Year	Crude Birth Rate(Per 1000 Population)	Crude Death Rate (Per 1000 Population)	Rate of Natural Increase (%)	Total Fertility Rate (per Women)
1963	42.0	16.0	2.6	6.2
1962-65	42.0	15.0	2.7	6.1
1976	42.8	11.5	3.1	6.9
1977	40.6	10.7	3.0	6.6
1978	40.9	10.1	3.1	6.6
1979	41.6	9.6	3.2	6.9
1984	43.3	11.8	3.1	6.9
1985	43.3	11.5	3.2	7.0
1986	43.3	10.1	3.3	6.9
1987	43.3	10.5	3.3	6.9
1988	40.5	10.8	3.0	6.5
1989	40.9	10.1	3.1	6.4
1990	40.6	10.6	3.0	6.2
1991	39.5	9.8	3.0	6.0
1992	39.3	10.1	2.9	5.8
1994	37.6	9.9	2.8	5.6
1995	37.4	9.5	2.8	5.6

Source: Federal Bureau of Statistics(PGE: 1963 & 1962-65, PGS: 1976-1979 & PDS: 1984-1995)

A-I.iv Mortality

Crude death rate (CDR) provides an overall picture of the level of mortality in the country. Table above reveals that CDR was 16.0 per thousand population in 1963 and has declined to 9.5 per thousand population by 1995. It is mainly due to better health facilities, availability of life saving drugs, improved nutrition and introduction of vaccination programme. All these measures improved the health conditions in the country. Thus resulting decline in mortality rate (Table A-III).

A-I.v Infant Mortality Rate

Infant mortality rate (IMR) is an important indicator to judge health situation in the country. Pakistan is among the countries which has very high infant mortality rate of 89 per thousand live births. IMR was 107.7 per thousand live births in 1991 which has declined to 89 per thousand live births in 1996. However , it is still high as compared to other developing countries and needs to be brought down further (Table A-IV).

A-I.vi Life Expectancy

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

Table below presents life expectancy at birth by age and sex. It indicates that expectancy of life at birth which was 59.30 for male and 60.70 for female in 1991 has increased to 60.31 for male and a little higher i.e. 61.88 for females in 1996. (Table A-IV).

Table A-IV Infant Mortality Rates, and Life Expectancy at Birth, 1991-96

Period	Infant Mortality Rate	Life Expectancy at Birth (years)	
		Male	Female
1991	107.70	59.30	60.70
1992	108.00	59.30	60.70
1993	100.80	59.30	60.70
1994	101.40	59.30	60.70
1996	89.00	60.31	61.88

Source: Federal Bureau of Statistics.

A-II Housing

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

An analysis of data for the last four Housing Censuses indicates that the number of housing units which were about 7.816 million in 1960 has increased to 19.701 million i.e. registered an annual growth rate of 2.46 percent during 1960-98 which is about 0.6 percent less to the population growth rate during this period indicates high pressure on the housing units. The high population growth in the country alongwith deficit of housing units at the time of independence due to mass migration, the country is continuously facing shortages of housing units and there is high pressure on the existing housing units. Table A-15 gives housing stocks during 1960-98 and percentage changes in three Censuses by provinces and area.

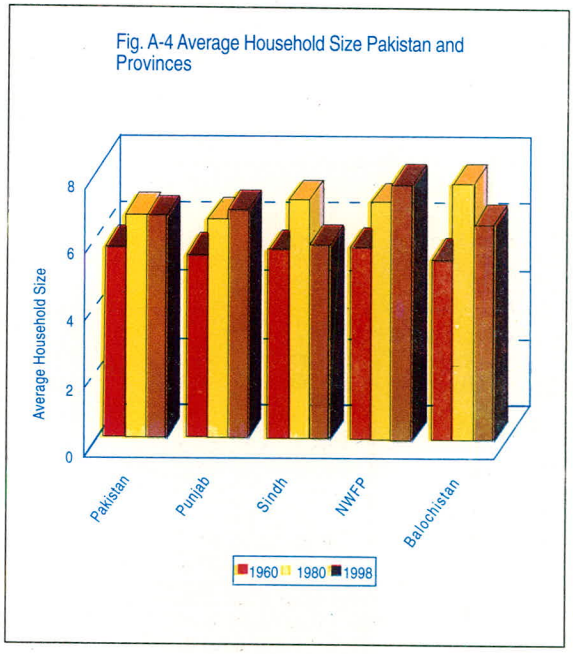
A review of table (i.e Table A-15) indicates some interesting changes in the urban-rural housing stock among the provinces, in the provinces of Punjab and Sindh the stock of housing units in urban areas indicate more increase during 1960-98 where as, in NWFP and Balochistan provinces the pace of construction of housing units remained almost the same during the last 38 years.

The pressure on housing units can best be judged by the average household size. A comparison of data for 1960 and 1998 housing censuses indicate that the average household size i.e. number of persons per household was 5.7 in 1960 which has increased to 6.6 persons in 1998. Province wise analysis indicates slightly higher pressure on housing units in three provinces as compared to Sindh i.e. the average household size was 5.8 in Sindh as compared to 7.6 in NWFP, 6.8 and 6.4 in Punjab and Balochistan respectively (Table A-V).

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

Area	1960	1980	1998
Pakistan	5.7	6.7	6.6
Urban	6.1	7.0	6.8
Rural	5.6	6.0	6.6
Punjab	5.5	6.5	6.8
Urban	5.7	6.9	6.9
Rural	5.4	6.3	6.7
Sindh	5.6	7.1	5.8
Urban	5.5	7.0	6.5
Rural	5.7	7.1	5.3
NWFP	5.7	7.0	7.6
Urban	5.8	7.1	7.2
Rural	5.6	6.9	7.7
Balochistan	5.4	7.6	6.4
Urban	5.4	7.6	7.4
Rural	5.4	7.6	6.1

Source: Population Census Organization

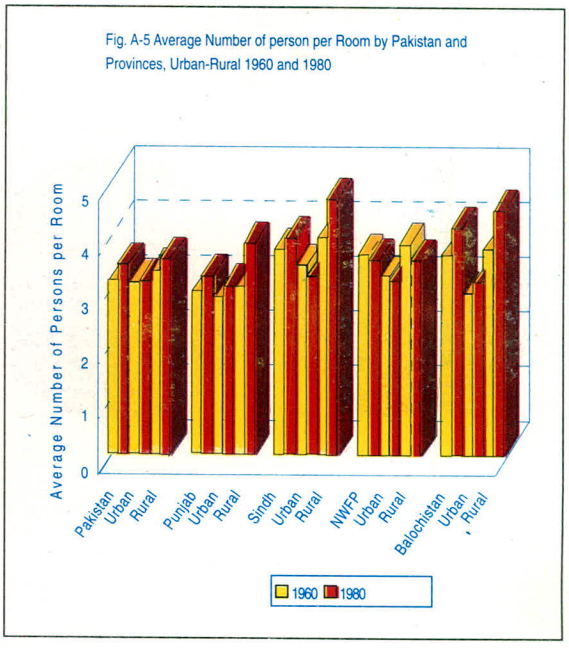


The situation appears even worst if average number of persons per room is compared, such analysis suggests that in 1960 on the average 3.2 persons were living per room which increased 3.5 persons per room in 1980 (Table A-VI).

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

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

Source: Population Census Organization.



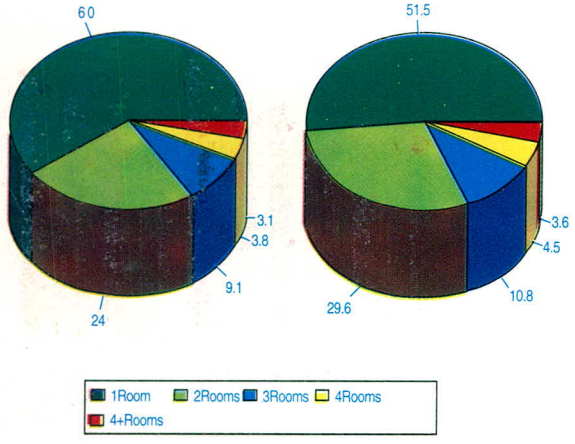
There were about 60 percent housing units in 1960 which had only one room, 24 percent with two rooms whereas about 16 percent housing units had three or more rooms. The share of one room house declined to 51.5 percent in 1980. The decline for one room share was observed for both urban and rural areas in 1980. Similarly 53.9 percent of the population were residing in one room housing unit in 1960, 26.2 percent in two rooms housing unit, whereas about 20 percent of the population were residing in three rooms or above. The share of population residing in one room housing unit declined to 45.4 percent, whereas share of population residing in two rooms or above indicates slight increase for each category during 1980 as compared to 1960 (Table A-VII).

Table A-VII Percentage Distribution of the Housing Units and the Population by Number of Rooms per Unit by Urban-Rural Areas,Pakistan,1960-80

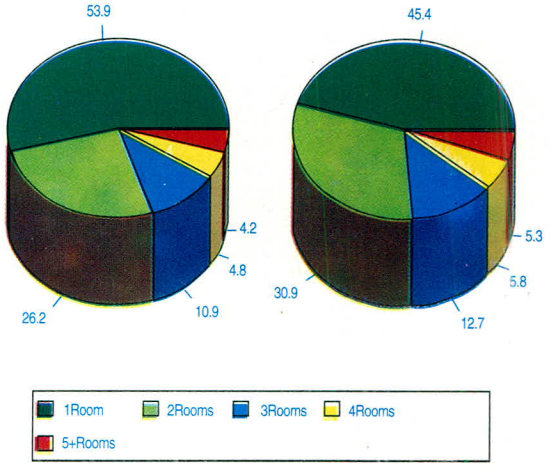
Area/year	Total	Percent Distribution of Housing units by Number of Rooms Per Housing Unit					Percent Distribution of the Population by Number of Rooms Per Housing Unit				
		1	2	3	4	5+	1	2	3	4	5+
PAKISTAN											
1960	100.00	60.0	24.0	9.1	3.8	3.1	53.9	26.2	10.9	4.8	4.2
1980	100.00	51.5	29.6	10.8	4.5	3.6	45.4	30.9	12.7	5.8	5.3
URBAN											
1960	100.00	56.4	24.8	9.3	4.7	4.8	48.1	27.5	11.6	6.1	6.7
1980	100.00	42.6	31.5	13.7	6.5	5.7	35.3	32.0	15.4	7.9	9.4
RURAL											
1960	100.0	61.1	23.7	9.1	3.5	2.6	55.6	28.8	10.7	4.4	3.5
1980	100.0	55.1	28.8	9.6	3.7	2.8	49.2	30.1	11.4	4.8	4.5

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

Fig, A-6 Percentage Distribution of Housing Units by Number of Rooms Per Unit Pakistan 1960 & 1980



Fig, A-7 Percentage Distribution of Population by No.of Rooms Per Housing Unit Pakistan 1960 & 1980



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 1980, only 20 percent were constructed prior to the independence i.e. 1947, whereas 23.9 percent during 1947-69,36.5 percent in 1970-75 and about 19.6 percent during 1976-80. It reveals that pace of construction of housing units was slightly higher during mid seventy (Table A-17).

A-II.ii Housing Units by Lighting Facilities

Only 18 percent of the housing units had electricity facilities in 1973 and it increased to 31 percent in 1980, whereas about 82 percent of the households were using kerosene oil for lighting in 1973, their share decreased to about 67 percent in 1980. A comparison of data by urban-rural areas reveals that 54.4 percent of the housing units in urban areas had electricity facilities in 1973 and such facility was available to about 71 percent households in 1980, whereas only 5 percent of rural housing units had electricity facilities in 1973 which increased to 14.7 percent in 1980. In rural areas 94.7 percent household were using kerosene oil for lighting purposes in 1973 and about 83 percent were using kerosene oil in 1980 (Table A-21).

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

Analysis of data suggests that 70 percent of housing units were using wood as cooking fuel in 1980, the share was 69.5 percent in 1973 i.e. the use of wood had increased. About 7.5 percent of the households were using kerosene oil as cooking fuel in 1973 and their share declined to 6.2 percent in 1980, whereas only 2.0 percent of the housing units had the facilities of gas in 1973 which was extended to 6.5 percent in 1980. In urban areas about 22 percent households had gas facilities in 1980 as compared to this only 0.3 percent of the rural households had facilities in 1980 (Table A-23).

A-II.iv Housing Unit by Water Facilities

An important basic need for the population is the access to safe drinking water and this is still a serious problem for the country. In 1973 only 16.5 percent housing units had access to safe tap water either available inside or outside the housing unit whereas, about 68.3 percent of the households were using ground water i.e. either hand pumps or well, and the remaining 15.1 percent were using water from ponds, springs rivers and streams (Table A-26).

Analysis by area shows that about 55 percent of the urban population had access to safe tap water either inside or outside of the housing units in 1973 whereas, the share of such category increased to 58.3 percent in 1980. The situation in rural areas was worst where only 2.9 percent of the rural housing units had facilities of safe tap water in 1973 and their share increased to 5.4 percent in 1980. About 73.3 percent of rural housing units were using ground water in 1980 whereas, about 21.4 percent were using water for drinking purposes either from ponds, springs, rivers and streams (Table A-26).

The exact situation could not be assessed as the Population Census results conducted in March, 1998 are still awaited. Pakistan Integrated Household Survey(PIHS)-1996-97 results indicate that 27 percent of the households had facilities of tap water either inside or outside households, whereas, 63 percent of the households were using ground water i.e. from hand pump or well and 9 percent from rivers, canal, ponds or streams. The area-wise analysis of survey data suggest that 60 percent of the urban households in 1996-97 had facilities of tap water either inside or outside the housing units, whereas 11 percent of the rural housing units had such facilities (Table A-27).

A-II.v Housing Units with Latrine Facilities

According to PIHS, 1996-97, about 42 percent of the households had flush facility in their toilets, whereas, 14 percent without flush and 44 percent of the households had no latrine facility in their housing units. The area-wise analysis indicates that 85 percent of the urban household had flush system in their toilets, whereas 8 percent

had no flush facility and 7 percent of the urban household did not have toilet facility in the housing units in 1996-97. As compared to this about 22 percent of the rural households had flush system in their toilets and 17 percent without flush, whereas 61 percent of the rural households had no toilet facility in their housing units (PIHS, Table 5.5 page 121).

A-III Labour Force

The economically active population or Labour Force is the group of persons who produce goods and services to meet the requirement of the society. In Pakistan, labour force is defined as all persons ten years of age and above who are working or looking for work for cash or kind , one week prior to the date of enumeration. The labour force participation rate in Pakistan is comparatively low mainly due to low participation of female in the labour force. There may be several explanation for this however, few are stated as early age marriages, strong social and cultural influence on free movement of women and absence of an organized labour market. The main sources of labour force and employment statistics are Population Census and Labour Force Survey conducted by Federal Bureau of Statistics on annual basis. According to the latest available Labour Force Survey, 1996-97, about 28.69 percent of the total population was in the civilian labour force. The analysis of data of last 15 years indicates that the total Civilian Labour Force which was 30.19 in 1982-83 declined to 28.69 in 1996-97. There was not much difference in the urban-rural labour force participation rates, according to 1996-97 Labour Force Survey, about 27.15 percent of the urban population (10 years and above) was in civilian labour force as against 29.42 percent for rural areas. The un-employment rate was only 1.75 percent in 1996-97. The urban ratio was slightly higher as compared to rural areas (Table A-30 & 31).

A-IV Land Utilization

Pakistan has 79.61 million hectares of land of which 58.51 million hectares have been surveyed and reported, which is about 73 percent of the total land. Of the total reported area only 39.2 percent was cropped area till 1996-97. The cropped area registered about 19 percent increase during last 17 years i.e. about 1 percent each year whereas, the population is increasing at an annual growth rate of about 2.6 percent causing heavy burden on the government for the import of essential food items.

The area not available for utilization shared about 42 percent of the reported land, this category includes waste land of mountains, glaciers, rivers beds, deserts and urban areas. The increase in this category of land was about 23 percent during last 17 years. It is an indication of urbanization, i.e. 4.5 million hectares of land in 17 years added upto the category of land which is not available for cultivation. It is interesting to note that the increase for total cropped area was 19 percent during the same period of time which means the rate of increase of land not available was 4 percent higher than cropped land which is mainly due to a very high growth rate of population. According to 1998- Population Census 2.6 percent is annual intercensal growth of the country's population which is not only threat to the development of the country but also major environmental concern. Only 6 percent of total reported area belong to the forest, an analysis of data indicate that forest area registered about 27 percent increase during the period 1980-81 to 1996-97. It is mainly due to the government emphasis on tree plantation scheme. The cultivated area was about 37 percent of the total reported area, the increase in the cultivated area was only 6 percent during last 17 year i.e. the addition of only 2.8 million hectares, which is too less as compared to population growth.

The net area sown during 1996-97 was 77 percent of the total cultivated area. This share was almost same during 1980-81. About 6.19 million hectares of areas was sown more than once during 1996-97 (Table A-34). The analysis of data shows that Area sown more than once is continuously increasing since 1980-81. The share of "Area sown more than once" was about 27 percent of the total cropped area during 1996-97. This is an encouraging trend, which indicates a substantial expansion in productive capacity and a useful way of preventing soil degradation and rehabilitating problem of soils.

A-V Agriculture

A-V.i Area under Agriculture Crops

The wheat crop during 1997-98 was cultivated on 8.355 million hectares area, it occupies the highest area for cultivation as compared to other crops followed by Cotton (2.960 million hectares), Rice (2.317 million hectares), Gram (1.102 million hectares), Sugarcane (1.056 million hectares), Maize (0.869 million hectares) and various type of fruits like, Mango, Apple, Guava, Citrus Fruits, Bananas, Graps and Dates occupied 0.498 million hectares. An analysis of data for last 17 years regarding area under agricultural crops indicates fluctuating trends for different crops, however, shows increasing trend for some of the major crops like wheat, cotton, rice and fruits like bananas, apples and dates (Table A-35).

A-V.ii Production of Agriculture Crops

The wheat is a major crop cultivated on the larger area as compared to other crops. The production of wheat during 1997-98 was 18.694 million tonnes as against 11.475 million in 1980-81. The rice production was 3.123 million tonnes in 1980-81 which increased to 4.333 million tonnes in 1997-98. Like area under cultivation of various crops the production of various important crops also indicates fluctuating trends during 1980-81 to 1997-98, this may attribute to bad weathers i.e. some time extra ordinary heavy or low rains, dry weather, floods and other natural hazards. However, there was significant increase in the production of major crops during 1997-98 as compared to 1980-81 (Table A-36).

The growth in agriculture sector as a whole experienced wide range of fluctuation since independence in 1947 due to various reasons. If it is looked across the 50 years of agriculture sector, there are very few years which may be called satisfactory years for agricultural production.

A-VI Water

Agricultural development in Pakistan is affected by two main constraints suitable soil and water, among these two water is more significant. 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 availability of water. Moreover, the surface water availability during Kharif Season is higher than Rabi.

Year wise breakdown of Table A-39 indicates that about 74.3 percent in Kharif and 64.72 percent in Rabi requirement of water availability at farm gate met with surface water while the remaining requirements are met with ground water by means of public and private tubewells. The overall surface water (70.29%) was available during the year 1996-97 and the overall ground water (29.70%) was available at farm gate during 1996-97.

A-VI.i Tubewells

Tubewells are the source of ground water supply in the country, shared about 29 percent of total water availability. There were about 200 thousand tubewells in the country in 1980-81 and the number increased to 484 thousand in 1995-96, with an average annual growth rate of about 6 percent. The province of Punjab shared the maximum number of tubewells among the provinces i.e. 90 percent of the total tubewells, installed in the country during 1995-96, followed by Sindh 4.8 percent, Balochistan 3.3 percent, and NWFP about 1.8 percent (Table A-37).

A-VII Livestock

A-VII.i Livestock Population

Livestock contribution to the national economy is of vital importance, meat, milk, butter and eggs are some of the basic nutritional requirements. The contribution of this sector to the GDP in agriculture sector is around 25 to 30 percent and about 12-15 percent to the total export earnings. Besides, this sector also provide animals for land cultivation, land levelling and transportation, specially in the rural areas. (Rukhnuddin, 1988).

Analysis of data on live stock population for the period 1989-90 to 1996-97 indicates increase in various categories of animals. The number of buffalos which were 17.4 million in 1989-90 has increased to 20.7 million in 1996-97, the growth for this category of animal was 2.2 percent per year during 1989-90 to 1996-97. The population of goats and sheeps was high as compared to other animals. The population of goats increased by 3.8 percent per year as compared to 2.2 percent per year for sheeps during the same period (Table A-44).

A-VII.ii Livestock Products

The major live stock products are butter, mutton, poultry meat, milk and eggs. The beef production registered about 130 percent increased in last 15 years, it was 448 thousand tonnes in 1981-82 and it has increased to 1029 thousand tonnes in 1996-97. Surprisingly the mutton production registered higher increase during this period as compared to beef production i.e. 158 percent, from 389 thousand tonnes in 1981-82 to 1003 thousand tonnes in 1996-97. Although the production of beef and mutton has increased considerably, but it is still short in supply to meet the requirements of 130.6 million population, per capita availability of beef and mutton per year is only 8 Kg.

The production of milk was 9.5 million tonnes in 1981-82 which has increased to 21 million tonnes in 1996-97, indicates about 121 percent increase during the period 1981-1997. 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.

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 1990. The production for poultry meat was 57 thousand tonnes in 1981-82 which has increased to 387 thousand tonnes in 1996-97 indicates about 7 times increase during last 15 years. Eggs production was 2,664 million in 1981-82 and it has increased to 6,050 million in 1996-97 indicates 127 percent increase during the same period (Table A-45 & 46).

A-VIII Forestry

Forests play important role in the ecological and economic life. Pakistan has one of the lowest forest area in the world, it 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. The tree plantation schemes were launched, however, all these efforts are being negated due to some natural events like flood, land slides and erosion as well as deforestation. The major cooking fuel in the county is the fire wood, which also cause deforestation. Besides, 3 million Afghan refugees placed in camps cause major deforestation alongwith their needs for fire wood together with their herds of sheep and goats in different areas. Due to government efforts it is possible to maintain the forest area to about 6 percent (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 protect 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 vehicles 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 more than 8 thousand route kilometers of railway in 1997-98. The railway route kilometers almost remained the same during last 17 years i.e. 1981-98, however, there was decline in number of passengers, in 1997-98 as compared to 1980-81. The passenger travelled through railways in 1980-81 were about 123 million and their number reduced to 64.9 million in 1997-98, registered a decline of 5.6 percent. Similarly there is decline in freight handling during this period, it is mainly due to improved high ways construction of Motor Way and better transportation system by roads, people prefer to travel through buses which are more comfortable and time saving as compared to trains (Table A-86).

The road length which was about 94 thousand km in 1980-81 has increased to 232 thousand in 1997-98, indicates an over all increase of 147 percent over 1980-81. The average annual growth in length during 1980 to 1998 was 5.7 percent whereas the length of high type roads during the same period was increased about 7.4 percent (Table A-86).

Total registered vehicles during 1980 were 1.110 million, which had increased to 4.173 million in 1997 i.e. increased by 276 percent during 17 years period, a very rapid expansion. There were about 50 thousand registered buses in 1980 and the number of buses increased to about 119 thousand in 1997. There were only 19 thousand taxis in the country in 1980 and it has increased to 83 thousand in 1997. Of the total registered 119 thousand buses only 75.5 thousand were on road in 1997. Among the 4.173 million registered vehicles 3.498 million vehicles were on road during 1997. Despite of considerable increase in the number of buses, taxis, motor rickshaws and wagons, the urban population is still facing the transport problem. The high population growth alongwith rapid urbanization has caused serious terrific problems in major cities (Table A-87). The analysis of transport data indicates increasing trends in almost all sorts of vehicles which badly affect the environment.

STATISTICAL TABLES

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(P)
PAKISTAN	796095 (100.0)	33816 (100.0)	42978 (100.0)	65321 (100.0)	84253 (100.0)	130579 (100.0)
Islamabad	906 (0.1)	94 (0.3)	120 (0.3)	235 (0.4)	340 (0.4)	799 (0.6)
Balochistan	347190 (43.6)	1187 (3.5)	1385 (3.2)	2433 (3.7)	4332 (5.1)	6511 (5.0)
N.W.F.P	74521 (9.4)	4587 (13.6)	5752 (13.4)	8392 (12.8)	11061 (13.1)	17555 (13.4)
Punjab	205344 (25.8)	20557 (60.8)	25500 (59.3)	37612 (57.6)	47292 (56.1)	72585 (55.6)
Sindh	140914 (17.7)	6054 (17.9)	8374 (19.5)	14158 (21.7)	19029 (22.6)	29991 (23.0)
FATA	27220 (3.4)	1337 (3.9)	1847 (4.3)	2491 (3.8)	2199 (2.6)	3138 (2.4)

Source: Population Census Organization
Note: Percentage distribution is given in parenthesis
(P) Provisional

Table A – 02

Population Density by Region/Province, 1951 to 1998 Censuses

(Persons/Sq. Km.)

Region / Province	1951	1961	1972	1981	1998(P)
Pakistan	42	54	82	106	164
Islamabad Federal Capital Area	104	132	259	376	882
Balochistan	3	4	7	12	19
N.W.F.P	62	72	113	148	236
Punjab	100	124	183	230	353
Sindh	43	59	100	135	213
F.A.T.A	49	68	92	81	115

Source: Population Census Organization
(P) Provisional

Table A – 03

Population by Sex, Urban and Rural Areas, 1998, Census

Region / Province	All Areas			Urban Area		
	Both sexes	Male	Female	Both sexes	Male	Female
Pakistan	130,579,571	67,840,137	62,739,434	42,458,339	22,419,286	20,039,053
Islamabad Federal Capital Area	799,085	429,546	369,539	524,500	287,131	237,369
Balochistan (*)	6,511,358	3,480,765	3,030,593	1,516,339	833,201	683,138
N.W.F.P	17,554,674	8,962,543	8,592,131	2,973,047	1,572,589	1,400,458
Punjab	72,585,430	37,508,842	35,076,588	22,699,490	11,888,632	10,810,858
Sindh	29,991,161	15,823,097	14,168,064	14,661,832	7,792,499	6,869,333
F.A.T.A	3,137,863	1,635,344	1,502,519	83,131	45,234	37,897

Region / Province	Rural Area		
	Both sexes	Male	Female
Pakistan	88,121,232	45,420,851	42,700,381
Islamabad Federal Capital Area	274,585	142,415	132,170
Balochistan (*)	4,995,019	2,647,564	2,347,455
N.W.F.P	14,581,627	7,389,954	7,191,673
Punjab	49,885,940	25,620,210	24,265,730
Sindh	15,329,329	8,030,598	7,298,731
F.A.T.A	3,054,732	1,590,110	1,464,622

Source: Provisional results of Fifth Population and Housing Census held in March, 1998 (Population Census Organization)

(*) Includes 466427 Population of 360 left over blocks estimated on the basis of average population of completed blocks within the same district of Baluchistan Province.

Table A – 04

District – Wise Population by Sex and Rural/Urban Areas
1998 Census

District/Area	1998 – Census				1981	1981 – 98
	House– Holds	Male	Female	Both Sexes	Popul– ation	Avg. Annual Growth Rate
			PAKISTAN			
PAKISTAN	19,701,344	67,840,137	62,739,434	130,579,571	84,253,644	2.61
Rural	13,450,956	45,420,851	42,700,381	88,121,232	60,426,305	2.24
Urban	6,250,388	22,419,286	20,039,053	42,458,339	23,827,339	3.45
			ISLAMABAD			
ISLAMABAD	136,767	429,546	369,539	799,085	340,286	5.15
Rural	43,884	142,415	132,170	274,585	135,922	4.22
Urban	92,883	287,131	237,369	524,500	204,364	5.70
			BALOCHISTAN			
BALOCHISTAN	1,018,261	3,480,765	3,030,593	6,511,358	4,332,376	2.42
Rural	814,191	2,647,564	2,347,455	4,995,019	3,660,931	1.84
Urban	204,070	833,201	683,138	1,516,339	671,445	4.91
QUETTA	99,450	425,474	333,771	759,245	381,566	4.13
Rural	25,232	108,399	90,539	198,938	95,847	4.39
Urban	74,218	317,075	243,232	560,307	285,719	4.04
PISHIN	58,561	194,776	171,387	366,163	202,256	3.55
Rural	55,654	183,834	161,850	345,684	187,541	3.66
Urban	2,907	10,942	9,537	20,479	14,715	1.96
KILLA ABDULLAH	50,342	210,022	180,716	390,738	176,341	4.79
Rural	44,863	173,278	151,983	325,261	146,548	4.80
Urban	5,479	36,744	28,733	65,477	29,793	4.74
CHAGI	31,086	108,378	94,184	202,562	120,455	3.10
Rural	27,140	89,466	77,357	166,823	109,155	2.52
Urban	3,946	18,912	16,827	35,739	11,300	7.00
LORALAI	43,963	159,380	140,648	300,028	235,038	1.45
Urban	39,770	137,654	125,055	262,709	221,138	1.02
Urban	4,193	21,726	15,593	37,319	13,900	5.98
MUSA KHEL	19,126	72,799	59,612	132,411	91,174	2.22
Rural	19,126	72,799	59,612	132,411	91,174	2.22
Urban	–	–	–	–	–	

Contd.

Table A – 04

District – Wise Population by Sex and Rural/Urban Areas
1998 Census

District/Area	1998 – Census				1981 Popul– ation	1981 – 98 Avg. Annual Growth Rate
	House– Holds	Male	Female	Both Sexes		
BARKHAN	14,699	52,191	47,311	99,502	61,686	2.85
Rural	13,787	48,112	43,989	92,101	61,686	2.38
Urban	912	4,079	3,322	7,401	–	
KILLA SAIFULLAH	28,796	101,904	86,825	188,729	148,362	1.42
Rural	28,796	101,904	86,825	188,729	148,362	1.42
Urban	–	–	–	–	–	
ZHOB	36,558	150,636	125,859	276,495	213,285	1.54
Rural	31,726	124,858	107,389	232,247	181,354	1.46
Urban	4,832	25,778	18,470	44,248	31,931	1.94
SIBI	26,734	95,864	82,790	178,654	98,482	3.56
Rural	19,815	65,173	55,913	121,086	70,637	3.22
Urban	6,919	30,691	26,877	57,568	27,845	4.36
ZIARAT	4,738	16,999	15,865	32,864	32,196	0.12
Rural	4,609	16,595	15,650	32,245	31,995	0.05
Urban	129	404	215	619	201	6.84
KOHLU	16,114	53,679	44,107	97,786	71,269	1.88
Rural	15,156	48,273	40,144	88,417	71,269	1.28
Urban	958	5,406	3,963	9,369	–	
DERA BUGTI	29,030	96,498	83,906	180,404	103,821	3.30
Rural	27,337	88,405	76,690	165,095	103,821	2.76
Urban	1,693	8,093	7,216	15,309	–	
JAFARABAD	62,054	219,122	201,960	421,082	265,342	2.75
Rural	52,664	176,131	162,974	339,105	246,596	1.89
Urban	9,390	42,991	38,986	81,977	18,746	9.06
NASIRABAD	40,060	127,202	115,487	242,689	129,112	3.78
Rural	34,981	107,160	97,763	204,923	119,979	3.20
Urban	5,079	20,042	17,724	37,766	9,133	8.70
JHAL MAGSI	16,184	55,352	48,618	103,970	68,092	2.52
Rural	16,184	55,352	48,618	103,970	68,092	2.52
Urban	–	–	–	–	–	

Contd.

Table A – 04

District – Wise Population by Sex and Rural/Urban Areas 1998 Census

District/Area	1998 – Census				1981 Popul– ation	1981 – 98 Avg. Annual Growth Rate
	House– Holds	Male	Female	Both Sexes		
BOLAN	39,858	155,402	132,697	288,099	237,123	1.15
Rural	35,003	134,416	114,333	248,749	214,263	0.88
Urban	4,855	20,986	18,364	39,350	22,860	3.24
KALAT	35,525	121,332	114,426	235,758	209,149	0.71
Rural	31,396	104,466	97,662	202,128	198,112	0.12
Urban	4,129	16,866	16,764	33,630	11,037	6.77
MASTUNG	21,701	86,398	77,150	163,548	132,044	1.27
Rural	18,831	73,655	65,322	138,977	115,594	1.09
Urban	2,870	12,743	11,828	24,571	16,450	2.39
KHUZDAR	78,124	216,405	192,759	409,164	276,449	2.33
Rural	60,032	153,140	138,701	291,841	245,562	1.02
Urban	18,092	63,265	54,058	117,323	30,887	8.16
AWARAN	22,144	60,088	54,339	114,427	110,353	0.21
Rural	22,144	60,088	54,339	114,427	110,353	0.21
Urban	–	–	–	–	–	
KHARAN	36,368	102,736	94,682	197,418	128,040	2.58
Rural	32,750	89,113	82,248	171,361	117,568	2.24
Urban	3,618	13,623	12,434	26,057	10,472	5.50
LASBELA	50,730	167,327	146,078	313,405	188,139	3.05
Rural	34,637	102,737	93,178	195,915	156,768	1.32
Urban	16,093	64,590	52,900	117,490	31,371	8.07
KECH	83,079	213,849	196,030	409,879	379,467	0.45
Rural	70,164	177,679	164,295	341,974	327,130	0.26
Urban	12,915	36,170	31,735	67,905	52,337	1.54
GWADAR	34,348	96,004	82,985	178,989	112,385	2.77
Rural	16,691	44,108	38,262	82,370	69,132	1.04
Urban	17,657	51,896	44,723	96,619	43,253	4.84
PANJGUR	38,889	120,948	106,401	227,349	160,750	2.06
Rural	35,703	110,769	96,764	207,533	151,255	1.88
Urban	3,186	10,179	9,637	19,816	9,495	4.42

Note : Includes 466427 Population and 61891 Households of 360 left over blocks estimated on the basis of average Population/Households of completed blocks withing the same district of Balochistan Province.

Contd.

Table A–04

Agency – Wise Population by Sex and Rural/Urban Areas 1998 Census

Agency/Area	1998–Census				1981	1981–98
	House–Holds	Male	Female	Both Sexes	Popul–ation	Avg. Annual Growth Rate
			FATA			
F.A.T.A.	357,112	1,635,344	1,502,519	3,137,863	2,198,547	2.11
Rural	347,193	1,590,110	1,464,622	3,054,732	2,198,547	1.95
Urban	9,919	45,234	37,897	83,131	–	–
BAJAURE	67,831	306,322	290,354	596,676	289,206	4.35
Rural	67,831	306,322	290,354	596,676	289,206	4.35
Urban	–	–	–	–	–	–
MOHMAND	38,195	174,843	156,753	331,596	163,933	4.23
Rural	38,195	174,843	156,753	331,596	163,933	4.23
Urban	–	–	–	–	–	–
KHYBER	59,041	279,649	254,734	534,383	284,256	3.78
Rural	52,824	251,062	231,366	482,428	284,256	3.16
Urban	6,217	28,587	23,368	51,955	–	–
KURRAM	45,271	225,781	215,843	441,624	294,362	2.41
Rural	42,512	212,998	203,884	416,882	294,362	2.07
Urban	2,759	12,783	11,959	24,742	–	–
ORAKZAI	25,545	112,081	111,804	223,885	358,751	–2.73
Rural	25,545	112,081	111,804	223,885	358,751	–2.73
Urban	–	–	–	–	–	–
NORTH WAZIRISTAN	41,148	190,399	167,468	357,867	238,910	2.40
Rural	40,205	186,535	164,898	351,433	238,910	2.29
Urban	943	3,864	2,570	6,434	–	–
SOUTH WAZIRISTAN	51,738	224,380	189,512	413,892	309,454	1.72
Rural	51,738	224,380	189,512	413,892	309,454	1.72
Urban	–	–	–	–	–	–
TRIBAL AREA ADJACENT PESHAWAR	6,260	27,015	26,902	53,917	37,061	2.23
Rural	6,260	27,015	26,902	53,917	37,061	2.23
Urban	–	–	–	–	–	–

Contd.

Table A–04

Agency – Wise Population by Sex and Rural/Urban Areas
1998 Census

Agency/Area	1998–Census				1981	1981–98
	House–Holds	Male	Female	Both Sexes	Popul–ation	Avg. Annual Growth Rate
TRIBAL AREA						
ADJACENT KOHAT	9,870	46,317	44,489	90,806	57,245	2.75
Rural	9,870	46,317	44,489	90,806	57,245	2.75
Urban	–	–	–	–	–	–
TRIBAL AREA						
ADJACENT BANNU	2,054	10,308	9,242	19,550	63,213	–6.67
Rural	2,054	10,308	9,242	19,550	63,213	–6.67
Urban	–	–	–	–	–	–
TRIBAL AREA ADJACENT						
LUKKY MURWAT	937	3,424	3,531	6,955	16,149	–4.83
Rural	937	3,424	3,531	6,955	16,149	–4.83
Urban	–	–	–	–	–	–
TRIBAL AREA ADJACENT						
DERA ISMAIL KHAN	5,610	20,683	18,690	39,373	55,824	–2.03
Rural	5,610	20,683	18,690	39,373	55,824	–2.03
Urban	–	–	–	–	–	–
TRIBAL AREA						
ADJACENT TANK	3,612	14,142	13,197	27,339	30,183	–0.58
Rural	3,612	14,142	13,197	27,339	30,183	–0.58
Urban	–	–	–	–	–	–

Contd.

Table A – 04

District – Wise Population by Sex and Rural/Urban Areas 1998 Census

District/Area	1998–Census				1981	1981–98
	House–Holds	Male	Female	Both Sexes	Popul–ation	Avg. Annual Growth Rate
			N.W.F.P			
N.W.F.P	2,301,104	8,962,543	8,592,131	17,554,674	11,061,328	2.75
Rural	1,889,904	7,389,954	7,191,673	14,581,627	9,395,675	2.62
Urban	411,200	1,572,589	1,400,458	2,973,047	1,665,653	3.46
CHITRAL	41,191	160,485	156,713	317,198	208,560	2.50
Rural	36,879	144,497	142,761	287,258	208,560	1.90
Urban	4,312	15,988	13,952	29,940	–	–
UPPER DIR	73,344	289,394	283,436	572,830	362,565	2.73
Rural	70,230	276,612	271,442	548,054	362,565	2.46
Urban	3,114	12,782	11,994	24,776	–	–
LOWER DIR	78,349	351,629	359,048	710,677	404,844	3.36
Rural	73,626	328,582	338,321	666,903	404,844	2.98
Urban	4,723	23,047	20,727	43,774	–	–
BUNER	56,591	249,917	251,226	501,143	265,517	3.80
Rural	56,591	249,917	251,226	501,143	265,517	3.80
Urban	–	–	–	–	–	–
SWAT	145,036	640,935	608,637	1,249,572	715,938	3.33
Rural	125,377	549,073	526,030	1,075,103	627,860	3.21
Urban	19,659	91,862	82,607	174,469	88,078	4.10
SHANGLA	53,994	220,598	209,053	429,651	251,546	3.20
Rural	53,994	220,598	209,053	429,651	251,546	3.20
Urban	–	–	–	–	–	–
MALAKAND P/A	49,933	222,537	209,263	431,800	257,797	3.08
Rural	45,731	202,404	191,174	393,578	257,797	2.52
Urban	4,202	20,133	18,089	38,222	–	–
KOHISTAN	74,041	259,290	209,763	469,053	465,237	0.05
Rural	74,041	259,290	209,763	469,053	465,237	0.05
Urban	–	–	–	–	–	–

Contd.

Table A – 04

District – Wise Population by Sex and Rural/Urban Areas
1998 Census

District/Area	1998–Census				1981	1981–98
	House–Holds	Male	Female	Both Sexes	Popul–ation	Avg. Annual Growth Rate
BATAGRAM	46,053	156,734	147,413	304,147	339,119	–0.64
Rural	46,053	156,734	147,413	304,147	339,119	–0.64
Urban	–	–	–	–	–	–
MANSEHRA	177,311	563,734	577,839	1,141,573	770,235	2.34
Rural	167,833	531,164	546,662	1,077,826	732,799	2.29
Urban	9,478	32,570	31,177	63,747	37,436	3.18
ABBOTTABAD	138,807	435,926	439,231	875,157	647,635	1.79
Rural	115,585	348,728	369,009	717,737	550,669	1.57
Urban	23,222	87,198	70,222	157,420	96,966	2.89
HARIPUR	107,496	339,064	342,405	681,469	479,031	2.09
Rural	94,383	297,479	302,790	600,269	424,022	2.06
Urban	13,113	41,585	39,615	81,200	55,009	2.32
MARDAN	176,920	746,152	704,317	1,450,469	881,465	2.97
Rural	141,386	592,362	564,351	1,156,713	715,163	2.87
Urban	35,534	153,790	139,966	293,756	166,302	3.40
SWABI	136,085	508,056	502,635	1,010,691	625,035	2.87
Rural	112,083	418,854	415,467	834,321	566,734	2.30
Urban	24,002	89,202	87,168	176,370	58,301	6.72
CHARSADDA	127,982	504,060	469,134	973,194	630,811	2.58
Rural	102,361	406,942	379,568	786,510	498,977	2.71
Urban	25,621	97,118	89,566	186,684	131,834	2.07
PESHAWAR	281,456	1,067,397	971,232	2,038,629	1,113,303	3.62
Rural	132,070	544,457	506,167	1,050,624	547,055	3.91
Urban	149,386	522,940	465,065	988,005	566,248	3.33

Contd.

Table A – 04

District – Wise Population by Sex and Rural/Urban Areas
1998 Census

District/Area	1998 Census				1981	1981–98
	House–Holds	Male	Female	Both Sexes	Popul–ation	Avg. Annual Growth Rate
NOWSHERA	116,016	451,890	417,276	869,166	537,638	2.86
Rural	84,851	328,299	315,566	643,865	386,647	3.04
Urban	31,165	123,591	101,710	225,301	150,991	2.38
KOHAT	77,748	279,473	278,800	558,273	326,617	3.20
Rural	55,911	196,768	211,455	408,223	238,798	3.20
Urban	21,837	82,705	67,345	150,050	87,819	3.20
HANGU	31,949	149,676	158,622	308,298	182,474	3.13
Rural	24,536	118,259	128,346	246,605	148,047	3.05
Urban	7,413	31,417	30,276	61,693	34,427	3.49
KARAK	43,877	206,881	215,880	422,761	249,681	3.14
Rural	40,734	193,302	202,430	395,732	236,002	3.09
Urban	3,143	13,579	13,450	27,029	13,679	4.08
BANNU	71,065	346,236	326,685	672,921	423,018	2.77
Rural	65,010	320,288	305,737	626,025	379,808	2.98
Urban	6,055	25,948	20,948	46,896	43,210	0.48
LAKKI MARWAT	54,181	248,187	239,184	487,371	287,768	3.15
Rural	48,700	224,089	216,760	440,849	269,013	2.95
Urban	5,481	24,098	22,424	46,522	18,755	5.49
D.I. KHAN	115,748	443,975	403,249	847,224	494,432	3.22
Rural	99,528	378,867	345,094	723,961	402,837	3.51
Urban	16,220	65,108	58,155	123,263	91,595	1.76
TANK	25,931	120,317	111,090	231,407	141,062	2.95
Rural	22,411	102,389	95,088	197,477	116,059	3.17
Urban	3,520	17,928	16,002	33,930	25,003	1.81

Contd.

Table A – 04

District – Wise Population by Sex and Rural/Urban Areas 1998 Census

District/Area	1998 – Census				1981 Popul– ation	1981 – 98 Avg. Annual Growth Rate
	House– Holds	Male	Female	Both Sexes		
			PUNJAB			
PUNJAB	10,718,046	37,508,842	35,076,588	72,585,430	47,292,441	2.55
Rural	7,444,020	25,620,210	24,265,730	49,885,940	34,249,600	2.24
Urban	3,274,026	11,888,632	10,810,858	22,699,490	13,042,841	3.31
ATTOCK	213,159	629,438	635,127	1,264,565	876,667	2.18
Rural	169,259	491,605	512,145	1,003,750	749,069	1.74
Urban	43,900	137,833	122,982	260,815	127,598	4.29
RAWALPINDI	537,272	1,713,794	1,638,199	3,351,993	2,121,450	2.73
Rural	256,911	767,463	800,405	1,567,868	1,106,595	2.07
Urban	280,361	946,331	837,794	1,784,125	1,014,855	3.37
JEHLUM	181,079	546,443	557,461	1,103,904	778,778	2.07
Rural	135,440	389,687	419,249	808,936	587,197	1.90
Urban	45,639	156,756	138,212	294,968	191,581	2.57
CHAKWAL	191,343	506,041	553,410	1,059,451	775,600	1.85
Rural	169,654	440,468	488,816	929,284	711,045	1.59
Urban	21,689	65,573	64,594	130,167	64,555	4.21
SARGODHA	417,054	1,363,618	1,289,728	2,653,346	1,911,849	1.95
Rural	303,958	977,103	930,788	1,907,891	1,413,597	1.78
Urban	113,096	386,515	358,940	745,455	498,252	2.40
BHAKKAR	159,855	538,358	505,228	1,043,586	665,884	2.68
Rural	135,155	451,829	424,388	876,217	568,870	2.57
Urban	24,700	86,529	80,840	167,369	97,014	3.26
KHUSHAB	147,682	441,100	447,094	888,194	641,366	1.93
Rural	110,876	328,742	335,138	663,880	495,647	1.73
Urban	36,806	112,358	111,956	224,314	145,719	2.57
MIANWALI	151,395	519,807	517,433	1,037,240	711,529	2.24
Rural	120,486	409,636	412,154	821,790	572,078	2.15
Urban	30,909	110,171	105,279	215,450	139,451	2.59

Contd.

Table A – 04

District – Wise Population by Sex and Rural/Urban Areas
1998 Census

District/Area	1998 – Census				1981	1981 – 98
	House – Holds	Male	Female	Both Sexes	Popul – ation	Avg. Annual Growth Rate
FASAILABAD	763,750	2,780,813	2,559,958	5,340,771	3,561,909	2.41
Rural	442,947	1,586,344	1,474,067	3,060,411	2,315,648	1.65
Urban	320,803	1,194,469	1,085,891	2,280,360	1,246,261	3.62
JHANG	440,814	1,456,713	1,347,684	2,804,397	1,970,944	2.09
Rural	344,054	1,115,745	1,033,316	2,149,061	1,527,366	2.03
Urban	96,760	340,968	314,368	655,336	443,578	2.32
TOBA TEK SINGH	229,517	815,346	774,394	1,589,740	1,134,572	2.00
Rural	187,555	662,261	628,580	1,290,841	948,937	1.83
Urban	41,962	153,085	145,814	298,899	185,635	2.84
GUJRANWALA	455,699	1,753,766	1,620,545	3,374,311	2,108,365	2.80
Rural	226,302	861,799	806,074	1,667,873	1,180,642	2.05
Urban	229,397	891,967	814,471	1,706,438	927,723	3.65
HAFIZABAD	119,166	428,256	393,847	822,103	567,572	2.20
Rural	88,327	312,744	286,670	599,414	434,962	1.90
Urban	30,839	115,512	107,177	222,689	132,610	3.09
GUJRAT	283,234	926,193	916,088	1,842,281	1,288,819	2.12
Rural	207,122	647,231	670,347	1,317,578	955,596	1.91
Urban	76,112	278,962	245,741	524,703	333,223	2.70
MANDI BAHAUDDIN	175,644	582,816	556,517	1,139,333	846,114	1.76
Rural	149,931	495,050	470,995	966,045	765,391	1.38
Urban	25,713	87,766	85,522	173,288	80,723	4.59
SIALKOT	373,059	1,375,739	1,312,932	2,688,671	1,802,505	2.38
Rural	275,204	1,007,309	978,028	1,985,337	1,327,404	2.39
Urban	97,855	368,430	334,904	703,334	475,101	2.33
NAROWAL	171,686	626,933	621,577	1,248,510	908,977	1.88
Rural	150,406	549,317	545,952	1,095,269	818,283	1.73
Urban	21,280	77,616	75,625	153,241	90,694	3.13

Contd.

Table A – 04

District – Wise Population by Sex and Rural/Urban Areas
1998 Census

District/Area	1998 – Census				1981	1981 – 98
	House – Holds	Male	Female	Both Sexes	Popul – ation	Avg. Annual Growth Rate
LAHORE	901,558	3,262,904	2,949,811	6,212,715	3,544,942	3.35
Rural	151,651	567,882	515,619	1,083,501	556,456	3.99
Urban	749,907	2,695,022	2,434,192	5,129,214	2,988,486	3.23
KASUR	344,298	1,227,395	1,119,625	2,347,020	1,528,002	2.56
Rural	267,176	944,436	861,344	1,805,780	1,196,428	2.45
Urban	77,122	282,959	258,281	541,240	331,574	2.92
OKARA	343,380	1,147,949	1,047,749	2,195,698	1,487,261	2.32
Rural	270,191	873,906	811,688	1,685,594	1,214,577	1.95
Urban	73,189	274,043	236,061	510,104	272,684	3.75
SHEIKUPURA	461,247	1,683,331	1,546,667	3,229,998	2,110,153	2.53
Rural	344,113	1,242,738	1,141,906	2,384,644	1,729,508	1.91
Urban	117,134	440,593	404,761	845,354	380,645	4.80
VEHARI	304,655	1,060,719	987,052	2,047,771	1,328,808	2.57
Rural	257,583	891,003	827,509	1,718,512	1,147,482	2.40
Urban	47,072	169,716	159,543	329,259	181,326	3.57
SAHIWAL	270,150	940,973	880,170	1,821,143	1,281,526	2.09
Rural	227,413	785,257	735,836	1,521,093	1,080,331	2.03
Urban	42,737	155,716	144,334	300,050	201,195	2.38
PAKPATTAN	201,721	660,822	613,431	1,274,253	843,623	2.45
Rural	174,888	567,297	526,773	1,094,070	730,149	2.41
Urban	26,833	93,525	86,658	180,183	113,474	2.76
MULTAN	438,912	1,614,160	1,468,861	3,083,021	1,970,075	2.67
Rural	261,678	931,412	863,439	1,794,851	1,172,591	2.53
Urban	177,234	682,748	605,422	1,288,170	797,484	2.86
LODHRAN	163,804	602,380	559,146	1,161,526	739,912	2.69
Rural	141,025	515,683	478,007	993,690	666,180	2.38
Urban	22,779	86,697	81,139	167,836	73,732	4.95

Contd.

Table A – 04

District – Wise Population by Sex and Rural/Urban Areas
1998 Census

District/Area	1998–Census				1981	1981–98
	House–Holds	Male	Female	Both Sexes	Popul–ation	Avg. Annual Growth Rate
KHANEWAL	297,342	1,055,916	984,525	2,040,441	1,369,766	2.37
Rural	246,552	869,523	810,430	1,679,953	1,139,838	2.31
Urban	50,790	186,393	174,095	360,488	229,928	2.68
DERA GHAZI KHAN	212,481	845,657	785,938	1,631,595	943,663	3.27
Rural	181,758	728,663	676,727	1,405,390	821,722	3.21
Urban	30,723	116,994	109,211	226,205	121,941	3.70
RAJANPUR	153,428	569,600	515,307	1,084,907	638,921	3.16
Rural	133,182	488,300	439,105	927,405	577,019	2.83
Urban	20,246	81,300	76,202	157,502	61,902	5.64
LEIAH	155,148	568,928	534,938	1,103,866	666,517	3.01
Rural	135,633	496,869	467,196	964,065	603,745	2.79
Urban	19,515	72,059	67,742	139,801	62,772	4.82
MUZAFFARGARH	363,957	1,345,318	1,236,045	2,581,363	1,497,736	3.25
Rural	317,647	1,168,205	1,076,842	2,245,047	1,341,713	3.07
Urban	46,310	177,113	159,203	336,316	156,023	4.62
BAHAWALPUR	359,655	1,265,080	1,145,486	2,410,566	1,453,438	3.02
Rural	264,541	913,933	839,419	1,753,352	1,123,334	2.65
Urban	95,114	351,147	306,067	657,214	330,104	4.13
BAHAWALNAGAR	313,568	1,051,116	982,666	2,033,782	1,373,747	2.33
Rural	256,725	851,202	794,903	1,646,105	1,128,814	2.24
Urban	56,843	199,914	187,763	387,677	244,933	2.74
RAHIMYARKHAN	421,334	1,601,420	1,471,949	3,073,369	1,841,451	3.06
Rural	338,677	1,289,568	1,181,875	2,471,443	1,541,386	2.81
Urban	82,657	311,852	290,074	601,926	300,065	4.18

Contd.

Table A – 04

District – Wise Population by Sex and Rural/Urban Areas
1998 Census

District/Area	1998 – Census				1981	1981 – 98
	House – Holds	Male	Female	Both Sexes	Popul – ation	Avg. Annual Growth Rate
			SINDH			
SINDH	5,170,054	15,823,097	14,168,064	29,991,161	19,028,666	2.71
Rural	2,911,764	8,030,598	7,298,731	15,329,329	10,785,630	2.09
Urban	2,258,290	7,792,499	6,869,333	14,661,832	8,243,036	3.44
JACOBABAD	257,383	728,547	672,028	1,400,575	1,011,212	1.93
Rural	201,651	550,158	506,787	1,056,945	852,786	1.27
Urban	55,732	178,389	165,241	343,630	158,426	4.66
SHIKARPUR	152,312	447,877	418,016	865,893	596,409	2.22
Rural	122,340	341,060	317,754	658,814	481,503	1.86
Urban	29,972	106,817	100,262	207,079	114,906	3.52
LARKANA	332,052	981,366	921,654	1,903,020	1,138,580	3.07
Rural	250,047	694,376	655,473	1,349,849	882,377	2.53
Urban	82,005	286,990	266,181	553,171	256,203	4.63
SUKKUR	139,573	465,771	412,087	877,858	553,848	2.74
Rural	78,458	224,259	201,531	425,790	311,635	1.85
Urban	61,115	241,512	210,556	452,068	242,213	3.74
GHOTKI	183,475	500,504	451,957	952,461	568,823	3.08
Rural	158,489	421,285	378,864	800,149	491,776	2.90
Urban	24,986	79,219	73,093	152,312	77,047	4.09
KHAIRPUR	263,474	791,747	723,021	1,514,768	981,190	2.59
Rural	208,270	604,644	550,723	1,155,367	733,956	2.70
Urban	55,204	187,103	172,298	359,401	247,234	2.22
NAUSHAHRO FEROZ	192,070	554,682	509,969	1,064,651	829,051	1.48
Rural	164,715	457,208	419,052	876,260	719,096	1.17
Urban	27,355	97,474	90,917	188,391	109,955	3.22
NAWAB SHAH	180,864	538,501	508,485	1,046,986	813,534	1.49
Rural	141,671	396,267	376,773	773,040	657,384	0.96
Urban	39,193	142,234	131,712	273,946	156,150	3.36
DADU	313,532	856,773	774,654	1,631,427	1,081,611	2.45
Rural	253,665	677,613	608,373	1,285,986	930,019	1.92
Urban	59,867	179,160	166,281	345,441	151,592	4.96
HYDERABAD	485,967	1,481,868	1,358,785	2,840,653	2,059,026	1.91
Rural	262,612	725,571	667,125	1,392,696	1,147,787	1.14
Urban	223,355	756,297	691,660	1,447,957	911,239	2.76

Contd.

Table A – 04

District – Wise Population by Sex and Rural/Urban Areas
1998 Census

District/Area	1998 – Census				1981	1981 – 98
	House – Holds	Male	Female	Both Sexes	Popul – ation	Avg. Annual Growth Rate
BADIN	215,133	582,242	526,152	1,108,394	776,614	2.11
Rural	185,266	484,888	440,039	924,927	694,425	1.70
Urban	29,867	97,354	86,113	183,467	82,189	4.83
THATTA	223,743	579,938	519,590	1,099,528	761,039	2.19
Rural	202,554	516,161	460,546	976,707	688,340	2.08
Urban	21,189	63,777	59,044	122,821	72,699	3.13
SANGHAR	256,400	743,553	676,469	1,420,022	917,863	2.60
Rural	209,191	576,245	522,151	1,098,396	720,170	2.51
Urban	47,209	167,308	154,318	321,626	197,693	2.90
MIRPUR KHAS	152,404	467,654	432,293	899,947	577,879	2.64
Rural	111,973	317,100	290,896	607,996	393,629	2.59
Urban	40,431	150,554	141,397	291,951	184,250	2.74
UMERKOT	124,259	345,666	310,458	656,124	383,018	3.21
Rural	106,515	286,445	259,896	546,341	334,982	2.92
Urban	17,744	59,221	50,562	109,783	48,036	4.98
THARPARKER	166,179	494,696	412,024	906,720	540,985	3.08
Rural	159,486	473,859	393,338	867,197	515,913	3.10
Urban	6,693	20,837	18,686	39,523	25,072	2.71
MALIR	167,911	578,695	462,334	1,041,029	429,570	5.34
Rural	61,789	178,598	156,666	335,264	170,067	4.07
Urban	106,122	400,097	305,668	705,765	259,503	6.06
KARACHI EAST	419,393	1,444,968	1,271,821	2,716,789	1,494,786	3.57
Rural	–	–	–	–	17,925	
Urban	419,393	1,444,968	1,271,821	2,716,789	1,476,861	3.65
KARACHI WEST	322,486	1,131,412	948,891	2,080,303	912,698	4.96
Rural	33,072	104,861	92,744	197,605	41,816	9.56
Urban	289,414	1,026,551	856,147	1,882,698	870,882	4.64
KARACHI SOUTH	275,623	929,394	795,521	1,724,915	1,243,928	1.94
Rural	–	–	–	–	–	–
Urban	275,623	929,394	795,521	1,724,915	1,243,928	1.94
KARACHI CENTRAL	345,821	1,177,243	1,061,855	2,239,098	1,357,002	2.99
Rural	–	–	–	–	44	
Urban	345,821	1,177,243	1,061,855	2,239,098	1,356,958	2.99

Source: Provisional results of Fifth Population & Housing Census held in March, 1998 (Population Census Organization)

Table A – 05

Population of Major Cities by Sex
1998 Census

City	1998 – Census				1981 Popul– ation	1981 – 98 Avg. Annual Growth Rate
	House– Holds	Male	Female	Both Sexes		
Karachi	1,436,373	4,978,253	4,291,012	9,269,265	5,208,132	3.45
Lahore	740,638	2,660,772	2,402,727	5,063,499	2,952,689	3.22
Faisalabad	278,924	1,037,716	939,530	1,977,246	1,104,209	3.48
Rawalpindi	220,342	747,923	658,291	1,406,214	794,843	3.41
Multan	162,495	628,552	553,889	1,182,441	732,070	2.86
Hyderabad	178,024	601,798	549,476	1,151,274	751,529	2.54
Gujranwala	151,108	583,457	541,292	1,124,749	600,993	3.75
Peshawar	149,386	522,940	465,065	988,005	566,248	3.33
Quetta	74,218	317,075	243,232	560,307	285,719	4.04
Islamabad	92,883	287,131	237,369	524,500	204,364	5.70
Sargodha	67,792	237,470	217,890	455,360	291,362	2.66
Sialkot	59,025	224,396	193,201	417,597	302,009	1.92
Bahawalpur	57,176	219,113	184,295	403,408	180,263	4.85
Sukkur	44,638	171,989	157,187	329,176	190,551	3.27
Jhang	42,733	152,226	139,988	292,214	195,558	2.39
Sheikhupura	38,201	142,560	129,315	271,875	141,168	3.93
Larkana	37,137	141,944	128,422	270,366	123,890	4.69
Gujrat	36,957	127,506	122,615	250,121	155,058	2.85
Mardan	29,948	128,229	116,282	244,511	147,977	3.00
Kasur	35,215	127,409	114,240	241,649	155,523	2.62
Rahimyar Khan	32,081	118,753	109,726	228,479	119,036	3.91
Sahiwal	29,450	107,952	99,436	207,388	150,954	1.88
Okara	28,246	103,615	97,286	200,901	127,455	2.71

Source: Provisional results of Fifth Population and Housing Census held in March, 1998 (Population Census Organization)

Table A–06

Population by Age, Sex, Urban and Rural Areas, 1981 Census, PAKISTAN

Age groups (Years)	All Areas			Urban Area		
	Both sexes	Male	Female	Both sexes	Male	Female
	1	2	3	4	5	6
All ages	82,055,097	43,089,811	38,965,286	23,841,471	12,767,061	11,074,410
0 – 4	12,573,904	6,200,434	6,373,470	3,579,189	1,813,400	1,765,789
5 – 9	13,142,337	6,811,487	6,330,850	3,551,535	1,838,576	1,712,959
10 – 14	10,803,048	5,856,744	4,946,304	3,119,458	1,652,953	1,466,505
15 – 19	7,763,087	4,192,513	3,570,574	2,540,219	1,364,875	1,175,344
20 – 24	6,227,756	3,269,776	2,957,980	2,108,293	1,158,623	949,670
25 – 29	5,479,158	2,891,427	2,587,731	1,719,325	943,733	775,592
30 – 34	4,617,328	2,388,124	2,229,204	1,391,135	756,849	634,286
35 – 39	4,197,237	2,120,580	2,076,657	1,275,627	668,089	607,538
40 – 44	3,865,024	1,937,256	1,927,768	1,131,650	605,619	526,031
45 – 49	3,076,082	1,610,303	1,465,779	881,699	489,784	391,915
50 – 54	2,965,617	1,637,892	1,327,725	795,869	459,260	336,609
55 – 59	1,610,857	859,488	751,369	424,341	241,930	182,411
60 – 64	2,216,391	1,299,090	917,301	548,944	326,566	222,378
65 – 69	986,812	555,314	431,498	232,247	135,076	97,171
70 – 74	1,161,425	677,869	483,556	261,111	152,019	109,092
75 & above	1,369,034	781,514	587,520	280,829	159,709	121,120

Age groups (Years)	Rural Area		
	Both sexes	Male	Female
	7	8	9
All ages	58,213,626	30,322,750	27,890,876
0 – 4	8,994,715	4,387,034	4,607,681
5 – 9	9,590,802	4,972,911	4,617,891
10 – 14	7,683,590	4,203,791	3,479,799
15 – 19	5,222,868	2,827,638	2,395,230
20 – 24	4,119,463	2,111,153	2,008,310
25 – 29	3,759,833	1,947,694	1,812,139
30 – 34	3,226,193	1,631,275	1,594,918
35 – 39	2,921,610	1,452,491	1,469,119
40 – 44	2,733,374	1,331,637	1,401,737
45 – 49	2,194,383	1,120,519	1,073,864
50 – 54	2,169,748	1,178,632	991,116
55 – 59	1,186,516	617,558	568,958
60 – 64	1,667,447	972,524	694,923
65 – 69	754,565	420,238	334,327
70 – 74	900,314	525,850	374,464
75 & above	1,088,205	621,805	466,400

Note: Exclude 2.199 million population of FATA

Contd.

Table A–06

Population by Age, Sex, Urban and Rural Areas, 1981 Census, Federal Capital Area ISLAMABAD

Age groups (Years)	All Areas			Urban Area		
	Both sexes	Male	Female	Both sexes	Male	Female
	1	2	3	4	5	6
All ages	340,286	184,804	155,482	204,364	113,341	91,023
0 – 4	48,881	24,668	24,213	28,404	14,332	14,072
5 – 9	47,557	24,448	23,109	27,749	14,298	13,451
10 – 14	41,330	22,015	19,315	24,006	12,786	11,220
15 – 19	33,327	18,051	15,276	19,955	11,043	8,912
20 – 24	29,167	16,260	12,907	18,638	10,588	8,050
25 – 29	26,808	14,573	12,235	17,183	9,660	7,523
30 – 34	22,195	12,324	9,871	14,300	8,242	6,058
35 – 39	20,924	11,379	9,545	13,213	7,496	5,717
40 – 44	17,869	10,027	7,842	11,086	6,422	4,664
45 – 49	14,055	8,190	5,865	8,600	5,325	3,275
50 – 54	12,397	7,452	4,945	7,420	4,658	2,762
55 – 59	6,779	4,220	2,559	3,894	2,569	1,325
60 – 64	7,902	4,823	3,079	4,252	2,644	1,608
65 – 69	3,323	1,947	1,376	1,674	1,001	673
70 – 74	3,627	2,026	1,601	1,763	990	773
75 & above	4,145	2,401	1,744	2,227	1,287	940

Age groups (Years)	Rural Area		
	Both sexes	Male	Female
	7	8	9
All ages	135,922	71,463	64,459
0 – 4	20,477	10,336	10,141
5 – 9	19,808	10,150	9,658
10 – 14	17,324	9,229	8,095
15 – 19	13,372	7,008	6,364
20 – 24	10,529	5,672	4,857
25 – 29	9,625	4,913	4,712
30 – 34	7,895	4,082	3,813
35 – 39	7,711	3,883	3,828
40 – 44	6,783	3,605	3,178
45 – 49	5,455	2,865	2,590
50 – 54	4,977	2,794	2,183
55 – 59	2,885	1,651	1,234
60 – 64	3,650	2,179	1,471
65 – 69	1,649	946	703
70 – 74	1,864	1,036	828
75 & above	1,918	1,114	804

Contd.

Table A – 06

Population by Age, Sex, Urban and Rural Areas, 1981 Census, BALOCHISTAN

Age groups (Years)	All Areas			Urban Area		
	Both sexes	Male	Female	Both sexes	Male	Female
	1	2	3	4	5	6
All ages	4,332,376	2,284,082	2,048,294	676,772	370,529	306,243
0 – 4	682,389	301,776	380,613	109,428	52,736	56,692
5 – 9	791,704	404,529	387,175	111,241	57,697	53,544
10 – 14	628,326	362,301	266,025	88,466	48,737	39,729
15 – 19	381,781	234,741	147,040	62,111	35,683	26,428
20 – 24	294,858	165,254	129,604	59,831	35,245	24,586
25 – 29	297,766	161,103	136,663	56,842	33,182	23,660
30 – 34	241,182	124,080	117,102	42,305	24,230	18,075
35 – 39	225,974	115,243	110,731	36,221	20,519	15,702
40 – 44	194,715	99,212	95,503	29,823	16,534	13,289
45 – 49	149,850	76,511	73,339	21,934	12,288	9,646
50 – 54	139,861	73,792	66,069	19,937	11,516	8,421
55 – 59	75,180	37,190	37,990	9,926	5,605	4,321
60 – 64	98,801	58,056	40,745	13,373	7,762	5,611
65 – 69	40,933	22,530	18,403	4,702	2,703	1,999
70 – 74	41,483	23,610	17,873	5,531	3,132	2,399
75 & above	47,573	24,154	23,419	5,101	2,960	2,141

Age groups (Years)	Rural Area		
	Both sexes	Male	Female
	7	8	9
All ages	3,655,604	1,913,553	1,742,051
0 – 4	572,961	249,040	323,921
5 – 9	680,463	346,832	333,631
10 – 14	539,860	313,564	226,296
15 – 19	319,670	199,058	120,612
20 – 24	235,027	130,009	105,018
25 – 29	240,924	127,921	113,003
30 – 34	198,877	99,850	99,027
35 – 39	189,753	94,724	95,029
40 – 44	164,892	82,678	82,214
45 – 49	127,916	64,223	63,693
50 – 54	119,924	62,276	57,648
55 – 59	65,254	31,585	33,669
60 – 64	85,428	50,294	35,134
65 – 69	36,231	19,827	16,404
70 – 74	35,952	20,478	15,474
75 & above	42,472	21,194	21,278

Contd.

Table A–06

Population by Age, Sex, Urban and Rural Areas, 1981, Census N.W.F.P

Age groups (Years)	All Areas			Urban Area		
	Both sexes	Male	Female	Both sexes	Male	Female
	1	2	3	4	5	6
All ages	11,061,328	5,761,507	5,299,821	1,665,653	898,423	767,230
0 – 4	1,757,242	868,644	888,598	253,693	126,697	126,996
5 – 9	1,892,245	982,020	910,225	257,410	132,301	125,109
10 – 14	1,529,052	834,771	694,281	214,567	114,039	100,528
15 – 19	996,754	548,830	447,924	171,778	96,857	74,921
20 – 24	770,249	401,653	368,596	143,777	82,633	61,144
25 – 29	726,694	369,553	357,141	125,615	70,875	54,740
30 – 34	627,595	318,723	308,872	104,118	57,927	46,191
35 – 39	522,851	251,434	271,417	84,271	43,891	40,380
40 – 44	527,558	252,263	275,295	81,653	43,035	38,618
45 – 49	384,410	195,331	189,079	57,396	31,720	25,676
50 – 54	413,020	219,722	193,298	58,249	32,734	25,515
55 – 59	202,113	106,604	95,509	27,321	15,479	11,842
60 – 64	297,579	170,480	127,099	39,042	22,820	16,222
65 – 69	115,414	64,444	50,970	14,064	8,232	5,832
70 – 74	143,166	83,689	59,477	16,442	9,552	6,890
75 & above	155,386	93,346	62,040	16,257	9,631	6,626

Age groups (Years)	Rural Area		
	Both sexes	Male	Female
	7	8	9
All ages	9,395,675	4,863,084	4,532,591
0 – 4	1,503,549	741,947	761,602
5 – 9	1,634,835	849,719	785,116
10 – 14	1,314,485	720,732	593,753
15 – 19	824,976	451,973	373,003
20 – 24	626,472	319,020	307,452
25 – 29	601,079	298,678	302,401
30 – 34	523,477	260,796	262,681
35 – 39	438,580	207,543	231,037
40 – 44	445,905	209,228	236,677
45 – 49	327,014	163,611	163,403
50 – 54	354,771	186,988	167,783
55 – 59	174,792	91,125	83,667
60 – 64	258,537	147,660	110,877
65 – 69	101,350	56,212	45,138
70 – 74	126,724	74,137	52,587
75 & above	139,129	83,715	55,414

Contd.

Table A – 06

Population by Age, Sex, Urban and Rural Areas, 1981 Census, PUNJAB

Age groups (Years)	All Areas			Urban Area		
	Both sexes	Male	Female	Both sexes	Male	Female
	1	2	3	4	5	6
All ages	47,292,441	24,860,213	22,432,228	13,051,646	6,951,338	6,100,308
0 – 4	7,030,423	3,564,144	3,466,279	1,953,786	996,745	957,041
5 – 9	7,269,782	3,795,296	3,474,486	1,936,067	1,004,657	931,410
10 – 14	6,220,472	3,343,621	2,876,851	1,737,257	920,048	817,209
15 – 19	4,638,298	2,442,042	2,196,256	1,402,431	746,813	655,618
20 – 24	3,592,975	1,861,561	1,731,414	1,124,952	608,568	516,384
25 – 29	3,060,220	1,604,007	1,456,213	898,118	487,265	410,853
30 – 34	2,613,264	1,336,686	1,276,578	736,175	390,737	345,438
35 – 39	2,402,825	1,207,000	1,195,825	681,356	351,401	329,955
40 – 44	2,219,978	1,109,941	1,110,037	606,503	320,803	285,700
45 – 49	1,816,637	950,434	866,203	485,827	264,979	220,848
50 – 54	1,758,868	977,364	781,504	442,464	253,243	189,221
55 – 59	978,956	519,232	459,724	241,726	133,748	107,978
60 – 64	1,360,604	800,956	559,648	318,258	189,528	128,730
65 – 69	641,183	362,652	278,531	142,312	82,179	60,133
70 – 74	757,265	446,931	310,334	163,016	96,008	67,008
75 & above	930,691	538,346	392,345	181,398	104,616	76,782

Age groups (Years)	Rural Area		
	Both sexes	Male	Female
	7	8	9
All ages	34,240,795	17,908,875	16,331,920
0 – 4	5,076,637	2,567,399	2,509,238
5 – 9	5,333,715	2,790,639	2,543,076
10 – 14	4,483,215	2,423,573	2,059,642
15 – 19	3,235,867	1,695,229	1,540,638
20 – 24	2,468,023	1,252,993	1,215,030
25 – 29	2,162,102	1,116,742	1,045,360
30 – 34	1,877,089	945,949	931,140
35 – 39	1,721,469	855,599	865,870
40 – 44	1,613,475	789,138	824,337
45 – 49	1,330,810	685,455	645,355
50 – 54	1,316,404	724,121	592,283
55 – 59	737,230	385,484	351,746
60 – 64	1,042,346	611,428	430,918
65 – 69	498,871	280,473	218,398
70 – 74	594,249	350,923	243,326
75 & above	749,293	433,730	315,563

Contd.

Table A–06

Population by Age, Sex, Urban and Rural Areas, 1981, Census SINDH

Age groups (Years)	All Areas			Urban Area		
	Both sexes	Male	Female	Both sexes	Male	Female
	1	2	3	4	5	6
All ages	19,028,666	9,999,205	9,029,461	8,243,036	4,433,430	3,809,606
0 – 4	3,054,969	1,441,202	1,613,767	1,233,878	622,890	610,988
5 – 9	3,141,049	1,605,194	1,535,855	1,219,068	629,623	589,445
10 – 14	2,383,868	1,294,036	1,089,832	1,055,162	557,343	497,819
15 – 19	1,712,927	948,849	764,078	883,944	474,479	409,465
20 – 24	1,540,507	825,048	715,459	761,095	421,589	339,506
25 – 29	1,367,670	742,191	625,479	621,567	342,751	278,816
30 – 34	1,113,092	596,311	516,781	494,237	275,713	218,524
35 – 39	1,024,663	535,524	489,139	460,566	244,782	215,784
40 – 44	904,904	465,813	439,091	402,585	218,825	183,760
45 – 49	711,130	379,837	331,293	307,942	175,472	132,470
50 – 54	641,471	359,562	281,909	267,799	157,109	110,690
55 – 59	347,829	192,242	155,587	141,474	84,529	56,945
60 – 64	451,505	264,775	186,730	174,019	103,812	70,207
65 – 69	185,959	103,741	82,218	69,495	40,961	28,534
70 – 74	215,884	121,613	94,271	74,359	42,337	32,022
75 & above	231,239	123,267	107,972	75,846	41,215	34,631

Age groups (Years)	Rural Area		
	Both sexes	Male	Female
	7	8	9
All ages	10,785,630	5,565,775	5,219,855
0 – 4	1,821,091	818,312	1,002,779
5 – 9	1,921,981	975,571	946,410
10 – 14	1,328,706	736,693	592,013
15 – 19	828,983	474,370	354,613
20 – 24	779,412	403,459	375,953
25 – 29	746,103	399,440	346,663
30 – 34	618,855	320,598	298,257
35 – 39	564,097	290,742	273,355
40 – 44	502,319	246,988	255,331
45 – 49	403,188	204,365	198,823
50 – 54	373,672	202,453	171,219
55 – 59	206,355	107,713	98,642
60 – 64	277,486	160,963	116,523
65 – 69	116,464	62,780	53,684
70 – 74	141,525	79,276	62,249
75 & above	155,393	82,052	73,341

source: Population Census Organization.

Table A – 07

Percentage Distribution of Population (15 years and over) by Marital Status Pakistan and Provinces, 1981 Census

Region/Province	Marital status				
	Total	Never married	Currently Married	Widowed	Divorced
Pakistan					
Both Sexes	100.00	25.11	68.75	5.87	0.27
Male	100.00	31.51	65.24	3.06	0.19
Female	100.00	17.83	72.74	9.06	0.37
Islamabad					
Both Sexes	100.00	27.89	66.69	5.17	0.25
Male	100.00	32.68	64.72	2.45	0.15
Female	100.00	21.75	69.22	8.66	0.37
Balochistan					
Both Sexes	100.00	25.74	69.23	4.80	0.23
Male	100.00	34.56	63.49	1.84	0.11
Female	100.00	15.17	76.11	8.35	0.37
N.W.F.P.					
Both Sexes	100.00	25.07	69.65	5.12	0.16
Male	100.00	32.23	65.82	1.86	0.09
Female	100.00	17.22	73.85	8.70	0.23
Punjab					
Both Sexes	100.00	25.16	68.38	6.11	0.35
Male	100.00	30.91	65.27	3.57	0.25
Female	100.00	18.70	71.87	8.96	0.47
Sindh					
Both Sexes	100.00	24.81	69.14	5.90	0.15
Male	100.00	31.94	65.25	2.69	0.12
Female	100.00	16.38	73.74	9.69	0.19

Source: Population Census Organization

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

Table A – 08

Population (10 years and above) by Age, Sex and Literacy 1981 Census

Age group (Years)	Population			Literates		
	Both sexes	Male	Female	Both sexes	Male	Female
10 & above	56,338,856	30,077,890	26,260,966	14,745,234	10,544,528	4,200,706
10 – 14	10,803,048	5,856,744	4,946,304	2,806,444	1,835,366	971,078
15 – 19	7,763,087	4,192,513	3,570,574	2,837,888	1,888,725	949,163
20 – 24	6,227,756	3,269,776	2,957,980	2,177,975	1,503,040	674,935
25 – 29	5,479,158	2,891,427	2,587,731	1,661,721	1,208,371	453,350
30 – 34	4,617,328	2,388,124	2,229,204	1,239,246	926,172	313,074
35 – 39	4,197,237	2,120,580	2,076,657	1,042,833	787,299	255,534
40 – 44	3,865,024	1,937,256	1,927,768	828,909	638,891	190,018
45 – 49	3,076,082	1,610,303	1,465,779	617,165	491,482	125,683
50 – 54	2,965,617	1,637,892	1,327,725	532,025	421,385	110,640
50 – 59	1,610,857	859,488	751,369	278,473	233,039	45,434
60 & above	5,733,662	3,313,787	2,419,875	722,555	610,758	111,797

Age group (Years)	Literacy Ratio		
	Both sexes	Male	Female
10 & above	26.17	35.05	15.99
10 – 14	25.98	31.33	19.63
15 – 19	36.56	45.04	26.58
20 – 24	34.97	45.96	22.81
25 – 29	30.33	41.79	17.51
30 – 34	26.84	38.78	14.04
35 – 39	24.85	37.12	12.30
40 – 44	21.45	32.97	9.85
45 – 49	20.06	30.52	8.57
50 – 54	17.94	25.72	8.33
50 – 59	17.29	27.11	6.04
60 & above	12.60	18.43	4.61

Source : Population Census Organization

Table A – 09

Disabled Population by Sex, Nature of disability, Urban – Rural Areas and Provinces, 1981 Census

Area/Sex	Total	Blind	Deaf and dump	Crippled	Mentally retarded	Insane	Other disabled
PAKISTAN							
All Areas							
Both Sexes	371,420	109,229	48,250	65,401	38,053	23,808	86,679
Male	165,407	36,424	18,656	33,561	20,443	13,159	43,164
Female	206,013	72,805	29,594	31,840	17,610	10,649	43,515
Urban Area							
Both Sexes	77,675	21,088	10,093	13,730	11,846	5,786	15,132
Male	38,130	7,265	3,914	7,563	7,131	3,413	8,844
Female	39,545	13,823	6,179	6,167	4,715	2,373	6,288
Rural Area							
Both Sexes	293,745	88,141	38,157	51,671	26,207	18,022	71,547
Male	127,277	29,159	14,742	25,998	13,312	9,746	34,320
Female	166,468	58,982	23,415	25,673	12,895	8,276	37,227
Federal Capital Area Islamabad							
All Areas							
Both Sexes	870	94	153	107	109	38	369
Male	402	38	68	62	34	21	179
Female	468	56	85	45	75	17	190
Urban Area							
Both Sexes	407	50	96	67	91	18	85
Male	220	19	46	37	31	18	69
Female	187	31	50	30	60	–	16
Rural Area							
Both Sexes	463	44	57	40	18	20	284
Male	182	19	22	25	3	3	110
Female	281	25	35	15	15	17	174

Contd.

Table A – 09

Disabled Population by Sex, Nature of disability, Urban – Rural Areas and Provinces, 1981 Census

Area/Sex	Total	Blind	Deaf and dump	Crippled	Mentally retarded	Insane	Other disabled
			BALOCHISTAN				
All Areas							
Both Sexes	24,373	6,580	2,603	2,376	1,573	1,642	9,599
Male	9,041	1,642	873	795	740	861	4,130
Female	15,332	4,938	1,730	1,581	833	781	5,469
Urban Area							
Both Sexes	2,270	661	150	247	191	164	857
Male	1,053	279	64	152	116	105	337
Female	1,217	382	86	95	75	59	520
Rural Area							
Both Sexes	22,103	5,919	2,453	2,129	1,382	1,478	8,742
Male	7,988	1,363	809	643	624	756	3,793
Female	14,115	4,556	1,644	1,486	758	722	4,949
			N.W.F.P				
All Areas							
Both Sexes	64,757	14,104	8,966	13,013	5,472	4,589	18,613
Male	29,239	4,582	3,925	5,835	3,211	2,688	8,998
Female	35,518	9,522	5,041	7,178	2,261	1,901	9,615
Urban Area							
Both Sexes	7,881	1,776	808	1,603	984	683	2,027
Male	4,194	604	325	936	636	451	1,242
Female	3,687	1,172	483	667	348	232	785
Rural Area							
Both Sexes	56,876	12,328	8,158	11,410	4,488	3,906	16,586
Male	25,045	3,978	3,600	4,899	2,575	2,237	7,756
Female	31,831	8,350	4,558	6,511	1,913	1,669	8,830

Contd.

Table A – 09

Disabled Population by Sex, Nature of disability, Urban – Rural Areas and Provinces, 1981 Census

Area/Sex	Total	Blind	Deaf and dump	Crippled	Mentally retarded	Insane	Other disabled
				PUNJAB			
All Areas							
Both Sexes	212,491	63,450	29,293	40,733	23,925	12,432	42,658
Male	95,705	21,136	10,792	21,578	12,721	6,560	22,918
Female	116,786	42,314	18,501	19,155	11,204	5,872	19,740
Urban Area							
Both Sexes	44,683	11,905	6,357	8,220	7,153	2,951	8,097
Male	21,823	4,117	2,366	4,590	4,314	1,651	4,785
Female	22,860	7,788	3,991	3,630	2,839	1,300	3,312
Rural Area							
Both Sexes	167,808	51,545	22,936	32,513	16,772	9,481	34,561
Male	73,882	17,019	8,426	16,988	8,407	4,909	18,133
Female	93,926	34,526	14,510	15,525	8,365	4,572	16,428
				SINDH			
All Areas							
Both Sexes	68,929	25,001	7,235	9,172	6,974	5,107	15,440
Male	31,020	9,026	2,998	5,291	3,737	3,029	6,939
Female	37,909	15,975	4,237	3,881	3,237	2,078	8,501
Urban Area							
Both Sexes	22,434	6,696	2,682	3,593	3,427	1,970	4,066
Male	10,840	2,246	1,113	1,848	2,034	1,188	2,411
Female	11,594	4,450	1,569	1,745	1,393	782	1,655
Rural Area							
Both Sexes	46,495	18,305	4,553	5,579	3,547	3,137	11,374
Male	20,180	6,780	1,885	3,443	1,703	1,841	4,528
Female	26,315	11,525	2,668	2,136	1,844	1,296	6,846

Source: Population Census Organization

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

Table A – 10

Population (10 years and above) by Activity, Age, Sex, Urban and Rural Areas, 1981 Census

ALL AREAS

Age group/Sex (year)	Total	Working	Looking for work	House – keeping	Students	Others
Both Sexes						
10 years & above	56,338,856	21,924,641	701,808	24,063,885	4,506,282	5,142,240
10–14	10,803,048	2,009,480	183,949	3,930,717	2,723,653	1,955,249
15–19	7,763,087	2,557,464	162,515	3,066,294	1,316,459	660,355
20–24	6,227,756	2,507,536	102,075	2,763,871	332,048	522,226
25–29	5,479,158	2,515,646	61,669	2,471,889	85,803	344,151
30–34	4,617,328	2,157,479	38,084	2,145,786	39,155	236,824
35–39	4,197,237	1,985,971	28,825	2,009,294	9,164	163,983
40–44	3,865,024	1,832,596	24,549	1,867,444	–	140,435
45–49	3,076,082	1,531,964	19,925	1,426,104	–	98,089
50–54	2,965,617	1,527,776	19,873	1,286,039	–	131,929
55–59	1,610,857	784,816	9,911	733,628	–	82,502
60 & above	5,733,662	2,513,913	50,433	2,362,819	–	806,497
Male						
10 years & above	30,077,890	21,152,229	639,129	–	3,148,839	5,137,693
10–14	5,856,744	1,870,675	163,688	–	1,867,363	1,955,018
15–19	4,192,513	2,445,137	152,789	–	934,517	660,070
20–24	3,269,776	2,406,456	95,587	–	246,125	521,608
25–29	2,891,427	2,424,509	57,675	–	66,091	343,152
30–34	2,388,124	2,087,773	35,684	–	28,505	236,162
35–39	2,120,580	1,924,259	26,570	–	6,238	163,513
40–44	1,937,256	1,775,442	21,825	–	–	139,989
45–49	1,610,303	1,494,360	17,966	–	–	97,977
50–54	1,637,892	1,488,736	17,538	–	–	131,618
55–59	859,488	768,726	8,340	–	–	82,422
60 & above	3,313,787	2,466,156	41,467	–	–	806,164
Female						
10 years & above	26,260,966	772,412	62,679	24,063,885	1,357,443	4,547
10–14	4,946,304	138,805	20,261	3,930,717	856,290	231
15–19	3,570,574	112,327	9,726	3,066,294	381,942	285
20–24	2,957,980	101,080	6,488	2,763,871	85,923	618
25–29	2,587,731	91,137	3,994	2,471,889	19,712	999
30–34	2,229,204	69,706	2,400	2,145,786	10,650	662
35–39	2,076,657	61,712	2,255	2,009,294	2,926	470
40–44	1,927,768	57,154	2,724	1,867,444	–	446
45–49	1,465,779	37,604	1,959	1,426,104	–	112
50–54	1,327,725	39,040	2,335	1,286,039	–	311
55–59	751,369	16,090	1,571	733,628	–	80
60 & above	2,419,875	47,757	8,966	2,362,819	–	333

Contd.

Table A–10

Population (10 years and above) by Activity, Age, Sex, Urban and Rural Areas, 1981 Census

URBAN AREA

Age group/Sex (year)	Total	Working	Looking for work	House-keeping	Students	Others
Both Sexes						
10 years & above	16,710,747	5,728,030	315,420	6,309,491	2,516,518	1,841,288
10–14	3,119,458	239,187	76,150	842,998	1,402,053	559,070
15–19	2,540,219	595,487	83,482	833,079	797,254	230,917
20–24	2,108,293	772,906	54,723	834,308	230,936	215,420
25–29	1,719,325	762,613	29,006	717,432	56,261	154,013
30–34	1,391,135	650,584	16,723	594,942	24,091	104,795
35–39	1,275,627	605,632	11,135	577,173	5,923	75,764
40–44	1,131,650	560,217	9,506	502,010	–	59,917
45–49	881,699	454,867	7,721	376,262	–	42,849
50–54	795,869	409,006	7,062	322,194	–	57,607
55–59	424,341	205,714	3,986	176,023	–	38,618
60 & above	1,323,131	471,817	15,926	533,070	–	302,318
Male						
10 years & above	9,115,085	5,480,934	293,207	–	1,502,471	1,838,473
10–14	1,652,953	223,912	70,405	–	799,615	559,021
15–19	1,364,875	571,341	79,152	–	483,587	230,795
20–24	1,158,623	733,206	51,200	–	159,165	215,052
25–29	943,733	722,685	27,087	–	40,501	153,460
30–34	756,849	620,657	15,750	–	16,041	104,401
35–39	668,089	578,840	10,246	–	3,562	75,441
40–44	605,619	537,438	8,611	–	–	59,570
45–49	489,784	440,120	6,912	–	–	42,752
50–54	459,260	395,576	6,335	–	–	57,349
55–59	241,930	199,774	3,601	–	–	38,555
60 & above	773,370	457,385	13,908	–	–	302,077
Female						
10 years & above	7,595,662	247,096	22,213	6,309,491	1,014,047	2,815
10–14	1,466,505	15,275	5,745	842,998	602,438	49
15–19	1,175,344	24,146	4,330	833,079	313,667	122
20–24	949,670	39,700	3,523	834,308	71,771	368
25–29	775,592	39,928	1,919	717,432	15,760	553
30–34	634,286	29,927	973	594,942	8,050	394
35–39	607,538	26,792	889	577,173	2,361	323
40–44	526,031	22,779	895	502,010	–	347
45–49	391,915	14,747	809	376,262	–	97
50–54	336,609	13,430	727	322,194	–	258
55–59	182,411	5,940	385	176,023	–	63
60 & above	549,761	14,432	2,018	533,070	–	241

Contd.

Table A–10

Population (10 years and above) by Activity, Age, Sex, Urban and Rural Areas, 1981 Census

RURAL AREA

Age group/Sex (year)	Total	Working	Looking for work	House-keeping	Students	Others
Both Sexes						
10 years & above	39,628,109	16,196,611	386,388	17,754,394	1,989,764	3,300,952
10–14	7,683,590	1,770,293	107,799	3,087,719	1,321,600	1,396,179
15–19	5,222,868	1,961,977	79,033	2,233,215	519,205	429,438
20–24	4,119,463	1,734,630	47,352	1,929,563	101,112	306,806
25–29	3,759,833	1,753,033	32,663	1,754,457	29,542	190,138
30–34	3,226,193	1,506,895	21,361	1,550,844	15,064	132,029
35–39	2,921,610	1,380,339	17,690	1,432,121	3,241	88,219
40–44	2,733,374	1,272,379	15,043	1,365,434	–	80,518
45–49	2,194,383	1,077,097	12,204	1,049,842	–	55,240
50–54	2,169,748	1,118,770	12,811	963,845	–	74,322
55–59	1,186,516	579,102	5,925	557,605	–	43,884
60 & above	4,410,531	2,042,096	34,057	1,829,749	–	504,179
Male						
10 years & above	20,962,805	15,671,295	345,922	–	1,646,368	3,299,220
10–14	4,203,791	1,646,763	93,283	–	1,067,748	1,395,997
15–19	2,827,638	1,873,796	73,637	–	450,930	429,275
20–24	2,111,153	1,673,250	44,387	–	86,960	306,556
25–29	1,947,694	1,701,824	30,588	–	25,590	189,692
30–34	1,631,275	1,467,116	19,934	–	12,464	131,761
35–39	1,452,491	1,345,419	16,324	–	2,676	88,072
40–44	1,331,637	1,238,004	13,214	–	–	80,419
45–49	1,120,519	1,054,240	11,054	–	–	55,225
50–54	1,178,632	1,093,160	11,203	–	–	74,269
55–59	617,558	568,952	4,739	–	–	43,867
60 & above	2,540,417	2,008,771	27,559	–	–	504,087
Female						
10 years & above	18,665,304	525,316	40,466	17,754,394	343,396	1,732
10–14	3,479,799	123,530	14,516	3,087,719	253,852	182
15–19	2,395,230	88,181	5,396	2,233,215	68,275	163
20–24	2,008,310	61,380	2,965	1,929,563	14,152	250
25–29	1,812,139	51,209	2,075	1,754,457	3,952	446
30–34	1,594,918	39,779	1,427	1550844	2,600	268
35–39	1,469,119	34,920	1,366	1,432,121	565	147
40–44	1,401,737	34,375	1,829	1,365,434	–	99
45–49	1,073,864	22,857	1,150	1,049,842	–	15
50–54	991,116	25,610	1,608	963,845	–	53
55–59	568,958	10,150	1,186	557,605	–	17
60 & above	1,870,114	33,325	6,948	1,829,749	–	92

Source:Population Census Organization

Table A – 11

Population (15 years and Above) by Age groups, Sex and Marital Status for Urban and Rural Areas, 1981 Census

ALL AREAS

Age Group (Years)	Sex	Marital Status				
		Total	Never married	Married	Widowed	Divorced
15 and above	Both Sexes	45,535,808	11,431,971	31,306,760	2,671,697	125,380
	Male	24,221,146	7,631,235	15,802,311	740,951	46,649
	Female	21,314,662	3,800,736	15,504,449	1,930,746	78,731
15–19	Both Sexes	7,763,087	6,396,062	1,348,637	11,690	6,698
	Male	4,192,513	3,876,765	309,789	4,615	1,344
	Female	3,570,574	2,519,297	1,038,848	7,075	5,354
20–24	Both Sexes	6,227,756	2,895,957	3,276,083	36,637	19,079
	Male	3,269,776	2,111,019	1,134,816	16,922	7,019
	Female	2,957,980	784,938	2,141,267	19,715	12,060
25–29	Both Sexes	5,479,158	1,130,195	4,274,758	55,455	18,750
	Male	2,891,427	904,248	1,956,762	24,415	6,002
	Female	2,587,731	225,947	2,317,996	31,040	12,748
30–34	Both Sexes	4,617,328	418,311	4,098,606	82,747	17,664
	Male	2,388,124	330,955	2,016,964	34,061	6,144
	Female	2,229,204	87,356	2,081,642	48,686	11,520
35–39	Both Sexes	4,197,237	168,242	3,909,088	105,809	14,098
	Male	2,120,580	132,148	1,943,562	39,740	5,130
	Female	2,076,657	36,094	1,965,526	66,069	8,968
40–44	Both Sexes	3,865,024	116,811	3,568,423	166,802	12,988
	Male	1,937,256	85,622	1,793,868	53,058	4,708
	Female	1,927,768	31,189	1,774,555	113,744	8,280
45–49	Both Sexes	3,076,082	55,133	2,830,313	181,709	8,927
	Male	1,610,303	40,398	1,512,618	53,732	3,555
	Female	1,465,779	14,735	1,317,695	127,977	5,372
50–54	Both Sexes	2,965,617	78,971	2,568,871	308,971	8,804
	Male	1,637,892	48,796	1,507,396	77,969	3,731
	Female	1,327,725	30,175	1,061,475	231,002	5,073
55–59	Both Sexes	1,610,857	22,165	1,400,184	184,612	3,896
	Male	859,488	14,884	794,801	48,028	1,775
	Female	751,369	7,281	605,383	136,584	2,121
60 and above	Both Sexes	5,733,662	150,124	4,031,797	1,537,265	14,476
	Male	3,313,787	86,400	2,831,735	388,411	7,241
	Female	2,419,875	63,724	1,200,062	1,148,854	7,235

Contd.

Table A – 11

Population (15 years and Above) by Age groups, Sex and Marital Status for Urban and Rural Areas, 1981 Census

URBAN AREA

Age Group (Years)	Sex	Marital Status				
		Total	Never married	Married	Widowed	Divorced
15 and above	Both Sexes	13,591,289	4,060,729	8,760,792	743,266	26,502
	Male	7,462,132	2,664,104	4,579,016	208,235	10,777
	Female	6,129,157	1,396,625	4,181,776	535,031	15,725
15–19	Both Sexes	2,540,219	2,209,879	326,104	2,793	1,443
	Male	1,364,875	1,297,315	66,253	1,006	301
	Female	1,175,344	912,564	259,851	1,787	1,142
20–24	Both Sexes	2,108,293	1,131,758	962,057	9,739	4,739
	Male	1,158,623	813,331	339,174	4,229	1,889
	Female	949,670	318,427	622,883	5,510	2,850
25–29	Both Sexes	1,719,325	405,748	1,295,230	14,226	4,121
	Male	943,733	321,925	615,033	5,395	1,380
	Female	775,592	83,823	680,197	8,831	2,741
30–34	Both Sexes	1,391,135	132,113	1,233,272	22,023	3,727
	Male	756,849	104,205	643,228	7,998	1,418
	Female	634,286	27,908	590,044	14,025	2,309
35–39	Both Sexes	1,275,627	52,761	1,188,758	31,172	2,936
	Male	668,089	41,576	615,224	10,056	1,233
	Female	607,538	11,185	573,534	21,116	1,703
40–44	Both Sexes	1,131,650	35,213	1,042,007	51,770	2,660
	Male	605,619	26,338	563,058	15,087	1,136
	Female	526,031	8,875	478,949	36,683	1,524
45–49	Both Sexes	881,699	17,431	802,637	59,869	1,762
	Male	489,784	13,027	459,667	16,249	841
	Female	391,915	4,404	342,970	43,620	921
50–54	Both Sexes	795,869	24,368	673,144	96,566	1,791
	Male	459,260	15,600	418,468	24,339	853
	Female	336,609	8,768	254,676	72,227	938
55–59	Both Sexes	424,341	7,189	358,071	58,322	759
	Male	241,930	4,767	221,400	15,378	385
	Female	182,411	2,422	136,671	42,944	374
60 and above	Both Sexes	1,323,131	44,269	879,512	396,786	2,564
	Male	773,370	26,020	637,511	108,498	1,341
	Female	549,761	18,249	242,001	288,288	1,223

31034

Contd.

Table A–11

Population (15 years and Above) by Age groups, Sex and Marital Status for Urban and Rural Areas, 1981 Census

RURAL AREA

Age Group (Years)	Sex	Marital Status				
		Total	Never married	Married	Widowed	Divorced
15 and above	Both Sexes	31,944,519	7,371,242	22,545,968	1,928,431	98,878
	Male	16,759,014	4,967,131	11,223,295	532,716	35,872
	Female	15,185,505	2,404,111	11,322,673	1,395,715	63,006
15–19	Both Sexes	5,222,868	4,186,183	1,022,533	8,897	5,255
	Male	2,827,638	2,579,450	243,536	3,609	1,043
	Female	2,395,230	1,606,733	778,997	5,288	4,212
20–24	Both Sexes	4,119,463	1,764,199	2,314,026	26,898	14,340
	Male	2,111,153	1,297,688	795,642	12,693	5,130
	Female	2,008,310	466,511	1,518,384	14,205	9,210
25–29	Both Sexes	3,759,833	724,447	2,979,528	41,229	14,629
	Male	1,947,694	582,323	1,341,729	19,020	4,622
	Female	1,812,139	142,124	1,637,799	22,209	10,007
30–34	Both Sexes	3,226,193	286,198	2,865,334	60,724	13,937
	Male	1,631,275	226,750	1,373,736	26,063	4,726
	Female	1,594,918	59,448	1,491,598	34,661	9,211
35–39	Both Sexes	2,921,610	115,481	2,720,330	74,637	11,162
	Male	1,452,491	90,572	1,328,338	29,684	3,897
	Female	1,469,119	24,909	1,391,992	44,953	7,265
40–44	Both Sexes	2,733,374	81,598	2,526,416	115,032	10,328
	Male	1,331,637	59,284	1,230,810	37,971	3,572
	Female	1,401,737	22,314	1,295,606	77,061	6,756
45–49	Both Sexes	2,194,383	37,702	2,027,676	121,840	7,165
	Male	1,120,519	27,371	1,052,951	37,483	2,714
	Female	1,073,864	10,331	974,725	84,357	4,451
50–54	Both Sexes	2,169,748	54,603	1,895,727	212,405	7,013
	Male	1,178,632	33,196	1,088,928	53,630	2,878
	Female	991,116	21,407	806,799	158,775	4,135
55–59	Both Sexes	1,186,516	14,976	1,042,113	126,290	3,137
	Male	617,558	10,117	573,401	32,650	1,390
	Female	568,958	4,859	468,712	93,640	1,747
60 and above	Both Sexes	4,410,531	105,855	3,152,285	1,140,479	11,912
	Male	2,540,417	60,380	2,194,224	279,913	5,900
	Female	1,870,114	45,475	958,061	860,566	6,012

Source: Population Census Organization

Note : This table excludes the population of the Federally Administered Tribal Areas (FATA).

Table A – 12

Population (10 years and above) Working and Looking for Work by Occupation, Sex and Broad Age Group, 1981 Census

ALL AREAS

Occupation group	Total Working & looking for work	Less than 25 Years			25–59 Years		
		Both Sexes	Male	Female	Both Sexes	Male	Female
	1	2	3	4	5	6	7
All occupations	22,626,449	7,523,019	7,134,332	388,687	12,539,084	12,149,403	389,681
Major group 0/1	865,285	165,732	128,045	37,687	614,558	525,625	88,933
Major group 2	298,256	39,605	37,766	1,839	217,943	213,647	4,296
Major group 3	704,142	159,959	149,475	10,484	513,973	497,251	16,722
Major group 4	1,827,967	459,064	444,817	14,247	1,164,320	1,144,523	19,797
Major group 5	933,181	248,146	230,245	17,901	584,485	542,943	41,542
Major group 6	11,341,477	3,900,108	3,746,318	153,790	5,860,155	5,732,585	127,570
Major group 7/8/9	5,655,508	2,027,756	1,908,687	119,069	3,167,921	3,092,795	75,126
Major group x	1,000,633	522,649	488,979	33,670	415,729	400,034	15,695

Occupation group	60 Years and above		
	Both Sexes	Male	Female
	8	9	10
All occupations	2,564,346	2,507,623	56,723
Major group 0/1	84,995	79,093	5,902
Major group 2	40,708	40,222	486
Major group 3	30,210	28,268	1,942
Major group 4	204,583	200,860	3,723
Major group 5	100,550	93,415	7,135
Major group 6	1,581,214	1,562,048	19,166
Major group 7/8/9	459,831	449,524	10,307
Major group x	62,255	54,193	8,062

Contd.

Table A – 12

Population (10 years and above) Working and Looking for Work by Occupation, Sex and Broad Age Group, 1981 Census

URBAN AREA

Occupation group	Total Working & looking for work	Less than 25 Years			25–59 Years		
		Both Sexes	Male	Female	Both Sexes	Male	Female
	1	2	3	4	5	6	7
All occupations	6,043,450	1,821,935	1,729,216	92,719	3,733,772	3,573,632	160,140
Major group 0/1	393,456	65,066	43,255	21,811	300,071	238,594	61,477
Major group 2	149,825	13,961	12,961	1,000	123,752	120,815	2,937
Major group 3	449,188	90,705	84,982	5,723	340,087	329,632	10,455
Major group 4	1,122,025	279,108	271,511	7,597	720,952	710,575	10,377
Major group 5	475,431	122,045	112,870	9,175	309,183	280,772	28,411
Major group 6	401,233	104,159 m	100249	3,910	234,295	230,459	3,836
Major group 7/8/9	2,512,434	882,751	853,407	29,344	1,456,769	1,424,734	32,035
Major group x	539,858	264,140	249,981	24,159	248,663	238,051	10,612

Occupation group	60 Years and above		
	Both Sexes	Male	Female
	8	9	10
All occupations	487,743	471,293	16,450
Major group 0/1	28,319	26,195	2,124
Major group 2	12,112	11,942	170
Major group 3	18,396	17,372	1,024
Major group 4	121,965	120,322	1,643
Major group 5	44,203	39,877	4,326
Major group 6	62,779	62,047	732
Major group 7/8/9	172,914	168,582	4,332
Major group x	27,055	24,956	2,099

Contd.

Table A – 12

Population (10 years and above) Working and Looking for Work by Occupation, Sex and Broad Age Group, 1981 Census

RURAL AREA

Occupation group	Total Working & looking for work	Less than 25 Years			25–59 Years		
		Both Sexes	Male	Female	Both Sexes	Male	Female
	1	2	3	4	5	6	7
All occupations	16,582,999	5,701,084	5,405,116	295,968	8,805,312	8,575,771	229,541
Major group 0/1	471,829	100,666	84,790	15,876	314,487	287,031	27,456
Major group 2	148,431	25,644	24,805	839	94,191	92,832	1,359
Major group 3	254,954	69,254	64,493	4,761	173,886	167,619	6,267
Major group 4	705,942	179,956	173,306	6,650	443,368	433,948	9,420
Major group 5	457,750	126,101	117,375	8,726	275,302	262,171	13,131
Major group 6	10,940,244	3,795,949	3,646,069	149,880	5,625,860	5,502,126	123,734
Major group 7/8/9	3,143,974	1,145,005	1,055,280	89,725	1,711,152	1,668,061	43,091
Major group x	460,775	258,509	238,998	19,511	167,066	161,983	5,083

Occupation Group	60 Years and above			
	Both Sexes	Male	Female	
	8	9	10	
All occupations	2,076,603	2,036,330	40,273	
Major group 0/1	56,676	52,898	3,778	
Major group 2	28,596	28,280	316	
Major group 3	11,814	10,896	918	
Major group 4	82,618	80,538	2,080	
Major group 5	56,347	53,538	2,809	
Major group 6	1,518,435	1,500,001	18,434	
Major group 7/8/9	286,917	280,942	5,975	
Major group x	35,200	29,237	5,963	

Source:Population Census Organization.

Table A – 13

Working Population (10 years and above) by Industry, Employment Status, Sex and Broad Age Group, 1981 Census
ALL AREAS

Major Industry Division	Total working & looking for work	Less than 25 years			25–59 Years		
		Both Sexes	Male	Female	Both Sexes	Male	Female
	1	2	3	4	5	6	7
Total employed persons	21,924,640	7,074,480	6,722,268	352,212	12,336,247	11,963,805	372,442
Agriculture, forestry, hunting and fishing	11,559,596	3,948,294	3,792,951	155,343	5,992,641	5,863,501	129,140
Mininig and quarrying	87,260	24,585	23,640	945	57,617	56,742	875
Manufacturing	2,007,528	818,851	739,960	78,891	1,046,610	1,011,327	35,283
Electricity, gas, water and sanitary services	130,894	29,923	29,292	631	95,352	94,146	1,206
Construction	919,311	291,680	282,828	8,852	550,046	541,795	8,251
Wholesale, retail trade, restaurants & hotels	2,064,402	547,345	529,128	18,217	1,294,300	1,269,703	24,597
Transport, storage and communication	907,558	237,380	232,309	5,071	620,161	612,767	7,394
Financing, insurance, real estate and business services	166,367	27,330	25,954	1,376	130,801	128,244	2,557
Community, social and personal services	3,002,919	782,255	714,689	67,566	1,940,599	1,793,653	146,946
Activities not adequately described	1,078,805	366,837	351,517	15,320	608,120	591,927	16,193

Major Industry Division	60 Years and above		
	Both Sexes	Male	Female
	8	9	10
Total employed persons	2,513,913	2,466,156	47,757
Agriculture, forestry, hunting and fishing	1,618,661	1,599,267	19,394
Mininig and quarrying	5,058	4,882	176
Manufacturing	142,067	138,311	3,756
Electricity, gas, water and sanitary services	5,619	5,452	167
Construction	77,585	76,245	1,340
Wholesale, retail trade, restaurants & hotels	222,757	218,173	4,584
Transport, storage and communication	50,017	49,325	692
Financing, insurance, real estate and business services	8,236	8,064	172
Community, social and personal services	280,065	265,510	14,555
Activities not adequately described	103,848	100,927	2,921

Contd.

Table A – 13

Working Population (10 years and above) by Industry, Employment Status, Sex and Broad Age Group, 1981 Census
URBAN AREA

Major Industry Division	Total working & looking for work	Less than 25 years			25–59 Years		
		Both Sexes	Male	Female	Both Sexes	Male	Female
	1	2	3	4	5	6	7
Total employed persons	5,728,030	1,607,580	1,528,459	79,121	3,648,633	3,495,090	153,543
Agriculture, forestry, hunting and fishing	422,945	107,305	103,414	3,891	249,906	246,105	3,801
Mininig and quarrying	16,191	3,980	3,869	111	11,051	10,820	231
Manufacturing	1,047,360	402,583	386,682	15,901	580,058	563,895	16,163
Electricity, gas, water and sanitary services	67,757	14,831	14,492	339	50,223	49,543	680
Construction	368,262	106,973	103,306	3,667	229,964	225,999	3,965
Wholesale, retail trade, restaurants & hotels	1,249,860	325,376	317,125	8,251	792,257	780,803	11,454
Transport, storage and communication	495,697	113,627	110,598	3,029	354,891	350,230	4,661
Financing, insurance, real estate and business services	121,325	17,680	16,590	1,090	97,822	95,584	2,238
Community, social and personal services	1,512,870	388,138	350,385	37,753	1,016,297	913,939	102,358
Activities not adequately described	425,763	127,087	121,998	5,089	266,164	258,172	7,992

Major Industry Division	60 Years and above		
	Both Sexes	Male	Female
	8	9	10
Total employed persons	471,817	457,385	14,432
Agriculture, forestry, hunting and fishing	65,734	65,023	711
Mininig and quarrying	1,160	1,148	12
Manufacturing	64,719	62,911	1,808
Electricity, gas, water and sanitary services	2,703	2,580	123
Construction	31,325	30,805	520
Wholesale, retail trade, restaurants & hotels	132,227	130,332	1,895
Transport, storage and communication	27,179	26,789	390
Financing, insurance, real estate and business services	5,823	5,697	126
Community, social and personal services	108,435	100,601	7,834
Activities not adequately described	32,512	31,499	1,013

Contd.

Table A – 13

Working Population (10 years and above) by Industry, Employment Status, Sex and Broad Age Group, 1981 Census
RURAL AREA

Major Industry Division	Total working & looking for work	Less than 25 years			25–59 Years		
		Both Sexes	Male	Female	Both Sexes	Male	Female
	1	2	3	4	5	6	7
Total employed persons	16,196,610	5,466,900	5,193,809	273,091	8,687,614	8,468,715	218,899
Agriculture, forestry, hunting and fishing	11,136,651	3,840,989	3,689,537	151,452	5,742,735	5,617,396	125,339
Mininig and quarrying	71,069	20,605	19,771	834	46,566	45,922	644
Manufacturing	960,168	416,268	353,278	62,990	466,552	447,432	19,120
Electricity, gas, water and sanitary services	63,137	15,092	14,800	292	45,129	44,603	526
Construction	551,049	184,707	179,522	5,185	320,082	315,796	4,286
Wholesale, retail trade, restaurants & hotels	814,542	221,969	212,003	9,966	502,043	488,900	13,143
Transport, storage and communication	411,861	123,753	121,711	2,042	265,270	262,537	2,733
Financing, insurance, real estate and business services	45,042	9,650	9,364	286	32,979	32,660	319
Community, social and personal services	1,490,049	394,117	364,304	29,813	924,302	879,714	44,588
Activities not adequately described	653,042	239,750	229,519	10,231	341,956	333,755	8,201

Major Industry Division	60 Years and above		
	Both Sexes	Male	Female
	8	9	10
Total employed persons	2,042,096	2,008,771	33,325
Agriculture, forestry, hunting and fishing	1,552,927	1,534,244	18,683
Mininig and quarrying	3,898	3,734	164
Manufacturing	77,348	75,400	1,948
Electricity, gas, water and sanitary services	2,916	2,872	44
Construction	46,260	45,440	820
Wholesale, retail trade, restaurants & hotels	90,530	87,841	2,689
Transport, storage and communication	22,838	22,536	302
Financing, insurance, real estate and business services	2,413	2,367	46
Community, social and personal services	171,630	164,909	6,721
Activities not adequately described	71,336	69,428	1,908

Source: Population Census Organization

Table A – 14

Households by Region/Province and Urban/Rural Areas, 1998 Census

(Number)

Area	Number Of Household		
	All Areas	Urban Areas	Rural Areas
Pakistan	19,701,344	6,250,388	13,450,956
Islamabad	136,767	92,883	43,884
Balochistan	1,018,261	204,070	814,191
N.W.F.P.	2,301,104	411,200	1,889,904
Punjab	10,718,046	3,274,026	7,444,020
Sindh	5,170,054	2,258,290	2,911,764
FATA	357,112	9,919	347,193

Area	Percentage of household		
	All Areas	Urban Areas	Rural Areas
Pakistan	100.0	31.7	68.3
Islamabad	100.0	67.9	32.1
Balochistan	100.0	20.0	80.0
N.W.F.P.	100.0	17.9	82.1
Punjab	100.0	30.5	69.5
Sindh	100.0	43.7	56.3
FATA	100.0	2.8	97.2

Source: Provisional results of Fifth Population & Housing Census – 1998, Population Census Organisation.

Table A – 15

Housing Units by Provinces and Urban/Rural Areas, Housing Censuses, 1960 to 1998

(000 Numbers)

Province Area	1960		1973		1980		1998	
	No. of H.Holds	Percentage	No. of H.Holds	Percentage	No. of H.Holds	Percentage	No. of H.Holds	Percentage
PAKISTAN	7,816	100.0	10,881	100.0	12,588	100.0	19,701	100.0
Urban	1,699	21.7	2,847	26.2	3,554	28.2	6,250	31.7
Rural	6,117	78.3	8,034	73.8	9,034	71.8	13,451	68.3
BALOCHISTAN	296	100.0	512	100.0	593	100.0	1,018	100.0
Urban	52	17.6	74	14.5	92	15.5	204	20.0
Rural	244	82.4	438	85.5	501	84.5	814	80.0
N.W.F.P	792	100.0	1,074	100.0	1,616	100.0	2,658	100.0
Urban	125	15.8	183	17.0	234	14.5	421	15.8
Rural	667	84.2	891	83.0	1,382	85.5	2,237	84.2
PUNJAB	5,163	100.0	6,745	100.0	7,597	100.0	10,855	100.0
Urban	963	18.7	1,529	22.7	2,005	26.4	3,367	31.0
Rural	4,200	81.3	5,216	77.3	5,592	73.6	7,488	69.0
SINDH	1,565	100.0	2,550	100.0	2,782	100.0	5,170	100.0
Urban	559	35.7	1,061	41.6	1,223	44.0	2,258	43.7
Rural	1,006	64.3	1,489	58.4	1,559	56.0	2,912	56.3

Source: Population Census Organization.

Note:
i. 1980 Housing Census excludes data of FATA.
ii. 1998 Housing Census includes 61891 households of 360 left over blocks estimated on the basis of average households of completed blocks within the same district of Balochistan Province.

Table A–16

Housing Units by Tenure and Household Size
Housing Census, 1980

(Number)

Region/ Province	Housing Units	Owned	Rented	Rent free	Person per Housing Unit
PAKISTAN					
All Areas	12,587,648	9,866,737	972,685	1,748,226	6.7
Urban	3,554,173	2,405,380	777,178	371,615	7.0
Rural	9,033,475	7,461,357	195,507	1,376,611	6.6
ISLAMABAD					
All Areas	59,019	33,595	19,973	5,451	5.7
Urban	36,973	14,219	18,581	4,173	5.6
Rural	22,046	19,376	1,392	1,278	5.8
BALOCHISTAN					
All Areas	592,814	498,103	27,140	67,571	7.6
Urban	91,583	57,825	21,975	11,783	7.6
Rural	501,231	440,278	5,165	55,788	7.6
N.W.F.P.					
All Areas	1,615,616	1,213,166	161,412	241,038	7.0
Urban	234,076	130,759	75,503	27,814	7.1
Rural	1,381,540	1,082,407	85,909	213,224	6.9
PUNJAB					
All Areas	7,538,326	5,978,715	465,953	1,093,658	6.5
Urban	1,968,371	1,389,751	379,995	198,625	6.9
Rural	5,569,955	4,588,964	85,958	895,033	6.3
SINDH					
All Areas	2,781,873	2,143,158	298,207	340,508	7.1
Urban	1,223,170	812,826	281,124	129,220	7.0
Rural	1,558,703	1,330,332	17,083	211,288	7.1

Source: Population Census Organization

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

Table A – 17

Housing Units by Period of Construction
Housing Census 1980

(Number)

Province/Area	Total	0–4 year	5–10 year	11–33 year	34 years & more
Pakistan					
All areas	12,587,648	2,511,464	3,003,893	4,601,278	2,471,013
Urban	3,554,173	675,812	758,715	1,407,310	712,336
Rural	9,033,475	1,835,652	2,245,178	3,193,968	1,758,677
Islamabad					
All areas	59,019	13,409	11,032	24,379	10,199
Urban	36,973	9,824	6,112	16,725	4,312
Rural	22,046	3,585	4,920	7,654	5,887
Baluchistan					
All areas	592,814	114,982	128,513	187,200	162,119
Urban	91,583	12,095	20,796	37,413	21,279
Rural	501,231	102,887	107,717	149,787	140,840
NWFP					
All areas	1,615,616	173,909	270,835	573,326	597,546
Urban	234,076	31,352	41,798	78,393	82,533
Rural	1,381,540	142,557	229,037	494,933	515,013
Punjab					
All areas	7,538,326	1,542,475	1,907,342	2,787,318	1,301,191
Urban	1,968,371	383,475	427,025	719,564	438,307
Rural	5,569,955	1,159,000	1,480,317	2,067,754	862,884
Sindh					
All areas	2,781,873	666,689	686,171	1,029,055	399,958
Urban	1,223,170	239,066	262,984	555,215	165,905
Rural	1,558,703	427,623	423,187	473,840	234,053

Source: Population Census Organization.

Table A–18

Housing Units by Number of Rooms and Household Size
Housing Census 1980

Housing Unit per Household Size	Number of Housing units by number of rooms						Percent Housing Unit	Rooms Per Housing Units
	Total Housing Units	One Room	Two Rooms	Three Rooms	Four Rooms	Five and more		
PAKISTAN	12,587,648	6,487,461	3,721,239	1,356,690	565,251	457,007	100	1.9
1 Person	398,463	285,617	74,598	22,036	8,554	7,658	3	1.5
2 Persons	805,066	555,434	178,753	43,969	15,666	11,244	6	1.5
3 Persons	1,004,447	661,339	239,872	66,835	21,985	14,416	8	1.5
4 Persons	1,367,174	848,900	357,523	100,065	37,743	22,943	11	1.6
5 Persons	1,516,096	868,286	434,804	132,411	47,772	32,823	12	1.7
6 Persons	1,696,231	903,225	517,810	168,219	63,388	43,589	13	1.8
7 Persons	1,438,778	695,037	472,274	164,689	63,515	43,263	11	1.9
8 Persons	1,387,324	641,756	464,104	169,299	67,065	45,100	11	1.9
9 Persons	833,491	333,123	296,095	120,459	49,142	34,672	7	2.1
10 Persons	774,818	300,880	264,686	114,665	50,197	44,390	6	2.6
11 to 14 persons	985,692	304,668	330,577	182,412	90,565	77,470	8	2.5
15 persons & more	380,068	89,196	90,143	71,631	49,659	79,439	3	4.3
Percent	100	52	30	11	4	4	–	–
Persons per h.unit	7	6	7	8	9	10	–	–
Persons per room	4	6	4	3	2	2	–	–

Source: Population Census Organization

Table A – 19

Housing Units by Material Used in Outer – walls
Housing Census 1980

Province/ Area	Number of Housing Units by Construction material used in outer – walls					
	Total	Baked bricks/ blocks/stone – cement bonded	Baked bricks/ Stone – mud bonded	Unbaked bricks – mud bonded	Wood	Others
Pakistan (*)						
All areas	12,587,648	1,951,862	3,529,275	5,989,287	280,803	836,421
Urban	3,554,173	1,512,010	1,281,880	646,877	40,743	72,663
Rural	9,033,475	439,852	2,247,395	5,342,410	240,060	763,758
Islamabad						
All areas	59,019	32,675	18,705	6,781	156	702
Urban	36,973	25,031	6,645	4,584	83	630
Rural	22,046	7,644	12,060	2,197	73	72
Balochistan						
All areas	592,814	24,012	38,741	315,911	52,273	161,877
Urban	91,583	18,284	8,405	49,911	5,674	9,309
Rural	501,231	5,728	30,336	266,000	46,599	152,568
NWFP						
All areas	1,615,616	188,327	731,084	616,207	16,380	63,618
Urban	234,076	82,112	63,399	80,025	1,630	6,910
Rural	1,381,540	106,215	667,685	536,182	14,750	56,708
Punjab						
All areas	7,538,326	841,654	2,495,822	3,977,728	21,122	202,000
Urban	1,968,371	574,526	1,032,255	338,673	3,888	19,029
Rural	5,569,955	267,128	1,463,567	3,639,055	17,234	182,971
Sindh						
All areas	2,781,873	865,194	244,923	1,072,660	190,872	408,224
Urban	1,223,170	812,057	171,176	173,684	29,468	36,785
Rural	1,558,703	53,137	73,747	898,976	161,404	371,439

Source: Housing Census of Pakistan, 1980

(*) It excludes data of FATA.

Table A – 20

Housing Units by Material Used in Roofs
Housing Census 1980

Province/ Area	Number of Housing Units by Construction material used in Roofs			
	Total	RCC/RBC	Girder/beam, and baked bricks, etc.	Others
Pakistan				
All areas	12,587,648	1,076,748	9,842,487	1,668,413
Urban	3,554,173	941,623	2,201,396	411,154
Rural	9,033,475	135,125	7,641,091	1,257,259
Islamabad				
All areas	59,019	27,900	30,160	959
Urban	36,973	23,906	12,365	702
Rural	22,046	3,994	17,795	257
Balochistan				
All areas	592,814	16,438	393,735	182,641
Urban	91,583	12,371	61,488	17,724
Rural	501,231	4,067	332,247	164,917
NWFP				
All areas	1,615,616	77,435	1,372,549	165,632
Urban	234,076	45,861	174,108	14,107
Rural	1,381,540	31,574	1,198,441	151,525
Punjab				
All areas	7,538,326	511,600	6,459,769	566,957
Urban	1,968,371	437,687	1,464,029	66,655
Rural	5,569,955	73,913	4,995,740	500,302
Sindh				
All areas	2,781,873	443,375	1,586,274	752,224
Urban	1,223,170	421,798	489,406	311,966
Rural	1,558,703	21,577	1,096,868	440,258

Source: Housing Census of Pakistan, 1980

Note : This Table excludes data of FATA

Table A – 21

Housing Units by Lighting Facilities in Urban – Rural Areas, HEDS 1973 and Housing Census 1980

Area/Year	Total	Electricity	Kerosene Oil	Others
PAKISTAN				
1973 (a)	10881	1945	8896	40
Percent	100.0	17.9	81.8	0.4
1980 (b)	12587	3849	8463	275
Percent	100.0	30.6	67.2	2.2
URBAN				
1973 (a)	2847	1550	1290	7
Percent	100.0	54.4	45.3	0.2
1980 (b)	3554	2525	989	40
Percent	100.0	71.0	27.8	1.1
RURAL				
1973 (a)	8034	395	7606	33
Percent	100.0	4.9	94.7	0.4
1980 (b)	9033	1324	7474	235
Percent	100.0	14.7	82.7	2.6

Source: (a) Government of Pakistan, Housing, Economic and Demographic Survey (HEDS), 1973 Vol – II, Pakistan Censuss organisation, Interior Division, Islamabad.

(b) Government of Pakistan, Housing Census report of Pakistan 1980, Population Census Organization, Islamabad.

Table A – 22

Housing Units by Source of Lighting Used
Housing Census, 1980

(Number)

Province/Area	Total	Electricity	Kerosene Oil	Other lighting source
PAKISTAN				
All areas	12,587,648	3,849,127	8,463,462	275,059
Urban	3,554,173	2,524,749	989,687	39,737
Rural	9,033,475	1,324,378	7,473,775	235,322
ISLAMABAD				
All areas	59,019	36,408	22,119	492
Urban	36,973	26,306	10,197	470
Rural	22,046	10,102	11,922	22
BALOCHISTAN				
All areas	592,814	82,045	440,974	69,795
Urban	91,583	50,328	40,324	931
Rural	501,231	31,717	400,650	68,864
N.W.F.P				
All areas	1,615,616	540,974	987,913	86,729
Urban	234,076	188,471	43,282	2,323
Rural	1,381,540	352,503	944,631	84,406
PUNJAB				
All areas	7,538,326	2,190,377	5,301,688	46,261
Urban	1,968,371	1,430,831	522,920	14,620
Rural	5,569,955	759,546	4,778,768	31,641
SINDH				
All areas	2,781,873	999,323	1,710,768	71,782
Urban	1,223,170	828,813	372,964	21,393
Rural	1,558,703	170,510	1,337,804	50,389

Source: Population Census Organization

Note : This table excludes data of Federal Administered Tribal Areas (FATA)

Table A – 23

Housing Units by Type of Cooking Fuel Used in Urban/Rural Areas, HEDS 1973 and Housing Census 1980

(Thosuand Numbers)

Area/Year	Total	Wood	Charcoal	Kerosene	Gas	Electiricity	Cow–dung etc.
PAKISTAN							
1973 (a)	10881	7563	65	815	217	15	2206
Percent	100.0	69.5	0.6	7.5	2.0	0.1	20.3
1980 (b)	12587	8810	87	781	813	10	2086
Percent	100.0	70.0	0.7	6.2	6.5	0.1	16.6
URBAN							
1973 (a)	2847	1612	41	742	210	5	237
Percent	100.0	56.6	1.4	26.1	7.4	0.2	8.3
1980 (b)	3554	1714	46	714	786	4	290
Percent	100.0	48.2	1.3	20.1	22.1	0.1	8.2
RURAL							
1973 (a)	8034	5951	24	73	6	9	1971
Percent	100.0	74.1	0.3	0.9	0.1	0.1	24.5
1980 (b)	9033	7096	41	66	27	7	1796
Percent	100.0	78.6	0.5	0.7	0.3	0.1	19.9

Source: (a) Government of Pakistan, Housing, Economic and Demographic Survey (HEDS),1973, Vol. II, Pakistan Censuss Organisation, Interior Division, Islamabad.

(b) Government of Pakistan, Housing Census report of Pakistan 1980, Population Census Organization, Islamabad.

Table A–24

Housing Units by Source of Cooking Fuel Used
Housing Census, 1980

Province/Area	Number of Cooking fuel used						
	Total	Wood	Coal/ Charcoal	Kerosene oil	Gas	Electri– city	Dung–cake etc.
PAKISTAN							
All areas	12,587,648	8,810,121	86,832	780,835	812,867	10,521	2,086,472
Urban	3,554,173	1,713,939	45,936	714,339	785,804	3,570	290,585
Rural	9,033,475	7,096,182	40,896	66,496	27,063	6,951	1,795,887
ISLAMABAD							
All areas	59,019	29,859	94	3,629	22,399	23	3,015
Urban	36,973	11,327	47	1,831	21,925	14	1,829
Rural	22,046	18,532	47	1,798	474	9	1,186
BALOCHISTAN							
All areas	592,814	513,043	8,879	20,078	4,874	516	45,424
Urban	91,583	62,146	5,338	18,191	3,924	199	1,785
Rural	501,231	450,897	3,541	1,887	950	317	43,639
N.W.F.P							
All areas	1,615,616	1,167,888	5,078	80,781	25,021	4,939	331,909
Urban	234,076	114,539	2,030	65,870	22,612	869	28,156
Rural	1,381,540	1,053,349	3,048	14,911	2,409	4,070	303,753
PUNJAB							
All areas	7,538,326	5,309,929	37,629	362,041	352,960	4,505	1,471,262
Urban	1,968,371	1,073,364	13,936	319,940	338,783	2,081	220,267
Rural	5,569,955	4,236,565	23,693	42,101	14,177	2,424	1,250,995
SINDH							
All areas	2,781,873	1,789,402	35,152	314,306	407,613	538	234,862
Urban	1,223,170	452,563	24,585	308,507	398,560	407	38,548
Rural	1,558,703	1,336,839	10,567	5,799	9,053	131	196,314

Source: Population Census Organization

Note : This table excludes data of Federal Administered Tribal Areas (FATA)

Table A – 25

Housing Units by Facilities like Kitchen, Bathroom and Latrine
Housing Census, 1980

(Number)

Type of Facility Available	Urban Area only					
	Pakistan	Islamabad	Balochsitan	NWFP	Punjab	Sindh
1. Kitchen						
Separate	1,580,253	25,786	52,033	96,198	669,157	737,079
Shared	156,405	968	9,483	6,904	76,122	62,928
None	1,817,515	10,219	30,067	130,974	1,223,092	423,163
Total	3,554,173	36,973	91,583	234,076	1,968,371	1,223,170
2. Bathroom						
Separate	1,678,744	23,364	56,167	107,046	700,362	791,805
Shared	227,027	1,189	9,929	10,501	121,394	84,014
None	1,648,402	12,420	25,487	116,529	1,146,615	347,351
Total	3,554,173	36,973	91,583	234,076	1,968,371	1,223,170
3. Latrine – Separate						
With flush	794,471	22,291	8,731	25,879	296,056	441,514
Without flush	1,463,350	218	49,572	113,803	827,477	472,280
4. Latrine – Shared						
With flush	95,912	1,043	1,200	2,761	46,202	44,706
Without flush	237,085	74	7,894	14,390	143,151	71,576
No Latrine	963,355	13,347	24,186	77,243	655,485	193,094
Total (3+4)	3,554,173	36,973	91,583	234,076	1,968,371	1,223,170

Source: Population Census Organization

Note: – The question for the above facilities was only asked in the urban areas because rural areas hardly have these facilities.

Table A – 26

Housing Units by Water Facilities in Urban/Rural Areas, HEDS 1973 and Housing Census, 1980

(Thousand Numbers)

Area/Year	Total	Piped Water		Hand Pump		Well	Others
		Inside	Outside	Inside	Outside		(*)
PAKISTAN							
1973 (a)	10881	915	886	3134	1457	2844	1645
Percent	100.0	8.4	8.1	28.8	13.4	26.1	15.1
1980 (b)	12587	1589	972	4317	1545	2171	1993
Percent	100.0	12.6	7.7	34.3	12.3	17.2	15.8
URBAN							
1973 (a)	2847	808	755	740	199	250	95
Percent	100.0	28.4	26.5	26.0	7.0	8.8	3.3
1980 (b)	3554	1360	712	970	201	250	61
Percent	100.0	38.3	20.0	27.3	5.7	7.0	1.7
RURAL							
1973 (a)	8034	107	131	2394	1258	2593	1551
Percent	100.0	1.3	1.6	29.8	15.7	32.3	19.3
1980 (b)	9033	229	260	3347	1344	1921	1932
Percent	100.0	2.5	2.9	37.1	14.9	21.3	21.4

Source: (a) Government of Pakistan, Housing, Economic and Demographic Survey (HEDS), 1973 Vol – II, Population Census Organisation, Interior Division, Islamabad.

(b) Government of Pakistan, Housing Census Report of Pakistan 1980, Population Census Organization, Islamabad.

(*) Others include water supply from ponds, springs, rivers and streams, etc.

Table A–27

Percentage Distribution of Households by Main Source of Drinking Water – Pakistan and Provinces

Province and Sanitation System	1995–96 PIHS			1996–97 PIHS		
	Urban	Rural	Overall	Urban	Rural	Overall
PAKISTAN						
Tap in House	56	11	25	56	9	24
Tap outside House	4	2	3	4	2	3
Hand Pump/M.Pump	33	66	56	29	62	52
Dug Well	3	11	8	8	12	11
River/Canal/Stream	0	5	3	0	13	9
Other	3	6	5	2	2	2
Total	100	100	100	100	100	100
BALOCHISTAN						
Tap in House	71	16	26	70	13	21
Tap outside House	8	3	4	6	3	4
Hand Pump/M.Pump	6	15	11	3	13	11
Dug Well	10	29	25	11	20	19
River/Canal/Stream	2	13	11	2	44	38
Other	3	25	21	7	6	7
Total	100	100	100	100	100	100
N.W.F.P						
Tap in House	49	37	31	52	23	28
Tap outside House	11	9	9	12	5	6
Hand Pump/M.Pump	22	12	14	13	9	10
Dug Well	15	25	23	22	22	22
River/Canal/Stream	0	4	3	1	38	32
Other	3	23	19	0	3	2
Total	100	100	100	100	100	100
PUNJAB						
Tap in House	45	8	18	45	6	17
Tap outside House	2	1	1	3	1	2
Hand Pump/M.Pump	50	83	74	44	80	70
Dug Well	1	6	5	9	8	8
River/Canal/Stream	0	1	1	0	3	3
Other	2	1	2	0	1	1
Total	100	100	100	100	100	100
SINDH						
Tap in House	71	9	39	72	8	40
Tap outside House	6	1	4	6	2	4
Hand Pump/M.Pump	14	58	37	12	55	33
Dug Well	4	12	8	5	16	11
River/Canal/Stream	0	17	9	0	17	9
Other	5	2	3	5	2	4
Total	100	100	100	100	100	100

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

NOTES:

1. Households obtaining water from the source indicated, expressed as a percentage of the total number of households
2. Categories: "Hand–Pump" includes hand pumps both inside and outside, motor pump and tube well outside the house, "Dug well" includes well open and well closed both inside and outside the house, "Canal/river/stream" includes canal, river, spring, stream and "Other water" includes public standpipe, water seller, and other.
3. Totals may not add up to 100 because of rounding.

Table A-28

Housing Units by Source of Drinking Water - Inside and Outside, Housing Census, 1980

(Number)

Province/ Area	Inside House			Outside House				
	Pipe	Hand-pump	Well	Pipe	Hand-pump	Well	Pond	Spring/River/ Stream etc.
PAKISTAN								
All areas	1,588,606	4,317,289	594,410	971,932	1,544,992	1,577,009	416,857	1,576,553
Urban	1,359,710	970,107	117,097	712,166	200,608	133,468	16,170	44,847
Rural	228,896	3,347,182	477,313	259,766	1,344,384	1,443,541	400,687	1,531,706
ISLAMABAD								
All areas	24,376	97	1,102	3,482	97	25,379	86	4,400
Urban	23,255	23	464	3,014	74	9,046	32	1,065
Rural	1,121	74	638	468	23	16,333	54	3,335
BALOCHISTAN								
All areas	38,895	1,469	3,648	45,352	2,216	213,544	64,670	223,020
Urban	33,532	463	1,780	29,502	213	17,902	3,507	4,684
Rural	5,363	1,006	1,868	15,850	2,003	195,642	61,163	218,336
N.W.F.P								
All areas	128,414	45,292	317,516	146,938	11,392	285,890	56,776	623,398
Urban	79,482	10,309	49,280	55,246	967	31,266	653	6,873
Rural	48,932	34,983	268,236	91,692	10,425	254,624	56,123	616,525
PUNJAB								
All areas	816,895	3,856,955	199,704	241,715	1,169,981	777,284	253,411	222,381
Urban	114,905	3,016,194	144,558	75,396	1,036,750	719,443	247,667	215,042
Rural	701,990	840,761	55,146	166,319	133,231	57,841	5,744	7,339
SINDH								
All areas	580,026	413,476	72,440	534,445	361,306	274,912	41,914	503,354
Urban	58,575	294,925	62,013	76,360	295,183	257,499	35,680	478,468
Rural	521,451	118,551	10,427	458,085	66,123	17,413	6,234	24,886

Source: Population Census Organization

Note : This table excludes data of Federal Administered Tribal Areas (FATA)

Table A – 29

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

Province and Sanitation System	1995–96 PIHS			1996–97 PIHS		
	Urban	Rural	Overall	Urban	Rural	Overall
PAKISTAN						
Household Flush	75	17	34	85	22	42
Non–Flush	13	14	14	8	17	14
Communal Latrine	4	3	3			
No Toilet	9	66	48	7	61	44
Total	100	100	100	100	100	100
BALOCHISTAN						
Household Flush	41	6	13	67	18	25
Non–Flush	42	24	27	24	21	22
Communal Latrine	2	1	1			
No Toilet	15	69	59	9	61	53
Total	100	100	100	100	100	100
N.W.F.P						
Household Flush	59	15	23	64	20	27
Non–Flush	32	26	27	28	36	34
Communal Latrine	1	1	1			
No Toilet	9	57	49	8	45	38
Total	100	100	100	100	100	100
PUNJAB						
Household Flush	73	20	34	85	23	40
Non–Flush	9	5	6	5	6	6
Communal Latrine	5	1	2			
No Toilet	13	74	58	11	71	54
Total	100	100	100	100	100	100
SINDH						
Household Flush	82	11	45	90	23	56
Non–Flush	12	36	24	8	41	25
Communal Latrine	3	11	7			
No Toilet	3	42	24	2	36	19
Total	100	100	100	100	100	100

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

Notes:– 1. Households having the type of toilets indicated, expressed as a percentage of the total number of housholds

2. Communal latrine was not included as a separate category in the 1996–97 PIHS questionnaire.

3. Totals may not add up to 100 because of rounding.

Table A – 30

Percentage Distribution of Civilian Labour Force

Year	Total			Employed			Unemployed		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
1981 (*)	27.57	26.72	0.85	26.56	25.78	0.78	1.01	0.94	0.07
1982 – 83	30.19	26.71	3.48	29.01	25.59	3.42	1.18	1.11	0.07
1984 – 85	29.56	26.78	2.79	28.46	25.72	2.75	1.10	1.06	0.04
1985 – 86	28.72	25.83	2.89	27.67	24.83	2.84	1.04	0.99	0.05
1986 – 87	29.40	25.60	3.81	28.51	24.74	3.76	0.90	0.85	0.04
1987 – 88	28.83	25.54	3.28	27.92	24.67	3.25	0.90	0.87	0.03
1990 – 91	27.97	24.00	3.97	26.21	22.91	3.30	1.76	1.09	0.67
1991 – 92	28.11	23.66	4.45	26.47	22.65	3.82	1.64	1.01	0.63
1992 – 93	27.86	23.72	4.15	26.54	22.83	3.72	1.32	0.89	0.43
1993 – 94	27.88	23.59	4.29	26.53	22.67	3.86	1.35	0.92	0.43
1994 – 95	27.46	23.80	3.66	25.98	22.82	3.16	1.48	0.98	0.50
1996 – 97	28.69	24.34	4.35	26.93	23.31	3.62	1.75	1.03	0.73

Source: Federal Bureau of Statistics

(*) = Population Census, 1981

Table A – 31

Percentage Distribution of Population by Economic Category

Economic category	1981 (*)	1984 – 85	1985 – 86	1986 – 87	1987 – 88	1990 – 91
All Areas						
Total population	100.00	100.00	100.00	100.00	100.00	100.00
Civilian labour force	27.57	29.56	28.72	29.40	28.83	27.97
i) Employed	26.72	28.46	27.67	28.51	27.92	26.21
ii) Un – employed	0.85	1.10	1.04	0.90	0.90	1.76
Not in civilian labour force	72.43	70.44	71.28	70.60	71.17	72.03
Urban Area						
Total population	100.00	100.00	100.00	100.00	100.00	100.00
Civilian labour force	25.35	27.07	25.83	26.26	26.28	26.37
i) Employed	24.03	25.52	24.53	25.08	25.08	24.22
ii) Un – employed	1.32	1.55	1.29	1.18	1.20	2.16
Not in civilian labour force	74.65	72.93	74.17	73.74	73.72	73.63
Rural Area						
Total population	100.00	100.00	100.00	100.00	100.00	100.00
Civilian labour force	28.49	30.65	29.94	30.81	29.90	28.70
i) Employed	27.82	29.75	29.01	30.04	29.12	27.13
ii) Un – employed	0.67	0.90	0.94	0.77	0.78	1.57
Not in civilian labour force	71.51	69.35	70.06	69.19	70.10	71.30

Note: (*) = Population Census, 1981

Contd.

Table A – 31

Percentage Distribution of Population by Economic Category

Economic category	1991 – 92	1992 – 93	1993 – 94	1994 – 95	1996 – 97
All Areas					
Total population	100.00	100.00	100.00	100.00	100.00
Civilian labour force	28.11	27.86	27.88	27.46	28.69
i) Employed	26.47	26.54	26.53	25.98	26.93
ii) Un – employed	1.64	1.32	1.35	1.48	1.75
Not in civilian labour force	71.89	72.14	72.12	72.54	71.31
Urban Area					
Total population	100.00	100.00	100.00	100.00	100.00
Civilian labour force	26.08	25.83	25.79	26.12	27.15
i) Employed	24.26	24.31	24.11	24.32	25.21
ii) Un – employed	1.82	1.52	1.68	1.80	1.95
Not in civilian labour force	73.92	74.17	74.21	73.88	72.85
Rural Area					
Total population	100.00	100.00	100.00	100.00	100.00
Civilian labour force	28.99	28.76	28.73	28.00	29.42
i) Employed	27.42	27.53	27.52	26.66	27.76
ii) Un – employed	1.57	1.23	1.21	1.34	1.66
Not in civilian labour force	71.01	71.24	71.27	72.00	70.58

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

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

Table A – 32

Percentage Distribution of Employed Persons by Major Industry Division – All Areas

Major Industry Division	1981 (*)	1982 – 83	1984 – 85	1985 – 86	1986 – 87	1987 – 88
	1	2	3	4	5	6
Total employed persons	100.00	100.00	100.00	100.00	100.00	100.00
Agriculture, forestry, hunting and fishing	52.72	52.73	50.56	54.01	49.24	51.15
Mininig and quarrying	0.4	0.1	0.17	0.26	0.23	0.15
Manufacturing	9.16	13.44	13.67	13.14	14.00	12.69
Electricity, gas, water and sanitary services	0.6	1.13	0.69	0.52	0.73	0.59
Construction	4.19	4.8	5.60	5.24	6.01	6.38
Wholesale, retail trade, restaurants & hotels	9.42	11.94	11.54	11.40	12.05	11.92
Transport, storage and communication	4.14	4.59	5.20	4.42	5.25	4.89
Financing, insurance, real estate and business services	0.76	0.82	0.88	0.94	0.77	0.71
Community, social and personal services	13.7	10.19	11.07	10.01	11.48	11.39
Activities not adequately described	4.92	0.27	0.63	0.07	0.25	0.12

Major Industry Division	1990 – 91	1991 – 92	1992 – 93	1993 – 94	1994 – 95	1996 – 97
	7	8	9	10	11	12
Total employed persons	100.00	100.00	100.00	100.00	100.00	100.00
Agriculture, forestry, hunting and fishing	47.45	48.27	47.55	50.04	46.79	44.15
Mininig and quarrying	0.15	0.25	0.10	0.09	0.12	0.10
Manufacturing	12.23	12.28	10.90	10.03	10.38	11.10
Electricity, gas, water and sanitary services	0.83	0.79	0.84	0.87	0.82	0.98
Construction	6.62	6.33	6.93	6.50	7.21	6.75
Wholesale, retail trade, restaurants & hotels	13.24	13.10	13.32	12.78	14.50	14.62
Transport, storage and communication	5.24	5.51	5.52	4.95	5.07	5.71
Financing, insurance, real estate and business services	0.89	0.76	0.82	0.78	0.77	0.98
Community, social and personal services	13.27	12.65	13.83	13.92	14.28	15.58
Activities not adequately described	0.06	0.07	0.19	0.05	0.07	0.04

Contd.

Table A – 32

Percentage Distribution of Employed Persons by Major Industry Division – Urban Area

Major Industry Division	1981 (*)	1982 – 83	1984 – 85	1985 – 86	1986 – 87	1987 – 88
	1	2	3	4	5	6
Total employed persons	100.00	100.00	100.00	100.00	100.00	100.00
Agriculture, forestry, hunting and fishing	7.38	6.7	7.39	6.83	6.37	6.02
Mining and quarrying	0.28	0.08	0.21	0.17	0.24	0.06
Manufacturing	18.28	25.94	24.89	26.00	27.25	24.72
Electricity, gas, water and sanitary services	1.18	1.65	1.50	1.32	1.63	1.14
Construction	6.43	6.88	6.74	7.68	6.40	7.20
Wholesale, retail trade, restaurants & hotels	21.82	26.7	25.29	26.42	24.91	25.94
Transport, storage and communication	8.65	9.2	9.95	8.18	9.81	8.86
Financing, insurance, real estate and business services	2.12	2.54	2.58	2.95	2.32	2.13
Community, social and personal services	26.41	20.17	20.63	20.35	20.66	23.77
Activities not adequately described	7.43	0.13	0.81	0.09	0.41	0.16

Major Industry Division	1990 – 91	1991 – 92	1992 – 93	1993 – 94	1994 – 95	1996 – 97
	7	8	9	10	11	12
Total employed persons	100.00	100.00	100.00	100.00	100.00	100.00
Agriculture, forestry, hunting and fishing	7.63	6.89	5.80	5.55	5.80	5.69
Mining and quarrying	0.17	0.30	0.20	0.08	0.14	0.13
Manufacturing	22.35	23.25	21.31	21.24	20.10	21.02
Electricity, gas, water and sanitary services	1.55	1.71	1.59	1.62	1.53	1.75
Construction	6.59	6.80	6.72	6.64	6.49	6.64
Wholesale, retail trade, restaurants & hotels	26.57	25.40	27.26	27.22	28.63	26.38
Transport, storage and communication	9.07	9.37	10.00	8.74	8.47	9.39
Financing, insurance, real estate and business services	2.25	2.00	2.23	2.22	2.13	2.55
Community, social and personal services	23.75	23.86	24.53	26.55	26.58	26.35
Activities not adequately described	0.07	0.15	0.37	0.12	0.13	0.10

Contd.

Table A – 32

Percentage Distribution of Employed Persons by Major Industry Division – Rural Area

Major Industry Division	1981 (*)	1982 – 83	1984 – 85	1985 – 86	1986 – 87	1987 – 88
	1	2	3	4	5	6
Total employed persons	100.00	100.00	100.00	100.00	100.00	100.00
Agriculture, forestry, hunting and fishing	68.76	67.69	66.69	70.94	65.24	67.49
Mininig and quarrying	0.44	0.11	0.15	0.29	0.22	0.18
Manufacturing	5.93	9.38	9.48	8.52	9.05	8.34
Electricity, gas, water and sanitary services	0.39	0.96	0.38	0.23	0.39	0.39
Construction	3.4	4.12	5.17	4.36	5.86	6.08
Wholesale, retail trade, restaurants & hotels	5.03	7.14	6.40	6.00	7.25	6.85
Transport, storage and communication	2.54	3.09	3.42	3.07	3.55	3.45
Financing, insurance, real estate and business services	0.28	0.26	0.24	0.22	0.18	0.20
Community, social and personal services	9.2	6.94	7.49	6.30	8.05	6.91
Activities not adequately described	4.03	0.31	0.57	0.06	0.19	0.10

Major Industry Division	1990 – 91	1991 – 92	1992 – 93	1993 – 94	1994 – 95	1996 – 97
	7	8	9	10	11	12
Total employed persons	100.00	100.00	100.00	100.00	100.00	100.00
Agriculture, forestry, hunting and fishing	63.79	64.15	63.76	66.00	61.94	60.83
Mininig and quarrying	0.14	0.23	0.06	0.10	0.11	0.09
Manufacturing	8.08	7.97	6.86	6.00	6.78	6.78
Electricity, gas, water and sanitary services	0.54	0.43	0.55	0.60	0.56	0.63
Construction	6.63	6.16	7.02	6.44	7.47	6.80
Wholesale, retail trade, restaurants & hotels	7.77	8.37	7.91	7.60	9.29	9.52
Transport, storage and communication	3.68	4.03	3.78	3.58	3.81	4.11
Financing, insurance, real estate and business services	0.34	0.28	0.26	0.26	0.27	0.32
Community, social and personal services	8.97	8.34	9.68	9.39	9.73	10.90
Activities not adequately described	0.06	0.04	0.12	0.03	0.05	0.01

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

Note: Labour Force Survey was not conducted during 1983 – 84, 1988 – 89 and 1989 – 90.

(*) Population Census, 1981

Table A–33

Percentage Distribution of Employed Persons by Major Occupation Groups ALL AREAS

Major Occupation Group	1981 (*)	1982–83	1984–85	1985–86	1986–87	1987–88
	1	2	3	4	5	6
Total employed persons	100.00	100.00	100.00	100.00	100.00	100.00
Professional, Technical and related workers	3.85	3.08	3.49	3.29	3.84	3.82
Administrative and managerial workers	1.34	0.86	0.88	1.10	0.69	0.73
Clerical and related workers	3.14	2.99	3.45	3.36	4.01	3.80
Sales workers	8.3	10.23	10.19	10.22	11.33	10.93
Service workers	4.21	4.8	4.50	4.39	4.33	4.33
Agricultural,animal husbandry and forestry workers fishermen and hunters	51.43	52.82	50.07	53.52	48.83	50.61
Production and related workers transport equipment operators and labours	25.55	25.23	27.15	24.06	26.89	25.67
Workers not classified by occupation.	2.17	–	0.27	0.07	0.08	0.10

Major Occupation Group	1990–91	1991–92	1992–93	1993–94	1994–95
	7	8	9	10	11
Total employed persons	100.00	100.00	100.00	100.00	100.00
Professional, Technical and related workers	4.85	4.72	4.83	4.59	5.04
Administrative and managerial workers	0.97	1.06	1.19	0.94	0.91
Clerical and related workers	4.53	4.21	4.55	4.17	4.59
Sales workers	12.15	11.88	12.56	11.98	13.63
Service workers	4.90	4.79	4.59	4.56	4.44
Agricultural,animal husbandry and forestry workers fishermen and hunters	46.64	47.53	46.63	49.06	46.01
Production and related workers transport equipment operators and labours	25.97	25.80	25.65	24.69	25.38
Workers not classified by occupation.	–	–	–	–	–

Contd.

Table A–33

Percentage Distribution of Employed Persons by Major Occupational Group URBAN AREA

Major Occupation Group	1981 (*)	1982–83	1984–85	1985–86	1986–87	1987–88
	1	2	3	4	5	6
Total employed persons	100.00	100.00	100.00	100.00	100.00	100.00
Professional, Technical and related workers	6.73	6.41	6.69	6.98	7.46	7.77
Administrative and managerial workers	2.58	2.82	2.51	3.60	2.22	2.29
Clerical and related workers	7.75	7.12	8.09	8.41	8.98	8.83
Sales workers	19.51	23.10	22.64	24.08	23.74	24.22
Service workers	8.23	7.85	7.53	7.77	7.17	8.03
Agricultural,animal husbandry and forestry workers fishermen and hunters	6.95	6.75	7.45	6.65	6.42	6.01
Production and related workers transport equipment operators and labours	43.56	45.95	44.56	42.36	43.89	42.65
Workers not classified by occupation.	4.65	–	0.52	0.16	0.11	0.20

Major Occupation Group	1990–91	1991–92	1992–93	1993–94	1994–95
	7	8	9	10	11
Total employed persons	100.00	100.00	100.00	100.00	100.00
Professional, Technical and related workers	7.99	8.25	8.45	8.62	8.55
Administrative and managerial workers	2.63	3.08	3.59	3.07	2.86
Clerical and related workers	9.23	9.30	9.29	9.56	9.93
Sales workers	24.47	23.16	26.14	25.60	27.38
Service workers	8.29	8.25	7.33	7.63	7.25
Agricultural,animal husbandry and forestry workers fishermen and hunters	7.26	6.56	5.47	5.33	5.49
Production and related workers transport equipment operators and labours	40.14	41.41	39.73	40.20	38.55
Workers not classified by occupation.	–	–	–	–	–

Contd.

Table A–33

Percentage Distribution of Employed Persons by Major Occupational Group RURAL AREA

Major Occupation Group	1981 (*)	1982–83	1984–85	1985–86	1986–87	1987–88
	1	2	3	4	5	6
Total employed persons	100.00	100.00	100.00	100.00	100.00	100.00
Professional, Technical and related workers	2.83	1.99	2.29	1.96	2.48	2.39
Administrative and managerial workers	0.89	0.22	0.27	0.20	0.12	0.17
Clerical and related workers	1.51	1.65	1.72	1.54	2.16	1.98
Sales workers	4.32	6.05	5.54	5.25	6.69	6.12
Service workers	2.78	3.80	3.37	3.17	3.27	2.99
Agricultural,animal husbandry and forestry workers fishermen and hunters	67.17	67.79	65.99	70.35	64.67	66.75
Production and related workers transport equipment operators and labours	19.19	18.50	20.64	17.49	20.55	19.52
Workers not classified by occupation.	1.29	–	0.17	0.04	0.07	0.07

Major Occupation Group	1990–91	1991–92	1992–93	1993–94	1994–95
	7	8	9	10	11
Total employed persons	100.00	100.00	100.00	100.00	100.00
Professional, Technical and related workers	3.56	3.37	3.42	3.14	3.74
Administrative and managerial workers	0.29	0.29	0.26	0.18	0.19
Clerical and related workers	2.60	2.25	2.70	2.23	2.61
Sales workers	7.09	7.55	7.29	7.10	8.55
Service workers	3.50	3.47	3.53	3.47	3.41
Agricultural,animal husbandry and forestry workers fishermen and hunters	62.81	63.26	62.60	64.76	60.98
Production and related workers transport equipment operators and labours	20.15	19.81	20.19	19.12	20.52
Workers not classified by occupation.	–	–	–	–	–

Contd.

Table A–33

Percentage Distribution of Employed Persons by Major Occupational Group, 1996 – 97

Major Occupation Group	All Areas	Urban Area	Rural Area
Total employed persons	100.00	100.00	100.00
Legislators, Senior Officials and Managers	8.62	16.43	5.22
Professionals	3.50	6.61	2.14
Technicians and Associate Professionals	2.80	4.99	1.85
Clerks	2.89	5.82	1.62
Service Workers and Shop and Market Sale Workers	7.77	13.06	5.48
Skilled Agricultural and Fishery Workers	36.82	4.30	50.92
Craft and related Trade Workers	9.87	17.98	6.35
Plant and Machine Operators and Assemblers	4.82	7.57	3.63
Elementary (Unskilled) Occupations	22.93	23.21	22.81

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

Note: i) Labour Force Survey was not conducted during 1983–84, 1988–89, 1989–90 and 1995–96.

ii) Major occupation groups have been changed in the Labour Force Survey, 1996–97.

(*) = Population Census, 1981

Table A – 34

Land Utillization Statistics

(Million Hectares)

year	Total area	Total area repoted Col (3+4+5+6)	Forest area	Not available for cultivation	Culturable waste
	1	2	3	4	5
1980–81	79.61	53.92	2.85	19.91	10.86
1981–82	79.61	57.91	2.81	21.96	12.72
1982–83	79.61	57.96	2.87	21.92	12.81
1983–84	79.61	58.18	2.96	22.36	12.53
1984–85	79.61	58.13	3.16	23.26	11.10
1985–86	79.61	57.79	3.12	24.52	9.47
1986–87	79.61	57.78	2.92	23.61	10.33
1987–88	79.61	57.78	3.46	24.40	9.26
1988–89	79.61	57.90	3.43	24.06	9.39
1989–90	79.61	57.97	3.38	24.84	8.81
1990–91	79.61	57.61	3.46	24.34	8.85
1991–92	79.61	57.87	3.47	24.48	8.86
1992–93	79.61	58.06	3.48	24.35	8.83
1993–94	79.61	58.13	3.45	24.43	8.74
1994–95	79.61	58.50	3.60	24.44	8.91
1995–96	79.61	58.51	3.61	24.35	8.87
1996–97	79.61	58.51	3.62	24.39	8.91

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
1980–81	20.30	4.89	15.41	3.92	19.33
1981–82	20.42	4.89	15.53	4.25	19.78
1982–83	20.36	4.59	15.77	4.36	20.13
1983–84	20.33	4.67	15.66	4.33	19.99
1984–85	20.61	5.00	15.61	4.31	19.92
1985–86	20.68	4.91	15.77	4.51	20.28
1986–87	20.92	4.86	16.06	4.84	20.90
1987–88	20.66	5.94	14.72	4.80	19.52
1988–89	21.02	4.93	16.09	5.73	21.82
1989–90	20.94	5.12	15.82	5.64	21.46
1990–91	20.96	4.85	16.11	5.71	21.82
1991–92	21.06	4.87	16.19	5.53	21.72
1992–93	21.40	4.95	16.45	5.99	22.44
1993–94	21.51	5.29	16.22	5.65	21.87
1994–95	21.55	5.42	16.13	6.01	22.14
1995–96	21.68	5.19	16.49	6.10	22.59
1996–97	21.59	4.85	16.74	6.19	22.93

Source: Provincial Agriculture Departments

TAble A–35

Area under Agricultural Crops

(000 Hectares)

Year	Rice	Wheat	Bajra	Jowar	Maize	Barley	Gram	Masoor
1980–81	1,933.1	6,983.7	405.9	393.5	769.0	259.4	842.9	72.7
1981–82	1,976.0	7,222.9	559.3	392.5	739.1	221.6	901.6	74.0
1982–83	1,978.1	7,397.9	438.1	389.7	789.8	263.1	892.9	82.3
1983–84	1,998.5	7,343.2	553.0	390.8	798.0	199.9	919.6	48.8
1984–85	1,998.5	7,258.5	605.7	394.8	808.8	190.0	1,013.7	49.1
1985–86	1,863.2	7,403.3	560.8	372.4	803.9	188.8	1,033.3	57.4
1986–87	2,065.6	7,706.2	508.9	399.2	816.2	182.3	1,082.1	80.8
1987–88	1,963.0	7,308.4	292.7	319.8	853.9	145.0	820.6	76.0
1988–89	2,041.7	7,729.6	510.0	431.2	865.8	158.7	979.4	75.5
1989–90	2,106.9	7,844.5	511.6	440.0	862.9	154.7	1,035.4	67.9
1990–91	2,112.7	7,911.4	490.5	416.5	845.2	156.8	1,091.5	63.4
1991–92	2,096.9	7,877.6	312.8	382.7	847.5	149.0	996.9	58.7
1992–93	1,973.4	8,299.7	487.3	403.4	867.5	159.5	1,007.6	63.5
1993–94	2,187.1	8,034.2	302.9	364.7	878.5	150.6	1,045.0	51.5
1994–95	2,124.6	8,169.8	508.5	438.2	889.5	165.0	1,064.5	61.0
1995–96	2,161.7	8,376.5	406.8	417.8	880.8	171.6	1,118.9	65.5
1996–97	2,251.1	8,109.1	302.9	369.6	871.1	152.1	1,100.2	69.5
1997–98	2,317.3	8,354.6	460.0	390.3	868.6	162.7	1,102.3	64.8

Year	Mash	Mung	Other Pulses (a)	Rapeseed & mustard	Sesa–mum	Linseed	Ground–nut	Cotton
1980–81	68.2	67.0	36.6	417.0	44.1	10.7	46.5	2,108.5
1981–82	66.5	65.6	36.5	390.9	42.8	9.8	59.7	2,214.1
1982–83	73.8	79.0	35.0	385.5	28.5	8.4	69.3	2,262.9
1983–84	71.2	91.0	31.3	313.3	22.4	8.7	72.6	2,220.7
1984–85	83.8	93.6	30.0	346.9	34.2	9.4	59.1	2,241.6
1985–86	88.8	104.2	26.9	350.6	37.5	10.5	54.9	2,364.1
1986–87	77.5	114.2	23.7	302.8	33.2	9.9	62.8	2,505.2
1987–88	74.8	94.1	18.9	268.9	18.0	8.9	66.5	2,567.8
1988–89	78.5	96.6	19.6	333.6	24.9	9.2	68.1	2,619.4
1989–90	85.6	143.8	20.7	307.1	37.7	8.7	80.1	2,598.5
1990–91	79.1	141.6	20.0	303.5	52.9	8.2	82.6	2,662.2
1991–92	79.4	125.8	18.2	286.5	69.5	8.8	88.9	2,835.5
1992–93	76.6	146.8	17.8	284.6	82.2	8.3	94.8	2,835.9
1993–94	64.5	167.9	14.5	268.5	73.1	7.6	92.0	2,804.6
1994–95	54.7	179.7	15.3	300.6	80.2	7.7	96.6	2,652.8
1995–96	58.2	199.1	15.3	319.6	89.5	8.3	102.3	2,997.3
1996–97	57.4	192.4	13.0	353.9	99.5	8.3	104.8	3,148.6
1997–98	49.0	195.5	12.8	338.8	96.1	8.0	107.9	2,959.7

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

Contd.

TAble A–35

Area under Agricultural Crops

(000 Hectares)

Year	Jute	Sunhemp	Sugar cane	Tobacco	Potato	Vegetable (b)	Garlic	Chillies
1980–81	1.32	10.5	824.7	42.9	38.0	123.4	4.9	64.0
1981–82	1.22	10.8	946.7	43.1	45.3	127.8	5.4	59.2
1982–83	1.15	10.2	911.7	41.3	51.5	144.3	6.4	63.3
1983–84	1.30	10.0	896.5	46.2	49.6	150.3	6.4	69.4
1984–85	1.15	9.2	903.6	50.2	54.5	150.1	6.5	67.2
1985–86	0.62	8.5	779.8	45.6	62.9	161.4	6.6	68.4
1986–87	0.64	7.4	762.0	39.0	60.5	185.2	6.9	64.6
1987–88	0.70	7.8	841.6	41.6	58.1	191.7	7.3	60.6
1988–89	0.22	6.6	876.9	43.2	63.9	198.4	7.2	57.6
1989–90	0.13	7.7	854.3	40.9	80.0	206.3	5.7	71.0
1990–91	0.29	6.0	883.8	43.9	72.0	208.4	6.3	61.6
1991–92	0.09	5.4	896.1	53.8	75.6	215.0	7.3	84.3
1992–93	0.01	5.1	884.6	58.2	76.0	223.1	7.6	45.4
1993–94	0.05	4.1	962.8	57.4	79.3	232.0	7.7	83.7
1994–95	0.05	3.9	1,009.0	47.4	79.3	245.4	8.5	86.5
1995–96	0.03	3.8	963.1	46.1	78.9	209.7	9.1	86.2
1996–97	0.03	3.4	964.5	49.0	85.8	215.4	8.5	87.2
1997–98	0.03	3.1	1,056.2	53.3	104.7	217.5	8.8	90.4

Year	Onion	Citrus Fruit	Banana	Mango	Apple	Guava	Grapes	Dates
1980–81	43.2	94.5	14.8	57.2	11.4	17.3	2.5	24.2
1981–82	43.4	118.0	15.2	65.4	11.9	27.2	2.6	27.9
1982–83	45.3	124.7	15.2	67.8	12.9	34.3	2.7	30.5
1983–84	47.4	136.2	15.4	71.0	13.3	36.9	2.8	32.4
1984–85	48.2	144.2	15.7	73.0	14.8	38.6	2.8	33.1
1985–86	49.4	149.7	16.1	75.3	17.3	42.1	2.8	38.7
1986–87	51.1	153.5	22.7	77.6	18.5	42.2	2.9	40.4
1987–88	55.4	158.8	23.0	79.4	19.1	46.1	2.9	40.3
1988–89	57.8	170.2	23.1	80.2	21.8	45.7	3.2	41.3
1989–90	58.6	171.1	23.5	82.7	22.4	46.2	3.2	41.8
1990–91	58.6	173.3	22.7	85.4	22.8	46.9	3.2	42.0
1991–92	64.0	176.2	11.3	86.0	27.8	49.2	3.5	42.4
1992–93	67.6	176.2	12.3	83.6	31.4	50.6	3.8	41.2
1993–94	70.3	185.0	12.5	84.8	39.5	53.0	8.1	73.2
1994–95	74.8	190.7	24.0	88.3	40.4	54.4	8.2	73.5
1995–96	77.9	193.6	24.7	89.5	41.8	55.3	8.4	73.9
1996–97	80.8	194.4	25.1	90.4	43.5	56.0	8.5	74.5
1997–98	81.4	194.3	26.0	92.8	44.6	56.8	8.7	75.1

Source: (i) Ministry of Food, Agriculture and Livestock
(ii) Federal Bureau of Statistics

Note: (b) Excluding melons except cocumber since 1995–96.

Table A – 36

Production of Agricultural Crops

(000 Tonnes)

Year	Rice	Wheat	Bajra	Jowar	Maize	Barley	Gram	Masoor
1980–81	3,123.2	11,474.6	214.0	229.8	970.4	175.5	336.9	29.5
1981–82	3,429.7	11,304.2	272.4	224.6	930.4	157.5	293.7	31.4
1982–83	3,444.7	12,414.4	219.9	221.9	1,005.4	185.3	491.0	29.9
1983–84	3,339.5	10,881.9	256.2	222.1	1,013.5	139.5	521.9	21.7
1984–85	3,315.2	11,703.0	283.7	230.4	1,027.6	131.6	523.7	26.0
1985–86	2,918.9	13,923.0	258.4	218.6	1,009.4	133.7	586.2	31.3
1986–87	3,486.3	12,015.9	232.7	235.5	1,111.2	134.2	583.3	32.5
1987–88	3,240.9	12,675.1	135.3	180.6	1,126.9	111.8	371.5	30.9
1988–89	3,200.2	14,419.2	200.9	248.1	1,204.1	122.5	456.0	32.8
1989–90	3,220.1	14,315.5	204.2	262.2	1,179.3	131.3	561.9	29.9
1990–91	3,260.8	14,565.0	195.8	238.9	1,184.5	142.0	531.0	27.2
1991–92	3,243.1	15,684.2	138.7	224.5	1,203.1	139.9	512.8	26.1
1992–93	3,116.1	16,156.5	203.1	238.4	1,183.6	158.3	347.3	28.2
1993–94	3,994.7	15,213.0	137.5	212.3	1,213.0	145.7	410.7	25.1
1994–95	3,446.5	17,002.4	228.2	263.4	1,318.1	164.0	558.5	31.0
1995–96	3,966.5	16,907.4	161.5	254.8	1,283.4	174.4	679.6	34.0
1996–97	4,304.8	16,650.5	145.6	219.2	1,259.4	150.0	594.4	35.0
1997–98	4,333.0	18,694.0	211.3	231.3	1,251.2	174.1	767.1	37.1

Year	Mash	Mung	Other Pulse (a)	Rapeseed & mustard	Sesamum	Linseed	Ground nut	Cotton (000 bales)
1980–81	33.9	31.8	17.8	252.5	18.3	6.5	57.4	4201.0
1981–82	32.8	31.6	17.8	238.8	16.6	5.9	72.2	4398.3
1982–83	36.3	39.6	17.1	246.0	10.8	5.1	84.1	4843.9
1983–84	39.4	41.8	16.1	217.0	8.8	5.0	88.0	2907.7
1984–85	47.3	44.6	15.9	234.8	13.5	5.2	69.1	5930.4
1985–86	48.8	48.8	13.7	249.9	14.9	5.6	63.1	7154.5
1986–87	38.8	55.3	11.9	213.2	12.5	5.3	75.0	7759.7
1987–88	35.0	43.3	8.8	204.2	7.2	4.6	52.1	8632.9
1988–89	32.2	41.1	8.9	249.0	10.1	4.8	77.6	8385.1
1989–90	39.4	57.0	9.5	233.1	15.2	4.5	81.7	8559.8
1990–91	36.8	56.5	9.1	228.3	21.4	4.1	89.4	9627.7
1991–92	37.1	50.9	8.5	219.7	28.7	4.4	96.1	12822.2
1992–93	30.3	62.1	8.0	206.9	34.0	4.1	101.1	9053.8
1993–94	28.6	69.3	6.6	197.4	32.3	3.9	95.9	8,041.1
1994–95	26.9	80.0	7.4	229.4	36.2	4.2	105.7	8,697.1
1995–96	28.4	90.6	7.7	254.5	39.5	4.6	112.8	10,594.9
1996–97	28.4	89.5	6.6	285.6	44.9	4.6	117.4	9,374.2
1997–98	25.8	88.9	6.6	291.2	42.5	4.5	112.3	9,183.8

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

1 bale = 375 Lbs

Contd.

Table A – 36

Production of Agricultural Crops

(000 Tonnes)

Year	Jute	Sunhemp	Sugar cane	Tobacco	Potato	Vegetable (b)	Garlic	Chillies
1980–81	0.98	6.9	32,359.4	67.2	394.3	1549.4	36.9	106.2
1981–82	1.02	6.9	36,579.7	69.2	476.6	1616.5	41.5	99.8
1982–83	0.95	6.7	32,533.5	64.7	518.1	1802.6	51.3	103.8
1983–84	1.13	6.8	34,287.3	79.6	509.8	1917.2	51.4	96.9
1984–85	0.96	6.3	32,139.6	87.2	543.3	1906.3	53.0	96.4
1985–86	0.56	5.8	27,856.3	78.3	618.4	2065.4	54.4	98.8
1986–87	0.70	5.1	29,925.8	69.2	594.3	2452.2	57.1	92.4
1987–88	0.68	4.5	33,028.8	69.5	563.2	2517.5	60.7	84.3
1988–89	0.23	3.9	36,975.7	73.9	644.8	2627.0	60.8	74.4
1989–90	0.12	4.8	35,493.6	68.1	830.9	2750.8	48.3	125.5
1990–91	0.27	3.7	35,988.7	75.0	751.3	2758.6	53.4	100.9
1991–92	0.09	3.4	38,864.9	97.3	859.8	2875.5	62.6	142.3
1992–93	0.01	3.3	38,058.9	101.6	932.8	3017.7	66.2	75.3
1993–94	0.05	2.6	44,427.0	100.2	1,056.2	3149.5	66.4	141.5
1994–95	0.05	2.6	47,168.4	80.9	1,105.0	3359.7	76.9	94.9
1995–96	0.03	2.5	45,229.7	79.9	1,063.5	2783.2	82.5	135.8
1996–97	0.03	2.2	41,998.4	91.6	963.6	2,858.0	76.1	140.1
1997–98	0.03	2.0	53,104.2	98.6	963.4	2,946.8	79.8	140.2

Year	Onion	Citrus fruits	Banana	Mango	Apple	Guava	Grapes	Dates
1980–81	447.6	926.2	130.8	546.6	107.4	123.6	26.2	194.1
1981–82	451.8	1159.8	131.5	651.7	114.1	197.5	26.2	214.5
1982–83	474.8	1245.1	134.4	682.6	128.6	252.5	26.1	223.7
1983–84	503.4	1300.3	134.8	673.1	128.1	275.5	26.4	230.7
1984–85	514.6	1373.0	136.7	691.9	142.6	288.0	26.9	234.2
1985–86	558.5	1434.4	139.9	713.4	166.0	312.7	28.6	268.6
1986–87	576.8	1467.1	202.2	736.6	195.6	311.6	29.5	276.4
1987–88	633.1	1411.3	205.7	712.9	212.0	335.3	30.5	276.5
1988–89	707.0	1565.1	205.2	735.0	215.1	340.3	31.3	281.6
1989–90	712.9	1576.3	209.8	766.0	232.4	347.3	32.6	284.1
1990–91	702.4	1609.1	201.8	776.0	243.0	355.3	32.8	287.3
1991–92	808.9	1629.8	44.2	787.2	295.3	373.1	35.5	292.9
1992–93	853.7	1665.3	52.0	793.7	339.0	384.0	37.6	275.2
1993–94	911.5	1,849.4	53.2	839.3	442.4	402.3	40.3	578.6
1994–95	1013.1	1,932.8	79.5	883.7	533.1	420.3	42.9	531.5
1995–96	1097.6	1,959.5	81.7	907.8	553.5	441.6	72.0	532.5
1996–97	1,131.0	2,002.6	83.2	914.5	568.5	447.7	74.1	534.4
1997–98	1,131.0	2,037.0	93.7	916.8	573.1	454.9	74.3	537.5

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

Note:– (b) Excluding Potato and Sugarbeet.

Table A – 37

Number of Tubewells by Province

Year	Total	Balochistan	NWFP	Punjab	Sindh
1980–81	199,673	7,164	5,016	172,072	15,421
1981–82	207,079	7,584	5,228	176,896	17,371
1982–83	213,226	7,849	5,402	181,892	18,083
1983–84	230,536	8,126	5,517	198,311	18,582
1984–85	248,878	8,068	5,623	215,480	19,707
1985–86	257,309	8,167	5,671	223,846	19,625
1986–87	268,453	8,549	5,773	235,406	18,725
1987–88	288,453	10,518	5,914	252,052	19,969
1988–89	305,231	12,674	7,227	264,776	20,554
1989–90	325,179	14,125	7,073	282,854	21,127
1990–91	339,840	15,148	7,369	295,947	21,376
1991–92	355,840	16,852	7,766	309,593	21,629
1992–93	374,099	15,552	7,977	328,261	22,309
1993–94	389,493	16,303	8,367	341,773	23,050
1994–95	463,463	16,303	8,549	415,271	23,340
1995–96	483,785	16,303	8,666	435,228	23,588

Source: Provincial Agriculture Departments.

Table A – 38

Number and Area of Farms by Size of Farm – 1990

Size of farm (Hectares)	Farms		Farm area		Average size of Farm area (Hectares)
	Number	percent	Hectares	percent	
All Farms	5,071,112	100.000	19,252,672	100.00	3.8
Government Farms	149.0	0.003	103,035	0.54	691.5
Private Farms	5,070,963	99.997	19,149,637	99.46	3.8
Under 0.5	678,538	13.380	193,126	1.00	0.3
0.5 to under 1.0	689,233	13.591	510,397	2.65	0.7
1.0 to under 2.0	1,036,286	20.435	1,446,796	7.51	1.4
2.0 to under 3.0	841,295	16.590	1,973,800	10.25	2.3
3.0 to under 5.0	857,387	16.907	3,309,432	17.19	3.9
5.0 to under 10.0	623,110	12.287	4,134,346	22.00	6.6
10.0 to under 20.0	237,929	4.692	3,032,872	15.75	12.7
20.0 to under 60.0	91,831	1.811	2,613,767	13.58	28.5
60.0 and above	15,354	0.303	1,935,101	10.05	126.0

Source: Census of Agriculture – 1990, Agriculture Census Organisation

Table A – 39

Overall Water Availability at Farm Gate

(MAF)

Year/Season	Surface Water		Ground Water		Total Water Availability
	At Canal Head	At Farm Gate	Public Tube Wells	Private Tube Wells	
1980–81					
Kharif	69.43	39.88	3.72	12.57	56.17
Rabi	37.97	22.15	3.72	12.57	38.44
Total	107.40	62.03	7.44	25.14	94.61
1981–82					
Kharif	67.02	40.16	4.08	13.15	57.39
Rabi	34.83	22.28	4.08	13.16	39.52
Total	101.85	62.44	8.16	26.31	96.91
1982–83					
Kharif	67.32	43.21	4.98	13.15	61.34
Rabi	35.98	23.02	4.98	13.14	41.14
Total	103.30	66.23	9.96	26.29	102.48
1983–84					
Kharif	62.36	39.96	5.11	13.51	58.58
Rabi	38.15	24.04	5.09	13.51	42.64
Total	100.51	64.00	10.20	27.02	101.22
1984–85					
Kharif	65.65	42.54	5.20	13.88	61.62
Rabi	35.43	22.97	5.20	13.87	42.04
Total	101.08	65.51	10.40	27.75	103.66
1985–86					
Kharif	60.33	41.35	5.32	14.24	60.91
Rabi	36.01	24.28	5.30	14.24	43.82
Total	96.34	65.63	10.62	28.48	104.73
1986–87					
Kharif	67.20	44.24	5.42	14.60	64.26
Rabi	38.70	25.45	5.42	14.59	45.46
Total	105.90	69.69	10.84	29.19	109.72
1987–88					
Kharif	71.10	45.21	5.52	14.96	65.69
Rabi	38.00	26.03	5.54	14.96	46.53
Total	109.10	71.24	11.06	29.92	112.22
1988–89					
Kharif	66.60	46.22	5.67	15.31	67.20
Rabi	38.50	26.46	5.69	15.31	47.46
Total	105.10	72.68	11.36	30.62	114.66

Contd.

Table A – 39

Overall Water Availability at Farm Gate

(MAF)

Year/Season	Surface Water		Ground Water		Total Water Availability
	At Canal Head	At Farm Gate	Public Tube Wells	Private Tube Wells	
1989–90					
Kharif	65.30	47.18	5.82	15.66	68.66
Rabi	36.80	26.98	5.84	15.66	48.48
Total	102.10	74.16	11.66	31.32	117.14
1990–91					
Kharif	68.90	48.26	5.97	16.01	70.24
Rabi	40.70	27.38	5.99	16.01	49.38
Total	109.60	75.64	11.96	32.02	119.62
1991–92					
Kharif	71.20	49.27	6.10	16.34	71.71
Rabi	38.50	27.88	6.12	16.34	50.34
Total	109.70	77.15	12.22	32.68	122.05
1992–93					
Kharif	59.80	50.30	6.30	16.70	73.30
Rabi	38.10	28.40	6.30	16.70	51.40
Total	97.90	78.70	12.60	33.40	124.70
1993–94					
Kharif	N.A	51.01	6.32	17.39	74.72
Rabi	N.A	29.55	6.34	17.40	53.29
Total	N.A	80.56	12.66	34.79	128.01
1994–95					
Kharif	N.A	51.08	6.37	17.82	75.27
Rabi	N.A	30.15	6.39	17.84	54.38
Total	N.A	81.23	12.76	35.66	129.65
1995–96					
Kharif	N.A	56.71	0.86	18.25	75.82
Rabi	N.A	35.88	0.87	18.28	55.03
Total	N.A	92.59	1.73	36.53	130.85
1996–97					
Kharif	N.A	56.78	0.91	18.68	76.37
Rabi	N.A	36.04	0.92	18.72	55.68
Total	N.A	92.82	1.83	37.40	132.05

Source: Water Resorces Section, Planning & Development Division.

Note: Water losses: i) From canal head to outlet 25% of canal head
ii) From outlet to farm gate 15% of canal head
Total: 40% of canal head

Table A – 40

Production of Chemical Fertilizers

(000 Tonnes)

Year	Total	Urea	Ammonium Nitrate	Ammonium Sulphate	Super Phosphate	Nitro Phosphate
1980–81	1,623	980	273	97	102	171
1981–82	1,891	1,162	321	94	103	211
1982–83	2,575	1,832	340	61	104	238
1983–84	2,680	1,797	383	78	106	316
1984–85	2,718	1,812	406	86	106	308
1985–86	2,749	1,824	394	102	106	323
1986–87	2,939	1,994	413	101	108	323
1987–88	2,863	1,981	333	107	108	334
1988–89	2,938	2,006	351	107	143	331
1989–90	3,048	2,109	338	104	164	333
1990–91	2,957	2,050	319	92	175	321
1991–92	2,795	1,898	300	93	194	310
1992–93	3,203	2,306	302	93	205	297
1993–94	3,875	3,104	243	82	195	251
1994–95	3,826	3,000	314	80	147	285
1995–96	4,166	3,258	383	84	104	337
1996–97	4,016	3258	330	78	–	350

Source: (i) National Fertilizer Corporation
(ii) Fertilizer Import Department, Ministry of Food, Agriculture & Livestock

Table A–41

Season–Wise Consumption of Fertilizers

(000 Nutrient Tonnes)

Year	Kharif				Rabi				Total			
	N	P	K	All	N	P	K	All	N	P	K	All
1980–81	325	66	4	395	487	146	6	640	812	213	10	1035
1981–82	358	77	7	442	461	154	13	628	819	231	20	1070
1982–83	420	78	7	505	523	171	19	712	944	248	26	1217
1983–84	404	83	7	494	534	184	19	737	940	267	27	1232
1984–85	386	90	9	485	559	206	15	780	945	296	24	1265
1985–86	457	95	9	561	649	251	23	923	1106	346	32	1484
1986–87	543	106	13	662	725	266	26	1,017	1268	372	39	1679
1987–88	583	152	22	757	681	257	24	962	1264	409	46	1719
1988–89	588	124	15	727	730	252	12	994	1318	376	27	1721
1989–90	622	141	13	776	774	254	30	1,058	1396	395	43	1834
1990–91	692	150	10	852	761	235	17	1,013	1453	385	27	1865
1991–92	715	165	15	895	764	252	14	1,030	1479	417	29	1925
1992–93	737	144	8	889	829	300	16	1,145	1566	444	24	2034
1993–94	840	239	7	1,086	862	281	15	1,158	1702	520	22	2244
1994–95	721	105	7	833	982	311	12	1,305	1703	416	19	2138
1995–96	862	161	13	1,036	1065	315	15	1,395	1927	476	28	2431
1996–97	1048	209	5	1,262	941	234	2	1,177	1989	443	7	2439
1997–98	–	–	–	1,141	–	–	–	1,461	–	–	–	2602

Source: (i) Federal Imports Department, Karachi
(ii) National Fertilizer Development Centre (NDFC), Islamabad

Note: Kharif = Ist April to 30th September
Rabi = Ist October to 31st March

Table A – 42

Usage of Fertilizers by Crops

(000 Nutrient Tonnes)

Year	Wheat	Rice	Maize	Cotton	Sugarcane	Others	Total
1980–81	517.92	129.48	75.53	172.64	97.11	86.32	1,079.00
1981–82	517.44	129.36	75.46	172.48	97.02	86.24	1,078.00
1982–83	597.12	149.28	87.08	199.04	111.96	99.52	1,244.00
1983–84	601.50	120.30	84.21	180.45	96.24	120.30	1,203.00
1984–85	626.50	125.30	87.71	187.95	100.24	125.30	1,253.00
1985–86	756.00	151.20	105.84	226.80	120.96	151.20	1,512.00
1986–87	892.00	178.40	124.88	267.60	142.72	178.40	1,784.00
1987–88	860.00	172.00	120.40	258.00	137.60	172.00	1,720.00
1988–89	817.80	174.00	69.60	348.00	191.00	139.20	1,739.60
1989–90	888.30	189.00	75.60	378.00	207.90	151.20	1,890.00
1990–91	889.71	189.30	75.72	378.60	208.23	151.44	1,893.00
1991–92	885.48	188.40	75.36	376.80	207.24	150.72	1,884.00
1992–93	1,009.38	214.76	85.90	429.52	236.24	171.81	2,147.61
1993–94	1,009.09	214.20	85.88	429.40	236.17	171.76	2,146.50
1994–95	1,026.05	218.31	87.32	436.62	240.14	174.64	2,183.08
1995–96	1,047.00	250.00	100.00	524.00	249.00	343.00	2,513.00
1996–97	1,075.00	255.00	103.00	500.00	196.00	283.00	2,412.00

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

Table A – 43

Consumption of Pesticides

Year	Quantity (M.T)			Value
	Imports	Production	Total	(Million Rs.)
1980	–	–	665	39
1981	–	–	3,677	213
1982	3,552	1,448	5,000	320
1983	4,875	1,713	6,588	629
1984	6,081	3,132	9,213	2,256
1985	8,270	4,260	12,530	2,249
1986	8,834	5,665	14,499	2,978
1987	8,019	6,829	14,848	3,259
1988	6,256	6,816	13,072	2,334
1989	6,869	7,738	14,607	3,642
1990	4,802	9,941	14,742	4,581
1991	6,157	14,056	20,213	5,536
1992	6,619	16,748	23,439	6,554
1993	6,128	14,151	20,279	5,384
1994	10,693	14,176	24,869	5,808
1995	20,134	23,239	43,373	7,273
1996	24,151	19,068	43,219	9,987
1997	31,036	13,836	44,872	9,904

Source: Food, Agriculture & Livestock Division, Department of Plant Protection.

Table A – 44

Estimated Livestock Population

(000 heads)

Years → / Cattle ↓	1989–90	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97
COWS								
1. Bulls 3 years & above								
a) For breeding	219	220	221	222	223	224	225	226
b) For work	4,788	4,738	4,689	4,640	4,592	4,544	4,497	4,450
c) Others	169	170	171	172	173	174	175	176
2. Cows 3 years & above								
a) In milk	4,186	4,215	4,243	4,272	4,301	4,330	4,359	4,388
b) Dry	2,221	2,235	2,250	2,267	2,277	2,290	2,303	2,315
c) Not yet calved	578	582	585	588	592	595	599	603
3. Bulls less than 3 years	2,942	2,960	2,980	2,996	3,016	3,035	3,053	3,072
4. Cows less than 3 years	2,574	2,591	2,606	2,622	2,640	2,656	2,672	2,687
Total Cattle	17,677	17,711	17,745	17,779	17,814	17,848	17,883	17,917
BUFFALOES								
1. Bulls 3 years & above								
a) For breeding	88	90	92	94	96	98	101	104
b) For work	84	83	82	81	80	79	78	77
c) Others	33	34	35	36	37	38	39	40
2. Buffaloes 3 years & above								
a) In milk	6,338	6,501	6,668	6,840	7,016	7,197	7,382	7,572
b) Dry	2,588	2,655	2,723	2,793	2,865	2,939	3,014	3,091
c) Not yet calved	1,014	1,040	1,067	1,094	1,122	1,151	1,181	1,211
3. Bulls less than 3 years	2,625	2,693	2,762	2,833	2,906	2,981	3,057	3,136
4. Buffaloes less than 3 years	4,603	4,722	4,844	4,969	5,097	5,228	5,362	5,500
Total Buffaloes	17,373	17,818	18,273	18,740	19,219	19,711	20,214	20,731

Contd.

Table A – 44

Estimated Livestock Population

(000 heads)

Years → / Cattle ↓	1989–90	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97
SHEEP								
1. Male 1 year & above	3,465	3,551	3,640	3,731	3,824	3,919	4,017	4,117
2. Female 1 year & above	15,254	15,634	16,024	16,423	16,833	17,253	17,682	18,124
3. Youngstock less than 1 year	6,979	7,153	7,331	7,514	7,701	7,893	8,090	8,291
Total Sheep:–	25,698	26,338	26,995	27,668	28,358	29,065	29,789	30,532
GOATS								
1. Male 1 year & above	3,462	3,611	3,767	3,929	4,098	4,275	4,459	4,651
2. Female 1 year & above	20,336	21,212	22,125	23,078	24,072	25,108	26,190	27,318
3. Youngstock less than 1 year	11,648	12,149	12,672	13,218	13,787	14,381	15,000	15,646
Total Goats:–	35,446	36,972	38,564	40,225	41,957	43,764	45,649	47,615
CAMELS								
1. 3 years & above	725	739	754	769	784	799	815	831
2. Less than 3 years	310	317	322	328	335	342	348	355
Total Camels:–	1,035	1,056	1,076	1,097	1,119	1,141	1,163	1,186
ASSES								
1. 3 years & above	2,751	2,844	2,939	3,037	3,139	3,244	3,352	3,465
2. Less than 3 years	669	690	714	738	762	788	815	841
Total Asses:–	3,420	3,534	3,653	3,775	3,901	4,032	4,167	4,306
HORSES								
1. 3 years & above	310	306	302	299	296	293	290	287
2. Less than 3 years	58	57	56	55	54	53	52	51
Total Horses:–	368	363	358	354	350	346	342	338
MULES								
1. 3 years & above	55	56	56	57	58	59	60	60
2. Less than 3 years	18	18	19	19	19	19	19	20
Total Mules:–	73	74	75	76	77	78	79	80

Source: Food, Agriculture & Livestock Division.

Table A – 45

Estimated Livestock Products

Products	Unit	1981–82	1982–83	1983–84	1984–85	1985–86	1986–87
Milk production	Million tonnes	9.5	9.7	10.2	10.9	12.1	12.7
Milk available for human consumption	Million tonnes	7.6	7.8	8.3	8.8	9.7	10.2
Beef	000 tonnes	448.0	464.0	488.0	513.0	600.0	630.0
Mutton	000 tonnes	389.0	408.0	436.0	467.0	473.0	507.0
Poultry meat	000 tonnes	57.0	75.0	86.0	99.0	126.0	134.0
Wool	000 tonnes	41	43	45	48	43	44
Hair	000 tonnes	6	6	6	7	6	7
Bones	000 tonnes	199	203	208	213	231	236
Fat	000 tonnes	71	75	79	84	90	92
Blood	000 tonnes	23	24	25	27	30	32
Eggs	Million Nos.	2,664	3,200	3,619	4,093	3,460	3,800
Hides	Million Nos.	5	5	5	5	5	6
Skins	Million Nos.	28	29	30	31	27	28
Casings	Million Nos.	3	3	3	3	4	4
Guts	Million Nos.	17	17	18	18	18	19

Contd.

Table A – 45

Estimated Livestock Products

Products	Unit	1987–88	1988–89	1989–90	1990–91	1991–92
Milk production	Million tonnes	13.3	14	15	16	16
Milk available for human consumption	Million tonnes	10.8	11	12	13	13
Beef	000 tonnes	661.0	694	729	765	803
Mutton	000 tonnes	542.0	581	621	665	713
Poultry meat	000 tonnes	154.0	172	157	151	169
Wool	000 tonnes	45	46	47	48	49
Hair	000 tonnes	7	7	8	8	8
Bones	000 tonnes	242	247	253	259	265
Fat	000 tonnes	94	97	99	102	105
Blood	000 tonnes	34	36	38	40	43
Eggs	Million Nos.	4,140	4,300	4,670	4,490	4,914
Hides	Million Nos.	6	6	6	6	6
Skins	Million Nos.	29	30	32	33	34
Casings	Million Nos.	4	4	4	4	4
Guts	Million Nos.	19	20	21	21	22

Contd.

Table A – 45

Estimated Livestock Products

Products	Unit	1992–93	1993–94	1994–95	1995–96	1996–97
Milk production	Million tonnes	17	18	19	20	21
Milk available for human consumption	Million tonnes	14	15	15	16	17
Beef	000 tonnes	844	887	931	979	1,029
Mutton	000 tonnes	763	817	875	937	1,003
Poultry meat	000 tonnes	265	296	308	355	387
Wool	000 tonnes	51	52	53	54	56
Hair	000 tonnes	8	9	9	10	10
Bones	000 tonnes	271	277	283	290	296
Fat	000 tonnes	107	110	113	116	119
Blood	000 tonnes	45	47	31	54	57
Eggs	Million Nos.	5,164	5,740	5,927	5,757	6,050
Hides	Million Nos.	6	6	6	6	7
Skins	Million Nos.	36	38	38	39	41
Casings	Million Nos.	4	4	4	5	5
Guts	Million Nos.	23	24	25	26	26

Source: Food, Agriculture & Livestock Division

Table A–46

Estimated Milk Production

(000 tonnes)

Years	Cows	Buffaloes	Sheep	Goats	Total
1989–90					
Gross Production	3,523	10,662	38	500	14,723
Human Consumption	2,818	8,530	38	500	11,886
1990–91					
Gross Production	3,653	11,256	40	532	15,481
Human Consumption	2,922	9,005	40	532	12,499
1991–92					
Gross Production	3,788	11,884	42	566	16,280
Human Consumption	3,030	9,507	42	566	13,145
1992–93					
Gross Production	3,928	12,546	44	602	17,120
Human Consumption	3,142	10,037	44	602	13,825
1993–94					
Gross Production	4,073	13,246	47	640	18,006
Human Consumption	3,258	10,597	47	640	14,542
1994–95					
Gross Production	4,293	13,984	49	680	19,006
Human Consumption	3,378	11,187	49	680	15,294
1995–96					
Gross Production	4,379	14,764	52	724	19,919
Human Consumption	3,503	11,811	52	724	16,090
1996–97					
Gross Production	4,540	15,587	54	769	20,950
Human Consumption	3,632	12,470	54	769	16,925

Source: Food, Agriculture & Livestock Division.

Table A–47

Estimated Meat and Eggs Production

Years → / Cattle ↓	Unit	1989–90	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97
Cow Beef	000 tons	315	326	338	350	363	376	390	404
Cows	Million No.	(28)	(29)	(30)	(32)	(33)	(34)	(35)	(36)
Buffaloes Beef	000 tons	414	439	465	494	524	555	589	625
Buffaloes	Million No.	(37)	(40)	(42)	(44)	(47)	(50)	(53)	(56)
Total–Beef	000 tons	729	765	803	844	887	931	979	1,029
Cows/Buffaloes	Million No.	(65)	(69)	(72)	(76)	(80)	(84)	(88)	(92)
Sheep Mutton	000 tons	241	256	272	288	305	324	343	364
Sheep	Million No.	(53)	(56)	(60)	(63)	(67)	(71)	(75)	(80)
Goats Mutton	000 tons	380	409	441	475	512	551	594	639
Goats	Million No.	(84)	(90)	(97)	(105)	(113)	(121)	(131)	(141)
Total Mutton	000 tons	621	665	713	763	817	875	937	1003
Sheep/Goats	Million No.	(137)	(146)	(157)	(168)	(180)	(190)	(206)	(221)
Poultry Meat	000 tons	157	151	169	265	296	308	355	387
Total Meat	000 tons	1,507	1,581	1,685	1,872	2,000	2,114	2,271	2,419
Total Cattles	Million No.	(202)	(215)	(229)	(244)	(260)	(274)	(294)	(313)
EGGS	Million No.	4,670	4,490	4,914	5,164	5,740	5,927	5,757	6,050

Source: Food, Agriculture & Livestock Division.
Note: Figures in parentheses are of edible offals.

Table A – 48

Fish Production

(000 Tonnes)

Year	Category	Pakistan	Baloch-istan	NWFP (a)	Punjab (b)	Sindh
1982–83	Inland	59.1	–	0.6	21.2	37.3
	Marine	278.2	72.7	–	–	205.5
	Total	337.3	72.7	0.6	21.2	242.8
1983–84	Inland	60.3	–	0.6	22.3	37.4
	Marine	283.1	80.5	–	–	202.6
	Total	343.4	80.5	0.6	22.3	240.0
1984–85	Inland	70.6	–	0.8	25.2	44.6
	Marine	308.0	86.5	–	–	221.5
	Total	378.6	86.5	0.8	25.2	266.1
1985–86	Inland	75.1	–	0.8	27.7	46.6
	Marine	333.3	104.1	–	–	229.2
	Total	408.4	104.1	0.8	27.7	275.8
1986–87	Inland	84.0	–	0.7	32.5	50.8
	Marine	331.7	91.3	–	–	240.4
	Total	415.7	91.3	0.7	32.5	291.2
1987–88	Inland	91.6	–	0.8	37.2	53.6
	Marine	336.1	87.5	–	–	248.6
	Total	427.7	87.5	0.8	37.2	302.2
1988–89	Inland	96.5	–	0.5	42.0	54.0
	Marine	348.9	100.1	–	–	248.8
	Total	445.4	100.1	0.5	42.0	302.8
1989–90	Inland	105.0	–	1.1	46.4	57.5
	Marine	341.2	97.2	–	–	244.0
	Total	446.2	97.2	1.1	46.4	301.5

Contd.

Table A – 48

Fish Production

(000 Tonnes)

Year	Category	Pakistan	Baloch–istan	NWFP (a)	Punjab (b)	Sindh
1990–91	Inland	113.2	–	1.5	51.4	60.3
	Marine	369.8	107.2	–	–	262.6
	Total	483.0	107.2	1.5	51.4	322.9
1991–92	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
1992–93	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
1993–94	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
1994–95	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
1995–96	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
1996–97	Inland	160.2	–	1.5	63.3	91.4
	Marine	395.3	125.1	–	–	270.2
	Total	555.5	125.1	1.5	63.3	361.6
1997–98	Inland	175.0	–	0.9	64.1	110.0
	Marine	422.2	130.4	–	–	291.8
	Total	597.2	130.4	0.9	64.1	401.8

Source: Directorate of Marine Fisheries & Livestock Wing, Karachi.

Note: (a) Includes Nothern Areas

(b) Includes Mangla Dam.

Table A – 49

Total Catch of Fish and their Indices

Year	Total Catch of Fish (000 Metric Tonnes)			Index (Base: 1980 = 100)		
	Total	Inland	Marine	Total	Inland	Marine
1980	279.3	46.3	233.0	100.0	100.0	100.0
1981	317.8	56.3	261.5	113.8	121.6	112.2
1982	337.3	59.1	278.2	120.8	127.6	119.4
1983	343.4	60.3	283.1	123.0	130.2	121.5
1984	378.6	70.6	308.0	135.6	152.5	132.2
1985	408.4	75.1	333.3	146.2	162.2	143.0
1986	415.7	84.0	331.7	148.8	181.4	142.4
1987	427.7	91.6	336.1	153.1	197.8	144.2
1988	445.4	96.5	348.9	159.5	208.4	149.7
1989	446.2	105.0	341.2	159.8	226.8	146.4
1990	483.0	113.2	369.8	172.9	244.5	158.7
1991	518.7	115.9	402.8	185.7	250.3	172.9
1992	553.1	121.6	431.5	198.0	262.6	185.2
1993	621.7	122.5	499.2	222.6	264.6	214.2
1994	558.1	139.5	418.6	199.8	301.3	179.7
1995	541.9	136.4	405.5	194.0	294.6	174.0
1996	555.5	160.2	395.3	198.9	346.0	169.7
1997	597.2	N.A	N.A	213.8	N.A	N.A

Source: Directorate of Marine Fisheries & Livestock Wing, Karachi.

Table A – 50

Fishermen Engaged in Marine and Inland Fisheries

(Number)

Year	Marine			Inland	Grand total
	Karachi and Sindh coasts	Baluchistan coast	Total		
1980	54,896	19,625	74,521	116,935	191,456
1981	60,771	21,034	81,805	118,098	199,903
1982	63,050	21,431	84,481	120,906	205,387
1983	63,525	21,531	85,056	124,375	209,431
1984	64,795	22,027	86,822	131,760	218,582
1985	65,835	23,361	89,196	130,920	220,116
1986	66,447	23,990	90,437	137,389	227,826
1987	66,703	20,861	87,564	154,254	241,818
1988	67,604	23,524	91,128	156,865	247,993
1989	67,800	23,600	91,400	156,950	248,350
1990	68,577	26,022	94,599	170,760	265,359
1991	68,918	26,554	95,472	194,321	289,793
1992	79,267	30,642	109,909	185,765	295,674
1993	79,464	31,647	111,111	199,339	310,450
1994	80,070	29,796	109,866	207,388	317,254
1995	80,383	31,555	111,938	277,976	389,914
1996	80,971	32,698	113,669	287,738	401,407
1997	84,190	33,904	118,094	290,310	408,404

Source: Marine Fisheries Department

Table A – 51

Number of Fishing Crafts in Pakistan

Year	Sindh and Balochistan Coasts					Inland	Grand
	Trawlers	Gillnetter	Mechanised cum Sail boats	Sail boat (a)	Total	Sail boat (a)	Total
1980	1,296	909	1,333	5,859	9,397	16,391	25,788
1981	1,315	918	1,944	5,478	9,655	9,954	19,609
1982	1,380	951	3,631	3,397	9,359	10,185	19,544
1983	1,431	1,125	3,790	3,242	9,588	10,766	20,354
1984	1,539	1,183	4,163	2,888	9,773	11,572	21,345
1985	1,631	1,249	4,417	3,118	10,415	12,188	22,603
1986	1,650	1,311	4,694	3,114	10,769	14,326	25,095
1987	1,700	1,546	4,927	3,142	11,315	15,797	27,112
1988	1,850	1,731	5,140	3,414	12,135	14,645	26,780
1989	1,985	1,882	5,516	3,500	12,883	15,037	27,920
1990	2,000	2,063	5,972	5,478	15,513	15,159	30,672
1991	2,007	2,113	6,026	5,664	15,810	17,934	33,744
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	16,867	36,518

Source: Marine Fisheries Department
Note: (a) Including Oar/Row Boats

Table A–52

FSMP Estimates of Land Use Based on Satellite Imagery Interpretation

(000 ha)

Forest Cover/ Land Use Class	AJK	Balochistan	Northern Areas	NWFP	Punjab	Sindh	Total
FOREST/TREES							
Conifer	241	42	660	940	30		1,913
Scrub	16	504		539	132		1,191
Reiverain	1	20		13	27	112	173
Mangrove		2				205	207
Irrig. Plantation		1			79	23	103
Farmland Trees	7	23	6	70	306	54	466
Linear Planting				2	14		16
Misc. Planting	10			120	20	5	155
Total	275	592	666	1,684	608	399	4,224
AGRICULTURAL							
Irrigated	6	1,177	44	993	10,743	5,705	18,668
Rainfed	36	3	4	553	1,316		1,912
Total	42	1,180	48	1,546	12,059	5,705	20,580
RANGELANDS							
Degraded	731	11,674	896	4,106	4,466	2,809	24,682
Non–degraded		892		519	1,293	68	2,772
Alpine	79		705	269			1,053
Total	810	12,566	1,601	4,894	5,759	2,877	28,507
BARRENLAND							
Snow/glacier			27				27
Rock, gravel		17,516		138	337	523	18,514
Desertic		2,802			1,324	3,759	7,885
Tidal flats		54				413	467
Total		20,372	27	138	1,661	4,695	26,893
WATER BODIES							
Riverbed				48	400	155	603
Lake		5	1	1	1	41	49
Dam, reservoir	19	1		15	49	54	138
Swamp					27	96	123
Total	19	6	1	64	477	346	913
URBAN		3		4	62	69	138
UNCLASSIFIED							
Above 3,650 m	184		3,161	1,792			5,137
Below 3,650 m			1,536	52			1,588
Total	184		4,697	1,844			6,725
ALL LAND CLASSES	1,330	34,719	7,040	10,174	20,626	14,091	87,980

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

Table A – 53

Increase in Forest Area between 1993 and 2018

(000 ha)

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

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

Note:– 1/ Includes misc. planting for Punjab and Sindh

2/ Includes misc. planting for NWFP and AJK

3/ Private planting on public non–forest land

Table A – 54

Forest Products of Pakistan

Year	Total		Timber		Firewood	
	Quantity 000 Cu.m	Value Million Rs.	Quantity 000 Cu.m	Value Million Rs.	Quantity 000 Cu.m	Value Million Rs.
			MAJOR PRODUCTS			
1990–91	1,072	128.0	221	128.0	851	–
1991–92	491	435.9	232	391.4	259	44.5
1992–93	691	518.0	371	454.0	320	64.0
1993–94	703	847.7	187	776.5	516	71.2
1994–95	684	681.4	338	615.9	346	65.5
1995–96	720	615.6	363	615.6	357	–
1996–97	343	592.0	126	478.0	217	114.0
1997–98	350	595.0	130	480.0	220	115.0

Year	Resin	Mazri	Ephedra
	MINOR PRODUCTS (Tonnes)		
1990–91	238	48,796	–
1991–92	1,708	28,447	1,140
1992–93	1,752	39,382	15,067
1993–94	2,417	67,866	879
1994–95	–	45,937	16,294
1995–96	1,907	49,719	–
1996–97	–	1,111	–

Source: Ministry of Environment, Local Government & Rural Development (Stat–IGF)

Note: i) Resin prodcue in NWFP only.
ii) Ephedra produce in Balochistan only.
iii) Mazri produce in both Balochistan and NWFP.

Table A-55

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)	Fuelwood (b)	Others (b)
1980	18,860	32	506	164	16,850	1,308
1981	19,430	36	521	169	17,360	1,344
1982	20,020	42	537	174	17,880	1,387
1983	20,600	60	533	179	18,420	1,408
1984	21,240	80	570	184	18,970	1,436
1985	21,870	81	587	190	19,540	1,472
1986	22,526	108	605	196	20,126	1,491
1987	23,225	146	623	201	20,730	1,525
1988	23,922	162	642	208	21,352	1,558
1989	24,639	193	661	214	21,992	1,579
1990	25,380	229	680	220	22,651	1,600
1991	27,523	225	695	224	24,740	1,639
1992	27,080	244	712	230	24,226	1,668
1993	29,815	264	995	403	26,223	1,930
1994	30,530	285	1,028	424	26,769	2,024
1995	31,243	304	1,061	445	27,316	2,117
1996	31,955	323	1,093	466	27,862	2,211
1997	32,576	250	1,126	487	28,409	2,304

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 of the wood pulp imports.

(b) Esimated wood consumption in various uses.

Table A – 56

Average Consumption of Firewood by Source, 1991 – 93

Particulars	Units	Pakistan	Urban Areas			Rural Area
			Large Cities	Small Cities	Total	
Number of Households	000	16,000	2,410	2,550	4,960	11,040
Users of Firewood	000	12,642	688	1,906	2,594	10,048
Users of Firewood who:						
Buy only	Percent	41	90	82	84	29
Collect only	Percent	51	8	13	12	61
Buy and Collect	Percent	9	2	5	4	10
Total	Percent	100	100	100	100	100
Average Consumption of Firewood by Household who:						
Buy only	kg/uh/year	2,042	1,412	2,007	1,848	2,187
Collect only	kg/uh/year	2,547	1,680	1,876	1,841	2,581
Buy and Collect	kg/uh/year	2,488	1,203	2,232	2,086	2,530
Overall	kg/uh/year	2,324	1,374	1,982	1,819	2,454

Source: Pakistan Energy Year Book, 1996 Published by Hydrocarbon Development Institute of Pakistan.

Note: The data given in this table relates to Household Energy Study conducted during 1991 – 93.

City size: Large City = Population > 500,000
Medium/Small City = Population < 500,000
kg/uh/year = kg/user household/year

Table A–57

Consumption of Firewood by Area and Province, 1991–93

Area	Units	Pakistan	Balochistan	NWFP	Punjab	Sindh
ALL AREAS						
Number of Households	000	16,000	753	1,635	9,824	3,788
Users of Firewood	000	12,642	665	1,506	7,809	2,662
Total Firewood Consumption	000 tonnes/year	29,385	2,289	4,265	16,019	6,727
Average Consumption	kg/uh/year	2,324	3,442	2,832	2,051	2,527
Per Capita Consumption	kg/up/year	369	519	379	328	443
URBAN						
Number of Households	000	4,960	317	295	2,695	1,653
Users of Firewood	000	2,594	237	206	1,544	607
Total Firewood Consumption	000 tonnes/year	4,719	635	354	2,707	1,012
Average Consumption	kg/uh/year	1,819	2,679	1,718	1,753	1,667
Per Capita Consumption	kg/up/year	293	444	233	276	295
RURAL						
Number of Households	000	11,040	436	1,340	7,129	2,135
Users of Firewood	000	10,048	428	1,300	6,265	2,055
Total Firewood Consumption	000 tonnes/year	24,657	1,659	3,919	13,302	5,715
Average Consumption	kg/uh/year	2,454	3,876	3,015	2,123	2,781
Per Capita Consumption	kg/up/year	389	561	404	340	486

Source: Pakistan Energy Year Book, 1996 published by
Hydrocarbon Development Institute of Pakistan.

Note: The data given in this table relates to Household Energy Study, conducted during 1991–93

kg/uh/year = kg/user household/year

kg/up/year = kg/user person/year

Table A – 58

Production of Manufacturing Items

Year → / Production ↓	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98
(i) Vegetable Products (a)								
No. of Reporting Factories	47	49	61	71	71	76	74	79
Production (000 Tonnes)	656	639	725	671	711	733	690	734
(ii) Sugar (b)								
No. of Reporting Factories	51	53	61	63	66	65	70	70
Production (000 Tonnes)	1,934	2,322	2,384	2,841	2,964	2,426	2,383	3,555
(iii) Tea Blended (c)								
No. of Reporting Factories	4	4	4	4	4	4	5	4
Production (000 Tonnes)	56	62	67	64	59	59	61	61
(iv) Beverages (d)								
No. of Reporting Factories	51	85	94	90	107	105	105	161
Production (Million bottles)	811	1,023	1,678	1,364	1,716	1,573	1,390	1,798
(v) Cigrattes (d)								
No. of Reporting Factories	21	24	31	26	26	30	27	27
Production (Billion No.)	30	30	30	36	33	45	46	48
(vi) Cotton Textiles (Mill Sector)								
No. of Reporting Mills	247	271	284	320	334	349	357	351
Production of Cotton Cloth (Million sq. metre)	293	308	325	315	322	327	333	340
(vii) Jute Textiles								
No. of Reporting Mills	14	14	14	14	14	14	12	11
Total Production (000 Tonnes)	97	101	97	76	69	71	69	92

Contd.

Table A – 58

Production of Manufacturing Items

Year → Production ↓	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98
(viii) Paper and Board (000 Tonnes)								
No. of Reporting Factories	37	36	82	69	66	77	81	–
Total Production Paper	64	66	109	129	808	193	149	–
Total Production Board	89	111	155	133	106	110	198	–
(ix) Chemicals (000 Tonnes)								
No. of Reporting Factories	13	13	13	13	13	13	13	13
Soda Ash	147	186	196	197	196	221	247	239
Caustic Soda	78	82	81	89	93	109	118	116
Sulphuric Acid	93	98	100	102	80	69	31	28
Chlorine Gas	7	6	6	6	8	9	9	10
(x) Chemicals Fertilizers (000 Tonnes)								
No. of Reporting Factories	10	10	10	10	10	10	10	10
Urea	2,050	1,898	2,306	3,104	3,000	3,260	3,259	3,284
Superphosphate	175	194	205	195	147	104	0.1	–
Ammonium Sulphate	92	93	93	82	80	84	81	–
Ammonium Nitrate	319	300	302	243	314	383	330	316
Nitro Phosphate	321	310	297	251	285	337	350	293
(xi) Paints & Varnishes (By weight) (a)								
No. of Reporting Factories	117	83	72	49	36	31	52	40
Production (000 Tonnes)	14	19	17	9	7	8	8	6

Contd.

Table A – 58

Production of Manufacturing Items

Year → Production ↓	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98
(xii) Paints & Varnishes (By Volume) (a)								
No. of Reporting Factories	91	50	63	64	36	46	87	106
Production (Million Litres)	17	19	23	16	16	16	17	20
(xiii) Cosmetics (a)								
No. of Reporting Factories	53	69	100	64	70	68	79	81
Production (Million Containers)	50	15	18	29	43	105	157	172
Production (Tonnes)	–	389	560	178	762	153	297	–
(xiv) Soap and Detergents (a)								
Toilet Soap								
No. of Reporting Factories	32	32	34	26	33	25	30	27
Production (000 Tonnes)	46	55	58	54	53	60	69	73
Detergents								
No. of Reporting Factories	17	21	27	20	28	26	26	26
Production (000 Tonnes)	22	27	26	22	24	28	27	29
Detergents Bars								
No. of Reporting Factories	11	10	11	15	20	18	25	24
Production (Tonnes)	6,705	4,427	4,441	6,154	6,820	9,984	8,385	10,577
Detergents Liquid								
No. of Reporting Factories	4	6	5	4	8	3	3	4
Production (Tonnes)	323	145	263	752	562	419	1,160	...

Contd.

Table A – 58

Production of Manufacturing Items

Year → / Production ↓	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98
(xv) Cycle Tyres (b)								
No. of Reporting Factories	10	10	11	11	11	11	11	12
Production (000 No.)	3,828	3,751	3,826	3,872	3,523	3,988	4,112	3,445
(xvi) Cycle Tubes (b)								
No. of Reporting Factories	9	10	11	11	11	11	11	12
Production (000 No.)	5,468	5,757	5,612	6,191	5,146	5,594	5,205	4,978
(xvii) Motor Tyres (a)								
No. of Reporting Factories	2	5	6	5	6	7	7	7
Production (000 No.)	952	784	712	783	912	1,003	525	441
(xviii) Motor Tubes (a)								
No. of Reporting Factories	3	5	6	5	6	6	7	7
Production (000 No.)	646	618	550	706	833	909	643	539
(xix) Cement (c)								
No. of Reporting Factories	22	22	20	20	20	20	20	20
Production (000 No.)	7,762	8,321	8,558	8,100	7,913	9,567	9,536	9,364
(xx) Steel Products (000 Tonnes)								
Coke	724	737	716	772	701	686	663	668
Pig Iron	1,013	1,048	1,098	1,253	1,045	1,002	1,069	1,016
Billets	333	307	338	404	344	332	379	348
H.R Sheets/Strips/ Plates/Coils	383	392	481	517	468	486	465	423

Contd.

Table A – 58

Production of Manufacturing Items

Year → Production ↓	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98
C.R Sheets/Strips/ Plates/Coils	112	135	164	165	171	155	159	159
Galvanize Sheets	42	42	62	62	63	59	49	61
(xxi) Sewing Machines								
No. of Reporting Factories	3	3	3	3	3	5	6	7
Production (000 Numbers)	81	85	72	77	68	84	63	36
(xxii) Airconditioners(a)								
No. of Reporting Factories	9	8	17	10	16	15	15	–
Production (000 Numbers)	19	13	15	12	51	80	56	–
(xxiii) Electric Motor (a)								
No. of Reporting Factories	24	23	23	23	23	23	23	23
Production (000 Numbers)	31	33	33	24	24	24	23	26
(xxiv) Transfermers (a)								
No. of Reporting Factories	11	10	10	10	10	10	10	10
Production (000 Numbers)	21	21	22	18	23	23	14	7
(xxv) Televisions (a)								
No. of Reporting Factories	9	10	27	15	12	19	12	–
Production (000 Numbers)	182	145	274	185	101	278	186	–

Contd.

Table A – 58

Production of Manufacturing Items

Year → / Production ↓	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98
(xxvi) Electric Bulbs (a)								
No. of Reporting Factories	–	–	–	–	–	–	–	–
Production (Million No.)	49	43	41	43	42	46	56	63
(xxvii) Electric Tubes (a)								
No. of Reporting Factories	–	–	–	–	–	–	–	–
Production (000 No.)	7,728	4,460	4,205	5,307	5,352	5,417	7,598	8,354
(xxviii) Manufacture/ Assembly of Automobiles(Nos)								
Caps (b)	25,166	28,911	26,945	19,514	20,955	31,079	33,462	35,007
Jeeps (4x4) (b)	2,796	1,774	1,324	816	1,310	2,274	792	680
Light Commercial Vehicles (b)	11,882	11,411	11,478	5,128	5,154	6,834	9,817	10,335
Trucks (c)	2,059	1,627	2,222	1,394	703	3,030	2,916	1,837
Buses (c)	843	1,114	1,177	427	312	438	362	445
Motorcycles/Scooters/ Rickshaws (d)	98,647	97,162	95,793	63,958	60,960	121,809	117,188	96,985
(xxix) Tractors (e)								
No. of Reporting Factories	–	–	–	–	–	–	–	–
Production (Nos)	13,753	9,817	17,127	14,907	17,144	16,093	10,417	14,012
(xxx) Bycycles (e)								
No. of Reporting Factories	5	5	5	5	5	5	5	5
Production (000 Nos)	429	478	589	564	473	545	432	452

Source: (a) i. Central Board of Revenue upto June,1992.
(a) ii. Bureaus of Statistics since July,1992.
(b) Pakistan Automobile Corporation upto June,1990.
(c) Data upto June,1991 from Pakistan Automobile Corporation on and onward data direct from the Factories.
(d) Data in respect of Scooters/Auto–rickshas is included upto December,1996 only.
(e) Bureau of Statistics Punjab.

Table A – 59

Mineral Production in Pakistan

(Tonnes)

Year	Argonite/ marbal	Barytes	Bauxite	Celestite	China clay
1980–81	113,685	21,188	1,754	295	40,022
1981–82	95,220	26,637	2,755	272	82,280
1982–83	120,597	20,088	2,772	406	23,583
1983–84	100,989	35,965	4,173	302	21,191
1984–85	53,202	20,827	2,035	650	816
1985–86	122,134	42,148	2,290	873	21,288
1986–87	203,088	20,376	3,114	956	32,953
1987–88	215,715	12,575	2,924	1,059	42,548
1988–89	222,775	29,578	2,170	992	38,214
1989–90	267,389	25,123	2,409	1,574	29,633
1990–91	281,518	26,222	3,217	1,773	43,620
1991–92	320,859	30,118	3,954	1,069	42,344
1992–93	388,570	26,337	4,847	1,682	37,454
1993–94	459,734	18,334	4,064	4,398	48,074
1994–95	462,097	20,079	4,456	1,403	30,986
1995–96	458,088	14,058	2,284	762	43,031
1996–97	449,662	30,163	4,934	792	66,057
1997–98	334,743	29,923	5,015	916	66,084

Year	Chromite	Ebry stone	Fire clay	Flourite	Fuller's earth
1980–81	1,108	681	60,485	355	21,285
1981–82	3,028	858	68,197	819	15,302
1982–83	4,487	912	69,443	336	20,781
1983–84	4,180	1,877	83,676	–	18,973
1984–85	3,090	3,184	76,551	5,736	12,722
1985–86	10,127	6,206	73,414	4,052	10,222
1986–87	6,541	3,733	100,101	3,956	18,599
1987–88	8,628	3,045	133,869	800	16,964
1988–89	11,871	1,065	118,331	1,481	16,349
1989–90	32,910	1,211	131,032	8,429	13,699
1990–91	24,463	1,761	120,038	1,384	22,743
1991–92	28,252	1,441	138,772	917	20,825
1992–93	22,936	1,018	132,273	2,156	22,609
1993–94	10,765	880	115,998	1,253	16,984
1994–95	14,919	2,984	151,889	1,329	15,154
1995–96	27,439	–	111,955	867	18,033
1996–97	34,438	321	108,603	822	12,274
1997–98	25,108	–	92,662	135	14,864

Contd.

Table A – 59

Mineral Production in Pakistan

(Tonnes)

Year	Dolomite	Gypsum	Lime stone	Magnesite	Manganese
1980–81	24,244	554,397	3,464,159	397	84
1981–82	93,488	303,164	3,682,473	1,688	80
1982–83	100,300	340,707	4,231,629	1,687	–
1983–84	812,406	338,791	4,696,433	3,338	–
1984–85	120,812	400,264	4,634,261	3,137	138
1985–86	127,492	381,263	6,312,512	3,266	135
1986–87	151,304	411,875	6,885,331	2,692	638
1987–88	134,717	404,042	7,610,399	3,092	–
1988–89	99,942	426,264	7,248,567	6,754	–
1989–90	105,451	490,678	7,736,169	7,285	90
1990–91	154,591	468,278	9,008,941	4,242	80
1991–92	180,987	470,601	8,527,574	6,333	–
1992–93	220,241	533,420	9,015,232	5,047	202
1993–94	228,090	665,723	9,124,969	7,000	–
1994–95	227,079	623,504	9,682,416	5,237	566
1995–96	185,115	419,835	9,739,869	14,981	1,131
1996–97	200,820	520,564	9,488,215	6,589	424
1997–98	116,046	307,129	9,941,294	3,347	–

Year	Ochres	Rock Salt	Silica sand	Soap stone	Sulphur
1980–81	445	514,255	83,514	27,724	403
1981–82	1,460	534,256	99,095	22,568	650
1982–83	558	547,546	140,701	19,089	824
1983–84	1,086	580,988	99,444	15,606	570
1984–85	697	573,075	110,585	17,192	884
1985–86	563	619,285	193,408	20,602	1,337
1986–87	1,237	502,797	126,972	24,504	1,176
1987–88	1,730	502,281	163,882	33,492	600
1988–89	936	619,525	165,357	38,378	310
1989–90	2,337	735,388	135,585	31,009	342
1990–91	1,285	735,906	142,557	31,593	295
1991–92	1,001	832,620	132,409	36,796	215
1992–93	1,000	895,107	158,186	48,117	510
1993–94	745	916,132	168,790	44,430	715
1994–95	4,623	889,908	152,423	34,120	510
1995–96	8,081	957,775	184,203	39,939	20
1996–97	2,047	1,066,429	154,832	45,425	290
1997–98	3,112	960,518	129,926	49,027	22,378

Source: Provincial Directorate of Industries & Mineral DEvelopment.

Table A – 60

Crude Oil Production by Field

(US Barrels)

Province/Field	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97
PUNJAB							
Balkassar	202,663	152,401	165,516	163,612	122,859	102,538	138,244
Dhulian	9,051	8,075	6,885	6,671	7,001	7,118	6,881
Joyamair	211,413	222,122	184,789	133,819	108,787	104,332	113,518
Khaur	2,506	2,038	1,796	1,767	2,198	2,256	2,403
Meyal	1,015,765	1,029,520	840,181	760,091	495,655	549,339	584,748
Minwal							97,004
Pariwali						262,944	307,045
Pindori*			6,602			94,741	669,519
Bhalsyedan		49,096	20,649				
Chak Naurang	656,612	474,410	382,035	372,918	351,441	338,362	314,031
Dakhni	474,883	364,655	300,011	229,778	209,330	233,392	209,124
Dhodak					630,830	999,528	810,458
Fimkassar	1,446,180	1,515,290	1,245,424	971,621	923,233	824,772	1,139,890
Injra							
Kal						573,840	665,438
Missa Keswal		575,603	1,759,025	2,083,731	1,646,619	1,128,533	537,869
Rajian					455,214	587,026	415,472
Sadkal		3,017	18,938	1,190,633	847,863	517,586	191,027
Toot	337,475	281,342	211,698	169,679	117,661	166,626	131,978
Bhangali	526,067	359,595	240,909	216,891	196,996	186,588	168,940
Dhurnal	5,251,628	4,364,445	2,945,864	1,307,849	977,971	805,432	585,113
Ratana				317,714	249,078	211,917	169,801
Adhi	769,269	830,891	1,023,608	870,632	882,454	889,054	895,801
Punjab Total	10,903,512	10,232,500	9,353,930	8,797,406	8,225,190	8,585,924	8,154,304
SINDH							
Allah Dino and Ghotan		2,430					
Bobi	194,598	165,967	141,286	136,472	150,651	266,696	222,660
Buzdar North			7,955	5,905			
Kunnar		261,706	493,510	578,080	403,026	443,804	
Lashari Centre	795,122	804,163	675,069	568,940	738,382	679,185	402,843
Palli							89,520
Pasakhi	1,630,137	1,606,519	1,412,954	1,373,644	1,274,692	1,143,739	578,585
Pasakhi North							413,150
Qadirpur						65,957	102,199
Sono	729,060	820,318	916,346	872,384	707,601	778,738	684,553

Contd.

Table A – 60

Crude Oil Production by Field

(US Barrels)

Province/Field	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97
Tando Alam	731,934	796,156	711,872	428,675	321,159	367,042	294,962
Thora	1,722,317	1,535,016	1,162,591	989,745	837,686	800,492	780,820
Kandhkot							18,450
Sui							14,048
Akri North			195,934	569,832	479,733	432,597	372,455
Bachai				2,474	4,056	16,777	1,772
Bari			120,519	798,831	636,905	137,881	169,773
Bhatti			72,366	11,266	243,620	266,103	223,629
Bukhari		12,252	401,372	303,795	148,891	117,798	134,463
Buzdar South/deep				10,333	3,374	19,892	121,401
Dabhi	329,769	294,890	181,313	125,149	150,763	153,956	468,833
Ghungro				191,179	243,523	388,323	808,894
Golarchi	32,169	24,222	14,334	8,426	8,038	5,187	3,559
Halipota	31,535	138,171	111,905	109,061	113,232	178,231	119,746
Jabo							473
Jagir							772,275
Jalal					23,764	87,500	40,606
Kato							
Khaskheli	196,282	105,357	175,436	263,987	311,412	329,586	391,497
Khorewah and K.Deep			2,194	100,899	283,210	192,975	123,957
Koli						180,229	124,498
Laghari	1,671,093	1,200,882	640,067	461,210	556,031	457,589	356,416
Liari	1,122,196	1,176,032	1,654,562	593,449	296,938	173,567	135,959
Mahi						16,565	709
Makhdumpur			59,590	102,556	82,052	56,081	16,386
Matli	128,325	41,655	27,793	11,636	10,189	6,392	3,120
Mazari	1,829,123	1,473,686	1,869,751	1,906,825	1,860,041	1,373,836	1,505,051
Mazari South	1,055,998	1,302,289	1,344,275	1,064,889	949,111	1,302,907	1,438,896
Mazari South Deep				49,172	40,245	134,882	164,590
Meyun Ismail *		56,167		27,931	302,089	221,843	128,765
Muban							817
Nari		4,874	27,357	9,733	81		
Paniro						10,732	95,005
Pir							565
Rind							
Sakhi							216,942
Sonro	154,264	191,561					
Tajedi				32,711	200,530	428,086	327,834
Tangri					169,624	1,174,970	1,193,966
Turk	230,012	221,926	121,115	164,971	82,038	66,933	51,526
Zaur				3,010			
Sindh Total	12,583,934	12,236,239	12,541,466	11,877,170	11,632,687	12,477,071	13,116,168
Grand Total	23,487,446	22,468,739	21,895,396	20,674,576	19,857,877	21,062,995	21,270,472

Source: Pakistan Energy Year Book 1996–1997 Published by Hydrocarbon Development Institute of Pakistan.

Table A-61

Petroleum Energy Products Consumption by Sector

(Tonnes)
(TOE)

Sector	Year						
	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97
Domestic	944,256	613,706	622,076	589,851	585,173	596,031	509,738
	974,094	633,099	641,734	608,490	603,664	614,876	525,877
Industrial	1,147,698	1,369,525	1,479,935	1,653,516	1,889,443	2,416,278	2,141,065
	1,123,631	1,340,630	1,450,357	1,624,262	1,855,860	2,371,110	2,101,769
Agriculture (a)	265,224	281,539	287,181	307,795	268,631	250,031	268,866
	276,310	293,308	299,186	320,661	279,860	260,483	280,105
Transport (b)	4,841,362	5,619,552	6,107,416	6,414,582	6,646,175	7,135,631	7,172,269
	5,094,416	5,912,189	6,418,258	6,741,089	6,981,465	7,490,933	7,528,618
Power	2,434,136	2,775,418	3,158,124	3,902,308	4,215,635	4,785,856	5,110,233
	2,397,029	2,722,112	3,099,489	3,825,943	4,131,572	4,685,659	4,989,988
Other Government	328,592	323,293	357,115	357,529	355,110	417,254	403,795
	344,382	338,120	373,564	373,772	371,028	434,669	419,854
Total:	9,961,268	10,983,033	12,011,847	13,225,581	13,960,167	15,601,081	15,605,966
	10,209,862	11,239,458	12,282,587	13,494,217	14,223,450	15,857,729	15,846,211
Annual growth rate	-0.11%	10.26%	9.37%	10.10%	5.55%	11.75%	0.03%

Source: Pakistan Energy Year Book,1996 and 1997 Published by Hydrocarbon Development Institute of Pakistan

Note: (a) High speed diesel consumption for tractors in agriculture sector is not seperately available and is included in the Transport sector. Agriculture sector represents LDO only.

(b) Includes MTBE used in road transport.

Table A-62

Petroleum Energy Products Consumption by Province

(TOE)

Province	Year						
	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97
Balochistan	418,941	398,277	435,410	491,644	559,558	617,960	1,913,268
N.W.F.P	879,354	972,696	1,014,251	1,054,089	1,110,491	1,237,516	1,217,381
Punjab	4,984,299	5,574,067	6,290,263	6,968,189	7,444,049	8,775,832	7,807,684
Sindh	3,814,713	4,152,006	4,383,507	4,818,148	4,862,066	4,875,542	4,538,859
A.J. Kashmir	112,555	142,412	159,155	162,148	247,285	350,880	369,019
Total:	10,209,862	11,239,458	12,282,587	13,494,217	14,223,450	15,857,729	15,846,211
Annual growth rate	-0.21%	10.08%	9.28%	9.86%	5.40%	11.49%	-0.07%

Source: Pakistan Energy Year Book,1996 and 1997 Published by Hydrocarbon Development Institute of Pakistan

Table A – 63

Consumption of Petroleum (Energy) Products by Fuel

(Metric Ton)
(TOE)

Product	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97
Aviation Fuel	356,626	394,819	411,277	424,457	421,883	460,930	451,088
	370,855	410,188	427,564	441,298	438,436	479,058	468,602
Motor Sprit	828,669	899,305	1,040,929	1,045,383	1,045,527	1,155,586	1,211,906
	885,350	956,566	1,099,015	1,103,348	1,101,310	1,210,860	1,267,934
H.O.B.C.	237,492	217,226	146,107	134,714	112,326	64,482	64,376
	252,501	230,955	155,341	143,228	119,425	68,557	68,445
H.S.D.	4,033,461	4,680,415	5,208,871	5,598,747	5,877,103	6,347,547	6,170,116
	4,240,378	4,920,520	5,476,086	5,885,963	6,178,598	6,673,176	6,486,643
L.D.O.	272,274	284,414	289,791	312,360	272,298	252,208	272,865
	283,655	296,303	301,904	325,417	283,680	262,750	284,271
Furnace Oil	3,270,770	3,874,664	4,274,696	5,101,719	5,629,187	6,706,797	6,913,020
	3,184,749	3,772,760	4,162,271	4,967,544	5,481,139	6,530,408	6,731,208
Kerosene	961,976	632,190	640,176	608,201	601,843	613,531	522,595
	992,374	652,167	660,406	627,420	620,861	632,919	539,109
Total	9,961,268	10,983,033	12,011,847	13,225,581	13,960,167	15,601,081	15,605,966
	10,209,862	11,239,459	12,282,587	13,494,218	14,223,449	15,857,728	15,846,211
Annual Growth Rate	–0.11%	10.26%	9.37%	10.10%	5.55%	11.75%	0.03%

Source: Pakistan Energy Year Book,1996 and 1997 Published by Hydrocarbon Development Institute of Pakistan

Table A–64
Consumption of Charcoal and Average Price by Province

Particulars	Units	Pakistan	Balochistan	NWFP	Punjab	Sindh
Households	000 Number	16,000	753	1,635	9,824	3,788
Users of Charcoal	000 Number	1,456	(a)	269	975	212
Total Charcoal Consumption	000' tonnes/year	169,683	(a)	30,745	102,049	35,986
Average Consumption	kg/user household/year	115.20	(a)	114.30	104.70	169.70
Per Capita Consumption	kg/user household/year	18.00	(a)	12.90	17.30	28.90
Average Price Paid	Rs./kg	4.40	(a)	4.09	5.05	2.61

Source: Hydrocarbon Development Institute of Pakistan
Note: The data given in this table relates to Household Energy Study conducted during 1991–93.
(a) Statistically insignificant due to not enough cases.

Table A–65
Consumption of Dung Cake By Area and Province

Area	Units	Pakistan	Balochistan	NWFP	Punjab	Sindh
PAKISTAN						
Households	000 Number	16,000	753	1,635	9,824	3,788
Users of Dung Cake	000 Number	8,974	249	882	5,991	1,889
Total Dung Cake Consumption	000' tonnes/year	13,310	325	1,381	8,595	2,988
Average Consumption	kg/user household/year	1,477	1,304	1,572	1,434	1,580
Per Capita Consumption	kg/user person/year	239	169	210	239	260
URBAN						
Households	000 Number	4,960	317	295	2,695	1,653
Users of Dung Cake	000 Number	1,313	(a)	120	900	293
Total Dung Cake Consumption	000' tonnes/year	1,883	(a)	152	1,286	395
Average Consumption	kg/user household/year	1,394	(a)	1,266	1,428	1,347
Per Capita Consumption	kg/user person/year	226	(a)	164	242	206
RURAL						
Households	000 Number	11,040	436	1,340	7,129	2,135
Users of Dung Cake	000 Number	7,661	211	762	5,091	1,596
Total Dung Cake Consumption	000' tonnes/year	11,427	274	1,229	7,309	2,593
Average Consumption	kg/user household/year	1,492	1,301	1,612	1,436	1,624
Per Capita Consumption	kg/user person/year	242	163	216	239	271

Source: Pakistan Energy Year Book,1996 published by Hydrocarbon Development Institute of Pakistan
Note: The data given in this table relates to Household Energy Study conducted during 1991–93.
(a) Statistically insignificant due to not enough cases.

Table A – 66

Consumption of Indigenous Coal by Sector

(Tonnes)

Sector	Power(WAPDA)	Brick-Kiln	Domestic	Total
1990-91	24,603	3,025,520	3,785	3,053,908
1991-92	39,490	3,052,393	6,824	3,098,707
1992-93	46,689	3,216,633	3,232	3,266,554
1993-94	43,602	3,486,958	3,310	3,533,870
1994-95	40,713	2,998,888	3,238	3,042,839
1995-96	398,926	3,235,813	3,087	3,637,826
1996-97	351,933	3,191,319	9,662	3,552,914
ACGR	70.3%	1.1%	20.6%	3.1%

Source: Pakistan Energy Year Book,1996 and 1997 Published by Hydrocarbon Development Institute of Pakistan

Note: (a) Estimated by deducting other documented uses from the total production.

Table A-67

Associated Gas Production By Field

(Million cubic feet)

Province/Field	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97
Missa Keswal (Punjab)			2,418	3,013	2,967	1,829	957
Toot (Punjab)	1,709	1,264	871	771	618	533	4,132
Bhangali (Punjab)	582	671	377	288	240	221	–
Dhurnal (Punjab)	12,668	10,498	6,903	3,762	3,484	3,441	2,665
Meyal (Punjab)	7,956	7,082	5,958	2,191	4,854	3,711	3,163
Pariwali (Punjab)						2,954	3,211
Pindori (Punjab)						156	2,071
Bachal (Sindh)				9	298	671	759
Dabhi (Sindh)	203	481	513	161	(a)		2,831
Halipota (Sindh)	7	658	193	198	382		202
Lyari (Sindh)	129	213	318	174	100		26
Mazari (Sindh)	937	697	665	855	973	718	1,000
Mazari S. (Sindh)	90	168	221	191	207		271
Nari (Sindh)		817	4,068	1,335	44		
Tangri (Sindh)					76		
Total: Million CFt	24,281	22,549	22,505	12,948	14,243	14,234	21,293
Annual growth rate	-8.68%	-7.13%	-0.20%	-42.47%	10.00%	-0.06%	49.60%

Source: Pakistan Energy Year Book.1996 and 1997 Published by Hydrocarbon Development Institute of Pakistan

Note: (a) Production from Dhabi is included in production from Mazari

Table A–68

Non–Associated Gas Production by Field

(Million cubic feet)
(TOE)

Province/Field	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97
Kadanwari (Sindh)					1,943	29,954	27,686
					44,106	679,956	628,472
Mari (Sindh)	101,921	100,896	112,855	141,460	138,836	133,167	135,860
	1,763,233	1,745,501	1,952,392	2,447,258	2,401,863	2,303,789	2,350,378
Dakhni (Punjab)	8,138	6,346	5,621	5,382	5,134	5,660	5,299
	195,312	152,304	134,904	129,168	123,216	135,840	127,188
Dhodak (Punjab)					7,078	14,630	12,040
					169,872	351,120	288,972
Loti (Balochistan)	15,533	16,861	17,452	15,954	15,926	16,142	15,163
	307,553	333,848	345,550	315,889	315,335	319,612	300,227
Pirkoh (Balochistan)	62,219	64,484	68,509	74,864	69,888	61,515	53,256
	1,294,155	1,341,267	1,424,987	1,557,171	1,453,670	1,279,512	1,107,735
Qadirpur (Sindh)						46,128	76,917
						917,947	1,530,658
Sadkal (Punjab)				7,407	9,637	10,567	7,071
				177,768	231,288	253,608	169,716
Sari/Hundi (Sindh)		418	2,898	2,159	1,752	1,347	1,023
		8,485	58,829	43,828	35,566	27,344	20,767
Ratana (Punjab)				7,009	5,515	4,945	4,797
				168,216	132,360	118,680	115,128
Adhi (Punjab)	5,005	6,218	7,101	5,924	6,153	6,896	6,569
	120,120	149,232	170,424	142,176	147,672	165,504	157,656
Kandhkot (Sindh)	25,025	25,856	28,958	34,224	33,857	33,726	35,780
	477,978	493,850	553,098	653,678	646,669	644,167	683,398
Sui (Balochistan)	227,402	259,479	264,141	259,881	260,174	226,408	242,800
	5,071,065	5,786,382	5,890,344	5,795,346	5,801,880	5,048,898	5,414,440
Bhatti (Sindh)			71	23	3,865	6,986	8,497
			1,704	552	92,760	167,664	203,940
Bukhari (Sindh)		495	17,859	19,809	12,089	6,405	5,526
		11,880	428,616	475,416	290,136	153,720	132,636

Contd.

Table A–68

Non–Associated Gas Production by Field

(Million cubic feet)
(TOE)

Province/Field	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97
Buzdar S. (Sindh)							5,636
							135,276
Golarchi (Sindh)	10,019	8,809	5,848	4,503	2,973	1,214	943
	240,456	211,416	140,352	108,072	71,352	29,136	22,644
Jabo & Pir (Sindh) (a)		3,536					107
		84,864					2,580
Jalal (Sindh)					1,923	6,830	4,907
					46,152	163,920	117,780
Khorewah (Sindh)			188	6,111	18,496	16,773	8,972
			4,512	146,664	443,904	402,552	215,340
Khorewah Deep (Sindh)							1,213
							29,124
Koli (Sindh)						4,093	4,543
						98,232	109,044
Mahi (Sindh)						4,037	213
						96,888	5,124
Makhpur & Deep (Sindh)			4,649	9,296	7,636	4,736	3,401
			111,576	223,104	183,264	113,664	81,636
Matli (Sindh)	11,125	9,604	11,419	5,102	3,226	1,922	915
	267,000	230,496	274,056	122,448	77,424	46,128	21,972
Turk (Sindh)	24,078	25,164	13,471	12,173	6,667	2,666	4,436
	577,872	603,936	323,304	292,152	160,008	63,984	106,476
Turk Deep (Sindh)					1,200	5,599	2,890
					28,800	134,376	69,372
Total:	490,465	528,166	561,040	611,281	613,968	652,346	676,460
	10,314,744	11,153,461	11,814,648	12,798,906	12,897,297	13,716,241	14,147,679

Source: Pakistan Energy Year Book, 1996 & 1997 Published by Hydrocarbon Development Institute of Pakistan

(a) Figures under 1991–92 show production from Sonro.

Table A – 69

Gas Consumption by Sector

(Million cubic feet)
(TOE)

Sector	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97
Domestic	66,797	70,741	75,783	82,461	97,045	110,103	115,488
	1,563,050	1,655,330	1,773,331	1,929,582	2,270,843	2,576,413	2,702,418
Commercial	12,317	13,057	14,326	15,239	16,064	16,960	18,403
	288,218	305,540	335,228	356,595	375,900	396,856	430,635
Cement	13,020	11,761	11,914	10,187	6,730	7,569	8,718
	304,668	275,206	278,788	238,379	157,491	177,126	203,993
Fertilizer(a)	107,954	101,493	119,628	144,514	141,697	150,374	112,471
	2,091,125	1,959,737	2,303,488	2,725,784	2,675,044	2,827,663	2,112,597
Fertilizer(as fuel use)							38,011
							722,482
Power	176,409	193,834	186,809	197,507	181,107	186,507	193,984
	3,780,177	4,191,236	4,024,502	4,230,309	3,851,464	4,061,438	4,206,376
Gen. Industry	88,825	95,636	102,991	100,631	104,098	111,202	110,365
	2,078,505	2,237,880	2,409,994	2,354,768	2,435,886	2,602,132	2,582,533
Transport(CNG)	16	25	31	43	47	153	358
	375	588	736	1,006	1,092	3,570	8,385
Total	465,338	486,547	511,482	550,582	546,788	582,868	597,798
	10,106,118	10,625,517	11,126,067	11,836,423	11,767,720	12,645,198	12,969,418
Annual growth rate	4.97%	4.56%	5.12%	7.64%	-0.69%	6.60%	2.56%

Source: Pakistan Energy Year Book,1996 and 1997 Published by Hydrocarbon Development Institute of Pakistan.

Note: (a) Including feed stock of total gas supply to fertilizer

Table A – 70

Cumulative Number of Gas Consumers by Province

(Number)

Province	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97
Balochistan	41,272	48,138	55,695	60547	70587	83017	91220
NWFP	66,702	79,082	93,528	112542	131704	153996	174619
Punjab	726,754	805,293	912,481	1024261	1160480	1286031	1399152
Sindh	698,303	760,758	845,989	926846	1008595	1093659	1181809
Total	1533031	1693271	1907693	2124196	2371366	2616703	2846800
Annual growth rate	6.73%	10.45%	12.66%	11.35%	11.64%	10.35%	8.79%

Source: Pakistan Energy Year Book,1996 and 1997 Published by Hydrocarbon Development Institute of Pakistan.

Table A-71

Gas Supplies to Fertilizer and Power Sectors by Source

(Million cubic feet)

(TOE)

Sector		1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97
Fertilizer Sector								
SNGPL	(a)		33,426	38,350	37,000	36,670	37,082	37,988
			782,178	897,381	865,796	858,074	867,718	888,913
Mari Gas Field	(a)		68,067	81,278	107,514	105,027	113,292	112,495
			1,177,559	1,406,108	1,859,988	1,816,971	1,959,945	1,946,165
Total Fertilizer		107,954	101,493	119,628	144,514	141,697	150,374	150,483
Sector		2,019,125	1,959,737	2,303,488	2,725,784	2,675,044	2,827,663	2,835,079
Power Sector								
SNGPL	(b)		32,938	23,325	28,217	24,512	32,335	37,829
			770,749	545,805	660,287	573,586	756,646	885,199
SSGCL	(b)		71,664	75,524	66,471	56,689	65,910	62,542
			1,676,938	1,767,255	1,555,424	1,326,517	1,542,288	1,463,475
Sui Gas Field	(b)		30,680	27,537	34,914	32,452	35,037	34,754
			684,175	614,077	778,586	723,683	781,323	775,014
Mari Gas Field	(b)		32,753	31,505	33,867	33,719	19,676	23,066
			566,620	545,039	585,896	583,334	340,395	339,042
Kandhkot Gas Field	(b)		25,799	28,918	34,037	33,735	33,549	35,793
			492,755	552,326	650,115	644,344	640,785	683,646
Total Power Sector		176,409	193,834	186,809	197,507	181,107	186,507	193,984
		3,780,177	4,191,236	4,024,502	4,230,309	3,851,464	4,061,438	4,206,376

Source: Pakistan Energy Year Book,1996 and 1997 Published by Hydrocarbon Development Institute of Pakistan.

Note: (a) Fertilizers by sector is not available.
(b) Power by sector is not available.

Table A–72

Installed Capacity and Electricity Generation by Type of Power Station

Name of Power Station	1994–95		1995–96		1996–97	
	Installed Capacity (MW)	Unit Generated GWH	Installed Capacity (MW)	Unit Generated GWH	Installed Capacity (MW)	Unit Generated GWH
A– Hydel (WAPDA)						
Tarbela	3478.00	14738.51	3478.00	14839.94	3478.00	14223.12
Mangla	1000.00	6809.77	1000.00	6977.29	1000.00	5665.63
Warsak	240.00	834.63	240.00	920.45	240.00	529.52
Malakand	19.00	92.20	19.60	100.89	19.60	88.94
Dargai	20.00	146.61	20.00	135.74	20.00	123.24
Rasul	22.00	73.22	22.00	90.05	22.00	85.51
Shadiwal	13.50	35.36	13.50	31.33	13.50	37.78
Chichoki Malian	13.20	40.89	13.20	32.91	13.20	30.22
Nandipur	13.80	48.49	13.80	40.21	13.80	36.09
Kurram Garhi	4.00	28.61	4.00	27.77	4.00	28.53
Renala	1.10	5.20	1.10	5.52	1.10	5.88
Chitral	1.00	4.56	1.00	3.99	1.00	3.55
Total (A)	4826.20	22858.05	4826.20	23206.09	4826.20	20858.01
B. Thermal (WAPDA)						
GTPS Shahdra	85.00	96.84	85.00	64.51	85.00	20.14
SPS Faisalabad	132.00	645.76	132.00	537.93	132.00	383.71
GTPS Faisalabad	244.00	454.27	245.00	349.62	244.00	167.57
NGPS Multan	260.00	918.31	260.00	728.66	260.00	777.24
TPS Multan cantt.	20.00	59.72	20.00	37.66	20.00	56.06
GTPS Kot Addu	1200.00	3957.74	1466.00	5270.01	Privatised	
TPS Muzaffar Garh	630.00	2700.73	1050.00	4949.68	1350.00	4584.68
TPS Guddu (Unit 1–4)	640.00	2844.77	640.00	3230.54	640.00	2833.28
TPS Guddu (Unit 5–13)	990.00	6059.50	1015.00	4913.81	1015.00	5995.99
TPS Sukkur	50.00	190.28	50.00	217.80	50.00	151.63
GTPS Kotri	174.00	608.78	174.00	713.34	174.00	572.60
FBC Lakhra	–	–	150.00	400.81	150.00	339.20
TPS Jamshoro	880.00	3964.57	880.00	3418.23	880.00	2787.61
TPS Quetta	77.00	328.71	84.00	323.76	87.00	366.75
TPS Pasni	17.00	34.62	17.00	41.04	17.00	45.85
Total (B)	5399.00	22864.60	6268.00	25197.41	5104.00	19082.32
C. Thermal (KESC)						
SPS West Wharf	66.00	100.03	66.00	15.77	66.00	0.00
TPS Korangi	382.00	1370.08	382.00	1558.31	382.00	1239.60
Dual Fuel Station	15.00	1.62	15.00	0.80	15.00	0.58
GTPS Korangi Town	100.00	269.20	100.00	279.47	100.00	347.27
GTPS Site	125.00	257.33	125.00	243.00	125.00	281.65
TPS Pipri	1050.00	5301.12	1050.00	5950.33	1050.00	5588.68
Total (C)	1738.00	7299.37	1738.00	8047.67	1738.00	7457.77
D. Private Sector						
KAPCO GTPS Kot Addu					1466.00	5067.23
HUBCO					1292.00	6267.80
TEL					126.00	27.76
Total (D)					2884.00	11362.80
Grand Total (A+B+C+D)	11963.62	53022.02	12832.20	56451.17	14552.20	58760.90

Source: Pakistan Energy Year Book, 1995,1996 and 1997 Published by Hydrocarbon Development Institute of Pakistan.

Table A-73

Generation of Electricity by Source

Source	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97
Hydel (WAPDA)*	18,303	18,647	21,112	19,436	22,858	23,206	20,858
Thermal (WAPDA)	16,062	18,956	19,168	22,610	22,877	25,209	19,094
K.E.S.C	6,292	7,419	7,889	8,097	7,299	8,048	7,458
KAPCO							5,067
HUBCO							6,268
TEL							28
Nuclear (KANUPP)	385	418	582	497	511	483	346
Total	41,042	45,440	48,751	50,640	53,545	56,946	59,119
Annual growth rate	8.98%	10.72%	7.29%	3.88%	5.74%	6.35%	3.82%

Source: Pakistan Energy Year Book, 1996 and 1997 Published by Hydrocarbon Development Institute of Pakistan.

(*) Includes generation by diesal

Table A–74

Installed Capacity of Electricity Generation by Type

(MW)

Type/Power Station	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97
A– Hydel (WAPDA)							
Tarbela	1,750	2,182	3,478	3,478	3,478	3,478	3,478
Mangla	800	800	800	900	1,000	1,000	1,000
Warsak	240	240	240	240	240	240	240
Malakand	20	20	20	20	20	20	20
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	13	13	13	13	13	13
Nandipur	14	14	14	14	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
Total (A)	2,899	3,331	4,627	4,727	4,827	4,827	4,827
B.1 Thermal (WAPDA)							
GTPS Shahdra	85	85	85	85	85	85	85
SPS Faisalabad	132	132	132	132	132	132	132
GTPS Faisalabad	200	200	200	200	200	200	244
NGPS Multan	260	260	260	260	260	260	260
TPS Multan cantt.	20	20	20	20	20	20	20
REPCO Rawalpindi	2	–	–	–	–	–	–
GTPS Kot Addu	890	1,024	1,000	1,000	1,200	1,466	Privatised
TPS Muzaffar Garh	–	–	–	210	630	1,050	1,350
TPS Guddu	1,234	1,240	1,234	1,657	1,630	1,655	1,655
TPS Sukkur	50	50	50	50	50	50	50
GTPS Kotri	130	130	130	130	174	174	174
TPS Jamshoro	880	880	880	880	880	880	880
FBC Lakhra	–	–	–	–	–	150	150
NTPS Hyderabad	43	43	–	–	–	–	–
TPS Quetta	77	83	77	77	77	84	87
TPS Pasni	–	17	17	17	17	17	17
Total (B1)	4,003	4,164	4,085	4,718	5,399	6,268	5,104
B.2 Thermal (KESC)							
SPS West Wharf	66	66	66	66	66	66	66
TPS Korangi	382	382	382	382	382	382	382
Dual Fuel Station	15	15	15	15	15	15	15
GTPS Korangi Town	100	100	100	100	100	100	100
GTPS Site	125	125	125	125	125	125	125
TPS Pipri	630	1,050	1,050	1,050	1,050	1,050	1,050
Total (B2)	1,318	1,738	1,738	1,738	1,738	1,738	1,738
B.3 Thermal (Private Sector)							
KAPCO GTPS Kot Addu	Privatised by WAPDA						1,466
HUBCO	last of the four units of Hub Power Plant was						1,292
TEL	commissioned on 7.3.1997						126
Total (B3)	Tapal Power Plant started commercial production on 20.6.1997						2,884
C. Nuclear							
KANUPP	137	137	137	137	137	137	137
Total (C)	137	137	137	137	137	137	137
Grand Total (A+B1+B2+B3+C)	8,357	9,370	10,587	11,320	12,101	12,970	14,689
AGR.	5.12%	12.12%	12.99%	6.92%	6.9.%	7.18%	13.25%

Source: Pakistan Energy Year Book, 1996 and 1997 Published by Hydrocarbon Development Institute of Pakistan

Table A–75
Electricity Consumption by Sector (Public Utilities Only)

(GWh)
(TOE)

Sector	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97
Domestic	10,409	11,458	13,170	14,133	15,584	17,116	17,739
	847,709	933,140	1,072,604	1,151,011	1,269,129	1,393,965	1,444,642
Commercial	2,072	2,143	2,333	2,547	2,623	2,962	3,011
	168,744	174,526	189,969	207,437	213,644	241,215	245,198
Industrial	11,229	12,289	13,043	12,637	12,528	12,183	11,982
	914,490	1,000,816	1,062,220	1,029,156	1,020,261	992,167	975,788
Agriculture	5,620	5,847	5,635	5,772	6,251	6,696	7,086
	457,693	476,180	458,934	470,032	509,119	545,322	577,088
Traction	33	29	27	27	22	20	18
	2,688	2,362	2,233	2,191	1,800	1,661	1,500
Other Govt.	2,171	2,112	2,284	2,265	2,440	2,760	2,879
	176,806	172,001	186,041	184,497	198,698	224,788	234,454
Total:	31,534	33,878	36,493	37,381	39,448	41,738	42,716
	2,568,129	2,759,024	2,972,001	3,044,325	3,212,650	3,399,119	3,478,669
Annual growth rate	9.61%	7.43%	7.72%	2.43%	5.53%	5.80%	2.34%

Source: Pakistan Energy Year Book,1996 and 1997 Published by Hydrocarbon Development Institute of Pakistan

Table A–76
Electricity Consumption by Province (Public Utilities Only)

(GWh)
(TOE)

Sector	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97
Punjab	18,477	20,372	21,945	21,947	23,635	24,555	25,121
	1,504,767	1,659,096	1,787,183	1,787,385	1,924,803	1,999,771	2,045,894
Sindh	8,085	8,053	8,495	9,054	8,716	9,330	9,289
	658,442	655,836	691,834	737,374	709,870	759,827	756,471
NWFP	3,848	4,156	4,688	4,976	5,625	6,267	6,638
	313,381	338,465	381,823	405,259	458,075	510,381	540,607
Balochistan	1,124	1,297	1,365	1,404	1,472	1,586	1,666
	91,539	105,628	111,162	114,307	119,903	129,139	135,698
Total:	31,534	33,878	36,493	37,381	39,448	41,738	42,715
	2,568,129	2,759,024	2,972,001	3,044,325	32,125,650	3,399,119	3,478,669

Source: Pakistan Energy Year Book,1996 and 1997 Published by Hydrocarbon Development Institute of Pakistan

Table A – 77

Fuel Consumption for Thermal Power Generation

(TOE)

Fuel	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97
Coal	11,007	17,668	20,889	19,508	18,215	178,479	157,455
Furnace Oil	2,031,979	2,455,316	2,768,502	3,469,935	3,768,217	4,337,709	4,798,119
Diesel Oil	365,050	266,796	330,987	356,008	363,355	347,950	190,778
Gas	3,780,177	4,191,236	4,024,502	4,230,309	3,851,464	4,061,438	4,206,376
Total:	6,188,213	6,931,016	7,144,880	8,075,760	8,001,251	8,925,576	9,352,728
Annual Growth Rate	5.60%	12.00%	3.09%	13.03%	–0.92%	11.55%	4.79%

Source: Pakistan Energy Year Book,1996 and 1997 Published by Hydrocarbon Development Institute of Pakistan

Table A – 78

Thermal Electricity Generation by Fuel

(TOE)

Fuel	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97
Coal	27	33	44	45	40	440	375
Oil	9,196	11,182	12,405	15,040	15,742	17,537	21,548
Gas	13,165	15,159	14,607	15,621	14,394	15,281	15,992
Total:	22,388	26,375	27,057	30,707	30,176	33,257	37,915
Annual growth rate	9.45%	17.81%	2.58%	13.49%	–1.73%	10.21%	14.01%

Source: Pakistan Energy Year Book,1996 and 1997 Published by Hydrocarbon Development Institute of Pakistan

Table A-79

Field-wise Production of Coal in Pakistan

(Tonnes)
(TOE)

Province\Field	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97
BALOCHISTAN							
Sor Range	161,974	173,196	173,740	167,438	134,287	148,719	170,425
	72,467	77,488	77,731	74,912	60,080	66,537	76,248
Degari	118,778	122,406	115,867	94,501	82,712	86,004	77,963
	53,141	54,764	51,839	42,280	37,005	38,478	34,881
Sharigh	119,979	141,286	146,857	143,375	100,987	133,952	109,884
	53,679	63,211	65,704	64,146	45,182	59,930	49,162
Sinjidi	150,427	119,029	132,377	156,770	191,186	158,242	164,186
	67,301	53,254	59,225	70,139	85,537	70,797	73,457
Mach	260,868	351,147	294,110	337,197	254,089	352,286	351,166
	116,712	157,103	131,585	150,862	113,679	157,613	157,112
Harnai-Khost	228,500	212,408	211,561	186,960	185,690	211,316	242,432
Nasaka-Zardalu	102,231	95,031	94,652	83,646	83,078	94,543	108,464
Duki	290,512	301,141	294,381	310,679	290,918	278,067	285,517
	129,975	134,731	131,706	138,998	130,157	124,407	127,740
Pir Ismail Ziarat	230,390	228,445	239,775	259,173	264,586	366,162	358,816
	103,077	102,206	107,275	115,954	118,376	163,821	160,534
Abegum	62,443	65,152	54,209	60,761	60,454	63,719	67,330
	27,937	29,149	24,253	27,184	27,047	28,508	30,123
Sub Total	1,623,871	1,714,210	1,662,877	1,716,854	1,564,909	1,798,467	1,827,719
	726,520	766,938	743,971	768,121	700,140	804,634	817,722

Contd.

Table A – 79

Field – wise Production of Coal in Pakistan

(Tonnes)
(TOE)

Province\Field	1990 – 91	1991 – 92	1992 – 93	1993 – 94	1994 – 95	1995 – 96	1996 – 97
NWFP							
Makerwal/Gula Khel/	42,277	49,941	62,706	67,456	41,425	47,445	61,762
Kohat	18,915	22,344	28,055	30,180	18,534	21,227	27,632
Sub Total	42,277	49,941	62,706	67,456	41,425	47,445	61,762
	18,915	22,344	28,055	30,180	18,534	21,227	27,632
PUNJAB							
Makerwal/Salt Range	473,155	512,241	425,425	465,402	413,186	514,914	425,300
	211,690	229,177	190,335	208,221	184,859	230,373	190,279
Sub Total	473,155	512,241	425,425	465,402	413,186	514,914	425,300
	211,690	229,177	190,335	208,221	184,859	230,373	190,279
SINDH							
Lakhra	875,567	795,522	1,091,217	1,258,347	993,095	1,241,965	1,217,207
	391,729	355,917	488,211	562,985	444,311	555,655	544,579
Jhimpir	39,038	26,793	24,329	25,812	30,224	35,035	20,926
	17,466	11,987	10,885	11,548	13,522	15,675	9,362
Sub Total	914,605	822,315	1,115,546	1,284,159	1,023,319	1,277,000	1,238,133
	409,194	367,904	499,095	574,533	457,833	571,330	553,941
Grand Total	3,053,908	3,098,707	3,266,554	3,533,871	3,042,839	3,637,826	3,552,914
	1,366,319	1,386,362	1,461,457	1,581,054	1,361,366	1,627,564	1,589,574
Annual growth rate	– 2.83%	1.47%	5.42%	8.18%	– 13.90%	19.55%	– 2.33%

Source: Pakista Energy Year Book,1996 & 1997 Published by Hydrocarbon Development Institute of Pakistan

TAble A-80

Energy Consumption by Fuel Type and Expenditure Level, 1991-93

Area	Expenditure Level (Rs./year/household) Low (Less than or equal to Rs. 18000)	Medium (Rs. 18000 to Rs. 48000)	High (More than or equal to Rs. 48000)	Total (a)
PAKISTAN				
Number of Households (000)	4,695	8,963	2,342	16,000
Average Households Size (Persons)	5.41	7.51	9.78	7.23
Energy Consumption (TOE/year)				
Electricity	101,884	453,467	294,900	851,392
Natural Gas	84,982	721,614	609,590	1,415,929
LPG	(b)	42,295	45,589	92,246
Kerosene	106,643	265,608	70,463	442,461
Charcoal	8,357	70,345	40,301	118,999
Firewood	2,427,769	6,429,411	1,798,919	10,637,395
Dung Cake	1,003,159	2,137,739	466,165	3,613,187
Crop Residues	773,562	1,669,582	372,753	2,815,898
Toal energy consumption of which:	4,506,356	11,790,061	3,698,681	19,987,506
Modern fuels (c)	293,509	1,482,983	1,020,543	2,802,028
Traditional fuels (d)	4,212,847	10,307,078	2,678,138	17,185,478
URBAN				
Number of Households (000)	1,037	2,917	1,006	4,960
Average Households Size (Persons)	4.95	7.67	9.13	7.12
Energy Consumption (TOE/year)				
Electricity	40,884	250,759	182,999	474,561
Natural Gas	83,649	701,871	573,661	1,358,923
LPG	(b)	28,143	26,349	56,685
Kerosene	19,100	57,422	13,100	89,636
Charcoal	(b)	11,461	3,974	16,733
Firewood	327,854	1,088,566	292,214	1,708,141
Dung Cake	142,948	295,068	73,828	511,261
Crop Residues	31,924	204,674	49,431	286,467
Sub-toal of Urban areas of which :	646,359	2,637,963	1,215,556	4,502,407
Modern fuels (c)	143,633	1,038,195	796,109	1,979,805
Traditional fuels (d)	502,726	1,599,769	419,447	2,522,602
RURAL				
Number of Households (000)	3,658	6,046	1,336	11,040
Average Households Size (Persons)	5.54	7.67	10.27	7.28
Energy Consumption (TOE/year)				
Electricity	60,918	202,464	111,982	376,179
Natural Gas	(b)	(b)	(b)	(b)
LPG	(b)	14,105	19,231	35,507
Kerosene	87,544	208,132	57,103	352,727
Charcoal	7,052	58,877	36,293	102,267
Firewood	2,098,258	5,338,422	1,507,940	8,925,937
Dung Cake	860,490	1,842,812	392,068	3,102,516
Crop Residues	741,651	1,464,461	323,315	2,529,438
Sub-toal of Rural areas of which :	3,855,914	9,129,273	2,447,932	15,424,571
Modern fuels (c)	148,463	424,701	188,316	764,413
Traditional fuels (d)	3,707,451	8,704,572	2,259,616	14,660,158

Source: Pakistan Energy Year Book, 1996 Published by Hydrocarbon Development Institute of Pakistan

Note: The data given in this table relates to Household Energy Study conducted during 1991-93.

(a) Totals would vary from the arithmatic sum on account of statistical differences.

(b) Statistically insignificant due to not enough cases.

(c) Includes Electricity, Natural Gas, LPG and Kerosene

(d) Include Firewood, Charcoal, Dung Cake and Crop Residue

Table A–81
Energy Consumption by Fuel Type and Province, 1991–93

Area	Pakistan (a)	Balochistan	NWFP	Punjab	Sindh
ALL AREAS					
Number of Households (000)	16,000	753	1,635	9,824	3,788
Average Households Size (Persons)	7.23	7.95	8.40	7.06	7.01
Energy Consumption (TOE/year)					
Electricity	851,392	22,641	122,814	461,937	245,221
Natural Gas	1,415,929	43,532	43,298	623,298	705,660
LPG	92,246	8,901	20,743	45,303	17,405
Kerosene	442,461	31,963	52,804	270,399	87,351
Charcoal	118,999	(b)	21,561	71,567	25,237
Firewood	10,637,395	828,488	1,544,069	5,798,949	2,435,329
Dung Cake	3,613,187	88,183	376,391	2,332,508	810,089
Crop Residues	2,815,898	(b)	229,087	2,268,478	269,827
Total energy consumption of which:	19,987,506	1,023,709	2,410,768	11,872,439	4,596,118
Modern fuels (c)	2,802,028	107,037	239,660	1,400,937	1,055,636
Traditional fuels (d)	17,185,478	916,672	2,171,108	10,471,502	3,540,481
URBAN					
Number of Households (000)	4,960	317	295	2,695	1,653
Average Households Size (Persons)	7.12	6.81	7.74	7.23	6.89
Energy Consumption (TOE/year)					
Electricity	474,561	14,089	32,658	244,325	183,732
Natural Gas	1,358,923	43,532	43,298	590,292	681,637
LPG	56,685	(b)	9,200	28,589	15,200
Kerosene	89,636	11,118	5,044	45,639	27,955
Charcoal	16,733	(b)	3,112	12,701	(b)
Firewood	1,708,141	230,011	128,266	979,685	366,274
Dung Cake	511,261	(b)	41,254	349,025	107,144
Crop Residues	286,467	(b)	30,393	192,405	(b)
Sub–total of Urban areas of which:	4,502,407	298,750	293,226	2,442,761	1,381,942
Modern fuels (c)	1,979,805	68,739	90,210	908,845	908,524
Traditional fuels (d)	2,522,602	230,011	203,025	1,533,916	473,418
RURAL					
Number of Households (000)	11,040	436	1,340	7,129	2,135
Average Households Size (Persons)	7.28	8.79	8.55	7.00	7.11
Energy Consumption (TOE/year)					
Electricity	376,179	8,551	90,319	217,694	59,534
Natural Gas	(b)	(b)	(b)	(b)	(b)
LPG	35,507	(b)	11,304	16,843	(b)
Kerosene	352,727	20,839	47,777	224,647	59,447
Charcoal	102,267	(b)	18,448	58,857	24,245
Firewood	8,925,937	60,382	1,418,500	4,815,406	2,068,863
Dung Cake	3,102,516	74,514	333,570	1,984,326	703,901
Crop Residues	2,529,438	(b)	198,672	2,076,495	250,083
Sub–total of Rural areas of which:	15,424,571	704,286	2,118,590	9,394,268	3,166,074
Modern fuels (c)	764413	29,390	149,399	459,183	118,981
Traditional fuels (d)	14,660,158	674,896	1,969,191	8,935,084	3,047,092

Source: Pakistan Energy Year Book, 1996 Published by Hydrocarbon Development Institute of Pakistan

Note: The data given in this table relates to Household Energy Study conducted during 1991–93.

(a) Totals would vary from the arithmatic sum on account of statistical differences.

(b) Statistically insignificant due to not enough cases.

(c) Includes Electricity, Natural Gas, LPG and Kerosene

(d) Include Firewood, Charcoal, Dung Cake and Crop Residue

Table A-82

International Shipping - Entered and Cleared at Karachi Port/Port Qasim

(000 Tonnes)

Port/Year	Vessels Entered			Vessels Cleared		
	Number	Net registered tonnage		Number	Net registered tonnage	
		In ballast	With cargo		In ballast	With cargo
Karachi Port						
1990-91	1,805	921	13,060	1,787	7,813	6,096
1991-92	1,968	1,296	13,280	1,944	7,351	7,241
1992-93	2,102	1,020	14,076	2,077	8,263	6,904
1993-94	1,930	922	13,926	1,901	8,072	6,675
1994-95	1,901	1,318	13,871	1,906	8,102	7,322
1995-96	1,746	841	14,494	1,735	8,453	6,744
1996-97	1,719	1,228	14,414	1,757	8,783	7,200
1997-98	1,623	1,197	12,950	1,514	7,377 *	5,559 *
Port Qasim						
1990-91	244	617	1,997	243	1,979	647
1991-92	274	440	3,009	276	3,011	451
1992-93	279	479	5,325	283	5,256	478
1993-94	293	603	4,859	295	4,943	609
1994-95	421	970	6,324	417	6,394	965
1995-96	347	679	6,774	352	7,043	667
1996-97	384	491	8,219	381	8,023	528
1997-98	455	212	13,965	418	13,683	189

Source: Karachi Port Trust and Port Qasim Authority

Note: * = Provisional

Table A–83

Number and Net Registered Tonnage of Native Crafts by Nationalities which Entered/Cleared in Coastal Shipping with Cargo Into/From Karachi Port

Year	Entered					
	Pakistani		Arabian		Total	
	No.of Country Crafts	Net Tonnage of Country Crafts	No.of Country Crafts	Net Tonnage of Country Crafts	No.of Country Crafts	Net Tonnage of Country Crafts
1990–91	0	0	586	159,232	586	159,232
1991–92	0	0	516	153,599	516	153,599
1992–93	0	0	480	160,316	480	160,316
1993–94	0	0	515	177,680	515	177,680
1994–95	2	314	234	74,490	236	74,804
1995–96	0	0	132	43,494	132	43,494
1996–97	0	0	187	57,510	187	57,510
1997–98	0	0	255	86,970	255	86,970

Year	Cleared					
	Pakistani		Arabian		Total	
	No.of Country Crafts	Net Tonnage of Country Crafts	No.of Country Crafts	Net Tonnage of Country Crafts	No.of Country Crafts	Net Tonnage of Country Crafts
1990–91	0	0	578	158,274	578	158,274
1991–92	0	0	512	150,114	512	150,114
1992–93	0	0	491	174,775	491	174,775
1993–94	0	0	505	177,553	505	177,553
1994–95	2	314	237	74,294	239	74,608
1995–96	0	0	134	42,321	134	42,321
1996–97	0	0	212	64,959	212	64,959
1997–98	0	0	248	77,055	248	77,055

Source: Karachi Port Trust.

Table A–84

Total Passengers Handled at Civil Airports in Pakistan (Scheduled and Non–scheduled)

(Numbers)

Year	Domestic				International	
	Embarked	Dis–embarked	Transit	Total	Embarked	Dis–embarked
1990–91	3,288,824	3,288,824	209,765	6,787,413	1,608,638	1,625,241
1991–92	3,659,234	3,659,234	209,821	7,528,289	2,010,139	1,770,076
1992–93	3,861,454	3,861,454	228,525	7,951,433	1,952,436	1,824,676
1993–94	4,451,609	4,451,609	204,187	9,107,405	1,952,368	1,897,800
1994–95	4,326,486	4,326,486	248,471	8,901,443	1,982,285	1,909,369
1995–96	4,401,591	4,401,591	250,567	9,053,749	2,106,183	1,889,691
1996–97	4,183,878	4,183,878	262,773	8,630,529	2,164,488	2,048,866
1997–98 *	4,216,599	4,216,599	261,471	8,694,669	2,160,088	2,041,188

Year	International		Domestic + International			
	Transit	Total	Embarked	Disembarked	Transit	Total
1990–91	338,983	3,572,862	4,897,462	4,914,065	548,748	10,360,275
1991–92	376,550	4,156,765	5,669,373	5,429,310	586,371	11,685,054
1992–93	332,637	4,109,749	5,813,890	5,686,130	561,162	12,061,182
1993–94	243,082	4,093,250	6,403,977	6,349,409	447,269	13,200,655
1994–95	238,925	4,130,579	6,308,771	6,235,855	487,396	13,032,022
1995–96	301,287	4,297,161	6,507,774	6,291,282	551,854	13,350,910
1996–97	283,501	4,496,855	6,348,366	6,232,744	546,274	13,127,384
1997–98 *	271,475	4,472,751	6,376,687	6,257,787	532,946	13,167,420

Source: Civil Aviation Authority, Karachi.
Note * = Estimated

Table A–85

Air Trafic of Passengers, Freight and Mail of Pakistan International Airlines

Year	Kilometres Flown	Passenger Kilometres performed	Tonne kilometres performed			
			Passengers	Freight	Mail	Total
Domestic Scheduled						
1990–91	22,097	2,106,624	202,979	32,167	1,143	236,289
1991–92	24,058	2,641,005	226,167	30,843	1,079	258,089
1992–93	24,571	2,434,966	231,656	36,589	965	269,210
1993–94	23,345	2,276,864	208,098	35,082	589	243,769
1994–95	22,345	2,312,368	204,700	35,057	399	240,156
1995–96	21,904	2,006,406	182,721	34,914	276	217,911
1996–97	21,829	2,031,540	184,893	34,836	236	219,965
1997–98 *	21,754	2,056,672	187,064	34,757	197	222,018
International Scheduled						
1990–91	37,508	6,785,031	618,899	359,521	6,833	985,253
1991–92	42,168	7,431,731	680,216	352,002	8,549	1,040,767
1992–93	44,368	7,551,046	691,151	357,945	8,485	1,057,581
1993–94	45,355	7,825,200	714,907	393,919	8,183	1,117,009
1994–95	49,994	8,407,153	741,854	416,497	7,731	1,166,082
1995–96	51,982	8,573,583	780,265	392,194	8,038	1,180,497
1996–97	52,901	8,813,428	802,337	381,153	7,366	1,190,856
1997–98 *	53,819	9,053,273	824,410	370,112	6,695	1,201,217

Source: Civil Aviation Authority, Karachi.

Note * = Estimated

Table A – 86

Transport Statistics

Year	Railways						Length of Roads (Km.)		
	Route kilometres	Number of Passengers Carried (Million)	Freight Carried (Million Tons)	Freight Tonne kilometres	Locom-otives (Nos.)	Freight Wagons (Nos.)	Total	High Type	Low Type
1980–81	8,817.33	123.00	11.00	7,918	960	36,248	93,960	38,035	55,925
1981–82	8,774.87	120.00	11.00	7,067	963	36,213	96,859	40,380	56,479
1982–83	8,822.87	123.00	12.00	7,323	979	35,990	99,793	42,773	57,020
1983–84	8,774.87	107.00	11.00	7,385	943	35,782	111,916	48,325	63,591
1984–85	8,774.87	95.00	11.00	7,203	916	35,341	118,471	52,120	66,351
1985–86	8,774.87	83.00	12.00	6,270	879	35,237	126,243	56,318	69,925
1986–87	8,774.87	78.00	12.00	7,820	837	34,867	133,953	61,464	72,489
1987–88	8,774.87	80.00	12.00	8,113	806	35,929	142,941	68,880	74,061
1988–89	8,774.87	84.70	10.43	8,364	773	36,249	151,449	74,355	77,094
1989–90	8,775.00	84.60	9.30	7,226	768	35,842	162,345	81,981	80,364
1990–91	8,775.00	84.90	7.72	5,709	753	34,851	170,823	86,839	83,984
1991–92	8,775.00	73.30	7.56	5,962	752	30,369	182,709	96,374	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	206,701	110,462	96,239
1995–96	8,775.00	73.65	6.85	5,077	622	26,755	217,853	117,356	100,497
1996–97	8,775.00	68.80	6.36	4,607	633	25,213	228,206	124,711	103,495
1997–98	8,775.00	64.90	5.98	4,443	611	24,275	232,313 *	127,809 *	105,019 *

Source: Economic Survey of Pakistan, 1997–98
Note: * = Provisonal

Table A – 87

Number of Motor Vehicles Registered

Year	Motor Cars Jeeps & Station Wagons	Motor Cabs/ Taxies	Buses	Trucks	Motor Cycle 2 wheels	Motor Cycle 3 wheels	Others	Total
1980	262,636	18,951	50,001	58,654	508,335	45,906	165,273	1,109,756
1981	282,572	19,571	51,245	59,553	548,242	45,329	183,080	1,189,592
1982	304,449	20,715	51,710	63,021	636,196	45,525	217,341	1,338,957
1983	339,543	22,889	53,749	66,966	709,213	46,281	246,511	1,485,152
1984	382,729	23,176	58,596	70,338	790,004	46,841	287,988	1,659,672
1985	428,257	24,720	62,074	75,655	879,108	47,101	323,838	1,840,753
1986	474,744	25,419	71,690	81,019	946,861	47,669	369,905	2,017,307
1987	526,254	26,844	75,996	87,746	1,021,966	48,513	413,990	2,201,309
1988	575,337	27,805	79,556	94,283	1,093,933	48,880	450,115	2,369,909
1989	630,342	29,668	81,533	102,726	1,158,609	49,380	485,659	2,537,917
1990	682,636	32,304	84,016	105,245	1,250,749	50,862	507,025	2,712,837
1991	731,960	33,235	89,094	107,171	1,381,136	52,439	528,878	2,923,913
1992	819,350	41,245	94,988	111,391	1,497,017	56,267	558,926	3,179,184
1993	868,159	47,897	98,681	114,394	1,573,370	59,510	589,281	3,351,292
1994	902,654	52,444	107,440	118,389	1,679,259	62,183	615,497	3,537,866
1995	923,577	53,400	113,516	119,174	1,754,737	63,370	642,174	3,669,948
1996	966,747	54,501	114,415	123,658	1,842,531	69,756	666,549	3,838,157
1997	1,068,116	83,182	119,365	130,622	1,995,421	76,224	701,015	4,173,945
1998 (P)	1,084,372	83,263	120,050	131,357	2,050,511	79,630	713,650	4,262,833

Source: Federal Bureau of Statistics
Note (P) = Provisional

Table A–88

Motor Vehicles on Road

(000 Number)

Year	Motor Cycles/ Scooters	Motor Cars	Jeeps	Station Wagons	Tractors	Buses
1980	287.6	148.3	16.9	15.4	68.2	25.3
1981	326.4	154.2	16.7	15.8	79.4	26.9
1982	376.1	182.9	14.1	21.7	88.2	25.6
1983	424.2	202.0	15.4	25.7	106.5	27.4
1984	517.4	230.8	17.2	32.5	135.7	31.0
1985	581.3	268.9	19.8	39.1	157.0	32.9
1986	657.6	298.0	20.7	46.5	181.1	34.6
1987	700.0	323.1	23.1	52.1	198.9	36.1
1988	752.0	350.2	25.9	59.2	217.6	38.6
1989	818.4	395.7	28.2	64.2	242.5	40.8
1990	896.2	427.7	30.8	69.3	258.2	43.3
1991	964.4	453.0	33.4	75.0	269.5	45.6
1992	1,143.2	493.1	37.5	88.8	341.5	52.4
1993	1,248.2	522.4	40.3	97.1	358.3	57.0
1994	1,343.4	547.8	43.7	102.2	374.4	61.3
1995	1,456.7	575.6	46.9	110.5	403.3	65.7
1996	1,579.5	604.8	50.3	119.4	434.4	70.4
1997	1,712.8	635.5	53.9	129.1	467.9	75.5

Year	Taxi Cabs Taxies	Rickshaws	Delivery Vans	Trucks	Others	Total
1980	16.9	32.0	8.5	34.2	28.9	682.2
1981	17.7	33.7	10.0	36.8	38.0	755.6
1982	15.5	34.6	11.9	40.1	31.9	842.6
1983	16.7	36.2	13.3	42.8	33.9	944.1
1984	19.0	37.2	30.4	49.2	37.8	1,138.2
1985	21.2	37.7	35.1	54.4	40.5	1,287.9
1986	22.2	38.4	38.3	60.4	43.0	1,440.8
1987	23.4	38.8	41.7	66.1	45.0	1,548.3
1988	24.9	39.4	46.2	71.7	48.1	1,673.8
1989	28.4	40.2	52.9	78.4	49.8	1,839.5
1990	30.9	41.3	57.6	82.7	51.5	1,989.5
1991	33.5	42.3	60.9	86.9	52.3	2,116.8
1992	41.1	46.7	69.8	95.5	56.0	2,465.6
1993	46.3	50.5	73.4	102.8	57.3	2,653.6
1994	49.8	53.5	77.2	108.4	64.8	2,826.5
1995	54.8	56.3	81.9	114.5	67.8	3,034.0
1996	60.3	59.3	86.9	120.9	71.0	3,257.2
1997	66.4	62.4	92.1	127.6	74.3	3,497.5

Source: Economic Survey of Pakistan, 1997–98.

Table A – 89

Post and Telecommunications

Year	No. of Post Offices			No. of Telephon Offices		
	Urban	Rural	Total	Urban	Rural	Total
1980–81	2,445	8,793	11,238	89	163	252
1981–82	2,495	8,893	11,388	101	177	278
1982–83	2,535	8,993	11,528	108	186	294
1983–84	2,566	9,132	11,698	111	199	310
1984–85	2,591	9,307	11,898	121	220	341
1985–86	2,626	9,380	12,006	142	245	387
1986–87	2,636	9,480	12,116	152	268	420
1987–88	2,619	9,607	12,226	165	281	446
1988–89	1,356	10,837	12,193	174	294	468
1989–90	1,356	10,837	12,193	186	300	486
1990–91	1,867	11,546	13,413	195	302	497
1991–92	1,909	11,471	13,380	299	210	509
1992–93	1,983	11,213	13,196	320	210	512
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	2,092	11,327	13,419	340	93	433
1997–98	N.A	N.A	N.A	N.A	N.A	N.A

Contd.

Table A – 89

Post and Telecommunications

Year	No. of PCO	Telephones (000 Nos)	TV Sets (000 Nos)	Radio Sets (000 Nos)	VCR Sets (000 Nos)
1980–81	1,689	358.8	582.8	1,528.8	–
1981–82	1,696	388.4	706.3	1,336.3	–
1982–83	1,888	445.0	676.0	1,400.0	–
1983–84	1,960	461.0	850.4	1,010.6	–
1984–85	2,194	573.0	1,055.1	1,207.0	133.7
1986–86	2,428	630.5	1,264.3	1,140.0	165.2
1986–87	2,807	679.4	1,421.0	1,259.0	179.3
1987–88	2,917	743.9	1,216.0	1,106.7	192.6
1988–89	3,093	839.0	1,408.3	945.1	202.3
1989–90	3,393	922.5	1,575.1	1,078.6	208.3
1990–91	3,861	1,188.0	1,806.9	1,309.8	213.2
1991–92	4,676	1,460.7	1,614.0	829.9	115.6
1992–93	5,618	1,547.5	1,773.7	743.3	120.4
1993–94	6,422	1,801.1	1,975.2	697.8	123.2
1994–95	7,600	2,126.1	2,149.6	589.7	125.3
1995–96	9,410	2,375.8	2,273.6	551.9	126.7
1996–97	10,040	2,557.6	2,823.8	489.9	278.2
1997–98	10,040	2,661.9 *	2,965.0	402.0	281.0

Source: Economic Survey of Pakistan, 1997–98

Note: i) N.A = Not available ii) * = Provisional

Table A – 90

Traffic Accidents in Pakistan

(Number)

Year	Total number of accidents	Accident		Persons		Total Number of vehicles involved
		Fatal	Non – Fatal	Killed	Injured	
1981–82	11,589	3,553	8,036	N.A	N.A	N.A
1982–83	12,032	3,528	8,504	N.A	N.A	N.A
1983–84	12,366	3,868	8,498	N.A	N.A	N.A
1984–85	10,997	4,082	6,915	4,714	11,485	10,809
1985–86	11,209	4,127	7,082	5,009	13,253	11,628
1986–87	11,232	4,330	6,902	5,125	13,177	12,780
1987–88	11,441	4,518	6,923	5,251	13,169	13,303
1988–89	11,238	4,371	6,867	5,174	13,166	13,135
1989–90	10,258	4,121	6,137	4,970	12,230	11,867
1990–91	9,339	4,050	5,289	4,916	10,933	10,579
1991–92	9,993	4,255	5,738	5,214	12,260	11,349
1992–93	11,379	4,745	6,634	5,616	12,897	12,874
1993–94	10,916	4,511	6,405	5,492	12,228	12,719
1994–95	10,468	4,476	5,992	5,627	12,169	11,636
1995–96	9,974	4,347	5,627	4,880	11,319	10,699
1996–97	9,610	4,191	5,419	5,027	11,312	10,849
1997–98	9,663	4,041	5,622	4,878	11,597	10,890

Contd.

Table A – 90

Traffic Accidents in Balochistan

(Number)

Year	Total number of accidents	Accident		Persons		Total Number of vehicles involved
		Fatal	Non – Fatal	Killed	Injured	
1981 – 82	317	71	246	N.A	N.A	N.A
1982 – 83	371	68	303	N.A	N.A	N.A
1983 – 84	339	75	264	N.A	N.A	N.A
1984 – 85	434	90	344	94	396	439
1985 – 86	360	81	279	84	359	330
1986 – 87	195	37	158	43	195	196
1987 – 88	343	85	258	77	332	342
1988 – 89	374	103	271	119	500	374
1989 – 90	322	80	242	85	327	316
1990 – 91	342	110	232	113	315	360
1991 – 92	338	118	220	115	262	369
1992 – 93	380	125	255	130	284	397
1993 – 94	429	135	294	140	343	437
1994 – 95	418	132	286	148	357	422
1995 – 96	438	129	309	141	397	463
1996 – 97	399	150	249	156	331	435
1997 – 98	315	103	212	128	303	364

Contd.

Table A – 90

Traffic Accidents in N.W.F.P.

(Number)

Year	Total number of accidents	Accident		Persons		Total Number of vehicles involved
		Fatal	Non – Fatal	Killed	Injured	
1981 – 82	2,787	416	2,371	N.A	N.A	N.A
1982 – 83	3,447	487	2,960	N.A	N.A	N.A
1983 – 84	3,427	526	2,910	N.A	N.A	N.A
1984 – 85	2,062	557	1,505	699	2,280	740
1985 – 86	2,215	574	1,641	747	3,057	2,241
1986 – 87	1,968	534	1,434	677	2,786	2,148
1987 – 88	2,031	589	1,442	725	2,746	2,186
1988 – 89	2,120	593	1,527	726	2,743	2,273
1989 – 90	2,036	597	1,439	798	3,071	2,197
1990 – 91	1,852	560	1,292	732	2,752	1,987
1991 – 92	2,100	536	1,564	738	3,037	2,242
1992 – 93	2,437	639	1,798	782	3,239	2,561
1993 – 94	2,460	609	1,851	760	3,198	2,638
1994 – 95	2,391	668	1,723	776	3,090	2,609
1995 – 96	2,417	649	1,768	797	3,037	2,698
1996 – 97	2,193	645	1,548	825	2,927	2,442
1997 – 98	2,310	600	1,710	730	2,977	2,502

Contd.

Table A – 90

Traffic Accidents in Punjab

(Number)

Year	Total number of accidents	Accident		Persons		Total Number of vehicles involved
		Fatal	Non – Fatal	Killed	Injured	
1981–82	4,607	1,914	2,693	N.A	N.A	N.A
1982–83	4,382	1,843	2,539	N.A	N.A	N.A
1983–84	4,803	2,095	2,708	N.A	N.A	N.A
1984–85	4,833	2,264	2,569	2,632	5,295	5,912
1985–86	4,938	2,287	2,651	2,803	6,022	6,168
1986–87	5,762	2,577	3,185	3,103	6,803	7,026
1987–88	5,759	2,617	3,142	3,072	7,126	7,405
1988–89	5,520	2,465	3,055	2,925	6,544	7,030
1989–90	5,066	2,359	2,707	2,878	5,982	6,389
1990–91	4,768	2,324	2,444	2,800	5,790	5,745
1991–92	5,104	2,486	2,618	3,078	6,680	6,251
1992–93	5,697	2,784	2,913	3,396	6,940	6,948
1993–94	5,321	2,550	2,771	3,127	6,161	6,581
1994–95	5,305	2,523	2,782	3,105	6,623	5,946
1995–96	4,875	2,438	2,437	3,115	5,603	5,332
1996–97	4,577	2,170	2,407	2,609	5,448	5,286
1997–98	4,916	2,270	2,646	2,703	5,898	5,858

Contd.

Table A – 90

Traffic Accidents in Sindh

(Number)

Year	Total number of accidents	Accident		Persons		Total Number of vehicles involved
		Fatal	Non – Fatal	Killed	Injured	
1981–82	3,878	1,152	2,726	N.A	N.A	N.A
1982–83	3,834	1,132	2,702	N.A	N.A	N.A
1983–84	3,797	1,172	2,625	N.A	N.A	N.A
1984–85	3,650	1,171	2,479	1,289	3,514	3,718
1985–86	3,696	1,185	2,511	1,375	3,815	3,778
1986–87	3,307	1,182	2,125	1,302	3,393	3,410
1987–88	3,308	1,227	2,081	1,377	3,297	3,370
1988–89	3,224	1,210	2,014	1,404	3,379	3,458
1989–90	2,834	1,085	1,749	1,209	2,850	2,965
1990–91	2,377	1,056	1,321	1,271	2,076	2,487
1991–92	2,451	1,115	1,336	1,283	2,281	–
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	2,604	2,686
1997–98	2,122	1,068	1,054	1,297	2,419	2,168

Source: Crime Branch of Provincial Police Departments.

Table A – 91

Characteristics of Rivers of Indus Basin

Item	Indus	Jhelum	Chenab	Ravi	Beas	Sutlej
1. Length (miles)	1830	430	640	410	220	900
2. (a) Catchment above Rim stations (sq. miles)	118500	12600	10480	2300	7050	23500
(b) i) Glacier area (sq.miles)	14415	142	1475	100	227	2468
ii) Percentage of 2 (a)	(12%)	(1%)	(14%)	(4%)	(3%)	(11%)
3. Approximate mean annual rainfall over the hilly catchment (inches)	17.40	42.33	47.24	52	56.5	19.71
4. Mean annual run – off per Rim stations (MAF)	78.36	23.86	23.28	6.54	12.55	13.94
5. Mean annual run – off in inches per sq. miles of hilly catchment	13.80	35.5	41.6	53.3	33.4	11.1
ii) Percentage of 3	(79%)	(84%)	(88%)	(102%)	(59%)	(56%)
6. Highest flood peak recorded at the Rim station with year (thousand cusecs)	950 (1942)	1090 (1992)	1100 (1957)	680 (1955)	276 (1955)	837 (1955)
7. Run – off per sq. mile of hilly catchment for the highest flood peak (cusecs)	8	83	106	296	39	13

Source: "Environment Problems of Pakistan" by Mr.M. Arshad Ali Baig, PCSIR Laboratories, Karachi, 1977.

1. Indus at Kalabagh
2. Jhelum at Mangla
3. Chenab at Marala
4. Ravi at Jussar
5. Sutluj at Ferozpure

Table A – 92

Per Capita Surface Water Availability

Year	Population (Million)	Surface Water Availability			
		Total		Per Capita	
		BCM	MAF	BCM	AF
1951 Census	34	179	145	5264.7	1.32
1961 Census	43	179	145	4162.8	3.37
1972 Census	65	179	145	2753.8	2.2
1981 Census	84	179	145	2130.9	1.7
1991 Estimated	109	179	145	1642.2	1.6
1998 Census	131	179	145	1366.4	1.1
2000 Estimated	137	179	145	1306.6	1.1

Source: Centre of Excellence in Water Resources, University of Engineering and Technology Lahore.

Note: Based on long term average rain station in flow of River Indus.

Table A – 93

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
1980 – 81	47.84	8.33	56.17	17.73	5.71	23.44	20.48	5.71	26.19
1981 – 82	50.10	5.66	55.76	18.37	4.22	22.59	23.45	4.64	28.09
1982 – 83	41.03	7.72	48.75	15.65	5.68	21.33	22.88	4.92	27.80
1983 – 84	51.51	8.47	59.98	20.61	7.22	27.83	22.19	5.51	27.70
1984 – 85	54.75	7.38	62.13	21.37	6.45	27.82	20.40	4.80	25.20
1985 – 86	44.86	8.12	52.98	12.07	5.57	17.64	19.37	4.86	24.23
1986 – 87	50.80	8.95	59.75	20.62	7.22	27.84	22.19	5.51	27.70
1987 – 88	48.03	10.05	58.08	21.38	6.45	27.83	20.41	4.80	25.21
1988 – 89	63.15	8.47	71.62	19.74	4.24	23.98	27.46	5.23	32.69
1989 – 90	46.10	9.44	55.54	18.01	6.70	24.71	19.74	5.67	25.41
1990 – 91	61.85	10.83	72.68	19.71	7.69	27.40	23.42	6.56	29.98
1991 – 92	58.31	9.23	67.54	25.13	5.98	31.11	23.26	5.55	28.81
1992 – 93	55.22	10.15	65.37	25.18	6.82	32.00	22.60	5.18	27.78
1993 – 94	44.48	8.58	53.06	18.69	4.01	22.70	19.53	3.45	22.98
1994 – 95	65.12	8.83	73.95	20.82	5.67	26.49	24.55	5.65	30.20
1995 – 96	53.17	9.47	62.64	21.91	6.17	28.08	26.40	5.47	31.87
1996 – 97	59.24	9.04	68.28	24.93	4.11	29.04	27.48	4.41	31.89

Contd.

Table A – 93

River In – flow at Rim Stations in Pakistan

(Million Acre Feet)

Year	Ravi at Balloki U/S			Sutlej at Sulemanki		
	Kharif	Rabi	Total	Kharif	Rabi	Total
1980 – 81	5.05	1.96	7.01	1.72	0.12	1.84
1981 – 82	4.81	1.75	6.56	0.47	0.20	0.67
1982 – 83	3.50	1.59	5.09	0.66	0.21	0.87
1983 – 84	4.71	0.91	5.62	1.25	0.63	1.88
1984 – 85	3.39	0.88	4.27	0.36	0.08	0.44
1985 – 86	2.96	1.57	4.53	1.16	0.22	1.38
1986 – 87	3.82	1.41	5.23	0.73	0.38	1.11
1987 – 88	1.58	1.08	2.66	0.30	0.04	0.34
1988 – 89	6.21	2.77	8.98	4.05	3.55	7.60
1989 – 90	1.66	0.65	2.31	0.54	0.16	0.70
1990 – 91	3.28	1.67	4.95	4.66	0.30	4.96
1991 – 92	2.50	1.52	4.02	0.51	0.14	0.65
1992 – 93	4.96	0.70	5.66	3.48	0.33	3.81
1993 – 94	3.47	0.11	3.58	2.81	0.05	2.86
1994 – 95	4.80	0.43	5.23	7.31	0.34	7.65
1995 – 96	6.89	0.79	7.68	6.88	0.70	7.58
1996 – 97	5.14	0.47	5.61	2.48	0.46	2.94

Source: Water and Power Development Authority (WAPDA).

Table A–94

Population Served with Water Supply and Sanitation Facilities in WASA Area, District Lahore

Description	Unit	1993	1994	1995 (a)	1996	1997	1998
Total Population	Million	4.321	4.460	4.604	4.752	4.905	5.063
Population provided Water Supply by WASA	Million	3.759	3.880	3.913	4.039	4.169	4.304
Percentage of Population Served with Water Supply	%	87	87	85	85	85	85
Population served with sanitation facilities	Million	3.025	3.122	3.223	3.326	3.434	3.544
Percentage of population served with sanitation facilities	%	70	70	70	70	70	70
Annual average quantum of water supply	Million gallon per day	3.500	3.568	3.683	3.802	3.924	4.050
Quantity of water supply gallon per person per day	Gallon per capita per day	81	81	80	80	80	80

Source: Water and Sanitation Agency (WASA), Lahore

(a) Township is also included

Table A – 95

Population Served with Water Supply, Sewerage and Drainage Facilities of Various Cities

Particulars	Unit	1993–94	1994–95	1995–96	1996–97
Rohri					
1. Total Population (approx.)	Thousand	53.120	55.245	57.455	59.753
2. Population Served with Pipe Water Supply	Thousand	50.000	50.000	50.000	50.000
3. Percentage of Total Population	%	94	91	87	84
4. Quantum of water Supply (daily)	Millon Gallons	1.5	1.5	1.5	1.5
5. Population Served with Sewerage & Drainage Facilities.	Thousand	50.000	52.700	52.700	52.700
6. Percentage of Total Population	%	94	95	92	88
Tando Allahyar					
1. Total Population (approx.)	Thousand	51.500	53.500	55.660	57.900
2. Population Served with Pipe Water Supply	Thousand	51.500	53.500	54.000	54.000
3. Percentage of Total Population	%	100	100	97	93
4. Quantum of water Supply (daily)	Millon Gallons	1.545	1.605	1.620	1.620
5. Population Served with Sewerage & Drainage Facilities.	Thousand	47.700	47.700	47.700	47.700
6. Percentage of Total Population	%	93	98	86	82

Contd.

Table A – 95

Population Served with Water Supply, Sewerage and Drainage Facilities of Various Cities

Particulars	Unit	1993–94	1994–95	1995–96	1996–97
Umar Kot					
1. Total Population (approx.)	Thousand	21.580	22.490	23.400	24.200
2. Population Served with Pipe Water Supply	Thousand	21.580	22.490	23.400	24.200
3. Percentage of Total Population	%	100	100	100	100
4. Quantum of water Supply (daily)	Milion Gallons	0.647	0.674	0.702	0.726
5. Population Served with Sewerage & Drainage Facilities.	Thousand	21.580	22.490	23.400	24.200
6. Percentage of Total Population	%	100	100	100	100
Thull					
1. Total Population (approx.)	Thousand	23.240	24.170	25.137	26.142
2. Population Served with Pipe Water Supply	Thousand	18.200	18.200	18.200	18.200
3. Percentage of Total Population	%	78	75	72	70
4. Quantum of water Supply (daily)	Milion Gallons	0.370	0.370	0.370	0.370
5. Population Served with Sewerage & Drainage Facilities.	Thousand	23.240	24.170	25.000	25.000
6. Percentage of Total Population	%	100	100	99	96

Contd.

Table A – 95

Population Served with Water Supply, Sewerage and Drainage Facilities of Various Cities

Particulars	Unit	1993–94	1994–95	1995–96	1996–97
Kotri					
1. Total Population (approx.)	Thousand	63.262	65.792	68.425	71.162
2. Population Served with Pipe Water Supply	Thousand	63.262	65.792	65.792	65.792
3. Percentage of Total Population	%	100	100	96	92
4. Quantum of water Supply (daily)	Milion Gallons	1.897	1.973	1.973	1.973
5. Population Served with Sewerage & Drainage Facilities.	Thousand	56.000	56.000	56.000	56.000
6. Percentage of Total Population	%	89	85	82	79
Faisalabad					
1. Total Population (approx.)	Thousand	1722.000	1827.000	1881.000	–
2. Population Served with Pipe Water Supply	Thousand	1400.000	1425.000	1467.000	–
3. Percentage of Total Population	%	81	78	78	–
4. Quantum of water Supply (daily)	Milion Gallons	37.000	40.000	40.000	–
5. Population Served with Sewerage & Drainage Facilities.	Thousand	1100.000	1425.000	1505.000	–
6. Percentage of Total Population	%	63	78	78	–

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

Table A – 96

Selected Water Supply Characteristics of Communities

Characteristics	1996 – 97 PIHS				
	Pujnab	Sindh	N.W.F.P	Balochistan	Pakistan
1. Percentage of Communities with More Public Taps compared with 3 years ago	23	24	30	47	27
2. Percentage of Communities with Less Public Taps Compared with 3 years ago	0	2	18	23	9
3. Percentage of Communities with Water Available from Public Taps for More Time each day Cmpared with 3 years Ago	18	14	24	0	18
4. Percentage of Communities with Water Available from Public Taps for Less Time each day Cmpared with 3 years Ago	0	0	16	53	8
5. Percentage of Communities with Water Management committee	3	2	4	1	3
6. Percentage of Communities with Water Management Committee where Fees are Charged	79	54	2	0	37
7. Percentage of Communities with no Committee Who are Ready to from Waters Management Committee	37	36	3	18	28

Source: Federal Bureau of Statistics, Pakistan Integrated Household Survey (PIHS).
Note: Based on Section 1 Part B Water Supply and Sanitation Section in the 1996 – 97 PIHS Community Questionnaire.

Table A – 97

Existing Drainage Facilities by Type and Province, 1991

Province	Drainage Area (Ma)	Surface Drains (Km)	Tubewells (Numbers)			Tile Drains (Ma)	Intercepter Drains (Km)
			FGW	SGW	SCW		
Total	13	15,456	12,717	2,350	376	0.552	561
Balochistan	0	160	–	–	–	–	–
N.W.F.P.	1	1,990	491	–	–	0.377	–
Punjab	8	7,326	8,065	1,985	–	0.130	–
Sindh	4	5,980	4,161	365	376	0.045	561

Source: Centre of Excellence in Water Resources Enginneering, University of Engineering and Technology, Lahore
Note: These tables are taken from the "Proceedings of the International Symposium of Water for the 21st Century" held on June 17 – 19, 1997, Lahore, Pakistan.

Table A – 98

Analysis of Water and Wastewater of Drains and Handpumps

Description of Samples	Discharge Cusecs	Colour	Condu–ctivity u.m/cm	TDS mg/i	TSS mg/i
	1	2	3	4	5
01. Maduana Drain at Salarwala (Start of the Drain)	5.0	Colourless	3480	2270	55
02. Maduana Drain before receiving Wastewater of faisalabad city.	109.37	Turbid	2880	1930	50
03. Channel of Wastewater of PSD before entry into Maduana Drain	9.25	Dark Grey	2120	1360	490
04. Maduana Drain after receiving Wastewater of faisalabad	118.6	Turbid	2720	1790	75
05. Maduana Drain before receiving water of Awagat Drain at Dijkot.	119.4	Turbid	3300	2200	110
06. Awagat Drain before entry into Madauana Drain near Dijkot	56.0	Yellowish tinge	2210	1610	21
07. Maduana Drain after receiving Awagat Drain water near Dijkot	175.4	Turbid	2910	1970	70
08. Sammundri Br. Drain before receieving water of Maduana Drain	25	Turbid	2100	1470	40
09. Maduana Drain before entry into Sammundri Branch Drain.	176.5	Turbid	3080	2130	60
10. Sammundri Main Drain after receiving maduana Drain water	201.5	Turbid	3060	2010	98
11. Sammundri Main Drain at Mamu Kanjan.	405.0	Turbid	3050	1980	150
12. Drinking water from Hand Pump (03 meters away from Drain) at Mamu Kanjan.	–	Colourless	4050	2950	–
13. Drinking water from Hand Pump (15 meters away from 50–55 feet deep) at Mamu Kanjan.	–	Colourless	3540	2340	–
14. Drinking water from Hand Pump (25 meters away from Drain) at Mamu Kanjan.	–	Colourless	720	520	–
15. Drinking water from Hand Pump (100 meters away from Drain) at Mamu Kanjan.	–	Colourless	724	530	–

Contd.

Table A – 98

Analysis of Water and Wastewater of Drains and Handpumps

Description of Samples	Set.S olids ml/l	Cl mg/i	PH	NH3 mg/i	BOD mg/i
	6	7	8	9	10
01. Maduana Drain at Salarwala (Start of the Drain)	0.1	500	7.7	0.21	6
02. Maduana Drain before receiving Wastewater of faisalabad city.	0.0	425	8.0	–	13
03. Channel of Wastewater of PSD before entry into Maduana Drain	3.0	310	7.5	26	165
04. Maduana Drain after receiving Wastewater of faisalabad	1.0	390	8.0	11	22
05. Maduana Drain before receiving water of Awagat Drain at Dijkot.	0.6	480	7.5	–	48
06. Awagat Drain before entry into Madauana Drain near Dijkot	0.00	215	8.2	2.6	7.2
07. Maduana Drain after receiving Awagat Drain water near Dijkot	0.5	390	7.6	–	37
08. Sammundri Br. Drain before receieving water of Maduana Drain	0.0	165	8.2	1.4	8
09. Maduana Drain before entry into Sammundri Branch Drain.	0.4	445	7.8	–	29
10. Sammundri Main Drain after receiving maduana Drain water	0.8	430	7.9	–	35
11. Sammundri Main Drain at Mamu Kanjan.	1.0	410	7.5	9.6	30
12. Drinking water from Hand Pump (03 meters away from Drain) at Mamu Kanjan.	0.00	485	7.5	0.01	0.7
13. Drinking water from Hand Pump (15 meters away from 50–55 feet deep) at Mamu Kanjan.	0.00	540	7.7	0.02	0.4
14. Drinking water from Hand Pump (25 meters away from Drain) at Mamu Kanjan.	0.00	40	7.6	–	0.2
15. Drinking water from Hand Pump (100 meters away from Drain) at Mamu Kanjan.	0.00	45	7.2	0.01	0.2

Contd.

Table A – 98

Analysis of Water and Wastewater of Drains and Handpumps

Description of Samples	COD mg/l	Fe mg/l	Zn mg/l	Cr mg/l
	11	12	13	14
01. Maduana Drain at Salarwala (Start of the Drain)	14	0.04	0.04	* BDL
02. Maduana Drain before receiving Wastewater of faisalabad city.	24	–	–	–
03. Channel of Wastewater of PSD before entry into Maduana Drain	310	0.92	0.3	BDL
04. Maduana Drain after receiving Wastewater of faisalabad	48	0.26	0.12	BDL
05. Maduana Drain before receiving water of Awagat Drain at Dijkot.	72	–	–	–
06. Awagat Drain before entry into Madauana Drain near Dijkot	38	–	–	–
07. Maduana Drain after receiving Awagat Drain water near Dijkot	66	–	–	–
08. Sammundri Br. Drain before receieving water of Maduana Drain	22	0.09	0.1	BDL
09. Maduana Drain before entry into Sammundri Branch Drain.	60	–	–	–
10. Sammundri Main Drain after receiving maduana Drain water	72	–	–	–
11. Sammundri Main Drain at Mamu Kanjan.	64	0.23	0.05	BDL
12. Drinking water from Hand Pump (03 meters away from Drain) at Mamu Kanjan.	2.1	0.08	0.03	BDL
13. Drinking water from Hand Pump (15 meters away from 50–55 feet deep) at Mamu Kanjan.	1.8	0.1	0.01	BDL
14. Drinking water from Hand Pump (25 meters away from Drain) at Mamu Kanjan.	1.1	–	–	–
15. Drinking water from Hand Pump (100 meters away from Drain) at Mamu Kanjan.	1.0	0.07	0.01	BDL

Contd.

Table A–98

Analysis of Water and Wastewater of Drains and Handpumps

Description of Samples	Cu mg/l	Remarks
	15	16
01. Maduana Drain at Salarwala (Start of the Drain)	0.03	Chemically UNFIT for human consumption and for irrigation purpose.
02. Maduana Drain before receiving Wastewater of faisalabad city.	–	– do –
03. Channel of Wastewater of PSD before entry into Maduana Drain	1	Chemically UNFIT for human consumption and for irrigation purpose. and also TSS,BOD & COD exceed the NEQS.
04. Maduana Drain after receiving Wastewater of faisalabad	0.37	Chemically UNFIT for human consumption and for irrigation purpose.
05. Maduana Drain before receiving water of Awagat Drain at Dijkot.	–	– do –
06. Awagat Drain before entry into Madauana Drain near Dijkot	–	– do –
07. Maduana Drain after receiving Awagat Drain water near Dijkot	–	– do –
08. Sammundri Br. Drain before receieving water of Maduana Drain	0.04	Chemically FIT under WHO relaxed standards after filtration & disinfection.
09. Maduana Drain before entry into Sammundri Branch Drain.	–	Chemically UNFIT for human consumption and for irrigation purpose.
10. Sammundri Main Drain after receiving maduana Drain water	–	– do –
11. Sammundri Main Drain at Mamu Kanjan.	0.05	– do –
12. Drinking water from Hand Pump (03 meters away from Drain) at Mamu Kanjan.	BDL	Chemically UNFIT for human consumption under WHO Standards.
13. Drinking water from Hand Pump (15 meters away from 50–55 feet deep) at Mamu Kanjan.	BDL	– do –
14. Drinking water from Hand Pump (25 meters away from Drain) at Mamu Kanjan.	–	Chemically FIT for human consumption under WHO standards.
15. Drinking water from Hand Pump (100 meters away from Drain) at Mamu Kanjan.	BDL	– do –

Source: Environmental Protection Department, Punjab, Lahore.

BDL = Below Detection Limit

Table A–99

Noise Level and Concentration of Carbon Monoxide at various Areas of Lahore 1988–89 (At 3–5 ft height from ground level)

Location	Traffic Density veh/min	Noise Level dB(A) during				Peak Hours CO Level ppm
		Lean Hours	Normal Hours	Peak Hours	Late Hours	
Bhati Chowk	112–125	83–86	90–94	96–99	–	–
G.P.O.	140–160	80–85	88–90	94–98	76	30–55
Muslim Town	100–110	85–88	90–92	96–98	76	28–46
Assembly Hall	130–152	80–85	86–90	90–94	76	40–60
Azadi Chowk	100–130	80–84	85–89	90–95	–	–
Australia Chowk	50–64	85–88	87–90	94–96	82	–
Garden Town Chowk	68–88	75–80	80–83	86–88	64	30–45
Model Town Chowk	70–90	75–80	82–85	86–89	58	28–32
Shalimar Chowk	48–68	80–81	86–88	90–95	–	–
Chowburji Chowk	60–98	80–83	85–86	88–92	–	14–19
Lakshmi Chowk	50–80	80–85	85–88	94–98	84	27–34
Yateem Khana Chowk	37–47	83–85	86–88	90–92	–	–

Source: Enviromment Protection Agency Punjab, Lahore.

	Day Time	Night Time
1. NEQS for Motor Vehicles Exhaust and Noise		
For Pakistan	85 dB (A)	–
For China	70 dB (A)	55 dB (A)
2. Ambient CO Standards		
For U.S.A.	9 PPm (For 8 hrs)	–
	35 PPm (For 1 hr)	–
– Threshold Limit Value (TLV)	50 PPm	–
– Short Term Exposure Limit (STEL)	400 PPm	
– WHO Recommendations	50 PPm (For 30 Min.)	–
	10 PPm (For 24 hrs)	–

Table A–100

Municipal Solid Waste Disposal System (Transportation) at Selected Cities during, 1995

Type of Vehicles	Selected cities by number of vehciles							
	Gujranwala	Faisalabad	Karachi	Hyderabad	Peshawar	Bannu	Quetta	Sibi
Donkey Carts	102	–	–	200	–	–	–	–
Bullock Carts	–	–	–	–	28	–	–	–
Suzuki Pickup	–	–	–	–	36	–	–	–
Tractor Trolleys	18	15	–	–	16	–	–	3
Truck	–	5	389	18	16	8	2	–
Dumpers	–	7	–	–	–	1	18	–
Mech Loader	–	9	–	–	–	–	2	–

Source: Environment and Urban Affairs Division.

Table A–101

Municipal Solid Waste Disposal System (by Number of Employees) at selected cities during 1996

Name of cities	Zone/Sectors	Super–visory Staff	Super–visors	Working Staff	Sweeper/ Sanitory workers	Total staff Col.(3+5)
1	2	3	4	5	6	7
Gujranwala	11	47	30	1,066	1,046	1,113
Faisalabad	2	113	68	3,079	2,689	3,192
Karachi	4	334	244	11,571	11,142	11,905
Hyderabad	1	85	61	1,964	1,860	2,049
Peshawar	2	65	30	1,595	1,171	1,660
Bannu	1	4	1	270	165	274
Quetta	1	43	21	950	870	993
Sibi	1	9	6	179	110	188
Total	23	700	461	20,674	19,053	21,374

Source: Environment and Urban Affairs Division.

Table A – 102

Municipal Solid Waste Disposal System (Sanitary Landfill/Dumps) at selected cities during 1996

Name of City	Existing Dumps		Proposed land, fill/site
	Number	Size	
Gujranwala	3	–	–
Faisalabad	4	–	–
Karachi	Many	–	–
Hyderabad	Many plots	–	–
Peshawar	1(on lease)	5 acres	–
Bannu	2	–	50 Kanals purchased
Quetta	1	–	–
Sibi	Many fields	–	–

Source: Environment and Urban Affairs Division.

Table A – 103

Garbage Collection Committees – by Province

Province	Percentage of Cases 1996–97 PIHS		
	Urban	Rural	Overall
1. Households Reporting Garbage Committee (%)			
PUNJAB	32	1	9
SINDH	18	3	10
N.W.F.P	41	0	7
BALOCHISTAN	23	0	3
PAKISTAN	27	1	
2. Households Paying Garbage Fee (%)			
PUNJAB	46	55	47
SINDH	60	60	60
N.W.F.P	16	50	17
BALOCHISTAN	69	0	69
PAKISTAN	44	56	45

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

Note: 1. Part 1: Households reporting a garbage collection committee in the locality, expressed as a percentage of the total number of households.

2. Part 2: Households paying garbage collection fee, committee, expressed as a percentage of all households reporting a garbage committee in the locality.

Table A – 104

Type of Sanitation System Used – by Province

Province and Sanitation System	1995–96 PIHS			1996–97 PIHS		
	Urban	Rural	Overall	Urban	Rural	Overall
PUNJAB						
Underground Drains	35	2	11	38	2	12
Open Drains	56	52	53	52	47	48
Soak Pit	2	6	5			
No system	7	39	31	9	52	40
Total	100	100	100	100	100	100
SINDH						
Underground Drains	60	2	30	66	2	33
Open Drains	33	23	28	27	22	24
Soak Pit	4	29	17			
No system	3	46	26	8	77	43
Total	100	100	100	100	100	100
N.W.F.P						
Underground Drains	3	0	1	5	1	2
Open Drains	78	38	45	74	28	36
Soak Pit	0	1	1			
No system	18	61	54	21	71	63
Total	100	100	100	100	100	100
BALOCHISTAN						
Underground Drains	8	1	2	9	0	1
Open Drains	47	7	15	49	4	11
Soak Pit	9	11	10			
No system	37	81	73	43	96	88
Total	100	100	100	100	100	100
PAKISTAN						
Underground Drains	42	2	14	46	1	15
Open Drains	48	43	45	44	37	39
Soak Pit	3	10	8			
No system	7	46	34	10	61	45
Total	100	100	100	100	100	100

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

Note: 1. Households connected to the drainage system indicated, expressed as a percentage of the total number of households.

2. "Soak pit" was not included as a separate category in the 1996–97 PIHS questionnaire.

3. Totals may not add up to 100 because of rounding.

Table A–105

Ambient Air Surveillance in Big Cities of Punjab

Name of City	Site/Area	Period	OZONE ppb	SO2 ppb	CO ppm	NO ppb	NOX ppb	METH ppm	NMETH ppm	PM10 µg/m3
Lahore	Road side	6/96	39.2	4.2	3.8	13.5	43.5	3.6	0.3	465
	Residential		27.4	2.3	2.1	7.4	21.3	4.7	0.1	210
	Industrial		34.3	3.1	2.7	11.4	34.5	4.1	0.2	290
	Sub Urban/ Rural		31.2	1.6	0.9	5.2	8.9	4.3	0.1	260
Gujranwala	Road side	6/96	30.6	3.8	3.6	10.1	37.6	4.2	0.3	395
	Residential	&	33.2	2.0	2.7	6.5	20.1	3.1	0.2	240
	Industrial	7/96	26.2	2.8	3.1	14.1	32.3	3.6	0.3	330
	Sub Urban/ Rural		30.1	1.8	1.7	4.5	7.5	5.7	0.1	165
Sialkot	Road side	7/96	29.1	3.1	1.5	6.2	15.6	2.7	0.2	180
	Residential	&	21.7	1.8	0.9	4.1	10.3	2.1	0.1	110
	Industrial	8/96	23.2	2.1	1.1	5.2	13.2	2.6	0.1	170
	Sub Urban/ Rural		20.4	1.0	0.3	3.2	6.6	3.7	0.1	105
Faisalabad	Road side	8/96	31.6	6.8	2.9	8.2	38.9	4.1	0.3	490
	Residential	&	22.2	4.2	2.0	6.3	17.3	3.6	0.1	330
	Industrial	9/96	26.7	5.5	3.0	7.1	30.2	3.3	0.2	440
	Sub Urban/ Rural		24.3	2.3	0.9	5.6	8.1	4.8	0.1	185
Multan	Road side	10/96	25.6	3.0	2.1	7.6	28.6	3.3	0.3	630
	Residential	&	21.2	2.2	1.8	6.5	20.2	4.6	0.1	510
	Industrial	11/96	20.2	3.3	2.0	6.1	23.7	2.7	0.2	545
	Sub Urban/ Rural		19.6	1.6	0.7	4.6	8.4	4.5	0.1	390
D.G. Khan	Road side	12/96	19.7	2.6	1.4	5.7	14.5	2.8	0.2	750
	Residential		16.9	2.1	1.2	4.5	12.6	2.1	0.1	413
	Sub Urban/ Rural		18.0	1.2	0.6	3.6	7.1	3.6	0.1	790

Contd.

Table A–105

Ambient Air Surveillance in Big Cities of Punjab

Name of City	Site/Area	Period	TSP µg/m3	W.SPD m/s	W.DIR Deg	HUM %	TEMP C	BARO mBar	SOLAR W/m2
Lahore	Road side	6/96	780	0.7	67	35.8	32.6	986	520
	Residential		470	0.5	123	31.6	33.3	993	570
	Industrial		585	1.1	145	48.2	34.1	990	540
	Sub Urban/ Rural		440	0.9	150	38.6	36.3	991	610
Gujranwala	Road side	6/96	690	0.6	156	48.2	32.1	996	535
	Residential	&	385	1.2	240	47.3	30.2	997	505
	Industrial	7/96	510	0.9	130	52.4	29.5	996	560
	Sub Urban/ Rural		270	1.1	281	56.2	27.7	995	490
Sialkot	Road side	7/96	310	0.4	140	60.3	27.1	971	430
	Residential	&	210	0.9	190	55.4	26.2	978	415
	Industrial	8/96	275	1.2	270	67.6	27.3	990	445
	Sub Urban/ Rural		180	0.8	155	70.2	25.1	975	400
Faisalabad	Road side	8/96	870	0.5	110	55.4	29.1	977	440
	Residential	&	560	0.7	130	46.8	30.3	972	460
	Industrial	9/96	685	1.3	98	57.9	28.4	974	410
	Sub Urban/ Rural		290	0.4	215	52.6	29.5	970	430
Multan	Road side	10/96	1030	0.6	270	51.9	26.3	988	410
	Residential	&	870	0.2	310	58.7	23.9	985	400
	Industrial	11/96	960	0.4	150	56.8	21.4	981	385
	Sub Urban/ Rural		730	0.7	290	47.3	21.1	984	390
D.G. Khan	Road side	12/96	1240	0.9	280	46.9	19.2	992	390
	Residential		810	1.2	256	41.4	18.3	988	385
	Sub Urban/ Rural		1375	1.8	310	47.1	17.7	989	350

Source: Environment Protection Department, Lahore

Note: The measurements for above parameters have been made at 13–16 feet height from the ground level continuously for 24 hours at each site.

Abbriviations Used:

ppb= Parts per billion
ppm = Parts per million
µg/m3= Micro gram per cubic mater
PM10= Particulate at matter having size upto 10 micron (respirable dust)
TSP= Total suspended particulate of matter.
W.SPD m/s = Wind speed metre per second
W.DIR= Wind Direction
HUM = Humidity
TEMP= Temprature
W\M2=Watt per square metre

WHO GUIDELINE VALUES

SO2	100–150 ug/m3 (35–52 ppb)	O3	100–120 ug/m3 (47–56 ppb)
NO2	150 ug/m3 (73 ppb)	CO	10 ug/m3 (9 ppm)
TSP	150–230 ug/m3	PM10	90–150 ug/m3

Table A – 106

Average Concentration of Major Ambient Air Pollutants at Sub – urban Area of Karachi

HH:MM	Ozone ppb	SO2 ppb	CO ppm	NO ppb	NOx ppb	PM10 µg/m3	Meth. ppm
	1	2	3	4	5	6	7
00:15	7.52	1.04	0.50	0.97	4.48	137.66	1.81
00:30	7.49	1.02	0.49	0.99	4.44	137.78	1.84
00:45	7.58	1.00	0.49	1.01	4.42	137.94	1.85
01:00	7.47	1.08	0.52	0.98	4.41	138.03	1.97
01:15	6.94	1.01	0.47	0.98	4.48	138.16	2.01
01:30	7.26	1.02	0.43	1.01	4.19	134.20	2.03
01:45	7.66	1.01	0.35	0.98	3.99	115.31	1.93
02:00	7.66	0.99	0.34	0.96	4.00	116.09	1.99
02:15	6.61	0.79	0.14	1.00	3.59	116.69	2.08
02:30	7.55	0.96	0.33	0.95	3.54	116.69	2.18
02:45	7.83	0.94	0.37	0.92	3.47	116.65	2.21
03:00	7.72	0.89	0.36	0.98	3.38	116.65	2.16
03:15	7.60	0.86	0.34	0.92	3.15	116.83	2.14
03:30	7.29	0.86	0.34	0.96	3.10	118.95	2.13
03:45	7.24	0.83	0.35	0.95	3.13	124.39	2.19
04:00	6.96	0.84	0.34	0.98	3.17	124.36	2.12
04:15	6.97	0.80	0.31	0.95	3.18	126.86	2.24
04:30	6.89	0.79	0.32	0.97	3.24	126.90	2.31
04:45	6.59	0.79	0.36	1.01	3.35	124.68	2.31
05:00	6.29	0.79	0.37	1.00	3.36	124.70	2.17
05:15	6.12	0.73	0.34	1.01	3.40	124.73	2.40
05:30	5.84	0.76	0.37	1.07	3.68	123.41	2.61
05:45	5.88	0.80	0.36	1.04	3.52	119.05	2.46
06:00	5.69	0.80	0.40	1.02	3.54	118.95	2.46
06:15	5.53	0.83	0.40	1.08	3.91	118.91	2.30
06:30	5.41	0.84	0.48	1.14	4.66	118.94	2.24
06:45	5.28	0.87	0.61	1.28	5.45	118.90	2.43
07:00	4.80	0.95	0.64	1.53	5.95	118.90	2.70
07:15	4.62	0.96	0.70	1.84	6.58	120.06	2.67
07:30	4.62	1.02	0.75	1.96	6.66	129.78	2.44
07:45	4.86	1.03	0.77	2.43	7.23	152.25	2.19
08:00	4.87	1.10	0.73	2.73	7.55	152.34	1.98
08:15	5.21	1.05	0.65	2.55	7.29	152.34	1.87
08:30	5.45	1.05	0.62	2.39	7.10	152.05	1.83
08:45	5.82	1.12	0.66	2.10	6.25	152.02	1.83
09:00	6.00	1.16	0.61	1.77	5.45	151.42	1.64
09:15	6.80	1.24	0.56	1.59	5.06	151.51	1.64
09:30	7.04	1.33	0.52	1.48	4.95	157.56	1.61
09:45	7.45	1.39	0.53	1.55	4.94	173.55	1.65
10:00	8.21	1.43	0.50	1.59	5.08	173.59	1.58
10:15	9.50	1.46	0.49	1.55	5.07	173.62	1.59
10:30	10.75	1.48	0.45	1.46	4.74	173.62	1.55
10:45	11.65	1.46	0.40	1.35	4.41	173.28	1.52
11:00	12.26	1.47	0.43	1.41	4.24	173.30	1.53
11:15	13.62	1.47	0.42	1.47	4.18	173.32	1.46
11:30	14.72	1.48	0.46	1.31	4.25	186.01	1.45
11:45	15.70	1.58	0.44	1.40	4.38	228.40	1.57
12:00	16.23	1.59	0.47	1.25	4.23	229.52	1.52
12:15	16.11	1.61	0.43	1.22	3.96	229.48	1.54
12:30	17.61	1.65	0.40	1.17	3.88	229.52	1.52

Contd.

Table A – 106

Average Concentration of Major Ambient Air Pollutants at Sub – urban Area of Karachi

HH:MM	N.Meth. ppm	W.Speed m/sec	W.Dir Deg	Humidity %	Temp. C	BARO m.Bars	Solar W/Sq.m
	8	9	10	11	12	13	14
00:15	0.55	3.45	68.64	71.90	25.90	1,005.40	1.95
00:30	0.54	3.44	60.73	73.90	25.70	1,005.40	2.18
00:45	0.54	3.46	45.73	74.10	25.60	1,005.30	2.40
01:00	0.61	3.38	74.20	70.40	25.50	1,005.20	2.18
01:15	0.58	2.94	86.18	70.60	25.40	1,005.20	2.63
01:30	0.54	3.01	54.73	69.70	25.40	1,005.10	2.18
01:45	0.54	2.93	45.36	69.50	25.50	1,004.90	2.52
02:00	0.58	3.03	62.64	69.70	25.40	1,004.70	2.40
02:15	0.68	2.97	65.64	73.40	25.40	1,004.60	2.51
02:30	0.68	2.88	67.00	73.20	25.60	1,004.60	2.63
02:45	0.67	2.85	75.00	73.60	25.50	1,004.50	2.51
03:00	0.69	2.81	91.82	71.60	25.40	1,004.40	2.40
03:15	0.71	2.55	96.91	72.30	25.30	1,004.40	2.74
03:30	0.72	2.50	125.09	72.80	25.30	1,004.40	2.51
03:45	0.77	2.58	89.73	73.70	25.20	1,004.30	2.40
04:00	0.67	2.59	102.45	74.40	25.00	1,004.20	2.70
04:15	0.69	2.58	101.00	74.40	25.10	1,004.20	2.69
04:30	0.79	2.25	98.27	72.90	25.00	1,004.20	2.91
04:45	0.79	2.18	135.91	73.40	24.90	1,004.20	2.82
05:00	0.74	2.36	100.55	74.50	24.90	1,004.20	2.88
05:15	0.82	2.25	113.09	74.90	24.70	1,004.40	3.28
05:30	0.92	2.35	104.82	75.20	24.40	1,004.40	11.73
05:45	0.96	2.50	92.00	75.60	24.70	1,004.50	12.38
06:00	0.95	2.41	87.91	75.70	24.70	1,004.60	24.63
06:15	0.81	2.55	115.09	78.30	24.70	1,004.70	23.72
06:30	0.75	2.45	101.09	78.70	24.60	1,004.90	25.99
06:45	0.85	2.34	69.18	78.20	24.60	1,005.20	32.78
07:00	0.88	2.48	83.36	78.70	24.60	1,005.30	62.66
07:15	0.90	2.42	81.55	78.90	24.70	1,005.50	88.79
07:30	0.88	2.74	109.45	80.50	24.80	1,005.70	132.33
07:45	0.85	2.85	76.82	79.40	25.20	1,005.90	189.46
08:00	0.71	2.97	92.45	78.60	25.10	1,006.10	251.85
08:15	0.55	3.19	86.82	77.80	25.50	1,006.30	320.76
08:30	0.57	3.53	102.27	75.50	25.90	1,006.60	367.37
08:45	0.57	3.38	102.55	73.40	26.20	1,006.70	428.14
09:00	0.51	3.30	115.91	70.70	26.60	1,007.10	473.50
09:15	0.49	3.49	106.64	68.40	27.00	1,007.10	513.75
09:30	0.51	3.42	105.72	66.80	27.60	1,007.10	560.17
09:45	0.51	3.17	144.02	64.90	28.00	1,007.40	595.73
10:00	0.51	3.35	131.96	62.40	28.50	1,007.50	637.91
10:15	0.48	3.55	113.88	59.60	28.90	1,007.50	677.90
10:30	0.47	3.55	122.05	57.60	29.40	1,007.60	720.91
10:45	0.48	3.43	120.40	55.20	29.90	1,007.50	762.22
11:00	0.46	3.27	162.85	53.30	30.40	1,007.40	796.64
11:15	0.48	3.63	134.98	50.70	30.70	1,007.40	832.63
11:30	0.48	3.63	101.05	50.80	31.20	1,007.20	851.75
11:45	0.57	3.58	123.12	49.90	31.40	1,007.10	873.55
12:00	0.51	3.73	84.35	46.60	31.70	1,006.80	892.60
12:15	0.51	3.86	139.45	45.10	32.00	1,006.70	914.35
12:30	0.49	4.28	161.27	44.50	32.20	1,006.50	928.19

Contd.

Table A – 106

Average Concentration of Major Ambient Air Pollutants at Sub – urban Area of Karachi

HH:MM	Ozone ppb	SO2 ppb	CO ppm	NO ppb	NOx ppb	PM10 µg/m3	Meth. ppm
	1	2	3	4	5	6	7
12:45	18.36	1.63	0.44	1.26	4.03	229.60	1.53
13:00	19.29	1.63	0.43	1.27	4.27	229.59	1.54
13:15	19.90	1.61	0.40	1.22	4.21	229.52	1.54
13:30	19.98	1.42	0.38	1.25	4.07	236.96	1.55
13:45	20.36	1.36	0.42	1.18	4.02	251.72	1.56
14:00	20.09	1.36	0.40	1.29	4.09	251.76	1.55
14:15	20.09	1.35	0.41	1.25	4.06	251.80	1.42
14:30	19.34	1.31	0.40	1.24	3.84	251.80	1.27
14:45	18.93	1.35	0.38	1.24	3.79	251.84	1.25
15:00	18.68	1.34	0.37	1.17	3.70	251.80	1.26
15:15	18.82	1.43	0.37	1.20	3.60	251.84	1.24
15:30	18.86	1.61	0.36	1.28	3.92	246.04	1.14
15:45	18.25	1.54	0.35	1.21	3.95	225.56	1.12
16:00	18.50	1.42	0.36	1.23	3.75	225.60	1.11
16:15	18.23	1.31	0.38	1.15	3.65	225.64	1.11
16:30	18.34	1.24	0.39	1.15	3.75	225.60	1.09
16:45	17.61	1.24	0.42	1.19	4.03	225.64	1.13
17:00	16.94	1.24	0.46	1.22	4.33	225.69	1.14
17:15	15.19	1.25	0.52	1.28	4.73	225.72	1.22
17:30	13.98	1.30	0.55	1.21	4.65	219.52	1.22
17:45	13.21	1.33	0.60	1.28	5.29	205.08	1.21
18:00	11.84	1.38	0.66	1.27	5.47	205.08	1.25
18:15	9.59	1.38	0.69	1.23	5.62	205.08	1.25
18:30	8.95	1.32	0.70	1.29	5.48	205.04	1.27
18:45	7.64	1.29	0.69	1.23	5.65	205.04	1.23
19:00	7.35	1.30	0.75	1.21	6.20	205.00	1.25
19:15	6.36	1.27	0.77	1.25	6.15	205.00	1.25
19:30	6.27	1.38	0.73	1.29	6.20	205.36	1.25
19:45	6.85	1.37	0.68	1.17	5.48	204.20	1.26
20:00	6.65	1.36	0.72	1.13	5.28	204.16	1.27
20:15	6.42	1.34	0.72	1.13	5.42	204.16	1.25
20:30	6.29	1.33	0.67	1.14	5.08	204.12	1.23
20:45	5.77	1.26	0.69	1.07	5.15	204.08	1.24
21:00	5.73	1.28	0.69	1.15	5.31	204.08	1.21
21:15	6.36	1.21	0.61	1.12	4.95	204.08	1.22
21:30	6.13	1.27	0.67	1.10	5.23	185.00	1.23
21:45	5.50	4.69	0.71	1.10	5.04	147.96	1.21
22:00	5.42	3.18	0.68	1.05	4.67	148.20	1.21
22:15	5.46	2.21	0.71	1.10	4.78	148.10	1.23
22:30	5.43	1.64	0.70	1.16	5.08	148.64	1.21
22:45	5.42	2.03	0.69	1.05	5.10	148.64	1.22
23:00	5.62	1.70	0.72	1.16	5.13	148.44	1.29
23:15	6.37	1.40	0.58	1.08	4.59	148.96	1.26
23:30	6.87	1.30	0.53	1.08	4.35	143.09	1.36
23:45	6.67	1.25	0.60	1.15	4.55	143.63	1.42
24:00	7.00	1.19	0.57	1.10	4.61	142.71	1.41
Total Average	9.89	1.29	0.51	1.26	4.60	174.13	1.65
Maximum	20.36	4.69	0.77	2.73	7.55	251.84	2.70
Minimum	4.62	0.73	0.14	0.92	3.10	115.31	1.09

Contd.

Table A–106

Average Concentration of Major Ambient Air Pollutants at Sub–urban Area of Karachi

HH:MM	N.Meth. ppm	W.Speed m/sec	W.Dir Deg	Humidity %	Temp. C	BARO m.Bars	Solar W/Sq.m
	8	9	10	11	12	13	14
12:45	0.52	4.28	179.73	46.00	32.30	1,006.30	927.30
13:00	0.53	4.38	189.98	45.30	32.50	1,006.10	925.50
13:15	0.51	4.73	188.27	44.40	32.60	1,005.80	920.83
13:30	0.52	4.63	183.45	43.70	32.60	1,005.60	909.35
13:45	0.51	4.79	221.00	42.90	32.70	1,005.40	892.17
14:00	0.49	4.82	252.36	42.80	32.70	1,005.20	872.19
14:15	0.51	4.99	262.64	43.70	32.60	1,005.30	846.74
14:30	0.43	4.92	250.36	43.90	32.50	1,004.80	812.53
14:45	0.42	4.91	249.18	43.90	32.40	1,004.60	777.05
15:00	0.41	4.85	284.91	43.60	32.40	1,004.50	732.97
15:15	0.43	5.09	196.36	43.30	32.30	1,004.40	688.08
15:30	0.41	4.87	196.18	42.90	32.30	1,004.30	638.09
15:45	0.41	5.03	228.64	42.40	32.20	1,004.20	591.85
16:00	0.42	5.09	164.64	42.40	32.10	1,004.10	545.85
16:15	0.43	4.97	228.45	43.10	32.00	1,004.00	497.41
16:30	0.44	4.99	259.36	43.70	31.80	1,004.00	442.98
16:45	0.45	4.89	192.18	44.80	31.50	1,004.00	384.56
17:00	0.45	4.96	186.27	46.10	31.20	1,003.90	331.71
17:15	0.46	4.77	248.91	48.10	30.90	1,004.10	271.05
17:30	0.46	4.67	254.09	48.30	30.60	1,004.10	222.18
17:45	0.46	4.68	221.45	49.70	30.10	1,004.10	172.52
18:00	0.49	4.72	193.91	52.00	29.60	1,004.20	122.54
18:15	0.51	4.38	259.73	55.80	29.10	1,004.30	77.43
18:30	0.51	4.53	230.64	59.10	28.50	1,004.40	40.82
18:45	0.47	4.55	226.18	62.70	28.00	1,004.50	16.27
19:00	0.46	4.60	164.18	64.60	27.60	1,004.70	5.02
19:15	0.47	4.55	137.09	65.80	27.40	1,004.90	2.29
19:30	0.47	4.63	111.73	66.30	27.20	1,004.90	2.17
19:45	0.47	4.95	82.64	66.70	27.00	1,005.10	2.40
20:00	0.48	4.73	80.36	67.40	27.10	1,005.30	1.95
20:15	0.48	4.49	84.27	68.20	26.80	1,005.40	2.06
20:30	0.47	4.60	81.73	69.60	26.70	1,005.50	2.06
20:45	0.48	4.39	59.00	70.90	26.50	1,005.60	2.07
21:00	0.44	4.11	56.45	71.60	26.40	1,005.70	2.07
21:15	0.45	4.42	54.18	71.90	26.40	1,005.80	1.95
21:30	0.46	4.25	24.45	71.90	26.30	1,006.10	1.95
21:45	0.49	4.31	33.09	72.70	26.30	1,006.20	2.17
22:00	0.46	4.17	36.55	73.90	26.10	1,006.30	2.08
22:15	0.44	4.10	30.45	73.90	26.00	1,006.40	2.18
22:30	0.42	3.96	65.28	73.10	26.00	1,006.50	2.19
22:45	0.45	3.93	39.92	73.00	26.00	1,006.60	2.21
23:00	0.44	3.80	64.55	73.90	25.90	1,006.60	2.10
23:15	0.41	4.06	72.10	74.40	25.90	1,006.70	2.10
23:30	0.46	3.87	39.59	75.30	25.80	1,006.70	2.57
23:45	0.47	3.88	70.21	75.40	25.80	1,006.70	2.31
24:00	0.46	3.93	96.57	74.80	26.00	1,006.50	2.39
Total Average	0.56	3.75	124.66	63.71	27.81	1,005.44	278.81
Maximum	0.96	5.09	284.91	80.50	32.70	1,007.60	928.19
Minimum	0.41	2.18	24.45	42.40	24.40	1,003.90	1.95

Source: Pakistan Council of Scientific and Industrial Research Laboratories (PCSIR) Complex, Karachi

Table A–107

Mean Concentration of Heavy Metal Accumulation in Soils, compared with Deposits on Leaf and Street Dust in the Urban Area of Karachi, Pakistan

Locations	Soil				*Tarry Deposits on Leaves				**Street Dust			
	Pb ppm	Cu ppm	Mn ppm	Zn ppm	Pb ppm	Cu ppm	Mn ppm	Zn ppm	Pb ppm	Cu ppm	Mn ppm	Zn ppm
Sohrab Goath	196	68	121	194	365	257	426	701	1615	139	159	346
Water Pump	214	90	116	122	704	401	254	572	N.A	N.A	N.A	N.A
Aisha Manzil	152	98	110	103	502	845	437	457	810	87	128	244
Hussain Abad	241	131	145	119	684	442	627	397	2112	115	229	1005
Liaquat Abad Market	231	89	108	106	367	109	427	373	3517	274	321	1217
Liaquat Abad Chowk	209	96	112	92	370	432	341	362	3923	256	386	1181
Dak Khana	215	83	102	111	325	96	192	349	3117	315	331	1640
Teen Hatti	219	95	129	149	491	121	241	552	2722	187	280	1324
Sabil Masjid	250	120	195	136	833	357	623	436	2986	174	319	1448
Numaish	227	94	118	151	526	366	365	455	2798	162	387	764
Quaid–e–Azam Tomb	208	69	102	129	569	100	313	364	2677	181	305	638
Garden Road	239	91	100	116	506	179	296	367	2027	361	427	817
NIPA Chourangi	201	76	86	109	628	329	722	403	1317	46	176	112
Tibet Centre	363	104	136	121	1555	389	379	289	4527	275	481	2215
Denso Hall	98	92	106	108	667	141	386	519	1272	148	132	1095
Tower	92	90	99	181	551	120	297	706	2955	230	327	955
Nazimabad	195	101	101	102	356	310	466	447	3411	198	330	540
Habib Bank	184	86	109	119	351	144	650	575	1212	144	187	897
Empress Market	101	102	191	214	644	218	494	667	2746	185	227	1671
Lesbella Chock	635	196	186	301	1208	556	418	547	N.A	N.A	N.A	N.A
SITE	109	82	96	139	230	149	159	500	N.A	N.A	N.A	N.A
Lee Market	465	110	114	141	1451	512	452	429	2330	210	360	803
Taj Mahal Hotel	349	79	94	91	945	452	331	278	2604	144	375	564
Metropole Hotel	190	85	69	99	231	184	187	255	2445	254	227	270
Shaheen Complex	61	72	97	84	291	145	180	195	N.A	N.A	N.A	N.A
Chamber of Commerce	93	84	89	76	478	261	221	253	3119	227	213	1219
Uni Plaza	272	69	92	69	681	137	211	150	1532	191	210	290
Socity	103	65	86	56	251	191	195	108	1228	57	125	241
Sindhi Muslim	99	58	64	79	250	169	162	180	1030	127	202	286
PIDC House	85	67	81	64	220	147	110	174	N.A	N.A	N.A	N.A
Jodhia Bazar	91	78	91	94	357	167	187	336	N.A	N.A	N.A	N.A
Sir Syed Road	94	60	79	66	289	126	171	103	N.A	N.A	N.A	N.A
PCSIR Laboratory	10	6	12	11	23	12	28	28	4	3.2	4.2	5.5

Source: Pakistan Council of Scientific and Industrial Research Laboratories (PCSIR) Complex, Karachi

Note: * LEAF:A.H.K.Yousufzai, et.al. Submitted for publication in Pak.J. Sci & Ind Res. 09/97

** STREET DUST: A.H.K.Yousufzai, Pak.J. Sci & Ind Res, Vol.34, No.5, 167–172, May 1991.

Table A–108

Average Wave Heights Off Seashore Karachi

(Metres)

Month	1985	1986	1987	1988	1989	1990	1991	1992	1993
January	0.45	0.35	0.55	0.55	0.55	–	0.15	0.67	0.32
February	0.60	0.45	0.60	0.65	0.70	1.40 (b)	0.21	0.72	0.48
March	1.00	0.90	1.00	0.85	(a)	–	0.59	0.75	0.58
April	1.10	1.25	1.10	0.90	1.30	–	0.63	0.89	0.65
May	1.35	(a)	1.40	1.15	1.25	1.45 (b)	0.95	0.77	0.67
June	2.20	2.05	2.05	1.90	2.05	–	1.78	1.42	0.91
July	2.65	2.80	2.75	(a)	2.75	–	2.45	2.05	1.85
August	2.25	2.20	2.25	2.20	2.05	1.70 (b)	2.09	1.80	2.10
September	0.95	1.20	1.25	0.95	1.10	–	1.75	1.54	0.85
October	0.50	0.65	0.60	0.40	0.55	–	0.82	0.41	0.80
November	0.30	0.40	0.30	0.35	0.40	1.65 (b)	0.52	0.31	0.58
December	0.35	0.30	0.35	0.25	0.30	–	0.31	0.25	0.41

Source: National Institute of Oceanography, Karachi

Note: (a) No wave recorded. (b) Average of three months

Table A – 109

Tide Data Off Seashore Karachi

(Metres)

Month	1985			1986			1987		
	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	2.40	0.67	1.51	2.26	0.37	1.44	2.41	0.71	1.37
February	2.50	0.65	1.54	2.42	0.62	1.47	2.63	1.15	1.64
March	2.50	0.76	1.59	–	–	–	2.68	0.80	1.73
April	2.53	0.81	1.66	2.53	0.76	1.62	2.65	0.86	1.74
May	2.62	0.83	1.79	2.54	0.93	1.59	2.70	1.00	1.80
June	2.77	0.83	1.69	2.54	0.87	1.68	2.80	1.14	1.83
July	2.56	0.75	1.64	2.49	0.86	1.52	–	–	–
August	2.53	0.76	1.61	2.45	0.76	1.52	2.59	0.98	1.74
September	–	–	–	2.50	0.71	1.52	2.56	0.82	1.65
October	2.41	0.67	1.52	2.38	0.49	1.43	2.67	0.90	1.77
November	–	–	–	2.50	0.76	1.54	2.62	0.89	1.71
December	2.42	0.68	1.53	2.59	0.76	1.64	2.58	0.88	1.72

Contd.

Table A – 109

Tide Data Off Seashore Karachi

(Metres)

Month	1988			1989			1990		
	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	2.40	0.67	1.51	2.45	0.67	1.56	2.52	0.79	1.66
February	2.50	0.65	1.54	2.55	0.35	1.45	2.50	0.76	1.63
March	2.50	0.76	1.59	2.57	0.35	1.64	2.53	0.74	1.64
April	2.53	0.81	1.66	2.45	0.44	1.44	2.52	0.80	1.66
May	2.62	0.83	1.79	2.67	0.47	1.57	2.53	0.85	1.69
June	2.77	0.83	1.69	2.62	0.41	1.51	2.55	0.86	1.71
July	2.56	0.75	1.64	2.69	0.43	1.56	2.50	0.86	1.68
August	2.53	0.76	1.61	2.58	0.45	1.51	2.45	0.81	1.63
September	–	–	–	2.55	0.42	1.48	2.45	0.75	1.60
October	2.41	0.67	1.52	2.45	0.38	1.41	2.47	0.75	1.61
November	–	–	–	2.55	0.37	1.46	2.49	0.78	1.64
December	2.42	0.68	1.53	2.58	0.37	1.67	2.53	0.78	1.66

Contd.

Table A – 109

Tide Data Off Seashore Karachi

(Metres)

Month	1991			1992			1993		
	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	2.53	0.80	1.67	2.6	0.79	1.65	2.6	0.79	1.65
February	2.49	0.78	1.64	2.45	0.74	1.63	2.4	0.73	1.64
March	2.53	0.76	1.65	2.53	0.77	1.64	2.56	0.77	1.64
April	2.52	0.82	1.67	2.68	0.81	1.67	2.59	0.80	1.67
May	2.53	0.87	1.70	2.83	0.87	1.71	2.73	0.83	1.69
June	2.54	0.89	1.72	2.84	0.87	1.71	2.78	0.85	1.71
July	2.54	0.82	1.68	2.59	0.79	1.68	2.65	0.81	1.67
August	2.51	0.75	1.63	2.36	0.72	1.62	2.44	0.74	1.63
September	2.47	0.73	1.60	2.34	0.71	1.6	2.32	0.71	1.59
October	2.46	0.76	1.61	2.45	0.75	1.61	2.36	0.72	1.60
November	2.49	0.77	1.63	2.6	0.79	1.63	2.51	0.76	1.63
December	2.52	0.78	1.65	2.6	0.79	1.65	2.54	0.77	1.65

Contd.

Table A – 109

Tide Data Off Seashore Karachi

(Metres)

Month	1996			1997			1998		
	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	2.67	0.42	1.55	2.70	0.40	1.55	2.70	0.37	1.53
February	2.62	0.39	1.50	2.68	0.38	1.53	2.68	0.38	1.53
March	2.54	0.46	1.50	2.52	0.42	1.47	2.60	0.40	1.50
April	2.55	0.42	1.50	2.58	0.39	1.48	2.58	0.41	1.49
May	2.63	0.37	1.50	2.61	0.32	1.46	2.59	0.39	1.49
June	2.66	0.27	1.47	2.58	0.25	1.41	2.60	0.30	1.45
July	2.64	0.42	1.53	2.60	0.32	1.46	2.63	0.38	1.50
August	2.57	0.38	1.48	2.59	0.37	1.48	2.56	0.35	1.45
September	2.60	0.40	1.50	2.62	0.41	1.57	2.55	0.33	1.44
October	2.58	0.35	1.46	2.58	0.32	1.45	2.59	0.34	1.46
November	2.56	0.31	1.43	2.56	0.33	1.44	2.55	0.31	1.43
December	2.52	0.32	1.42	2.54	0.31	1.44	2.57	0.33	1.45

Source:– National Institute of Oceanography Karachi

Table A–110

Films Released by Language

(Number)

Year	Number of films released						
	Total	Urdu	Sindhi	Punjabi	Pushto	Saraiaiki	Gujrati
1980	47	23	–	22	2	–	–
1981	76	23	1	45	7	–	–
1982	70	26	–	26	18	–	–
1983	76	17	1	36	22	–	–
1984	67	21	3	43	–	–	–
1985	64	22	4	37	–	1	–
1986	75	27	5	43	–	–	–
1987	85	30	2	29	24	–	–
1988	89	21	4	33	31	–	–
1989	103	22	8	46	27	–	–
1990	84	21	4	36	23	–	–
1991	93	38(a)	–	26	29	–	–
1992	91	26(a)	4	39	22	–	–
1993	88	48(a)	3	14	23	–	–
1994	78	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	–	–

Source: Pakistan Film Producer's Association

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

Table A – 111

Documentary Films Produced/Released

Number

Year	Federal		Punjab		Sindh	
	No.of Films Produces	No.of Films Released	No.of Films Produces	No.of Films Released	No.of Films Produces	No.of Films Released
1979–80	6	6	1	1	5	5
1980–81	10	9	5	4	5	5
1981–82	13	13	4	4	9	9
1982–83	10	10	5	5	5	5
1983–84	11	10	5	4	5	5
1984–85	13	13	5	5	9	9
1985–86	15	15	8	8	9	9
1986–87	12	17	8	8	10	10
1987–88	20	20	14	14	6	6
1988–89	18	18	15	15	6	13
1989–90	14	14	18	20	5	9
1990–91	11	11	32	32	5	5
1991–92	9	9	–	–	3	3
1992–93	14	14	9	9	1	1
1993–94	12	12	37	42	1	1
1994–95	13	10	5	5	4	4
1995–96	16	16	4	4	5	5
1996–97	5	5	3	3	–	2

Year	N.W.F.P.		Balochistan	
	No.of Films Produces	No.of Films Released	No.of Films Produces	No.of Films Released
1979–80	–	–	–	–
1980–81	–	–	–	–
1981–82	–	–	–	–
1982–83	–	–	–	–
1983–84	–	–	–	–
1984–85	–	–	–	–
1985–86	–	–	–	–
1986–87	–	–	–	–
1987–88	8	8	–	–
1988–89	11	11	–	–
1989–90	4	3	–	–
1990–91	1	1	–	–
1991–92	–	–	–	–
1992–93	–	–	–	–
1993–94	1	1	–	–
1994–95	1	1	–	–
1995–96	–	–	–	–
1996–97	–	–	–	–

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

Table A – 112

Dramas and Plays Produced/Released

Number

Year	On Television		On Radio	
	Produced	Telecasted	Produced	Telecasted
1980	414	414	–	–
1981	403	403	–	–
1982	434	434	–	–
1983	514	514	–	–
1984	474	461	–	–
1985	641	641	628	928
1986	605	603	485	829
1987	683	682	419	747
1988	690	686	433	2403
1989	779	784	465	2473
1990	664	695	695	2495
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	N.A	N.A	298	671

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

Table A – 113

Cinemas and Seating Capacity therein by Province

(Number)

Years	PAKISTAN	BALOCHISTAN	N.W.F.P	PUNJAB	SINDH
CINEMAS					
1984–85	609	16	42	342	209
1985–86	609	16	42	341	210
1986–87	600	16	37	345	202
1987–88	593	17	37	347	192
1988–89	585	17	38	343	187
1989–90	576	16	39	340	181
1990–91	585	15	43	346	181
1991–92	583	18	40	348	177
1992–93	574	18	40	343	173
1993–94	563	15	40	344	164
1994–95	545	15	40	327	163
1995–96	545	15	40	327	163
1996–97	512	19	35	306	152
SEATING CAPACITY OF CINEMAS					
1984–85	364,847	8,540	21,586	202,760	131,961
1985–86	361,304	7,840	20,980	202,842	129,642
1986–87	359,895	7,840	20,980	204,550	126,525
1987–88	359,099	7,840	20,980	208,318	121,961
1988–89	358,058	7,840	20,980	209,952	119,286
1989–90	355,571	8,040	20,944	207,489	119,098
1990–91	349,262	8,040	24,939	204,487	111,796
1991–92	328,759	7,743	21,282	195,577	104,157
1992–93	322,795	7,679	20,926	190,640	103,550
1993–94	318,516	7,679	20,926	188,952	100,959
1994–95	317,061	7,679	20,111	187,987	101,284
1995–96	317,431	7,629	20,531	187,987	101,284
1996–97	304,439	9,870	20,263	177,556	96,750

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

Note: Federal Capital Areas Islamabad included in Punjab.

Table A – 114

Visitors, Type of Attraction, Total Expenditure and Income by Zoo

Year	No of visitors		Type of attractions		Total expenditure (Per annum) Rs.	Total income (Per annum) Rs.
	Adult	Minor	Animals	Birds		
Karachi Zoo						
1980–81	909,000	606,000	153	249	731,414	1,264,375
1981–82	1,102,000	735,000	168	430	819,191	519,211
1982–83	1,212,500	815,000	179	474	1,208,356	1,756,279
1983–84	1,305,000	870,000	180	588	1,496,210	1,734,000
1984–85	1,410,000	940,000	158	559	1,563,551	1,800,000
1985–86	801,250	535,500	189	897	1,472,050	961,451
1986–87	1,579,349	1,052,899	165	937	1,753,347	1,533,614
1987–88	1,831,458	915,731	161	640	2,205,959	1,646,559
1988–89	1,314,504	875,003	121	632	1,514,573	1,498,758
1989–90	2,230,926	1,376,930	154	599	1,984,481	2,202,223
1990–91	1,402,510	923,156	162	681	7,691,859	3,775,572
1991–92	1,968,204	270,767	189	703	1,600,000	4,180,710
1992–93	2,372,103	507,725	190	719	3,910,625	4,241,641
1993–94	2,092,725	375,903	173	694	3,900,000	10,122,534
1994–95	1,774,902	307,904	171	603	5,000,000	10,052,298
1995–96	N.A	N.A	N.A	N.A	N.A	N.A
1996–97	N.A	N.A	N.A	N.A	N.A	N.A
Hyderabad Zoo						
1980–81	17,115	53,500	–	–	269,718	34,230
1981–82	450,605	135,350	–	–	284,560	90,171
1982–83	480,545	145,635	–	–	541,994	97,090
1983–84	54,453	217,815	–	–	425,843	136,134
1984–85	71,500	143,000	–	–	354,868	107,250
1985–86	32,985	98,955	–	–	390,635	131,941
1986–87	28,165	45,065	–	–	325,518	135,192
1987–88	162,000	63,000	70	150	426,300	212,800
1988–89	243,000	70,000	80	160	400,000	350,000
1989–90	25,000	50,000	87	111	936,000	67,568
1990–91	120,000	135,000	75	23	1,361,000	83,500
1991–92	98,228	230,000	140	189	1,446,880	164,114
1992–93	110,000	260,000	140	189	916,000	185,000
1993–94	56,451	131,718	140	189	1,597,000	564,508
1994–95	54,323	253,512	140	189	1,179,728	434,593
1995–96	100,000	400,000	71	287	1,200,000	720,000
1996–97	N.A	N.A	N.A	N.A	N.A	N.A

Contd.

Table A – 114

Visitors, Type of Attraction, Total Expenditure and Income by Zoo

Year	No of visitors		Type of attract		Total expenditure (Per annum)Rs.	Total income (Per annum) Rs.
	Adult	Minor	Animals	Birds		
Bahawalpur Zoo						
1980–81	431,809	60,101	100	507	731,042	584,477
1981–82	422,452	46,691	117	468	907,420	547,036
1982–83	438,034	35,718	121	512	1,118,219	647,800
1983–84	434,133	42,408	131	562	1,183,169	718,060
1984–85	374,203	66,903	149	556	1,278,750	957,054
1985–86	407,600	67,900	162	636	1,463,757	1,050,838
1986–87	499,600	84,800	170	640	1,716,383	1,243,540
1987–88	552,774	103,141	152	446	2,000,217	1,666,043
1988–89	485,159	106,978	153	388	2,379,806	1,967,579
1989–90	456,156	99,117	150	340	2,412,180	2,338,559
1990–91	431,629	113,413	162	466	1,539,200	2,301,330
1991–92	409,498	106,887	157	460	2,193,820	2,081,770
1992–93	382,110	102,180	161	431	2,622,010	1,959,760
1993–94	397,160	115,770	153	436	2,822,840	2,574,840
1994–95	406,925	103,607	151	364	2,750,000	2,646,520
1995–96	383,276	90,845	168	374	3,144,470	2,753,210
1996–97	333,542	86,442	164	360	3,249,990	2,591,870
1997–98	290,627	85,487	168	306	3,600,000	2,833,990
Lahore Zoo						
1980–81	1,219,338	378,758	228	700	1,014,159	2,379,259
1981–82	1,303,778	403,340	283	712	960,463	2,566,104
1982–83	1,274,043	404,834	255	602	1,052,777	2,915,993
1983–84	1,169,972	387,266	254	681	1,087,567	3,734,234
1984–85	1,222,915	424,081	292	734	1,144,444	4,497,242
1985–86	111,928	44,090	280	659	101,405	474,851
1986–87	1,254,711	419,343	236	635	1,714,525	3,967,342
1987–88	1,243,288	446,242	213	505	4,531,820	5,899,160
1988–89	1,190,181	458,349	227	559	9,174,875	7,317,670
1989–90	1,279,420	470,745	220	578	8,148,218	8,780,496
1990–91	1,315,793	501,073	231	661	7,210,039	8,677,828
1991–92	1,315,793	501,073	231	661	7,706,200	8,199,190
1992–93	1,440,207	506,838	317	631	8,125,100	10,132,620
1993–94	1,513,487	530,666	484	524	8,953,500	10,672,920
1994–95	1,761,851	601,667	444	421	10,569,440	16,265,020
1995–96	1,681,865	584,153	441	450	13,641,380	18,426,680
1996–97	1,704,246	633,047	338	400	12,068,828	17,855,440
1997–98	1,581,826	590,054	400	446	13,268,400	24,101,820

Source Zoological Garden, Karachi, Hyderabad, Bahawalpur and Lahore

B - Environmental Impacts of Socio-economic Activities and Natural Events

Section B

Environmental Impacts of Socio-Economic Activities and Natural Events

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

B-I Human Settlements

According to 1981 Population Census, there were 415 urban localities with different population sizes varying from 25 thousand to more than 100 thousand and there were more than 45 thousands villages in the rural areas, where, about 70 percent of the population was living during 1981. The number of urban localities which were 238 in 1951 Census has increased to 415 in 1981, indicating an increase of 74 percent during last 30 years. The population growth rate in urban areas is considerably higher (4.4%) as compared to rural areas (2.41%) during 1972-81. If this trend of urbanization continued it is expected that the urban population will exceed to rural population by 2015. In the rural areas about 20 percent of the villages in 1981 had more than 2000 population, whereas, 61 percent of the villages had population between 200 to 2000. The sizes of rural settlements varies from region to region.

There were only ten cities in 1951 which had population of 100 thousand or more, whereas, in 1981 the number of such cities increased to 31. Among these, eight cities had more than 500 thousand population and shared more than 50 percent of urban population. The urban growth is mostly concentrated in four cities, according to 1998 Population Census Karachi alone account for 21.8 percent of the total urban population, whereas, the remaining nine cities shared 33 percent. The big cities are also facing problems of illegal settlements i.e. Kachi Abadies around the cities. These Kachi Abadies do not have proper drainage and sanitation system, roads, water supplies and other facilities. In Karachi the share of Kachi Abadies is higher as compared to other cities. It is mainly due to more migration of population from different parts of the country for employment purposes. Despite of high investment in urban areas of the country, there are shortages of basic human needs, specially in the Kachi Abadies.

Table B-I Number and Type of Urban Localities by Size and Urban Population: 1951-81

Census Year/Urban Locality	Number of Localities by Size					Urban Population (000)	
	Total	Less than 25000	25000 to 49999	50000 to 99999	One Lac and over	Population	Percent
1951	238	196	23	9	10	6,019	17.8
1961	337	280	31	14	12	9,655	22.52
1972	430	332	52	22	24	16,594	25.41
1981	415	276	73	35	31	23,841	28.30
CENSUS-1981							
Municipal area of Islamabad	1	–	–	–	1	204	0.86
Metropolitan Corporation	1	–	–	–	1	490	20.56
Municipal Corporations	11	–	–	–	11	7,701	32.30
Municipal Committees	103	11	47	31	14	5,780	24.24
Town Committees	262	247	15	-	-	3,576	15.00
Cantonments	37	18	11	4	4	1,679	7.04

Source: Population Census Organization.

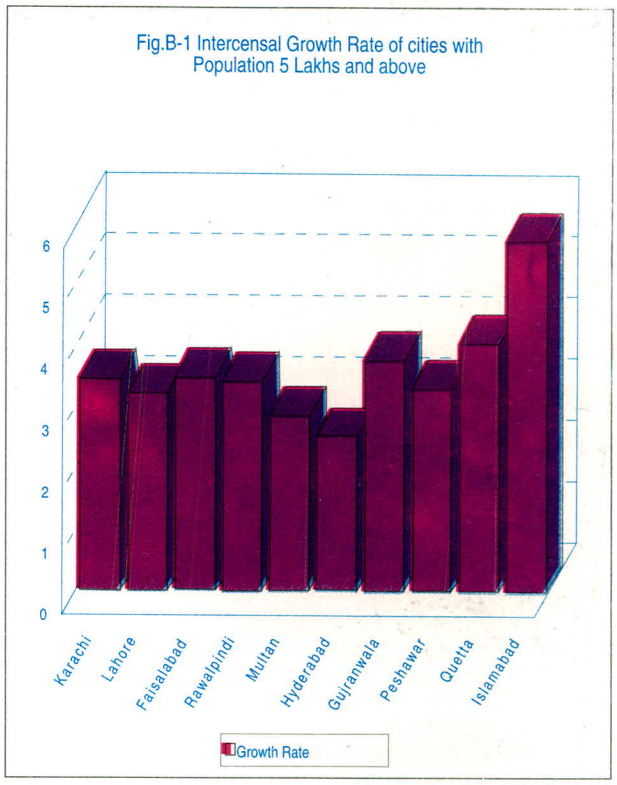
The following table indicates that Population of big cities have increased tremendously during the intercensal period 1981-1998. An analysis of data also indicates that the growth was highest in Islamabad (157%), during last 17 years, followed by Quetta (96%), Gujranwala (87%), Faisalabad (79%), Karachi (78%), Rawalpindi (77%), Peshawar (74%),Lahore (71%), Multan (62%) and Hyderabad (53%).

The high growth in Islamabad and Quetta as compared to other cities is mainly due to the reason that most of the employment opportunities at Federal level are at Islamabad, whereas Quetta being capital of Balochistan and developed city having most of the economic activities of the province attracts the population.

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

Name of Cities	Population 1981 Census	Population 1998 Census	Annual Growth Rate (1981-98)
Karachi	5,208,132	9,269,265	3.45
Lahore	2,952,689	5,063,499	3.22
Faisalabad	1,104,209	1,977,246	3.48
Rawalpindi	794,843	1,406,214	3.41
Multan	732,070	1,182,441	2.86
Hyderabad	751,529	1,151,274	2.54
Gujranwala	600,993	1,124,749	3.75
Peshawar	566,248	988,005	3.33
Quetta	285,719	560,307	4.04
Islamabad	204,364	524,500	5.70

Source: Population Census Organization



B-II Population Growth and its Pressure on Resources

Pakistan has large population, modest resources and low technology. The available resources are either not fully developed nor properly being used. The first doubling of population took place in 21 years from 1951 to 1972 and during 1972 to 1981 the population increased by 28.3 percent and the increase was about 55 percent during 1981-98 and it is expected to become 137.5 million in 2000 with the average annual growth rate of 2.61 percent.

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

B-II.i Water Supply and Sewerage

According to Pakistan Integrated Household Survey, 1996-97 about 60 percent of the urban population has access to the tap water, 29 percent are using ground water, whereas about 10 percent of the urban population do not have access to safe drinking water. In contrast to this only 11 percent of the rural population has access to tap water, 62 percent are using ground water and about 27 percent of the rural population do not have access to safe drinking water.

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

B-II.ii Salinity and Waterlogging

The agricultural land particularly in two provinces Punjab and Sindh are faced with acute problems of salinity and water logging. This is the outcome of perennial canal irrigation system which was introduced to overcome aridity problem. As a consequence of seepage of water from the unlined canals and the percolation of water from irrigated fields , the water table began to rise. The water table depth raised from 152 cms to 305 cms during June, 1995 in 2055 thousand hectares to 8212 thousand hectares and the same increasing trend is observed during October, 1995 i.e from 4984 thousand hectares to 9244 thousand hectares. Sindh is the worst affected province (Table B-25).

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

B-II.iii Water Pollution

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

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

B-III Wastewater Discharges

B-III.i Domestic and Human Waste Water Discharges

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

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

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

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

B-III.ii Industrial Waste Water Discharges

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

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

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

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

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

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

Another area of concern is the contamination of shallow groundwater in urban areas near industrial plants as industrial wastes are discharged directly into or onto the ground. Groundwater pollution is often permanent, in that hundreds or even thousands of years may be necessary for pollutants such as toxic metals

from tanneries to be flushed out of a contaminated aquifer. Surface waters, on the other hand, can be rehabilitated if pollutant loadings are reduced or eliminated (PNCS, 94).

B-IV Air Pollution

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

Table B-III Estimated Air Pollutants from Various Economic Sectors

(Thousand tonnes)

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

Source: NCS Sector Paper on Energy N.A = Not applicable

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

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

B-V. Agricultural Run-off

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

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

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

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

STATISTICAL TABLES

TAble B–01

Area under Agricultural Crops and Fruits
Indices (1980–81=100)

Year	Rice	Wheat	Bajra	Jowar	Maize	Barley	Gram	Masoor
1980–81	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1981–82	102.2	103.4	137.8	99.7	96.1	85.4	107.0	101.8
1982–83	102.3	105.9	107.9	99.0	102.7	101.4	105.9	113.2
1983–84	103.4	105.1	136.2	99.3	103.8	77.1	109.1	67.1
1984–85	103.4	103.9	149.2	100.3	105.2	73.2	120.3	67.5
1985–86	96.4	106.0	138.2	94.6	104.5	72.8	122.6	79.0
1986–87	106.9	110.3	125.4	101.4	106.1	70.3	128.4	111.1
1987–88	101.5	104.6	72.1	81.3	111.0	55.9	97.4	104.5
1988–89	105.6	110.7	125.6	109.6	112.6	61.2	116.2	103.9
1989–90	109.0	112.3	126.0	111.8	112.2	59.6	122.8	93.4
1990–91	109.3	113.3	120.8	105.8	109.9	60.4	129.5	87.2
1991–92	108.5	112.8	77.1	97.3	110.2	57.4	118.3	80.7
1992–93	102.1	118.8	120.1	102.5	112.8	61.5	119.5	87.3
1993–94	113.1	115.0	74.6	92.7	114.2	58.1	124.0	70.8
1994–95	109.9	117.0	125.3	111.4	115.7	63.6	126.3	83.9
1995–96	111.8	119.9	100.2	106.2	114.5	66.2	132.7	90.1
1996–97	116.5	116.1	74.6	93.9	113.3	58.6	130.5	95.6
1997–98	119.9	119.6	113.3	99.2	113.0	62.7	130.8	89.1

Year	Mash	Mung	Other Pulses (a)	Rapeseed & mustard	Sesa–mum	Linseed	Ground–nut	Cotton
1980–81	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1981–82	97.5	97.9	99.7	93.7	97.1	91.5	128.4	105.0
1982–83	108.2	117.9	95.6	92.4	64.6	78.5	149.0	107.3
1983–84	104.4	135.8	85.5	75.1	50.8	81.5	156.1	105.3
1984–85	122.9	139.7	82.0	83.2	77.6	87.9	127.1	106.3
1985–86	130.2	155.5	73.5	84.1	85.0	97.9	118.1	112.1
1986–87	113.6	170.4	64.8	72.6	75.3	92.0	135.1	118.8
1987–88	109.7	140.4	51.6	64.5	40.8	82.6	143.0	121.8
1988–89	115.1	144.2	53.6	80.0	56.5	86.2	146.5	124.2
1989–90	125.5	214.6	56.6	73.6	85.5	81.1	172.3	123.2
1990–91	116.0	211.3	54.6	72.8	120.0	76.6	177.6	126.3
1991–92	116.4	187.8	49.7	68.7	157.6	81.7	191.2	134.5
1992–93	112.3	219.1	48.6	68.2	186.4	77.8	203.9	134.5
1993–94	94.6	250.6	39.6	64.4	165.8	71.0	197.8	133.0
1994–95	80.2	268.2	41.8	72.1	181.9	72.1	207.7	125.8
1995–96	85.3	297.2	41.8	76.6	202.9	77.5	220.0	142.2
1996–97	84.2	287.2	35.5	84.9	225.6	77.5	225.4	149.3
1997–98	71.8	291.8	35.0	81.2	217.9	74.7	232.0	140.4

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

Contd.

TAble B-01

Area under Agricultural Crops and Fruits
Indices (1980-81=100)

Year	Jute	Sunhemp	Sugar cane	Tobacco	Potato	Vegetables (b)	Garlic	Chillies
1980-81	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1981-82	92.1	102.9	114.8	100.5	119.2	103.6	110.2	92.5
1982-83	87.2	97.1	110.5	96.3	135.5	116.9	130.6	98.9
1983-84	98.0	95.2	108.7	107.7	130.5	121.8	130.6	108.4
1984-85	86.5	87.6	109.6	117.0	143.4	121.6	132.7	105.0
1985-86	46.6	81.0	94.6	106.3	165.5	130.8	134.7	106.9
1986-87	48.0	70.5	92.4	90.9	159.2	150.1	140.8	100.9
1987-88	53.2	74.3	102.0	97.0	152.9	155.3	149.0	94.7
1988-89	16.9	62.9	106.3	100.7	168.2	160.8	146.9	90.0
1989-90	9.6	73.3	103.6	95.3	210.5	167.2	116.3	110.9
1990-91	22.1	57.1	107.2	102.3	189.5	168.9	128.6	96.3
1991-92	7.1	51.4	108.7	125.4	198.9	174.2	149.0	131.7
1992-93	0.5	48.6	107.3	135.7	200.0	180.8	155.1	70.9
1993-94	3.6	39.0	116.7	133.8	208.7	188.0	157.1	130 8
1994-95	3.5	37.1	122.3	110.5	208.7	198.9	173.5	135.2
1995-96	2.3	36.2	116.8	107.5	207.6	169.9	185.7	134.7
1996-97	2.3	32.4	117.0	114.2	225.8	174.6	173.5	136.3
1997-98	2.3	29.5	128.1	124.2	275.5	176.3	179.6	141.3

Year	Onion	Citrus Fruit	Banana	Mango	Apple	Guava	Grapes	Dates
1980-81	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1981-82	100.5	124.9	102.7	114.3	104.4	157.2	104.0	115.3
1982-83	104.9	132.0	102.7	118.5	113.2	198.3	108.0	126.0
1983-84	109.7	144.1	104.1	124.1	116.7	213.3	112.0	133.9
1984-85	111.6	152.6	106.1	127.6	129.8	223.1	112.0	136.8
1985-86	114.4	158.4	108.8	131.6	151.8	243.4	112.0	159.9
1986-87	118.3	162.4	153.4	135.7	162.3	243.9	116.0	166.9
1987-88	128.2	168.0	155.4	138.8	167.5	266.5	116.0	166.5
1988-89	133.8	180.1	156.1	140.2	191.2	264.2	128.0	170.7
1989-90	135.6	181.1	158.8	144.6	196.5	267.1	128.0	172.7
1990-91	135.6	183.4	153.4	149.3	200.0	271.1	128.0	173.6
1991-92	148.1	186.5	76.4	150.3	243.9	284.4	140.0	175.2
1992-93	156.5	186.5	83.1	146.2	275.4	292.5	152.0	170.2
1993-94	162.7	195.8	84.5	148.3	346.5	306.4	324.0	302.5
1994-95	173.1	201.8	162.2	154.4	354.4	314.5	328.0	303.7
1995-96	180.3	204.9	166.9	156.5	366.7	319.7	336.0	305.4
1996-97	187.0	205.7	169.6	158.0	381.6	323.7	340.0	307.9
1997-98	188.4	205.6	175.7	162.2	391.2	328.3	348.0	310.3

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

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

Table B – 02

Production of Agricultural Crops and Fruits
Indices (1980–81=100)

Year	Rice	Wheat	Bajra	Jowar	Maize	Barley	Gram	Masoor
1980–81	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1981–82	109.8	98.5	127.3	97.7	95.9	89.7	87.2	106.4
1982–83	110.3	108.2	102.8	96.6	103.6	105.6	145.7	101.4
1983–84	106.9	94.8	119.7	96.6	104.4	79.5	154.9	73.6
1984–85	106.1	102.0	132.6	100.3	105.9	75.0	155.4	88.1
1985–86	93.5	121.3	120.7	95.1	104.0	76.2	174.0	106.1
1986–87	111.6	104.7	108.7	102.5	114.5	76.5	173.1	110.2
1987–88	103.8	110.5	63.2	78.6	116.1	63.7	110.3	104.7
1988–89	102.5	125.7	93.9	108.0	124.1	69.8	135.4	111.2
1989–90	103.1	124.8	95.4	114.1	121.5	74.8	166.8	101.4
1990–91	104.4	126.9	91.5	104.0	122.1	80.9	157.6	92.2
1991–92	103.8	136.7	64.8	97.7	124.0	79.7	152.2	88.5
1992–93	99.8	140.8	94.9	103.7	122.0	90.2	103.1	95.6
1993–94	127.9	132.6	64.3	92.4	125.0	83.0	121.9	85.1
1994–95	110.4	148.2	106.6	114.6	135.8	93.4	165.8	105.1
1995–96	127.0	147.3	75.5	110.9	132.3	99.4	201.7	115.3
1996–97	137.8	145.1	68.0	95.4	129.8	85.5	176.4	118.6
1997–98	138.7	162.9	98.7	100.7	128.9	99.2	227.7	125.8

Year	Mash	Mung	Other Pulse (a)	Rapeseed & mustard	Sesamum	Linseed	Ground nut	Cotton (000 bales)
1980–81	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1981–82	96.8	99.4	100.0	94.6	90.7	90.8	125.8	104.7
1982–83	107.1	124.5	96.1	97.4	59.0	78.5	146.5	115.3
1983–84	116.2	131.4	90.4	85.9	48.1	76.9	153.3	69.2
1984–85	139.5	140.3	89.3	93.0	73.8	80.0	120.4	141.2
1985–86	144.0	153.5	77.0	99.0	81.4	86.2	109.9	170.3
1986–87	114.5	173.9	66.9	84.4	68.3	81.5	130.7	184.7
1987–88	103.2	136.2	49.4	80.9	39.3	70.8	90.8	205.5
1988–89	95.0	129.2	50.0	98.6	55.2	73.8	135.2	199.6
1989–90	116.2	179.2	53.4	92.3	83.1	69.2	142.3	203.8
1990–91	108.6	177.7	51.1	90.4	116.9	63.1	155.7	229.2
1991–92	109.4	160.1	47.8	87.0	156.8	67.7	167.4	305.2
1992–93	89.4	195.3	44.9	81.9	185.8	63.1	176.1	215.5
1993–94	84.4	217.9	37.1	78.2	176.5	60.0	167.1	191.4
1994–95	79.4	251.6	41.6	90.9	197.8	63.9	184.1	207.0
1995–96	83.8	284.9	43.3	100.8	215.8	70.8	196.5	252.2
1996–97	83.8	281.4	37.1	113.1	245.4	70.8	204.5	223.1
1997–98	76.1	279.6	37.1	115.3	232.2	69.2	195.6	218.6

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

1 bale = 375 Lbs

Contd.

Table B-02

Production of Agricultural Crops and Fruits
Indices (1980-81=100)

Year	Jute	Sunhemp	Sugar cane	Tobacco	Potato	Vegetables (b)	Garlic	Chillies
1980-81	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1981-82	104.2	100.0	113.0	103.0	120.9	104.3	112.5	94.0
1982-83	97.1	97.1	100.5	96.3	131.4	116.3	139.0	97.7
1983-84	115.2	98.6	106.0	118.5	129.3	123.7	139.3	91.2
1984-85	97.5	91.3	99.3	129.8	137.8	123.0	143.6	90.8
1985-86	57.0	84.1	86.1	116.5	156.8	133.3	147.4	93.0
1986-87	71.4	73.9	92.5	103.0	150.7	158.3	154.7	87.0
1987-88	69.0	65.2	102.1	103.4	142.8	162.5	164.5	79.4
1988-89	22.9	56.5	114.3	110.0	163.5	169.5	164.8	70.1
1989-90	11.8	69.6	109.7	101.3	210.7	177.5	130.9	118.2
1990-91	27.6	53.6	111.2	111.6	190.5	178.0	144.7	95.0
1991-92	8.8	49.3	120.1	144.8	218.1	185.6	169.6	134.0
1992-93	0.6	47.8	117.6	151.2	236.6	194.8	179.4	70.9
1993-94	4.8	37.7	137.3	149.1	267.9	203.3	179.9	133.2
1994-95	4.7	37.7	145.8	120.4	280.2	216.8	208.4	89.4
1995-96	3.5	36.2	139.8	118.9	269.7	179.6	223.6	127.9
1996-97	3.5	31.9	129.8	136.3	244.4	184.5	206.2	131.9
1997-98	3.5	29.0	164.1	146.7	244.3	190.2	216.3	132.0

Year	Onion	Citrus fruits	Banana	Mango	Apple	Guava	Grapes	Dates
1980-81	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1981-82	100.9	125.2	100.5	119.2	106.2	159.8	100.0	110.5
1982-83	106.1	134.4	102.8	124.9	119.7	204.3	99.6	115.2
1983-84	112.5	140.4	103.1	123.1	119.3	222.9	100.8	118.9
1984-85	115.0	148.2	104.5	126.6	132.8	233.0	102.7	120.7
1985-86	124.8	154.9	107.0	130.5	154.6	253.0	109.2	138.4
1986-87	128.9	158.4	154.6	134.8	182.1	252.1	112.6	142.4
1987-88	141.4	152.4	157.3	130.4	197.4	271.3	116.4	142.5
1988-89	158.0	169.0	156.9	134.5	200.3	275.3	119.5	145.1
1989-90	159.3	170.2	160.4	140.1	216.4	281.0	124.4	146.4
1990-91	156.9	173.7	154.3	142.0	226.3	287.5	125.2	148.0
1991-92	180.7	176.0	33.8	144.0	275.0	301.9	135.5	150.9
1992-93	190.7	179.8	39.8	145.2	315.6	310.7	143.5	141.8
1993-94	203.6	199.7	40.7	153.5	411.9	325.5	153.8	298.1
1994-95	226.3	208.7	60.8	161.7	496.4	340.0	163.7	273.8
1995-96	245.2	211.6	62.5	166.1	515.4	357.3	274.8	274.3
1996-97	252.7	216.2	63.6	167.3	529.3	362.2	282.8	275.3
1997-98	252.7	219.9	71.6	167.7	533.6	368.0	283.6	276.9

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

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

Table B-03

Quantity and Value of Export of Major Agricultural Commodities

(Quantity in '000' tonnes)
(Value in million Rs.)

Year	1993-94		1994-95		1995-96		1996-97	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
A. Raw Items								
Raw Cotton	76.6	2,391.6	33.6	1,957.6	313.5	17,458.8	25.2	1,285.9
Cotton Waste	100.2	1,680.6	84.3	1,728.2	72.6	1,696.2	74.4	1,491.0
Raw Wool	8.4	306.9	8.3	427.5	9.1	498.6	10.8	647.6
Fish	67.2	4,631.3	61.4	4,748.7	64.5	4,679.5	78.1	5,801.8
Rice	984.3	7,318.9	1,852.3	14,025.6	1,600.5	17,141.0	1,767.2	18,453.0
Basmati	305.7	3,799.7	452.3	5,677.6	716.4	9,937.6	457.2	7,982.3
Others	678.6	3,519.2	400.0	8,348.0	884.1	7,203.4	1,310.0	10,470.7
Fruits	127.5	1,324.3	138.6	1,256.5	135.1	1,486.1	218.8	2,775.7
N.Honey	0.1	4.0	1.2	9.9	1.1	23.8	0.6	43.9
Vegetables	1.6	7.8	0.9	6.9	1.3	14.2	2.2	18.2
Potato	3.5	9.1	6.3	15.9	1.5	2.7	0.1	0.5
Onion	28.8	120.3	5.6	21.7	11.9	45.9	18.7	79.8
Chillies	3.4	103.0	1.1	38.9	–	–	0.8	51.2
Other Spices	5.3	214.9	5.1	225.5	3.9	193.5	4.6	296.9
Caster Oil Seed	4.2	31.9	2.8	36.1	2.2	27.9	0.7	9.9
Cummin Seed	0.2	5.3	0.5	11.9	3.2	120.8	2.3	89.1
Poppy Seed	9.0	144.9	6.7	113.9	3.4	56.0	1.9	35.2
Fish Meal	1.7	12.6	1.3	11.6	1.2	14.9	1.4	15.3
Corriander seed	0.2	7.9	0.2	7.6	0.3	14.7	*	2.0
Live Animals & Animal Products	–	76.2	–	67.3	–	71.0	–	64.1
Bones	20.8	111.6	29.0	148.1	30.7	229.7	31.6	296.1
Sub-Total (A):		25,822.0		38,885.0		60,916.3		49,910.2

Contd.

Table B–03

Quantity and Value of Export of Major Agricultural Commodities

(Quantity in '000' tonnes)
(Value in million Rs.)

Year	1993–94		1994–95		1995–96		1996–97	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
B. Semi Manu–factured Items								
Cotton yarn	578.5	38,074.8	522.1	47,190.6	535.9	52,164.2	508.2	55,239.0
Leather (M.sq.M)	16.2	6,741.2	17.9	8,351.0	16.2	8,627.0	14.1	9,186.0
Molasses	1,729.9	2,504.6	1,717.8	2,797.5	1,029.8	2,388.5	1,056.1	2,021.8
Hena leave & Powder	0.3	10.1	0.3	11.9	0.2	8.7	0.3	17.3
Animal casings	0.5	225.6	0.6	370.7	0.7	560.7	0.7	593.6
Tobacco & To–bacco products.	–	133.1	–	185.2	–	90.5	–	95.3
Sub–Total (B):		2,873.4		3,365.3		3,048.4		2,728.0
C. Manufactured Items								
Sport goods	–	6,038.5	–	8,193.4	–	8,401.4	–	12,146.3
Cotton thread	1.1	119.6	0.4	58.6	0.3	49.8	0.3	60.6
Woolen carpets (M.sq.M)	2.8	4,502.1	3.0	6,007.4	3.2	6,972.3	3.1	7,585.3
Guar & Gaur Products	56.1	918.6	54.4	901.5	61.3	1,447.2	39.0	1,252.6
Cotton cloth (M.sq.M)	654.8	16,454.5	–	20,587.0	–	20,500.9	–	23,598.3
Foot–wears (M.Pairs)	–	883.1	–	1,285.4	–	1,514.0	–	1,920.8
Readymade garments	–	26,908.6	–	32,659.0	–	36,877.9	–	45,401.5
Tents	10.9	625.7	9.6	678.0	9.8	811.6	10.6	1,008.1
Towels	30.3	3,894.4	30.6	4,466.3	35.7	5,861.0	40.9	7,565.4
Miscellaneous	–	26,167.5	–	31,934.5	–	31,641.5	–	38,523.8
Sub–Total (C):		80354.5		98519.1		105626.4		126855.8
Total (A+B+C)		109049.9		140769.4		169591.1		179494.0
Total Exports		205499.4		251173.1		294741.2		325313.5

Source: Federal Bureau of Statistics

Table B – 04
Import of other Agricultural Commodities

(Quantity 000 Tonnes)
(Value in Million Rupees)

Item	1993–94		1994–95		1995–96		1996–97	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Tea	116.1	5,619.0	116.6	5,793.6	114.8	5,706.7	85.4	5,218.3
Coffee	0.04	5.2	0.07	6.2	0.1	26.4	0.2	16.7
Fruit	41.9	1,092.0	96.3	1,316.2	130.7	1,625.2	133.0	1,924.2
Natural Honey	0.2	9.7	0.2	9.3	0.2	17.3	0.1	10.5
Vegetables	9.7	290.8	60.6	403.4	86.8	540.0	59.0	577.1
Potato fresh & Chil.	3.3	3.6	1.0	1.0	6.2	18.0	7.2	18.4
Wool	4.0	307.8	4.0	315.0	3.8	366.8	2.6	326.4
Jute	70.2	529.4	87.1	721.9	59.8	842.3	80.0	1,166.4
Rubber (N.S)	4.3	108.6	3.9	149.0	13.8	683.3	13.1	635.5
Natural Rubber	24.4	656.5	21.8	790.4	15.8	735.3	17.6	776.3
Tobacco & products	–	3.1	–	5.6	–	6.9	–	52.6
Betal leave/nut	27.6	916.1	28.8	1,054.1	32.6	1,341.7	35.4	1,558.2
Sugar refined	47.8	445.1	5.0	65.7	3.3	51.2	680.9	9,859.6
Pulses	184.2	1,470.0	235.0	2,381.6	285.0	3,342.3	112.3	1,645.1
Ginger	20.4	171.6	18.3	193.8	42.9	347.6	23.8	375.4
Garlic	4.4	70.8	5.9	95.4	0.3	5.9	*	0.3
Millet unmilled	–	–	*	0.3	2.4	*	*	1.0
Corriander seed	3.7	15.6	2.4	10.9	3.3	17.4	6.7	34.8
Cumin seed	2.7	27.9	0.5	4.5	2.3	20.0	1.6	14.7
Copra	9.4	170.0	11.9	236.1	8.6	224.5	8.3	290.1
Tallow animals	70.4	874.1	47.3	743.5	54.2	1,171.5	36.0	730.3
Spices (other)	6.6	263.6	8.7	455.6	5.2	273.1	10.7	405.3
Potatoes seed	1.0	12.0	0.4	8.4	1.2	29.8	3.9	111.4
Seed clover	8.9	194.5	3.1	68.4	6.4	157.6	7.1	205.8
Seed flower	0.1	7.1	*	0.4	*	0.1	*	0.3
Seed grass	*	0.2	–	–	–	–	*	0.5
Seed vegetable	4.4	177.0	2.8	144.3	4.8	294.0	2.5	236.2
Seed fruit/spor for sowing	0.3	3.0	0.4	2.6	0.7	8.3	1.1	55.6
Total		13,444.3		14,977.2		17,853.2		26,247.0
Total Imports		258,250.1		320,892.0		397,575.0		465,001.2

Source: Federal Bureau of Statistics
Note: (*) Nominal.

Table B – 05

Import of Edible Oil

(Quantity in Tonnes)

(Value in 000 Rupees)

Year	Quantity			Value		
	Soyabean	Palm oil	Total	Soyabean	Palm oil	Total
1985–86	238.6	576.1	814.7	3,221.2	3,701.8	6,923.0
1986–87	248.9	437.7	686.6	1,702.3	2,150.1	3,852.4
1987–88	500.3	458.3	958.6	4,035.2	3,193.4	7,228.6
1988–89	383.7	475.0	858.7	4,439.8	3,962.4	8,402.2
1989–90	343.2	597.1	940.3	3,863.4	4,119.6	7,983.0
1990–91	271.7	687.9	959.6	3,760.7	5,259.6	9,020.3
1991–92	160.3	885.6	1,045.9	1,967.6	8,057.6	10,025.2
1992–93	291.7	1,039.2	1,330.9	3,446.6	11,739.1	15,185.7
1993–94	151.9	979.5	1,131.4	2,406.9	12,291.6	14,698.5
1994–95	240.2	1,154.3	1,394.5	5,138.8	25,642.0	30,780.8
1995–96	158.4	984.4	1,142.8	3,897.0	24,777.7	28,674.7
1996–97	198.8	858.0	1056.8	4670.0	19236.0	23906.0
1997–98	144.5	1034.1	1178.6	4281.7	29022.7	33304.4

Source: Federal Bureau of Statistics

Table B – 06

Import of Milk and Milk Products

(Quantity in Tonnes)
(Value in 000 Rupees)

Items	1994–95		1995–96		1996–97		1997–98	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Milk and Milk Products – Total	–	547,714	–	1,054,432	–	672,951	–	965,754
Milk contents fat <=1 %	–	–	–	–	64	4032	54	3,929
Milk contents fat <= 1.5 %	–	–	–	–	–	–	–	–
Cream contents fat > 6 %	–	–	–	–	32	2454	22	2,032
Milk solid contents fat <=1.5 %	564	35,833	1,052	70,000	960	66210	1,616	121,000
Milk solid contents fat >=1.5 %	9,307	473,231	12,919	923,101	7189	535595	9,762	755,554
Cream solid contents fat >=1.5 %	37	2,555	143	11,408	79	5701	77	5,848
Milk not solid or sweet	15	651	64	2,120	76	8529	67	3,245
Cream not solid or sweet	35	942	35	1,226	36	1526	52	2,489
Milk pres.conc/ sweeten	75	2,273	145	4,750	182	7153	95	3,639
Yougurt, sweetened	10	230	–	–	31	1214	10	421
Butter milk curdled milk fermet	–	–	1	153	18	750	–	–

Contd.

Table B – 06

Import of Milk and Milk Products

(Quantity in Tonnes)

(Value in 000 Rupees)

Items	1994–95		1995–96		1996–97		1997–98	
	Qty	Value	Qty	Value	Qty	Value	Qty	Value
Cream, fermented	–	–	–	–	–	–	–	–
Icecream EDB ice with/no coco	2	62	0.1	16	*	1	0.3	96
Whey fresh	30	376	17	377	–	–	–	–
Whey preserved	132	2,633	76	3,416	48	2068	104	4,161
Products of natural milk	3	834	–	–	43	3097	8	467
Butter canned	1	75	33	3,861	57	7738	219	27,370
Butter fresh	152	8,647	112	9,962	86	10062	50	5,652
Butter oil (ghee)	75	4,046	27	1,113	–	–	–	–
Grated or powdere cheese	27	1,931	16	1,874	10	1511	7	1,517
process cheese not grated	55	3,894	21	2,157	96	12436	104	17,775
Fresh cheese	58	5,794	48	5,618	23	3265	11	2,237
Curd	48	292	155	1,014	115	768	22	200
Other cheese & curd	26	3,415	75	12,266	70	2873	100	8,122

Source: Federal Bureau of Statistics

Table B – 07

Import of Fertilizers

Year	Quantity (000 Nutrient Tonnes)				Value
	N	P	K	Total	(Million Rs.)
1980–81	322.8	230.8	20.8	574.4	2951.5
1981–82	115.1	71.4	15.5	202.0	1089.9
1982–83	131.0	247.6	21.5	400.1	2291.5
1983–84	75.3	184.3	27.2	286.8	1403.3
1984–85	86.9	233.7	21.3	341.9	1393.8
1985–86	83.9	206.7	40.4	331.0	1759.0
1986–87	135.3	340.8	46.3	522.4	2484.6
1987–88	200.6	264.0	57.0	521.6	3955.5
1988–89	134.3	318.0	9.3	461.6	2910.6
1989–90	298.2	298.0	41.7	637.9	4447.1
1990–91	365.0	264.0	56.0	685.0	6613.4
1991–92	360.0	257.0	15.0	632.0	5895.5
1992–93	393.0	357.2	8.9	759.1	6190.3
1993–94	313.0	547.0	43.0	903.0	8,839.9
1994–95	73.0	186.0	2.0	261.0	2,911.7
1995–96	248.8	280.6	51.6	581.0	9,427.0
1996–97	75.7	193.4	–	269.1	4116.5

Source: Federal Bureau of Statistics

Table B – 08

Import of Wood and Wood Products

(Quantity in Tonnes)
(Value in Million Rupees)

Items	1994–95		1995–96		1996–97		1997–98	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
(a)Timber round and Sawn (cm)	–	313.8	–	346.0	–	485.5	–	495.9
Saw logs and vencer logs conifer. (cm)	148	0.5	490	0.5	–	–	–	–
Saw logs and vencer logs non–conifer.(cm)	226,986	239.8	269,100	318.9	353,062	354.0	311,247	357.5
Railway sleepers (cm)	–	–	355	0.5	–	–	4,270	5.0
Timber sawn, Plained conifer(cm)	16,459	1.8	2,636	2.8	3,835	5.6	2,676	4.8
Timber sawn, Plained non–conifer	50,717	59.8	1,100	1.1	65,630	96.6	65,701	105.1
Pulpwood including broadleived	500	0.0	7,435	4.8	100	0.2	50	0.05
Poles, pillings, posts and other recind wood (pit poups)	5,497	6.2	4,610	5.0	3,091	5.1	11,142	15.3
Wood simply shaped, Venus, Plywood, reconstituted	60,219	5.7	197,240	12.4	243,662	24.0	156,603	8.1
(b) Wood and Wood manufactures MT	1,497	41.4	1,061	38.5	950	53.2	2,087	73.6
Veneer sheets MT	341	9.3	207	6.8	2	0.1	102	5.7
Plywood MT	130	3.0	274	8.3	99	3.6	362	15.7
Improved or reconstituted MT	282	8.6	525	16.9	438	24.6	1,256	31.3
Manufactures of wood not–elsewhere specified MT	744	20.5	55	6.5	411	24.9	367	20.9

Contd.

Table B – 08

Import of Wood and Wood Products

(Quantity in Tonnes)
(Value in Million Rupees)

Items	1994–95		1995–96		1996–97		1997–98	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
(c) Pulp & Paper Board MT	235,116	4,707.8	219,930	6,412.3	250,506	6,069.3	269,776	6,626.4
Wood pulp MT	68,006	794.4	66,409	1,175.4	85,142	1,074.3	99,353	1,373.1
Kraft paper and paperbond MT	15,395	286.7	14,758	406.8	19,341	515.9	19,232	520.0
Fiber bond including building board. MT	36	0.6	66	0.7	88	1.7	1.4	0.03
News print paper MT	69,798	1,315.3	63,462	1,858.4	69,071	1,500.8	74,656	1,753.8
Other paper&writing paper MT	19,111	685.1	12,994	744.3	15,939	762.2	16,499	623.3
Other paper & Paper board MT	58,316	1,363.0	56,333	1,819.4	54,435	1,771.8	52,513	1,785.6
Article made of paper and paper board. MT	4,454	262.7	5,908	407.3	6,490	442.6	7,522	570.6
(d) Miscellaneous items MT	3,680	34.0	5,025	51.1	5,378	51.8	5,042	51.3
Resin MT	89	2.1	34	0.8	13	0.1	55	0.9
Cork raw and Waste MT	38	1.0	38	2.0	26	0.8	31	1.0
Cork manufactures MT	180	8.1	212	9.9	195	10.5	180	9.9
Bamboos MT	2,677	13.6	4,037	28.4	4,576	32.1	3,928	29.6
Cane & ratans, wood waste MT	696	9.2	704	10.0	568	8.3	848	9.9
Grand total (A+B+C+D)		5097.0		6847.9		6659.8	–	7247.2

Source: Federal Bureau of Statistics

Table B-09

Export of Crude Oil and Petroleum Products

Products	Year						
	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97
CRUDE OIL							
Tonnes	341,100	369,035	445,123	291,160	307,077	289,075	472,435
Million Us $	48.24	45.38	53.93	30.15	29.86	31.37	67.62
NAPTHA							
Tonnes	175,088	161,132	64,543	85,776	156,838	94,829	83,920
TOE	187,064	172,153	68,958	91,643	167,566	101,315	89,660
Million Us $	35.80	27.10	9.98	10.22	24.01	13.86	16.22
ASPHALT							
Tonnes	10,701	30,621	69,297	26,654	104,253	37,711	
Million Us $	1.60	3.35	7.79	2.23	8.34	3.64	
LUBES							
Tonnes					6,256		
Million Us $					1.77		

Source: Pakistan Energy Year Book-1996 (Page-25) & 1997 (Page-26) Published by Hydrocarbon Development Institute Of Pakistan.

Table B–10

Import of Petroleum Products

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

Products	Year						
	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97
100/LL	3,181	1,559	1,292	2,445	2,925	2,445	2,515
	3,315	1,625	1,346	2,548	3,048	2,548	2,621
	(1.95)	(0.84)	(0.64)	(1.10)	(1.19)	(1.22)	(1.49)
HOBC	120,336	81,956	88,972	52,167	–	3,937	–
	127,941	87,136	94,595	55,464	–	4,186	–
	(39.98)	(19.98)	(19.60)	(9.42)	–	(0.69)	–
Kerosene	416,826	55,745	163,702	118,767	145,389	87,855	103,039
	429,998	57,507	168,875	122,520	149,983	90,631	106,295
	(160.21)	(10.65)	(33.93)	(21.15)	(25.80)	(19.30)	(24.19)
HSD	2,631,191	3,312,594	3,909,952	4,377,068	4,485,342	5,093,588	4,870,118
	2,766,171	3,482,530	4,110,533	4,601,612	4,715,440	5,354,889	5,119,995
	(750.94)	(648.59)	(752.25)	(705.55)	(710.45)	(893.72)	(987.05)
Furnace Oil	1,138,494	1,823,370	2,447,719	3,243,999	3,865,436	4,748,892	5,117,186
	1,108,552	1,775,415	2,383,344	3,158,682	3,763,775	4,623,996	4,982,604
	(133.80)	(160.54)	(228.07)	(254.38)	(401.17)	(512.53)	(576.75)
Motor Spirit	–	–	–	56,094	156,988	106,122	209,579
	–	–	–	59,931	167,726	113,381	223,914
	–	–	–	(9.69)	(26.87)	(18.45)	(44.16)
MTBE	–	–	–	59,550	81,081	94,499	95,879
	–	–	–	48,509	66,049	76,979	78,103
	–	–	–	(15.60)	(25.40)	(25.84)	(25.03)
Total:	4,310,028	5,275,224	6,611,637	7,910,090	8,737,161	10,137,338	10,398,316
	4,435,977	5,404,212	6,758,693	8,060,306	8,881,053	10,284,130	10,531,268
	(1086.88)	(840.60)	(1034.50)	(1016.89)	(1190.78)	(1471.74)	(1658.66)
Annual growth rate	–18.57%	22.39%	25.33%	19.64%	10.45%	16.03%	2.57%

Source: Pakistan Energy Year Book,1996 and 1997 Published by
Hydrocarbon Development Institute Of Pakistan

Table B-11

Import of Crude Oil

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

Refinery	Year						
	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97
Pakistan Refinery	1,833,334	1,553,653	1,532,187	1,646,658	1,548,291	1,674,180	1,544,659
	1,895,301	1,606,166	1,583,975	1,702,315	1,600,623	1,730,767	1,596,868
	(263.80)	(206.26)	(202.61)	(178.73)	(195.05)	(211.19)	(231.86)
National Refinery	2,139,210	2,521,312	2,465,940	2,545,146	2,319,684	2,556,640	2,290,714
	2,211,515	2,606,532	2,549,289	2,631,172	2,398,089	2,643,054	2,368,140
	(369.69)	(336.71)	(324.38)	(279.04)	(295.55)	(326.91)	(349.63)
Total:	3,972,544	4,074,965	3,998,127	4,191,804	3,867,975	4,230,820	3,835,373
	4,106,816	4,212,699	4,133,264	4,333,487	3,998,713	4,373,822	3,965,009
	(633.49)	(542.97)	(526.99)	(457.77)	(490.60)	(538.10)	(581.49)
Annual growth rate	13.61%	2.58%	-1.89%	4.84%	-7.73%	9.38%	-9.35%

Source: Pakistan Energy Year Book,1996 and 1997 Published by Hydrocarbon Development Institute Of Pakistan

Table B – 12

Import of Coal

Unit → Year ↓	Metric Ton	TOE	Annual growth rate
1990–91	971,436	639,108	–11.92%
1991–92	1,069,000	703,295	10.04%
1992–93	993,900	653,887	–7.03%
1993–94	1,094,000	719,743	10.07%
1994–95	1,095,905	720,996	0.17%
1995–96	1,080,000	710,532	–1.45%
1996–97	840,000	552,636	–22.22%
ACGR	–2.39%	–	–

Source: Pakistan Energy Year Book,1996 and 1997 Published by Hydrocarbon Development Institute of Pakistan

Note: Coal is used as Coke in Steel Industry.

Table B – 13

Revenue Earned by Forest Department

(Million Rupees)

Year	Total	Balochistan	NWFP	Punjab	Sindh	North Areas
1990–91	287.620	3.330	32.000	184.900	45.190	22.200
1991–92	603.991	4.211	360.475	188.449	50.856	N.A
1992–93	399.260	3.980	81.630	217.450	54.600	41.600
1993–94	711.920	5.300	408.930	243.340	42.530	11.820
1994–95	550.440	5.530	214.540	272.210	48.330	9.830
1995–96	405.160	5.540	44.300	299.180	46.040	10.100
1996–97	731.000	7.000	355.000	297.000	34.000	38.000
1997–98	614.890	7.000	261.330	304.280	37.450	4.830

Source: Ministry of Environment, Local Government & Rural Development (Stat–IGF)

Table B – 14

Solid Waste Generation Estimates, 1995

City	Generation Rate		Waste Generated	
	Kg/c/day	Kg/h/day	Tons/day	Tons/year
Gujranwala	0.469	3.424	824.0	300,760
Faisalabad	0.391	2.737	924.3	33,7370
Karachi	0.613	4.201	6,450.0	235,4250
Hyderabad	0.563	3.941	975.7	356,131
Peshawar	0.489	3.423	809.3	295,395
Bannu	0.439	2.941	36.0	13,140
Quetta	0.378	2.646	378.0	137,970
Sibi	0.283	1.896	17.0	6,205
Total	–	–	10414.3	3,801,221

Source: Final Report, 1996 of EPMC
Environment & Urban Affairs Division, Islamabad

Table B–15

Physical Composition of Waste, 1995–96

Cites/ → Waste ↓	Gujranwala	Faisalabad	Karachi	Hyderabad
Plastic & Rubber	5.00	4.80	6.40	3.60
Metals	0.30	0.20	0.75	0.75
Paper	2.50	2.10	4.10	2.40
Cardboard	1.80	1.60	2.40	1.50
Rags	3.20	5.20	8.40	4.70
Glass	1.50	1.30	1.50	1.60
Board Papers	3.20	2.90	3.00	2.00
Food Waste	14.70	17.20	21.00	20.00
Animal Waste	1.00	0.80	3.00	5.80
Leaves Grass etc.	12.80	15.00	14.00	13.50
Wood	0.80	0.70	2.25	2.25
Fines	47.50	43.00	29.70	38.90
Stones	5.70	4.60	3.50	3.00
Cites/ → Waste ↓	Peshawar	Bannu	Quetta	Sibbi
Plastic & Rubber	3.70	5.30	8.20	7.70
Metals	0.30	0.30	0.20	0.00
Paper	2.10	3.30	2.20	2.00
Cardboard	1.90	1.60	1.30	1.40
Rags	4.30	2.30	5.10	5.30
Glass	1.30	1.20	1.50	2.40
Board Papers	1.70	0.20	2.00	0.80
Food Waste	13.80	16.30	14.30	8.40
Animal Waste	7.50	2.40	1.70	4.00
Leaves Grass etc.	13.60	14.70	10.20	14.50
Wood	0.60	0.50	1.50	1.00
Fines	42.00	45.40	44.00	44.80
Stones	7.30	6.50	7.80	7.70

Source: EPMC Estimates

Table B–16

Waste Generation Rate and Amount

City	Generation rate (Kg/Capita/Day)	Waste Generated (Tons/Day)
Gujranwala	0.469	824.0
Faisalabad	0.391	924.3
Karachi	0.613	6,450.0
Hyderabad	0.563	975.7
Peshawar	0.489	809.3
Bannu	0.439	36.0
Quetta	0.378	378.0
Sibbi	0.283	17.0
Total:		10,414.3

Source: EPMC Estimates

Table B – 17

Tentative Comparative data on Solid Wastes

Country/City	Average persons/ dwelling	Production gm./ head/day	Collected gm./ head/day	Density gm./ Cu.m	Workers per thousand population
Bangladesh (Dhaka)	8.10	350	305	600	1.20
(Chittagong)	8.00	280	250	–	1.10
Burma (Rangoon)	5.80	250	210	400	1.00
Hong Kong	–	850	840	–	–
India (Banglore)	5.00	415	370	570	1.80
(New Delhi)	–	–	–	–	3.20
Indonesia (Jakarta)	8.00	604	404	400	1.10
Nepal (Kathmandu)	6.00	250	75	600	1.50
Philippines (Manila)	–	500	–	–	1.67
Singapore	–	870	870	–	0.50
Sri Lanka (Colombo)	6.00	420	400	400	2.80
Thailand (Bangkok)	7.00	455	303	250	1.20
Pakistan (Karachi)	6.50	1,050	–	350*	1.63

Source: Problems and practices of solid waste management in Asia regional solid waste seminar, Asian Institute of Technology, September, 1978, Bangkok by Lohani, B.N. and Thanh.

* Provisional

Table B – 18

Water Quality of River Ravi, 1996

Location	Date of collection of sample	Dissolved Oxygen mg/L	Discharge Cusecs	Temperature o C	pH	TDS mg/l
BRB Ravi Syphon (mainstream)	18–02–96	8.6	2740	17	8.03	130
BRB Ravi Syphone (along bank)	18–02–96	8.4–10.1	2740	17	7.9	125
Old Ravi Highway Bridge (from bank to mainstream)	18–02–96	0.4–7.4	–	16	7.3	250
Old Ravi Highway Bridge (mainstream)	13–02–96	8.8	–	16	8.05	165
Under New Ravi Highway Bridge (mainstream)	13–02–96	8.7	–	17	8.05	180
Eastern side of Bara Drain near Boat Station	13–02–96	0.2	–	21	7.12	710
D/S of Main Outfall along bank	13–02–96	0–6.4	–	17	7.75	295
1 km Downstream of Main outfall	13–02–96	4.9–6.1	–	17	7.5	230
U/S of Babu Sabu Outfall	13–02–96	5.5	–	18	7.64	235
200 m D/S of Babu Sabu Outfall	13–02–96	0.5–1.5	–	18	7.1	470
1/2 Km D/S of Babu Sabu Outfall	13–02–96	4.8	–	18	7.57	290
1 Km D/S of Hudiara Nala Disposal	29–02–96	0–3.0	–	19	7.3	192
500 meters U/S of Head Balloki	5–03–96	7.8	21380	18	8.1	272
Along River Bank 200 meter U/S from Balloki Headworks	29–02–96	6.1–6.5	20005	17	7.52	148
U.C.C. Canal 3 Km off Lahore Jaranwala Road	5–03–96	6.9	5600	16	7.1	200

Contd.

Table B – 18

Water Quality of River Ravi, 1996

Location	Suspended Solids mg/L	Settleable Solids ml/l	Conduc-tivity (µm/cm)	BOD mg/L	COD mg/l	Total Coliform MPN/100 ml
BRB Ravi Syphon (mainstream)	142	0.1	255	1.8	6.5	2.6×10^{3}
BRB Ravi Syphone (along bank)	160	0.1	240	1.5	6.4	3.2×10^{4}
Old Ravi Highway Bridge (from bank to mainstream)	170	0.2	360	11.2	21	1.4×10^{7}
Old Ravi Highway Bridge (mainstream)	148	0.1	280	5.5	11	1.6×10^{5}
Under New Ravi Highway Bridge (mainstream)	156	0.1	295	7.5	16	4.2×10^{6}
Eastem side of Bara Drain near Boat Station	195	1.1	930	112	260	4.7×10^{9}
D/S of Main Outfall along bank	182	0.5	435	26	51	3.9×10^{8}
1 km Downstream of Main outfall	160	0.2	370	18.9	40	1.1×10^{7}
U/S of Babu Sabu Outfall	162	0.2	325	13	28	2.4×10^{6}
200 m D/S of Babu Sabu Outfall	190	1.2	690	47	118	9.3×10^{8}
1/2 Km D/S of Babu Sabu Outfall	170	0.3	445	23	45	7.2×10^{7}
1 Km D/S of Hudiara Nala Disposal	210	0.3	330	21	44	4.6×10^{7}
500 meters U/S of Head Balloki	112	–	340	3	10	–
Along River Bank 200 meter U/S from Balloki Headworks	180	0.1	240	7.3	16	2.4×10^{5}
U.C.C. Canal 3 Km off Lahore Jaranwala Road	70	0.7	310	7	22	>2400

Source: Environmental Protection Department, Lahore

Table B – 19

Qualities and Quantities of Wastewater entering into River Ravi near Lahore, 1996

Name of Drains	Date of collection of sample	Dissolved Oxygen mg/L	Discharge Cusecs	Temperature o C	pH	TDS mg/l
New Shad Bagh Sewage Drain	18–02–96	0.0	134	23	7.3	450
Main Outfall Sewage Drain	18–02–96	0.0	80	22.5	7.1	610
Babu Sabu Sewage Drain	18–02–96	0.0	150	23	7.27	620
Hadyara Nullah on Multan Road	29–02–96	0.0	202	23	7.7	710
Bhed Nullah on Sheikhupura Road	26–02–96	1.8	12	19	9.5	810
Deg Nullah on Sheikhupura Road	26–02–96	0.2	114	20	7.66	1290
Chhotri Deg on Sheikhupura Road	26–02–96	6.1	40	20	7.68	1250
Chichokimallian Drain on Sheikhupura Road	26–02–96	0.0	11.2	26	8.93	725
Barianwala Drain 1 Km off Sheikhupura Road	26–02–96	3.6	30.4	29	7.2	2080
Confluence of Chickhokimallian andBarianwala Drain near Bullerke village.	26–02–96	0.1	57	23	6.82	1650
Sanu Katla Drain 0.5 km off Defence Road on Raiwind Road	5–03–96	0.2	114	27	7.2	1138
Hadyara Nala on Ferozepur Road 22 km from Lahore	5–03–96	0.0	134	26	7.9	1703

Contd.

Table B – 19

Qualities and Quantities of Wastewater entering into River Ravi near Lahore, 1996

Name of Drains	Suspended Solids mg/L	Settleable Solids ml/l	Conduc – tivity (µm/cm)	BOD mg/L	COD mg/l	Total Coliform MPN/100 ml
New Shad Bagh Sewage Drain	310	2	710	160	390	–
Main Outfall Sewage Drain	390	6.0	910	280	645	–
Babu Sabu Sewage Drain	250	3.5	940	210	525	–
Hadyara Nullah on Multan Road	285	4.2	1000	180	490	6.2×10^{10}
Bhed Nullah on Sheikhupura Road	326	0.7	1050	65	124	6.1×10^{3}
Deg Nullah on Sheikhupura Road	470	18	1600	110	330	3.7×10^{4}
Chhotri Deg on Sheikhupura Road	280	1.2	2000	70	170	5.7×10^{7}
Chichokimallian Drain on Sheikhupura Road	189	0.8	1100	120	280	–
Barianwala Drain 1 Km off Sheikhupura Road	1270	58	1760	710	2130	–
Confluence of Chickhokimallian andBarianwala Drain near Bullerke village.	696	36	1680	410	1050	2.8×10^{5}
Sanu Katla Drain 0.5 km off Defence Road on Raiwind Road	1024	6	1500	138	353	>2400
Hadyara Nala on Ferozepur Road 22 km from Lahore	930	15	2000	200	844	>2400

Source: Environmental Protection Department, Lahore

Note: Discharge for industrial effluents drains measered in field through float.

Table B–20

Hadyara Drain (Lahore) – Chemical and Bacteriological Analysis (As on 13–04–1998)

Description of Samples	Temp ^{0}C	D.O mg/l	Cond. µ m/cm	PH	TDS mg/l	TSS mg/l	Set.S ml/l	BOD ml/l	COD ml/l
Hadyara drain at the point of entry India to Pakistan	25	0.0	1364	7.1	790	480	4.5	180	490
Hadyara drain before outfall of Charar drain	24	0.0	1459	7.3	940	140	0.1	165	432
Hadyara drain after outfall of Charar drain	29	0.0	1524	7.2	1100	520	10.0	225	840
Hadyara drain before outfall of Sattokatlan drain	20	0.0	1566	7.3	1130	100	0.8	150	352
Hadyara drain after outfall Sattokatlan drain.	22	0.0	1410	7.3	820	300	4.0	165	388
Hadyara dran at Multan Road (8.0 Km Off river Ravi)	21	0.0	1624	7.3	1145	200	1.0	155	340

Description of Samples	S mg/l	Cl mg/l	NH3 mg/l	Fe mg/l	Zn mg/l	Cu mg/l	Pb mg/l	Mn mg/l	Cr mg/l
Hadyara drain at the point of entry India to Pakistan	18.0	88	9.0	3.0	0.4	0.3	BDL	0.05	BDL
Hadyara drain before outfall of Charar drain	11.0	100	4.6	0.7	0.2	0.2	BDL	0.04	BDL
Hadyara drain after outfall of Charar drain	22.0	105	4.0	4.0	0.6	0.1	BDL	0.02	BDL
Hadyara drain before outfall of Sattokatlan drain	16.0	120	3.2	2.2	0.2	0.1	BDL	0.01	BDL
Hadyara drain after outfall Sattokatlan drain.	4.0	100	1.8	1.0	0.1	0.2	BDL	0.01	BDL
Hadyara drain at Multan Road (8.0 Km Off river Ravi)	9.0	150	6.8	2.8	0.15	0.1	BDL	0.01	BDL

Source: Environmental Protection Department, Lahore

Note: Coliform bacteria which are the indicator of raw sewage, have been found too numerous to be counted (MPN/100 ml=TNTC) in the Hadyara Drain water at entry point in Pakistan

Table B–21

Hadyara Drain (Lahore) – Chemical and Bacteriological Analysis (As on 26–7–1997)

Description of Samples	Colour	Temp 0 C	D.O mg/L	(BOD)5 mg/L	COD mg/L	pH
1. Hadyara drain (at the point of entry India to Pakistan).	Black	37	Nil	75	176	7.5
2. Hadyara drain (Before entering into river Ravi)	Black	35	Nil	54	112	7.0
3. River Ravi (Upstream Hadyara drain)	Muddy	34	6.7	1	8	7.0
4. River Ravi (Down Stream Hadyara drain).	Muddy	34	4.6	4	16	7.0

Description of Samples	TDS mg/L	Suspended Solid mg/L	Settleable ml/l	Chloride mg/L	Coliform Bacteria MPN/100 ml
1. Hadyara drain (at the point of entry India to Pakistan).	940	220	2.0	90	TNTC
2. Hadyara drain (Before entering into river Ravi)	950	210	1.3	90	TNTC
3. River Ravi (Upstream Hadyara drain)	220	180	Nil	10	–
4. River Ravi (Down Stream Hadyara drain).	270	260	1.0	15	4.1×10^5

Source: Environmental Protection Department, Lahore

Table B–22

Concentration of Toxic Metals in River Ravi (Near Lahore) at Selected Areas (as on 26–07–1997)

Location	Chromium mg/L	Copper mg/L	Lead mg/L	Manganese mg/L	Mercury µg/L	Nickle µg/L	Cadmium µg/L
BRB Canal Syphon/River Ravi	N.D.	N.D.	N.D.	0.4	N.D.	N.D.	N.D.
Shadbagh Sewage Outfall	0.52	0.9	0.8	1.2	N.D.	N.D.	N.D.
Main Outfall	1.29	1.2	1.1	2	2.6	5.9	7.2
Babu Sabu Sewage Outfall	0.3	0.2	N.D.	0.5	N.D.	N.D.	N.D.
U.C.C./Deg Nullah Outfall	0.4	0.5	0.2	0.7	N.D.	N.D.	N.D.
Hadyara Drain	0.9	0.6	0.7	1.1	N.D.	4.2	5
Head Balloki River Ravi	0.1	N.D.	N.D.	0.2	N.D.	N.D.	N.D.
Confluence of Chichoki Malian/ Barian wala Drain 11 Km. off Sheikhupura Road	1.13	1.7	0.85	1.6	1.2	6.4	8
18 Km After Multan Road /River Ravi	0.2	0.4	0.1	0.6	N.D.	N.D.	N.D.

Source:– Environment Protection Department, Lahore.

Table B – 23

RAW WATER QUALITY DATA OF WARSAK DAM

Parameter	Warsak Dam Upstream		Warsak Dam Downstream	
	Low Water	High Water	Low Water	High Water
	22–09–92	26–06–93	22–09–92	26–06–93
Discharge of Warsak	13000	47635	13000	47635
Discharge at Khairabad	38762	83460	38762	83460
Temperature (C)	20	21	20	21
pH	7.4	7.5	7.7	7.5
Conductivity (μ S cm)	263	185	263	185
Fecal coliform (number/100 ml)	900	0	1800	0
(mg/l)				
Alkalinity	75	72	75	68
Hardness	167	83	167	83
DO	6.5	7.0	9.0	9.3
BOD	0.8	0.6	0.5	0.4
COD	23	22	23	20
NH3–N	0	0.007	0	0.023
NO3	2.81	1.27	3.34	1.09
NO2	0.000	0.000	0.000	0.000
SO4	26	21	24	20
S– –	0.16	0.10	0.16	0.10
PW4	0.14	0.00	0.14	0.00
Cl	7	8	6	6
Dissolved solids	1200	150	760	190
Suspended Solids	280	760	600	820
Total Solids	1480	910	1360	1010
Na	6	–	3	–
Ca	40	–	23	–
Cr	0	0.067	0	0.074
Zn	0.006	0.066	0.007	0.048
pb	0	0.022	0	0.012
Cu	0.021	0.717	0.011	0.005
Ni	0.021	0.048	0.013	0.055

Source: Pollution and the Kabul River(An Analysis and Action Plan) IUCN The World Conservation Union

Table B – 24

RAW WATER QUALITY DATA OF KABUL RIVER

Parameter	After mixing of Bara River		Shabara near Jindi		Dehri Zardad (after mixing of Nisata drain)	
	Low Water	High Water	Low Water	High Water	Low Water	High Water
	15–10–92	21–07–92	13–10–92	27–07–93	22–10–92	27–07–93
Discharge of Warsak	10126	43130	10225	26940	10559	26940
Discharge at Khairabad	22279	80526	22201	66135	18903	66135
Temperature (°C)	24	25	22	24	18	30
pH	7.6	7.8	7.3	7.6	6.8	7.7
Conductivity (μ S cm)	612	213	362	184	337	218
Fecal coliform (number/100 ml)	250	11	900	43	1800	240
(mg/l)						
Alkalinity	194	76	120	80	90	100
Hardness	258	98	154	86	154	90
DO	6	6.3	6.8	6.5	6.9	6.7
BOD	2.8	3.0	2.0	2.2	2.7	2.0
COD	29	37	20	29	48	28
NH3–N	0.000	0.261	0.031	0.021	0.400	0.247
NO3	5.82	1.30	3.78	1.78	1.09	1.09
NO2	0.089	0.000	0.021	0.000	0.024	0.000
SO4	51	57	67	28	50	16
S– –	0.32	0.60	1.00	0.16	0.24	0.16
PW4	0.04	0.04	0.38	0.14	0.137	0.18
Cl	13	12	4	9	10	18
Dissolved solids	500	290	300	130	448	220
Suspended Solids	660	900	200	450	692	870
Total Solids	1160	1190	500	580	1140	1090
Na	36	6	27	6	39	8
Ca	25	5	19	18	21	24
Cr	0.013	0.035	0	0.014	0.018	0.049
Zn	0.048	8.151	0.070	<.025	0.162	0.057
pb	3.514	0.052	0	0.010	0.278	0.059
Cu	0.023	0.190	0.036	0.012	0.065	0.125
Ni	<.002	0.005	<.002	0.002	0.050	0.006

Contd.

Table B – 24

RAW WATER QUALITY DATA OF KABUL RIVER

Parameter	After mixing of Zagai Khwar		Kabul River at Kheshki		After mixing of Sarhad Colony Textile Mill effluents	
	Low Water	High Water	Low Water	High Water	Low Water	High Water
	18–10–92	21–07–93	27–10–92	27–07–93	25–10–92	21–07–97
Discharge of Warsak	10286	43130	9871	26940	10950	43130
Discharge at Khairabad	19163	80526	18748	66135	21999	80526
Temperature (C)	23	26	19	24	20	26
pH	6.8	7.7	8.3	7.6	6.3	7.4
Conductivity (μ S cm)	371	222	331	219	361	224
Fecal coliform (number/100 ml)	1800	7	900	4	1800	4
(mg/l)						
Alkalinity	224	76	158	108	171	88
Hardness	148	95	160	94	150	110
DO	7.5	6.5	7.3	6.8	6	5.7
BOD	3.1	2.4	3.1	2.0	7.7	5.0
COD	140	13	143	127	110	96
NH3–N	0.123	0.092	0.506	0.247	0.401	0.321
NO3	1.07	1.07	1.14	1.41	1.27	1.27
NO2	0.031	0.000	0.016	0.007	0.079	0.101
SO4	77.00	45.00	26.00	33.00	32.00	34.00
S– –	0.64	0.60	0.10	0.16	0.32	0.20
PW4	0.05	0.14	0.11	0.15	0.15	0.44
Cl	10	13	11	13	9	17
Dissolved solids	180	240	364	200	150	360
Suspended Solids	10	820	154	970	220	390
Total Solids	190	1060	518	1170	370	750
Na	56	7	33	11	45	11
Ca	22	8	24	23	25	9
Cr	0.008	0.025	0.010	0.032	0.036	0.097
Zn	0.065	0.044	0.076	0.120	0.182	0.026
pb	0	0.065	0	0.007	0.229	0.009
Cu	0.033	0.094	0.055	<.005	0.091	0.121
Ni	0.003	0.004	<.002	0.004	0.031	0.003

Contd.

Table B – 24

RAW WATER QUALITY DATA OF KABUL RIVER

Parameter	After mixing of Associated Ghee Mill effluents		After mixing of Nowshera Kalan Sewage Drain		After mixing of Nowshera Cantt. Sewage Drain	
	Low Water	High Water	Low Water	High Water	Low Water	High Water
	25–10–92	21–07–93	27–10–92	27–07–93	06–11–92	27–07–93
Discharge of Warsak	10950	43130	9871	26940	8702	26940
Discharge at Khairabad	21999	80526	18749	66135	14047	66135
Temperature (°C)	20	27	19	24	20	32
pH	6.4	7.6	8.1	7.7	7.4	7.6
Conductivity (μ S cm)	435	256	344	206	414	992
Fecal coliform (number/100 ml)	1800	7	900	43	1800	3
(mg/l)						
Alkalinity	221	64	90	84	145	124
Hardness	152	90	164	88	150	90
DO	6.2	5.4	7.1	6.3	7.3	6.0
BOD	6.8	5.2	4.1	3.0	5.3	4.1
COD	43	36	39	44	20	15
NH3–N	0.403	0.205	0.702	0.267	0.710	0.331
NO3	1.33	1.33	2.66	1.30	1.83	1.48
NO2	0	0.000	0.010	0.026	0.041	0.024
SO4	26	52	280	16	16	14
S– –	0.40	0.20	0.40	0.32	0.60	0.56
PW4	0.40	0.10	0.01	0.20	0.11	0.30
Cl	18	10	9	14	13	20
Dissolved solids	120	340	95	160	185	520
Suspended Solids	317	1310	154	690	38	300
Total Solids	430	1650	249	850	223	820
Na	24	5	16	9	32	13
Ca	24	5	23	22	24	19
Cr	0	0.071	0.015	0.097	0.008	0.088
Zn	0.063	0.025	0.230	7.291	0.073	<.025
pb	0.211	0.007	0.250	0.008	0.080	<.003
Cu	0.029	0.076	0.019	0.099	0.014	0.069
Ni	0.003	0.003	0.019	0.004	<.002	0.003

Contd.

Table B – 24

RAW WATER QUALITY DATA OF KABUL RIVER

Parameter	After mixing of Nowhera Cantt. Board Sewage Drain		After mixing of Badrashi Sewage Drain at Nowshera		After mixing of Kalpani River at Pirsabak	
	Low Water	High Water	Low Water	High Water	Low Water	High Water
	11–11–92	01–08–93	11–11–92	01–08–93	08–12–92	01–08–93
Discharge of Warsak	6250	23710	6250	23710	6617	23710
Discharge at Khairabad	11698	51351	11698	51351	12144	51351
Temperature (C)	17	26.5	17	26.5	16	17.5
pH	7.7	7.6	7.5	7.5	7.7	7.7
Conductivity (μ S cm)	422	229	425	236	488	348
Fecal coliform (number/100 ml)	1600	43	900	7	1800	4
(mg/l)						
Alkalinity	152	84	150	112	210	128
Hardness	169	102	171	102	182	132
DO	7	5.8	7.5	5.9	6.5	5.4
BOD	5	4.3	3.9	3.2	4.7	3.9
COD	107	68	107	88	191	218
NH3–N	0.960	0.443	0.518	0.270	0.0	0.162
NO3	0.33	1.13	1.77	1.17	15.77	1.04
NO2	0.092	0.012	0.095	0.065	0.167	0.024
SO4	25	25	24	24	37	29
S––	0.60	0.34	0.80	0.40	0.39	0.36
PW4	0.02	0.28	0.09	0.95	0.32	0.20
Cl	16	11	17	12	11	16
Dissolved solids	420	120	390	150	260	130
Suspended Solids	306	540	40	460	500	490
Total Solids	730	660	430	610	760	620
Na	34	12	33	15	54	37
Ca	28	9	25	12	25	14
Cr	0.005	0.089	0.013	0.108	0.008	0.051
Zn	0.084	<.025	0.149	0.031	0.127	<.025
pb	0.140	<.003	0.300	<.300	0.458	0.009
Cu	0.012	0.07	0.015	0.077	0.028	0.058
Ni	0.002	<.002	<.002	0.003	0.004	0.002

Contd.

Table B – 24

RAW WATER QUALITY DATA OF KABUL RIVER

Parameter	After mixing of Akora Khattak Sewage Drain		After mixing of Corn ComplexSewage Drain		Kabul River at Khair Abad at Pirsabak	
	Low Water	High Water	Low Water	High Water	Low Water	High Water
	11–11–92	01–08–93	08–12–92	01–08–93	28–11–92	01–08–93
Discharge of Warsak	6250	23710	6617	23710	6250	23710
Discharge at Khairabad	11698	51351	12144	51351	12389	51351
Temperature (C)	18	28.0	18	28	15	27
pH	8.1	7.7	7.5	6.5	7.5	7.7
Conductivity (μ S cm)	452	236	490	332	403	266
Fecal coliform (number/100 ml)	1600	4	550	100	1800	4
(mg/l)						
Alkalinity	148	88	185	144	133	80
Hardness	176	102	185	126	170	104
DO	6.5	5.0	6.5	6.1	7	6.5
BOD	6.7	5.1	4.4	3.4	3.2	3.0
COD	62	79	90	560	82	43
NH3–N	2.140	0.988	1.700	0.517	0.308	0.210
NO3	2.59	1.87	7.15	1.85	10.81	2.40
NO2	0.194	0.022	0.578	0.000	0.112	0.086
SO4	32	20	87	28	46	22
S– –	0.80	0.44	0.80	0.34	0.80	0.24
PW4	0.14	0.20	2.07	1.20	0.14	0.15
Cl	16	11	20	38	7	16
Dissolved solids	256	130	340	210	249	120
Suspended Solids	222	640	80	1070	100	440
Total Solids	546	770	440	1280	360	560
Na	38	14	45	18	28	12
Ca	29	13	12	12	22	10
Cr	0.010	0.032	0.005	0.006	0.013	0.055
Zn	0.232	<.025	0.014	<.025	0.145	<.025
pb	0	0.009	0.130	0.050	0	0.006
Cu	0.017	0.068	0.043	0.039	0.035	0.055
Ni	<.002	0.002	0.024	0.002	0.030	0.002

Source: Pollution and the Kabul River(An Analysis and Action Plan) IUCN The World Conservation Union

Table B – 25

Extent of Waterlogging and Salinity

(000 Hectare)

Year/ Month	Province				
	Total	Balochistan	NWFP	Punjab	Sindh
0 to 5 Feet or 152 cm Water Table Depth					
1989 June	2312	100	45	566	1601
October	4921	119	61	1075	3666
1990 June	2201	94	49	710	1348
October	N.A	N.A	N.A	N.A	N.A
1991 June	2171	82	52	765	1272
October	1040	N.A	68	972	N.A
1992 June	3048	138	47	637	2226
October	5528	136	64	1248	4080
1993 June	2702	85	43	638	1936
October	4923	117	56	1117	3633
1994 June	1989	72	39	578	1300
October	5246	147	56	983	4060
1995 June	2055	87	37	475	1456
October	4984	138	63	901	3882
0 to 10 Feet or 305 cm Water Table Depth					
1989 June	8196	225	168	3089	4714
October	9152	217	194	3789	4952
1990 June	8228	171	181	3094	4782
October	N.A	N.A	N.A	N.A	N.A
1991 June	8678	178	204	3506	4790
October	3760	N.A	210	3550	N.A
1992 June	8480	208	202	3160	4910
October	9702	196	209	4050	5247
1993 June	8648	196	197	3231	5024
October	9186	187	207	3738	5054
1994 June	7990	194	196	2837	4763
October	9374	242	208	3706	5218
1995 June	8212	210	200	2821	4981
October	9244	261	215	3566	5202

Source: Scraps Monitoring,WAPDA, Lahore

Table B–26

Summary of Different Types of Pollutants on the Coast of Pakistan

Area	Oil Sliks	Tar on Beaches	Tar Balls	Indust Poll	Sewage Domest Wastes	Sedim	Thermal Poll
Jiwani	++	–	++	–	–	–	–
Gwadar							
East Bay	++	+	++	–	+	–	–
West Bay	++	–	+++	–	–	–	–
Pasni	+	–	+++	–	+	–	–
Ormara	+	–	+	–	–	–	–
Sonmiani Bay	+	–	–	–	+	–	–
Gadani	++	++	++	+	–	–	–
Cape Monze	–	–	+	–	–	–	–
Paradise Point	–	–	++	–	–	–	++
Buleji	–	–	+	–	–	–	–
Hawksbay	–	–	++	–	–	–	–
Sandspit	–	–	++	–	–	–	–
Manora Island (Exposed)	–	–	+	–	–	–	–
Manora Channel	++++	+++	++	++++	++++	++++	+
Clifton	++	–	+	+	+	+	–
Korangi Creek	+	–	+	+	+	+	–
Port Qasim	++	+	+	++	+	++++	+++
Indus Delta	–	–	–	–	+	++++	–

Source: Environment and Urban Affairs Division Islamabad.

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

Table B – 27

Damages/Losses Caused by Major Earthquakes

Particulars	Statistical Information
EARTHQUAKE – 1974	
Date of Occurrence	20 December, 1974
Area affected	300,000 Sq. Km. But the devas – tation was confined to the area around Pattan including Kurram Highways alongside Indus.
Number of Persons Killed	1000
Number of Persons injured	NA
Number of Persons permanently disabled	1845
Number of Houses demolished	17677
Number of Houses damaged	2313
Number of Cattle head lost	63393
Other damages	Industries and irrigation canals
Magnitude	6 at Richter Scale
EARTHQUAKE – 1991	
Date of Occurrence	1st February, 1991
Area affected	Malakand and Hazara Division.
Number of Persons Killed	181
Number of Persons injured	741
Number of Persons permanently disabled	NA
Number of Houses demolished	5170
Number of Houses damaged	79810
Number of Cattle head lost	5302
Other damages	NA
Magnitude	6.8 at Richter Scale
EARTHQUAKE – 1997	
Date of Occurrence	28th February, 1997
Area affected	Quetta & Sibi Division
Number of Persons Killed	47
Number of Persons injured	170
Number of Persons permanently disabled	NA
Number of Houses demolished	886
Number of Houses damaged	8235
Number of Cattle head lost	1799
Other damages	NA
Magnitude	6 at Richter Scale

Source: Cabinet Division.

Table B – 28

Details of Losses and Damages Due to Rains and Floods by Area

(Number)

Province/Area	Village Affected	Persons Affected	Area Affected (Acres)	Crops Affected (Acres)	Houses Damaged	
					Katcha	Pacca
	1	2	3	4	5	6
As on 27.10.92						
Total	12,775	7,625,354	–	–	424,075	79,710
Islamabad	57	1,347	–	–	438	39
Balochistan	5	–	–	–	–	12
NWFP	945	120,010	–	–	8,360	10,615
Punjab	6,474	4,192,930	–	–	145,222	67,099
Sindh	5,033	3,233,103	–	–	251,951	–
Northern Areas	–	42,800	–	–	5,762	–
AJ&K	261	35,164	–	–	12,342	1,945
As on 17.08.93						
Total	1,380	264,505	811,500	169,782	968	389
NWFP	3	1,500	–	–	668	–
Punjab	1,377	263,005	811,500	169,782	300	389
As on 18.12.94						
Total	11,236	1,023,714	1,929,431	3,237,979	401,926	4,466
Balochistan	1,100	17,358	52,067	126,756	12,576	386
NWFP	492	74,800	102,468	37,693	17,824	1,509
Punjab	1,744	241,521	1,213,506	328,780	15,973	2,571
Sindh	7,900	690,035	561,390	2,744,750	355,553	–

Contd.

Table B – 28

Details of Losses and Damages Due to Rains and Floods by Area

(Number)

Province/Area	Village Affected	Persons Affected	Area Affected (Acres)	Crops Affected (Acres)	Houses Damaged	
					Katcha	Pacca
	1	2	3	4	5	6
As on 11.12.95						
Total	7,708	2,282,551	4,807,006	1,681,952	105,306	13,463
Balochistan	1,538	75,026	666,830	196,337	15,779	134
NWFP	62	4,475	–	3,711	10,982	917
Punjab	4,912	1,638,131	3,449,486	1,381,805	41,068	8,176
Sindh	647	511,149	676,529	88,914	30,741	–
FATA	28	219	7,211	3,292	931	
Nothern Areas	226	19,251	1,450	6,798	1,755	1,336
AJ&K	295	34,300	5,500	1,095	4,050	2,900
As on 22.9.96						
Total	4,051	1,442,361	2,006,052	1,040,666	26,382	25,355
Balochistan	8	–	–	–	–	–
NWFP	141	8,364	244	–	3,608	427
Punjab	3,510	1,425,258	2,004,131	1,038,986	20,000	24,457
Sindh	–	–	–	–	–	–
FATA	–	–	–	–	1	70
Nothern Areas	392	8,739	1,677	1,680	2,773	401
AJ&K	–	–	–	–	–	–
1997						
Total	6,924	2,109,862	3,549,310	1,368,352	60,745	31,496
Balochistan	259	7,954	17,935	4,512	2	742
NWFP	199	5,021	6,806	6,650	7,701	1,212
Punjab	5,891	2,084,755	3,334,684	1,349,117	49,572	27,331
Sindh	228	–	188,536	5,864	135	550
Nothern Areas	347	12,132	1,349	2,209	2,104	1,661
AJ&K	–	–	–	–	1,231	–

Contd.

Table B – 28

Details of Losses and Damages Due to Rains and Floods by Area

(Number)

Province/Area	Houses Demolished		Persons Died	Cattle Lost	Relief Camps Estt.	Persons in Relief Camps
	Katcha	Pacca				
	7	8	9	10	11	12
As on 27.10.92						
Total	410,595	40,040	1,332	161,687	715	–
Islamabad	29	17	1	41	–	–
Balochistan	–	–	–	2	–	–
NWFP	13,047	419	386	5,464	4	–
Punjab	108,451	38,264	381	39,126	314	–
Sindh	276,369	–	223	85,337	397	–
Northern Areas	8,561	–	37	26,292	–	–
AJ&K	4,138	1,340	304	5,425	–	–
As on 17.08.93						
Total	289	179	26	81	86	–
NWFP	13	–	10	6	–	–
Punjab	276	179	16	75	86	–
As on 18.12.94						
Total	183,947	1,981	489	26,490	673	1,455,487
Balochistan	10,611	205	98	15,645	38	16,352
NWFP	9,227	1,102	96	4,620	62	10,000
Punjab	7,722	674	77	135	72	75,000
Sindh	156,387	–	218	6,090	501	1,354,135

Contd.

Table B – 28

Details of Losses and Damages Due to Rains and Floods by Area

(Number)

Province/Area	Houses Demolished		Persons Died	Cattle Lost	Relief Camps Estt.	Persons in Relief Camps
	Katcha	Pacca				
	7	8	9	10	11	12
As on 11.12.95						
Total	83,917	3,470	614	28,598	437	77,595
Balochistan	8,381	13	107	12,028	26	–
NWFP	1,017	12	160	889	22	–
Punjab	36,292	2,784	179	574	268	–
Sindh	33,474	–	58	5,150	112	77,595
FATA	77	10	35	656	1	–
Nothern Areas	4,026	296	14	8,051	8	–
AJ&K	650	355	61	1,250	–	–
As on 22.9.96						
Total	14,515	8,752	281	12,068	291	687
Balochistan	–	210	–	30	8	–
NWFP	466	66	47	252	–	–
Punjab	11,856	7,888	179	275	270	687
Sindh	–	–	–	–	–	–
FATA	59	–	13	–	–	–
Nothern Areas	2,134	588	42	11,511	13	–
AJ&K	–	–	–	–	–	–
1997						
Total	38,564	25,645	504	5,731	352	23,202
Balochistan	800	62	20	331	26	–
NWFP	621	100	157	518	–	–
Punjab	35,207	24,553	249	864	299	11299
Sindh	112	1	6	–	14	11903
Nothern Areas	1,824	929	45	3,755	13	–
AJ&K	–	–	27	263	–	–

Source: Cabinet Division

C - Responses to Environmental Impacts

Section C

Responses to Environmental Impacts

This Section presents some historical background regarding climate in Pakistan i.e temperature, rainfall, clouds, wind pressure and some related information.

C-I Climate

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

1. The subtropical location of Pakistan from approximately 23 1/2^0 N to 37^0 N latitudes. This tends to keep the temperature high, particularly in summer.

2. The oceanic influence of the Arabian Sea keeps down the temperature contrast between summer and winter at the coasts.

3. The continental effect emphasis the differences in temperature between summer and winter in the interior of the country.

4. The higher altitudes in the west and north keep down the temperature throughout the year. In the extreme north because of great heights, the mountain tops record freezing temperature all the year round. The hills and mountains also attract more rain than the plains do.

5. The monsoon winds which come in July and continue to blow upto September bring rainfall. Pakistan receives only the tail-end of the monsoons, therefore the monsoon season is neither as prolonged nor as wet as that in India.

6. The Western Depressions originating from the Mediterranean region and entering Pakistan from the west bring rainfall alongwith cyclones in winter. These cyclones make a long land journey before coming to Pakistan and are thus robbed of most of their moisture by the time they reach Pakistan.

7. Thunderstorms cause some amount of rainfall particularly in the north.

8. A temperature inversion layer at a low elevation of approximately 1,500 meters (5,000 feet) in the southern part of Pakistan during the summer season does not allow the moisture-laden air to rise and condensation to take place. (Khan, 1991).

C-II Temperature

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

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

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

1. Hot summer and mild winter: The temperature of the hottest month 32^0 C or more and winter temperature between 10^0 C to 21^0 C.

2. Warmer summer and mild winter: Summer temperature between 21^0 C and 32^0 C, and winter temperature between 10^0 C and 21^0 C.

3. Warm summer and cool winter: Summer between 21^0 C and 32^0 C and coolest month temperature between 0^0 C and 10^0 C.

4. Mild summer and cool/cold winter: Summer temperature between 10^0 C and 21^0 C and the coolest month (January) temperature less than 0^0 C in some area and between 0^0 C and 10^0 C in other areas.

In Pakistan, May and June are the hottest months in summer season. Jacobabad and Nawab Shah experience the hottest season in the country during May and June (Table C-06). The monthly average normal temperature rises to 45.1 ^{0}C and 44.9 ^{0}C in Nawab Shah and Jacobabad respectively in May whereas, it falls to 43.4 ^{0}C and 44.8 ^{0}C in Nawab Shah and Jacobabad in June. However, a highest maximum temperature of 52.8 ^{0} C was recorded at Jacobabad in June 1919. (Statistical Year Book of Pakistan,1995 pp 670)

Similarly December and January are the coldest months of the winter season. Table C-06 indicates that Quetta (Samungli) experiences the coldest season among the selected centres in the country during the months of December and January. The monthly average (Mean of minimum) Normal Temperature of Quetta falls to -3.5 ^{0} C in January. However, a lowest minimum temperature of -21.7 ^{0} C was recorded at Kalat in February, 1930. (Statistical Year Book of Pakistan,1995 pp 670)

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

C-III Rain Fall

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

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

A highest maximum rainfall i.e. 1735 mm was recorded at Rawalpindi during the year 1981 (Table C-03). The analysis of data in respect of monthly normal rainfall of some selected cities indicate that Rawalpindi receives maximum rainfall (637.7 mm) among 18 selected cities in the month of August during

the monsoon season. Similarly in winter, Rawalpindi receives highest normal rain in the month of December i.e. 93.2 mm among these cities (Table C-08).

C-IV Pressure and Winds

In summer, the land becomes heated and a low pressure area is created in south-western Pakistan. In the month of July, atmospheric pressure is lowest in the vicinity of Multan and rises north-ward and southward. This low pressure 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).

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

- A lowest air pressure (824.7 mbs) at mean station level was recorded in 1982 at Parachinar, which is the lowest air pressure among 15 selected centres (Table C-04).

- A highest air pressure (1008.7 mbs) at mean station level was recorded in 1995 at Chhor , which is the highest air pressure among 15 selected centres (Table C-04).

- A lowest vapour pressure (5.5 mbs) was recorded in 1997 at Parachinar, which is the lowest vapour pressure among 15 selected centres (Table C-05).

- A highest vapour pressure (28.1 mbs) was recorded in 1990 at Chhor, which is the highest vapour pressure among 15 selected centres (Table C-05).

- A lowest normal pressure (831.2 mbs) at station level (12) was recorded during the month of July at Quetta (Samungli) , which is the lowest normal pressure (Table C-09).

- A highest normal pressure (1015.0 mbs) at station level (03) was recorded during the month of December at Karachi (Airport) , which is the highest normal pressure (Table C-09).

- A maximum normal of wind speed (50 KTS) was recorded at Quetta Samungli (Table C-11).

STATISTICAL TABLES

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)
1980	107.4	101.3	100.2	97.7	92.9
1981	101.4	91.0	99.2	101.1	93.4
1982	97.9	88.3	85.2	87.3	92.5
1983	97.3	99.3	100.9	96.3	92.9
1994	94.2	102.2	98.6	95.7	96.3
1985	96.9	91.4	101.3	94.5	96.6
1986	91.4	101.1	101.9	99.0	94.6
1987	97.0	99.3	93.7	104.1	92.3
1988	89.8	96.6	88.5	107.8	–
1989	95.0	96.3	90.8	94.1	–
1990	88.2	97.1	90.9	94.3	–
1991	86.0	97.1	90.5	86.6	–
1992	88.9	89.5	87.8	93.3	–
1993	–	92.9	–	84.3	102.5
1994	92.2	–	–	–	104.2
1995	89.6	95.9	–	–	106.7
1996	88.0	93.8	–	–	104.9
1997	85.5	76.9	57.6 (*)	–	79.6

Source: Pakistan Meteorological Department.
Note: Figures in parenthesis indicate the heights above sea level in meters.
(*) April, 1997

Table C-02

Temperature at Selected Centres
(Mean of Maximum)

(Centigrade)

Year/ Station	Karachi (Airport) (21)	Nawab-shah (37)	Hyde-rabad (40)	Jacob-abad (55)	Lahore (213)	Multan (122)	Rawal-pindi (507)	Jhelum (232)	Sarg-odha (187)
1980	31.6	35.6	34.9	34.4	31.1	33.4	29.0	30.9	32.3
1981	31.9	35.8	34.7	34.3	30.8	33.2	29.0	30.5	32.2
1982	31.9	34.4	34.0	33.1	29.9	35.0	27.9	29.2	31.0
1983	31.6	35.0	34.3	32.6	29.7	31.8	27.9	29.0	31.1
1984	31.6	35.2	33.9	34.3	31.1	32.9	29.1	30.6	32.0
1985	32.1	35.8	34.5	34.4	31.7	33.3	29.8	31.4	32.7
1986	31.7	36.5	34.5	33.5	30.7	32.1	28.1	29.6	30.8
1987	32.6	36.0	35.9	34.7	31.9	33.1	29.7	31.0	32.2
1988	32.9	34.8	35.6	33.0	31.9	33.4	29.5	31.4	31.9
1989	32.0	35.1	33.4	33.6	31.1	32.1	27.9	30.7	31.2
1990	31.8	35.2	33.4	34.4	30.6	32.6	28.3	30.4	31.2
1991	32.1	36.5	33.7	34.4	30.7	32.0	26.7	29.9	30.3
1992	31.8	34.7	33.4	34.1	30.7	31.6	27.6	29.5	30.3
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	32.3	28.2	30.5	31.2
1995	32.3	35.0	33.8	33.7	30.0	32.3	28.3	30.0	30.2
1996	32.0	35.6	33.8	34.0	30.4	32.5	28.6	30.1	31.0
1997	30.8	34.4	32.8	32.5	28.6	30.9	27.1	28.8	29.5

Contd.

Table C–02

Temperature at Selected Centres
(Mean of Maximum)

(Centigrade)

Year/ Station	Faisal–abad (183)	Baha–walpur (116)	Peshawar (359)	D.I.Khan (173)	Quettta (1600)	Zhob (Fort Sandeman) (1405)	Dalban–din (848)	Khuzdar (1231)	Panjgur (980)
1980	31.3	33.4	29.4	31.9	25.0	26.6	31.7	29.0	30.7
1981	31.1	33.3	29.9	31.6	24.6	25.9	27.9	28.9	30.3
1982	29.8	32.0	29.0	30.9	22.9	24.0	30.3	28.1	28.5
1983	29.7	31.8	28.5	30.7	24.0	25.0	31.4	27.8	29.3
1984	30.9	32.4	30.7	31.9	25.8	27.0	31.7	28.8	29.6
1985	31.4	32.9	30.5	33.1	25.3	26.7	29.6	29.3	30.1
1986	30.3	31.9	29.4	31.0	24.0	25.4	31.1	28.5	29.3
1987	31.5	33.1	30.5	32.2	25.7	27.1	32.1	29.9	30.5
1988	31.2	33.9	30.5	32.5	26.0	27.1	32.2	29.6	30.4
1989	27.2	32.1	29.7	31.2	25.1	25.2	31.3	27.9	30.6
1990	32.1	32.7	29.9	31.5	25.1	–	32.8	24.8	28.4
1991	29.4	32.7	29.0	31.0	24.1	25.6	31.0	29.0	29.6
1992	29.3	32.1	29.0	30.5	24.1	25.6	31.0	28.1	29.2
1993	31.5	33.7	30.5	32.1	25.1	28.1	31.9	29.8	30.5
1994	31.3	32.7	29.4	32.2	24.7	27.1	31.8	28.2	29.9
1995	31.0	33.3	29.9	31.1	24.4	27.0	31.3	28.0	29.5
1996	30.9	32.8	30.4	31.9	24.7	28.2	30.6	29.0	29.7
1997	29.2	31.6	28.8	30.3	24.0	26.7	31.0	27.7	28.9

Contd.

Table C–02

Temperature at Selected Centres
(Mean of Minimum)

(Centigrade)

Year/ Station	Karachi (Airport) (21)	Nawab–shah (37)	Hyde–rabad (40)	Jacob–abad (55)	Lahore (213)	Multan (122)	Rawal–pindi (507)	Jhelum (232)	Sarg–odha (187)
1980	21.1	18.6	21.5	20.0	18.1	18.5	14.4	17.0	16.9
1981	20.7	18.1	21.5	20.1	17.7	18.3	13.6	16.3	16.7
1982	20.6	18.0	21.3	19.9	17.2	18.8	13.9	16.3	16.4
1983	20.2	17.7	21.0	20.0	17.0	17.3	13.5	15.7	16.4
1984	19.6	16.9	19.2	18.9	18.0	17.5	13.5	16.3	18.0
1985	20.0	17.4	20.8	19.5	18.3	18.2	14.5	16.8	17.1
1986	19.8	18.2	20.9	19.3	17.7	17.6	12.3	16.1	17.6
1987	20.4	17.8	21.6	19.5	18.4	18.3	14.2	16.5	17.6
1988	21.4	17.6	22.1	20.5	18.9	18.9	14.9	17.3	18.2
1989	20.2	17.1	20.6	19.3	17.7	17.5	14.2	16.2	16.9
1990	19.9	18.8	21.2	19.9	18.4	19.0	15.1	17.2	18.0
1991	20.7	18.9	20.8	19.4	17.7	18.2	13.5	16.4	17.0
1992	20.8	18.2	20.9	20.1	18.3	18.1	15.2	16.6	17.3
1993	21.4	18.5	21.4	20.0	18.8	18.5	14.3	16.5	17.6
1994	19.9	18.2	20.8	20.4	18.9	18.3	14.7	17.1	17.6
1995	20.9	18.1	21.0	20.5	18.5	17.9	13.9	16.6	15.5
1996	21.9	17.5	21.2	19.5	18.5	17.8	14.3	16.7	17.5
1997	21.1	16.2	20.9	19.9	18.6	17.8	14.3	16.7	17.3

Contd.

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)	Quettta (1600)	Zhob (Fort Sandeman) (1405)	Dalban–din (848)	Khuzdar (1231)	Panjgur (980)
1980	17.2	18.8	15.3	17.2	7.3	12.6	14.9	15.2	15.9
1981	16.4	18.7	15.6	16.7	7.3	12.7	14.4	14.7	15.5
1982	16.2	18.3	15.5	15.9	7.3	11.4	13.9	14.3	15.1
1983	16.1	17.5	15.1	15.9	7.1	12.0	13.9	14.4	15.0
1984	16.4	17.7	15.5	16.0	8.1	13.3	13.8	14.5	14.8
1985	17.0	18.0	16.3	14.9	7.6	12.4	13.4	14.7	14.1
1986	16.1	17.5	15.5	15.8	8.6	16.8	16.1	14.2	14.0
1987	17.0	18.4	14.4	17.2	7.7	11.9	14.4	15.1	14.5
1988	16.7	19.4	16.7	17.8	9.1	13.7	15.3	15.5	15.0
1989	13.1	17.7	16.0	16.7	7.7	9.2	13.9	14.4	14.9
1990	18.5	18.7	16.5	18.0	8.9	–	15.1	15.7	14.4
1991	15.8	18.2	15.5	17.4	8.6	12.6	14.3	15.5	14.7
1992	16.1	18.1	15.5	17.2	8.1	11.2	12.9	14.5	15.3
1993	17.2	18.0	15.7	17.2	8.1	13.3	13.9	15.6	15.6
1994	17.3	17.6	15.5	18.1	8.7	13.9	14.7	15.8	15.6
1995	16.9	18.2	14.0	17.0	8.1	11.5	13.0	12.7	15.7
1996	16.7	16.7	15.7	16.6	7.3	10.6	11.3	13.8	14.7
1997	16.6	17.7	15.5	15.5	8.8	11.0	14.3	10.8	14.4

Source: Pakistan Meteorological Department

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

Table C – 03

Rainfall at Selected Centres

(Millimeter)

Year / Station	Karachi (Airport) (21)	Nawab – shah (37)	Hyde – rabad (40)	Jacob – abad (55)	Lahore (213)	Multan (122)	Rawal – pindi (507)	Jhelum (232)	Sarg – odha (187)
1980	195	112	119	14	1,014	149	1,084	955	577
1981	186	242	117	173	839	223	1,735	837	767
1982	162	120	54	84	596	166	1,632	970	637
1983	281	157	301	77	909	291	1,714	1,089	568
1984	270	132	206	202	702	106	1,143	845	435
1985	155	105	116	183	746	158	1,124	618	309
1986	92	149	178	84	612	219	937	932	326
1987	–	–	16	38	490	108	859	653	305
1988	160	22	265	335	815	125	1,259	1,054	398
1989	190	133	201	188	616	217	1,043	668	547
1990	137	175	171	116	955	171	1,530	1,192	402
1991	25	53	9	21	520	129	1,193	987	382
1992	268	386	427	261	628	513	1,262	1,134	703
1993	36	50	73	38	375	301	839	762	300
1994	482	552	487	366	542	303	1,698	999	361
1995	260	213	96	96	827	265	1,592	1,158	319
1996	99	5	16	96	1,189	212	1,317	989	447
1997	150	107	64	272	1,233	264	1,414	1,336	626

Contd.

Table C – 03

Rainfall at Selected Centres

Year / Station	Faisal-abad (183)	Baha-walpur (116)	Pesha-War (369)	D.I.Khan (173)	Quettta (1600)	Zhob (Fort Sandeman (1405)	Dalban-din (848)	Khuzdar (1231)	Panjgur (980)
1980	421	140	371	238	255	317	112	193	86
1981	646	127	396	402	316	313	289	250	61
1982	472	134	323	412	949	396	204	406	239
1983	517	274	710	445	596	365	113	337	124
1984	353	99	524	129	115	292	429	288	93
1985	235	100	341	139	257	164	26	189	79
1986	344	207	416	335	244	179	43	239	104
1987	363	107	343	159	156	264	106	218	80
1988	214	137	367	190	259	287	34	342	147
1989	115	296	249	329	276	320	58	396	23
1990	242	142	454	364	313	460	159	206	92
1991	260	56	384	287	429	473	116	229	79
1992	376	384	580	421	410	358	104	445	137
1993	271	136	466	242	233	217	70	159	28
1994	191	246	642	437	305	389	88	601	102
1995	222	193	618	412	334	279	154	578	112
1996	346	98	668	230	134	330	127	261	83
1997	807	304	474	278	309	495	121	357	304

Source: Pakistan Meteorological Department

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

Table C – 04

Air Pressure at Selected Centres

(mbs)

Year / Station	Karachi (Airport)		Hyderabad		Jacobabad	
	Mean Station Level Pressure	Mean Sea Level Pressure	Mean Station Level Pressure	Mean Sea Level Pressure	Mean Station Level Pressure	Mean Sea Level Pressure
1980	1,005.6	1,008.2	1,004.0	1,007.5	1,000.0	1,006.3
1981	1,005.5	1,008.1	1,004.0	1,007.4	1,000.1	1,006.4
1982	1,006.0	1,008.5	1,004.6	1,007.8	1,000.7	1,007.0
1983	1,005.9	1,008.5	1,004.5	1,007.9	1,000.9	1,007.2
1984	1,005.0	1,007.5	1,004.7	1,008.2	1,000.4	1,006.2
1985	1,006.1	1,008.8	1,005.0	1,008.5	1,000.9	1,007.4
1986	1,006.1	1,008.8	1,004.3	1,007.7	1,000.6	1,006.9
1987	1,006.6	1,009.1	1,003.7	1,006.8	1,000.9	1,007.2
1988	1,005.0	1,007.6	1,003.3	1,006.7	999.6	1,005.8
1989	1,006.1	1,008.7	1,002.7	1,007.6	1,000.6	1,007.1
1990	1,005.5	1,008.1	1,002.1	1,006.9	1,000.0	1,006.4
1991	1,006.0	1,008.6	1,002.7	1,007.6	1,000.8	1,007.1
1992	1,006.2	1,009.2	1,003.1	1,008.1	1,001.3	1,007.6
1993	1,006.2	1,008.7	1,002.1	1,006.9	1,000.7	1,007.0
1994	1,005.3	1,008.3	1,002.5	1,007.4	1,000.6	1,007.0
1995	1,005.8	1,008.6	1,002.5	1,007.3	1,000.8	1,007.0
1996	1,005.7	1,008.5	1,002.1	1,007.1	1,000.3	1,006.7
1997	1,006.7	1,009.4	1,003.1	1,008.0	1,001.6	1,008.0

Contd.

Table C – 04

Air Pressure at Selected Centres

(mbs)

Year / Station	Dalbadin		Jiwani		Panjgur	
	Mean Station Level Pressure	Mean Sea Level Pressure	Mean Station Level Pressure	Mean Sea Level Pressure	Mean Station Level Pressure	Mean Sea Level Pressure
1981	915.8	1,488.9	1,000.7	1,007.1	900.9	1,485.1
1982	914.7	1,469.5	1,002.3	1,008.7	901.3	1,475.6
1983	914.4	1,470.2	1,002.3	1,008.8	901.7	1,487.3
1984	914.1	1,473.0	1,001.6	1,008.1	900.9	1,479.0
1985	916.9	1,480.0	1,002.5	1,008.9	901.9	1,480.0
1986	912.2	1,455.0	1,001.5	1,007.9	901.5	1,485.4
1987	915.4	1,492.0	1,002.4	1,008.4	902.2	1,495.0
1988	914.4	1,479.3	–	–	901.2	1,482.9
1989	915.2	1,484.8	1,002.4	1,008.9	902.0	1,490.0
1990	915.8	1,485.6	1,001.7	1,008.1	901.6	1,488.9
1991	915.3	1,507.1	1,002.4	1,008.8	902.1	1,491.8
1992	915.6	1,512.1	1,001.9	1,008.4	902.4	1,494.4
1993	915.9	1,492.3	–	–	902.8	1,498.4
1994	914.7	1,483.3	1,002.1	1,008.1	902.3	1,494.9
1995	915.0	1,485.2	1,001.0	1,007.3	902.7	1,501.5
1996	915.3	1,485.5	1,001.9	1,008.3	902.9	1,499.6
1997	915.0	1,482.1	1,002.5	1,008.9	903.2	1,501.0

Contd.

Table C - 04

Air Pressure at Selected Centres

(mbs)

Year / Station	Peshawar		Parachinar		Jhelum	
	Mean Station Level Pressure	Mean Sea Level Pressure	Mean Station Level Pressure	Mean Sea Level Pressure	Mean Station Level Pressure	Mean Sea Level Pressure
1980	967.1	1,007.7	830.6	1,485.5	980.9	1,007.4
1981	967.1	1,007.6	827.5	1,498.9	980.9	1,007.5
1982	967.5	1,008.1	824.7	1,476.6	981.5	1,008.1
1983	967.7	1,008.4	826.1	1,482.7	981.6	1,008.3
1984	996.3	1,006.8	825.2	1,472.6	980.2	1,006.7
1985	967.3	1,008.3	833.9	1,478.8	981.2	1,008.1
1986	967.3	1,007.8	825.9	1,477.9	981.5	1,008.0
1987	967.7	1,008.2	827.5	1,494.3	981.7	1,008.2
1988	966.5	1,006.8	826.0	1,479.4	981.0	1,006.8
1989	966.5	1,007.6	826.4	1,485.5	981.0	1,007.6
1990	966.8	1,007.1	827.1	1,492.0	980.7	1,007.2
1991	967.6	1,008.2	826.7	1,488.1	981.2	1,007.8
1992	968.0	1,008.5	826.2	1,481.6	982.0	1,008.2
1993	967.4	1,007.8	826.1	1,481.2	980.9	1,007.5
1994	967.5	1,008.0	826.3	1,484.3	980.9	1,007.4
1995	967.5	1,008.0	826.4	1,485.9	980.9	1,007.5
1996	966.9	1,007.3	826.2	1,480.9	980.6	1,007.2
1997	967.9	1,008.4	826.8	1,490.0	981.8	1,008.5

Contd

Table C - 04

Air Pressure at Selected Centres

(mbs)

Year / Station	D.I.Khan		Lahore		Quetta	
	Mean Station Level Pressure	Mean Sea Level Pressure	Mean Station Level Pressure	Mean Sea Level Pressure	Mean Station Level Pressure	Mean Sea Level Pressure
1980	987.4	1,007.1	983.1	1,007.4	839.5	1,481.6
1981	987.3	1,006.9	982.9	1,007.2	839.5	1,485.9
1982	987.9	1,007.4	983.7	1,008.1	839.3	1,481.3
1983	988.1	1,007.8	983.9	1,008.3	839.9	1,485.5
1984	986.5	1,006.1	982.4	1,006.7	938.1	1,467.2
1985	987.5	1,007.3	983.1	1,007.7	840.0	1,492.0
1986	987.6	1,007.1	983.4	1,007.8	838.0	1,466.6
1987	988.0	1,007.5	983.4	1,007.6	840.8	1,494.7
1988	986.8	1,006.2	982.5	1,006.7	839.9	1,487.6
1989	987.7	1,007.2	983.2	1,007.5	839.8	1,485.2
1990	987.1	1,006.7	982.9	1,007.1	839.6	1,482.0
1991	987.8	1,007.3	983.6	1,007.8	840.2	1,483.9
1992	988.2	1,007.8	984.0	1,008.6	840.7	1,490.6
1993	987.5	1,007.0	983.3	1,007.6	840.3	1,488.2
1994	987.6	1,006.3	983.3	1,007.6	838.4	1,469.9
1995	963.3	1,007.4	983.4	1,007.7	846.9	1,471.6
1996	987.4	1,006.9	982.9	1,007.1	836.3	1,472.0
1997	988.6	1,008.3	984.0	1,008.5	838.5	1,472.3

Contd.

Table C – 04

Air Pressure at Selected Centres

(mbs)

Year / Station	Chhor		Zhob		Multan	
	Mean Station Level Pressure	Mean Sea Level Pressure	Mean Station Level Pressure	Mean Sea Level Pressure	Mean Station Level Pressure	Mean Sea Level Pressure
1980	1,006.0	1,006.7	855.7	–	992.5	1,006.8
1981	1,006.0	1,006.7	864.5	1,460.5	996.2	1,010.4
1982	1,007.6	1,008.3	856.1	1,456.1	992.1	1,006.9
1983	1,006.5	1,007.2	855.2	1,461.5	993.9	1,008.0
1984	1,005.4	1,006.5	854.9	1,451.1	992.4	1,006.5
1985	1,007.1	1,007.8	856.5	1,469.0	992.7	1,008.3
1986	1,006.5	1,007.1	856.5	1,470.2	993.5	1,007.7
1987	1,007.0	1,007.7	856.6	1,470.7	993.9	1,007.9
1988	1,005.2	1,006.3	855.3	1,455.1	992.5	1,006.5
1989	1,006.8	1,007.4	856.0	1,462.8	993.8	1,007.5
1990	1,006.5	1,007.1	855.2	1,462.2	992.9	1,006.9
1991	1,007.8	1,007.6	856.9	1,466.8	994.0	1,007.6
1992	1,007.2	1,007.9	856.5	1,471.7	994.3	1,008.3
1993	1,006.9	1,007.6	856.4	1,468.6	993.7	1,007.6
1994	1,006.8	1,007.5	856.2	1,466.5	993.7	1,007.7
1995	1,008.7	1,007.7	856.0	1,464.3	993.7	1,007.8
1996	1,006.7	1,007.4	855.7	1,460.7	993.3	1,007.3
1997	1,007.8	1,008.5	856.3	1,466.7	995.4	1,009.6

Source: Pakistan Meteorological Department.

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

Table C – 05

Vapour Pressure at Selected Centers

(mbs)

Year/Station	Peshawar (359)	Parachinar (1725)	Jhelum (234)	Zhob (1407)	D.I.Khan (174)	Lahore (214)	Quetta (1589)	Multan (123)
1980	16.9	9.3	17.9	11.5	18.1	18.2	8.7	17.7
1981	16.2	7.6	17.9	9.7	17.8	17.7	9.6	16.5
1982	15.7	9.6	18.3	9.0	17.6	17.6	8.5	18.9
1983	17.3	9.7	18.3	8.9	17.9	18.3	8.9	19.3
1984	16.6	10.0	18.0	9.8	16.3	17.4	8.7	18.0
1985	15.5	9.7	17.6	9.0	16.9	17.8	5.5	18.6
1986	16.0	8.7	18.5	6.5	17.2	18.0	6.9	17.3
1987	15.4	8.7	18.1	7.2	17.3	18.3	6.7	18.2
1988	16.6	8.8	18.3	8.0	18.2	18.7	9.0	18.4
1989	14.7	7.6	16.8	6.8	16.7	17.1	7.7	17.1
1990	17.3	9.7	19.3	8.5	18.8	19.1	7.6	18.8
1991	16.0	8.9	18.6	8.0	18.5	18.3	9.3	18.1
1992	16.6	10.1	18.4	9.7	19.0	18.8	8.4	19.0
1993	16.5	9.3	17.9	9.9	18.7	18.4	7.9	18.9
1994	17.4	6.6	17.4	10.1	18.7	18.4	8.9	18.8
1995	16.5	9.3	17.6	10.2	18.6	18.8	8.5	18.4
1996	16.7	9.0	18.0	9.9	18.1	18.3	8.6	18.2
1997	17.5	5.5	18.2	10.9	18.5	18.6	9.7	18.3

Contd.

Table C – 05

Vapour Pressure at Selected Centers

(mbs)

Year/Station	Dalbadin (850)	Jacobabad (56)	Panjgur (981)	Jiwani (56)	Hyderabad (30)	Chhor (6)	Karachi (Airport) (22)
1980	6.0	16.8	13.8	23.9	19.6	19.8	22.3
1981	6.3	17.2	12.4	24.5	19.5	19.6	21.7
1982	7.5	17.6	13.1	22.2	19.0	17.6	21.9
1983	7.6	17.7	12.5	23.3	19.5	19.4	21.8
1984	6.3	16.6	12.5	21.5	18.7	18.6	21.7
1985	6.3	16.9	13.3	22.2	19.3	19.3	21.9
1986	6.6	16.8	14.4	23.0	19.7	17.6	20.8
1987	7.4	18.0	16.7	24.2	20.5	17.1	20.9
1988	6.7	17.9	11.9	25.7	20.5	19.3	21.4
1989	6.2	17.2	9.8	22.8	17.5	18.2	20.9
1990	8.8	19.8	12.0	22.7	19.8	28.1	22.3
1991	8.4	17.3	12.8	21.5	18.1	18.8	20.5
1992	7.9	18.4	14.4	24.1	19.5	18.9	21.6
1993	9.0	18.8	12.7	–	19.8	19.6	21.0
1994	10.2	19.7	13	23.4	20.1	19.4	21.5
1995	7.3	19.9	13.4	21.9	19.6	19.3	21.2
1996	6.5	18.0	11.7	21.9	18.5	19.0	20.3
1997	7.6	18.6	12.7	22.9	19.7	19.2	21.1

Source: Meteorological Department

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

Table C – 06

Monthly Average Normal Temperature at Selected Centres, 1961 – 90

(Degrees in Centigrade)

Month/Station	Karachi (21)	Nawab shah (37)	Hyder– abad (40)	Jacob– abad (55)	Lahore (213)	Multan (122)	Rawalpindi/ Islamabad (507)	Jhelum (232)	Sargodha (187)
Mean of Maximum									
January	26.6	25.1	24.9	23.3	19.9	21.2	18.2	20.6	20.2
February	28.0	27.2	26.6	24.7	21.7	22.1	17.7	21.0	22.4
Marh	34.3	35.4	35.7	38.2	29.3	31.1	26.0	29.6	27.4
April	34.1	38.5	37.3	36.9	32.5	34.6	28.7	31.4	33.9
May	35.6	45.1	42.1	44.9	39.5	41.4	35.8	39.6	39.1
June	36.4	43.4	40.3	44.8	41.7	43.6	40.1	42.5	41.7
July	32.3	37.8	35.2	38.1	35.8	38.9	33.3	34.7	37.9
August	31.0	36.2	33.4	36.4	34.0	36.4	32.4	33.1	36.3
September	32.8	35.8	34.0	35.9	34.0	34.5	32.9	34.1	36.3
October	36.0	36.7	35.8	33.7	32.3	33.1	29.8	31.9	33.6
November	33.7	32.6	32.0	30.2	28.1	29.0	25.8	27.7	27.8
December	27.8	26.0	25.3	23.6	21.8	22.2	18.2	20.2	22.0
Mean of Minimum									
January	11.4	7.3	11.6	7.3	8.3	5.9	4.4	6.4	3.6
February	13.1	8.5	13.7	9.8	9.9	7.2	5.4	8.1	6.8
Marh	18.9	15.0	19.4	18.0	16.4	15.0	11.5	14.4	12.4
April	21.8	18.4	21.8	21.2	18.8	18.1	14.0	16.5	17.9
May	25.9	24.7	25.5	27.8	25.5	25.5	20.8	23.8	22.5
June	27.6	27.5	27.9	29.1	28.5	29.4	24.7	27.1	26.7
July	25.9	26.9	27.1	28.7	28.1	28.2	24.5	26.4	27.2
August	25.0	25.8	26.2	29.1	27.0	28.2	24.2	25.8	26.4
September	23.4	23.2	24.3	25.8	23.8	23.6	19.5	22.0	23.7
October	18.3	18.0	21.4	21.0	17.9	17.4	13.6	15.8	16.9
November	15.6	14.1	17.9	16.9	13.5	13.6	8.7	11.2	9.9
December	11.4	8.7	12.4	10.7	8.9	7.7	5.0	7.5	4.8

Contd.

Table C – 06

Monthly Average Normal Temperature at Selected Centres, 1961 – 90

(Degrees in Centigrade)

Month/Station	Faisal– abad (183)	Bahawal pur (116)	Pesha– war (359)	D.I. Khan (173)	Quetta (Sammu ngali) (1600)	Zhob (Fort Sande– man) (1405)	Khuz– dar (1231)	Panj– gur (980)	Dalban– din (848)
Mean of Maximum									
January	19.7	21.8	19.6	20.1	12.4	–	18.1	18.3	19.1
February	20.7	22.7	18.5	–	12.1	12.5	18.6	19.9	20.3
Marh	28.9	30.6	26.1	28.9	20.3	22.9	26.7	27.8	28.3
April	34.4	34.7	28.9	34.7	24.2	25.1	28.0	30.2	31.5
May	40.1	42.1	36.4	39.2	31.4	33.0	35.8	37.3	39.3
June	42.5	43.3	41.9	41.3	36.3	37.5	38.7	40.8	43.0
July	37.4	38.2	35.6	36.8	35.9	34.6	34.0	37.0	42.3
August	36.3	36.5	35.4	36.3	35.8	35.0	33.2	37.5	42.0
September	34.4	35.1	34.2	35.2	28.3	30.8	31.1	32.5	35.5
October	32.1	33.2	30.0	32.7	24.1	26.9	28.7	30.3	31.8
November	27.9	30.7	26.8	28.5	21.8	24.0	25.8	27.5	28.7
December	21.4	23.7	19.3	21.5	13.5	16.2	19.9	19.5	20.3
Mean of Minimum									
January	4.9	6.2	4.9	5.3	–3.5	–	3.9	4.7	2.3
February	6.8	8.3	5.8	–	–0.8	2.5	5.5	6.5	5.5
Marh	13.8	13.9	12.1	14.7	6.2	10.3	13.2	13.4	12.3
April	16.9	17.6	14.8	17.4	7.8	11.8	15.4	15.3	13.8
May	24.5	25.0	21.0	24.1	13.5	19.0	21.6	21.0	20.4
June	27.8	26.9	25.5	26.2	18.5	23.8	25.2	25.2	24.6
July	28.0	26.0	26.5	26.8	21.3	23.4	23.0	25.1	27.6
August	27.5	25.5	26.0	26.5	21.7	23.3	22.9	24.1	25.8
September	23.0	23.3	20.5	22.6	10.9	17.6	17.7	18.7	17.0
October	16.2	16.7	14.0	16.5	6.1	11.9	14.3	15.8	13.3
November	11.9	13.6	9.3	12.9	4.3	7.7	9.5	12.0	10.3
December	6.3	7.7	5.1	6.9	–1.4	2.8	5.0	5.3	2.9

Source: Pakistan Meteorological Department.

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

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

Table C – 07

Normals of Maximum and Minimum Temperatures, 1961 – 90
Islamabad (Chaklala)

LAT.33 37' N LONG 73 06' E

Height of ground (at Stevenson Screen) amsl = 1663 ft. (507 m) Height of ssagl = 1.2 m

Month	Maximum Temperature (Degrees Centegrade)										
	Mean			Extremes							
	Daily	Monthly		Highest Recorded						Lowest	
	Max	High Max	Low Max	1931–60		1961–90		to 1990		1961–90	
				Value	Date	Value	Date	Value	Date	Value	Date
January	17.7	22.4	11.2	22.0	17/1955	26.1	15/1965	26.1	15/1965	6.7	22/1964
February	19.1	24.7	11.6	28.0	27/1955	30.0	28/1985	30.0	28/1985	5.0	21/1984
March	23.9	30.3	15.3	32.0	28/1958	34.0	03/1977	34.0	03/1977	9.4	06/1982
April	30.1	36.6	21.0	40.0	25/1958	40.6	05/1970	40.6	05/1970	13.9	16/1983
May	35.3	40.9	25.9	44.0	25/1954	45.6	31/1988	45.6	31/1988	18.3	23/1965
June	38.7	43.5	31.8	45.0	04/1960	46.0	17/1975	46.0	17/1975	27.8	24/1971
July	35.0	40.9	28.1	44.0	08/1957	44.4	05/1987	44.4	05/1987	23.9	30/1971
August	33.4	37.6	27.2	40.0	06/1957	42.0	11/1987	42.0	11/1987	23.0	03/1976
September	33.5	36.4	27.6	38.0	07/1958	38.1	05/1982	38.1	05/1982	24.0	19/1981
October	30.9	34.4	24.1	36.0	02/1960	36.7	01/1968	36.7	01/1968	14.4	31/1961
November	25.4	29.4	18.9	30.0	01/1956	32.2	01/1965	32.2	01/1965	13.9	02/1968
December	19.7	24.4	13.0	25.0	01/1955	27.2	05/1984	27.2	05/1984	9.3	27/1985
Year	28.6	33.4	21.3	45.0	4/6/60	46.0	17/6/75	46.0	17/6/75	5.0	21/2/84
Begin	1961	1961	1961			1961		1961		1961	
No.of years	30	30	30	7		30		37		30	

Contd.

Table C – 07

Normals of Maximum and Minimum Temperatures, 1961 – 90
Islamabad (Chaklala)

LAT.33 37' N LONG 73 06' E

Height of ground (at Stevenson Screen) amsl = 1663 ft. (507 m) Height of ssagl = 1.2 m

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

Contd.

Table C – 07

Normals of Maximum and Minimum Temperatures, 1961 – 90
Karachi (Airport)

LAT.24 54' N LONG 67 08' E

Height of ground (at Stevenson Screen) amsl = 0069 ft. (021 m) Height of ssagl = 1.2 m

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

Contd.

Table C – 07

Normals of Maximum and Minimum Temperatures, 1961 – 90
Karachi (Airport)

LAT.24 54' N LONG 67 08' E

Height of ground (at Stevenson Screen) amsl = 0069 ft. (021 m) Height of ssagl = 1.2 m

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

Contd.

Table C – 07

Normals of Maximum and Minimum Temperatures, 1961 – 90
Lahore

LAT.31 33' N LONG 74 20' E

Height of ground (at Stevenson Screen) amsl = 699 ft. (213 m) Height of ssagl = 1.21 m

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

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

Contd.

Table C – 07

Normals of Maximum and Minimum Temperatures, 1961 – 90
Lahore

LAT.31 33' N LONG 74 20' E

Height of ground (at Stevenson Screen) amsl = 699 ft. (213 m) Height of ssagl = 1.21 m

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

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

Contd.

Table C – 07

Normals of Maximum and Minimum Temperatures, 1961 – 90
Peshawar

LAT.34 01' N LONG 71 35' E

Height of ground (at Stevenson Screen) amsl = 1178 ft. (359 m) Height of ssagl = 1.1 m

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

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

Contd.

Table C – 07

Normals of Maximum and Minimum Temperatures, 1961 – 90

Peshawar

LAT.34 01' N LONG 71 35' E

Height of ground (at Stevenson Screen) amsl = 1178 ft. (359 m) Height of ssagl = 1.1 m

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

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

Contd.

Table C – 07

Normals of Maximum and Minimum Temperatures, 1961 – 90
Quetta (Samungli)

LAT.30 15' N LONG 66 52' E

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

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

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

Contd.

Table C – 07

Normals of Maximum and Minimum Temperatures, 1961 – 90
Quetta (Samungli)

LAT 30 15' N LONG 66 52' E

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

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

Source: Pakistan Meterological Department

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

Table C – 08

Monthly Normals of Rainfall at Selected Centres, 1961 – 90

(mm)

Month / Station	Karachi (Airport) (21)	Nawab – shah (37)	Hyder – abad (40)	Jacob – abad (55)	Lahore (213)	Multan (122)	Rawal – pindi (507)	Jhel – um (232)	Sargo – dha (187)
January	2.2	0.0	1.4	0.7	24.0	5.2	36.1	10.7	13.0
February	2.5	0.2	1.3	13.6	21.5	6.4	51.4	24.1	23.1
March	0.0	0.0	0.0	0.5	6.0	5.2	36.0	19.0	35.1
April	–	2.5	26.7	–	9.8	3.2	69.3	54.9	29.5
May	0.0	0.0	0.0	–	36.7	39.8	36.0	1.6	21.1
June	–	0.0	0.0	5.3	13.6	–	54.8	33.0	23.2
July	256.3	71.1	46.6	156.8	128.3	51.3	596.7	457.3	108.2
August	147.8	234.4	284.6	102.7	154.3	17.6	637.7	296.9	129.1
September	61.7	238.7	126.5	48.1	115.5	159.4	56.2	13.0	26.3
October	0.0	0.0	0.0	0.0	4.3	0.0	29.8	21.8	7.7
November	0.0	0.0	0.0	–	0.5	–	1.0	0.0	5.8
December	11.0	4.8	2.0	38.6	27.5	15.1	93.2	67.1	12.8

Contd.

Table C – 08

Monthly Normals of Rainfall at Selected Centres, 1961 – 90

(mm)

Month / Station	Faisa– labad (183)	Baha– walpur (116)	Pesha– war (359)	D.I. Khan (173)	Quetta (Samungali) (1600)	Zhob (Fort Sandeman) (1405)	Dalban– din (848)	Khuz– dar (1231)	Panjgur (980)
January	3.3	5.3	17.0	0.3	48.4	16.0	15.0	5.0	2.5
February	8.9	4.7	77.5	–	35.2	35.0	30.2	69.2	13.3
March	0.3	0.0	60.0	32.6	26.6	59.0	18.6	6.6	0.0
April	11.0	11.0	80.0	36.8	4.6	52.0	7.5	64.5	16.9
May	2.5	27.0	25.5	3.8	29.0	0.8	3.2	12.9	0.0
June	–	2.0	14.0	68.1	–	54.0	0.0	2.4	0.0
July	37.6	60.2	162.3	154.3	64.0	95.0	6.4	190.7	42.5
August	49.5	76.2	37.5	80.2	22.0	3.3	0.0	150.3	14.0
September	71.0	52.2	95.1	17.9	62.0	58.0	0.0	41.0	1.4
October	0.0	–	55.7	4.8	–	0.0	3.5	–	3.5
November	1.0	–	1.0	8.0	0.0	3.0	0.0	–	0.0
December	5.5	7.7	56.7	7.4	13.0	16.0	3.1	52.1	7.6

Source: Pakistan Meteorological Department

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

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

Table C – 09

Normals of Pressure, Temperature, Humidity and Vapour Pressure
Islamabad (Chaklala), 1961 – 90

LAT.33 37'N LONG:73 06'E Height of barometer cistern amsl = 1667 ft.(0508 m)

Month	Pressure (mb or gpm)						Temperature (degree centigrade					
	Station Level			Reduced to Mean Sea Level/GPM			Dry bulb			Wet bulb		
	00	03	12	00	03	12	00	03	12	00	03	12
	1	2	3	4	5	6	7	8	9	10	11	12
January	957.5	958.5	957.1	1018.6	1019.7	1016.0	4.2	4.1	14.9	3.3	3.1	9.0
February	955.7	956.8	955.3	1016.1	1017.2	1013.4	6.8	7.1	17.1	5.7	5.9	10.5
March	953.5	954.7	952.9	1012.7	1013.7	1009.8	11.2	12.9	22.1	9.5	10.7	13.9
April	950.2	951.4	949.4	1008.3	1008.9	1005.0	16.2	19.9	28.4	13.4	15.4	17.4
May	946.3	947.5	945.3	1003.4	1003.6	999.6	20.7	26.1	33.7	15.7	18.2	19.4
June	941.9	943.2	940.2	997.7	998.1	993.6	24.7	29.7	37.3	19.2	21.3	22.5
July	941.8	942.9	940.2	997.5	998.2	994.3	25.6	27.8	33.5	22.9	23.8	25.1
August	943.6	944.7	942.3	999.6	1000.4	996.8	24.7	26.3	31.8	23.2	23.9	25.5
September	947.7	949.0	946.5	1004.6	1005.4	1001.5	21.5	24.1	31.4	19.8	21.0	22.9
Octobor	953.2	954.6	952.3	1011.7	1012.6	1008.2	14.9	17.6	27.7	13.2	14.7	18.1
November	956.8	958.1	956.1	1016.8	1017.9	1013.5	8.8	10.0	21.2	7.5	8.3	13.5
December	958.1	959.2	957.6	1019.0	1020.2	1016.2	5.0	5.0	16.3	4.1	4.0	10.3
Year	950.5	951.7	949.6	1008.8	1009.7	1005.6	15.4	17.5	26.3	13.1	14.2	17.3
Begin	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961
No. of Years	30	30	30	30	30	30	30	30	30	30	30	30

Month	Temperature (degree centigrade					Relative Humidity (%)			Vapour Pressure (mb)		
	Dew point			Mean Temp.	Mean daily Range						
	00	03	12			00	03	12	00	03	12
	13	14	15	16	17	18	19	20	21	22	23
January	1.9	1.9	1.8	10.1	15.1	85	85	42	7.1	7.0	7.1
February	4.3	4.3	3.1	12.1	14.0	84	83	41	8.4	8.4	7.9
March	7.9	8.5	6.3	16.9	14.0	80	75	38	10.7	11.2	9.8
April	11.1	12.1	9.1	22.6	15.0	72	61	31	13.3	14.1	11.8
May	12.0	12.9	9.3	27.5	15.6	58	45	23	14.3	15.0	12.0
June	15.9	16.5	13.7	31.2	15.0	59	46	26	18.4	19.1	16.6
July	21.6	21.9	21.3	29.7	10.7	79	71	50	26.0	26.5	25.6
August	22.5	22.9	22.8	28.5	9.9	88	81	59	27.4	27.8	27.5
September	18.9	19.4	18.6	27.0	12.9	85	75	47	22.0	22.7	21.9
Octobor	11.8	12.6	11.3	22.4	17.0	82	73	37	13.9	14.7	13.6
November	6.1	6.5	6.4	16.5	17.9	83	80	40	9.5	9.8	9.9
December	2.9	2.7	3.7	11.6	16.3	86	85	45	7.5	7.5	8.1
Year	11.4	11.9	10.6	21.3	14.5	79	72	40	14.9	15.3	14.3
Begin	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961
No. of Years	30	30	30	30	30	30	30	30	30	30	30

Contd.

Table C – 09

Normals of Pressure, Temperature, Humidity and Vapour Pressure
Karachi (Airport), 1961 – 90

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

Month	Pressure (mb or gpm)						Temperature (degree centigrade					
	Station Level			Reduced to Mean Sea Level/GPM			Dry bulb			Wet bulb		
	00	03	12	00	03	12	00	03	12	00	03	12
	1	2	3	4	5	6	7	8	9	10	11	12
January	1013.2	1014.9	1012.2	1016.0	1017.7	1014.9	12.4	12.3	24.1	9.5	9.2	15.5
February	1011.2	1012.8	1010.2	1013.8	1015.5	1012.8	14.9	15.0	25.5	12.3	12.0	16.8
March	1008.1	1009.6	1007.2	1010.7	1012.6	1009.8	19.4	20.3	28.9	17.0	17.3	20.4
April	1004.6	1006.2	1003.8	1007.2	1008.7	1006.3	23.5	25.5	31.3	21.5	22.3	23.2
May	1001.0	1002.5	1000.1	1003.4	1004.9	1002.5	26.6	28.6	32.4	24.7	25.2	25.9
June	996.6	997.8	995.4	999.1	1000.3	997.9	28.5	30.1	32.6	26.3	26.7	27.2
July	995.4	996.5	994.7	997.9	999.0	997.1	28.1	29.1	31.0	26.2	26.5	26.8
August	997.4	998.5	996.8	999.9	1001.1	999.2	27.0	27.7	29.8	25.1	25.4	25.9
September	1002.1	1003.3	1001.3	1004.6	1006.0	1003.8	26.1	27.1	30.3	24.2	24.6	25.3
Octobor	1007.3	1008.7	1006.3	1010.0	1011.4	1008.8	22.4	24.0	31.6	20.2	20.7	23.0
November	1011.2	1012.8	1010.1	1014.0	1015.6	1012.7	17.4	18.6	28.9	14.3	14.8	19.7
December	1013.4	1015.0	1012.3	1016.2	1017.9	1014.9	13.3	13.7	25.1	10.3	10.3	16.5
Year	1005.1	1006.6	1004.2	1007.7	1009.2	1006.7	21.6	22.7	29.3	19.3	19.6	22.2
Begin	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961
No. of Years	30	30	30	30	30	30	30	30	30	30	30	30

Month	Temperature (degree centigrade						Relative Humidity (%)			Vapour Pressure (mb)		
	Dew point			Mean Temp.	Mean daily Range							
	00	03	12				00	03	12	00	03	12
	13	14	15	16	17		18	19	20	21	22	23
January	5.7	5.2	6.8	18.1	15.5		66	64	36	9.6	9.3	10.7
February	9.2	8.6	9.1	20.2	15.0		71	68	39	13.0	11.7	12.4
March	15.0	14.7	14.0	24.5	13.9		78	73	44	17.5	17.3	17.2
April	20.3	20.5	18.3	28.3	12.0		83	76	49	23.9	24.5	21.9
May	23.6	23.5	22.7	30.5	9.4		84	75	60	29.6	29.3	28.0
June	25.2	25.2	25.0	31.4	7.0		83	76	65	32.6	32.1	31.9
July	25.3	25.3	25.0	30.3	5.8		85	80	71	32.4	32.3	31.9
August	24.3	24.4	24.2	28.9	5.6		86	82	73	30.3	30.4	30.1
September	23.3	23.4	22.8	28.9	7.3		85	81	66	28.5	28.8	27.6
Octobor	18.4	18.4	17.7	27.9	13.6		80	74	48	22.0	22.0	21.3
November	11.3	11.1	12.4	23.9	16.0		70	65	40	14.0	14.0	15.5
December	6.6	6.3	8.4	19.5	15.8		66	62	38	10.1	10.0	11.7
Year	17.3	17.2	17.2	26.0	11.4		78	73	52	22.0	21.8	21.7
Begin	1961	1961	1961	1961	1961		1961	1961	1961	1961	1961	1961
No. of Years	30	30	30	30	30		30	30	30	30	30	30

Contd.

Table C – 09

Normals of Pressure, Temperature, Humidity and Vapour Pressure

Lahore, 1961 – 90

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

Month	Pressure (mb or gpm)						Temperature (degree centigrade					
	Station Level			Reduced to Mean Sea Level/GPM			Dry bulb			Wet bulb		
	00	03	12	00	03	12	00	03	12	00	03	12
	1	2	3	4	5	6	7	8	9	10	11	12
January	991.1	992.4	990.8	1017.1	1018.4	1015.8	7.5	7.7	17.6	6.5	6.4	11.9
February	988.9	990.3	988.5	1014.6	1016.0	1013.3	10.4	11.1	20.4	8.8	9.0	13.4
March	986.0	987.5	985.5	1011.2	1012.5	1009.7	15.1	17.2	25.6	12.8	13.6	16.8
April	981.9	983.4	981.0	1006.5	1007.7	1004.6	20.5	24.3	32.5	16.3	17.7	19.9
May	977.5	979.0	976.3	1001.6	1002.8	999.4	24.5	29.2	37.3	18.6	20.4	22.0
June	973.0	974.5	971.2	996.7	998.0	994.1	28.2	31.6	39.2	22.6	23.9	25.1
July	973.0	974.3	971.6	996.8	998.1	994.8	27.9	29.6	34.4	25.3	25.7	26.9
August	975.0	976.3	973.8	998.8	1000.0	997.2	27.3	29.0	33.1	25.6	26.0	27.0
September	979.5	981.0	978.4	1003.6	1005.0	1001.9	25.1	27.5	33.2	23.0	23.6	24.9
Octobor	985.4	987.0	984.7	1010.2	1011.6	1008.5	19.1	22.1	30.4	17.0	18.2	21.1
November	989.6	991.2	989.0	1015.1	1016.6	1013.5	12.7	14.6	24.0	11.4	12.4	17.0
December	991.5	993.0	991.1	1017.5	1018.9	1016.1	8.2	8.7	18.5	7.3	7.5	13.3
Year	982.7	984.2	981.8	1007.5	1008.8	1005.7	18.9	21.0	28.9	16.3	17.0	19.9
Begin	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961
No. of Years	30	30	30	30	30	30	30	30	30	30	30	30

Month	Temperature (degree centigrade					Relative Humidity (%)			Vapour Pressure (mb)		
	Dew point			Mean Temp.	Mean daily Range						
	00	03	12			00	03	12	00	03	12
	13	14	15	16	17	18	19	20	21	22	23
January	5.3	4.9	5.6	12.8	13.9	86	83	46	8.9	8.8	9.4
February	6.9	6.6	5.9	15.4	13.2	80	75	41	10.0	9.9	9.7
March	10.6	10.4	9.3	20.5	13.1	76	65	37	12.9	12.8	12.1
April	13.0	12.8	10.4	26.8	14.3	63	49	27	15.1	14.9	13.0
May	14.4	14.4	11.3	31.2	14.9	54	42	22	16.7	16.7	14.0
June	19.5	19.7	17.2	33.9	13.1	60	50	29	23.0	23.3	20.5
July	24.1	24.0	23.5	31.5	9.2	80	72	54	30.0	30.0	29.5
August	24.8	24.7	24.3	30.7	8.6	86	77	60	31.4	31.2	30.6
September	21.8	21.6	20.6	29.7	10.6	82	70	49	26.4	25.9	24.6
Octobor	15.6	15.5	15.0	25.6	14.7	80	66	40	17.7	17.7	17.4
November	10.1	10.3	11.6	19.5	15.8	85	76	47	12.5	12.7	13.9
December	6.2	6.1	8.2	14.2	14.8	87	84	52	9.5	9.4	11.1
Year	14.4	14.3	13.6	24.3	13.0	77	68	42	17.8	17.8	17.1
Begin	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961
No. of Years	30	30	30	30	30	30	30	30	30	30	30

Contd.

Table C – 09

Normals of Pressure, Temperature, Humidity and Vapour Pressure
Peshawar, 1961 – 90

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

Month	Pressure (mb or gpm)						Temperature (degree centigrade					
	Station Level			Reduced to Mean Sea Level/GPM			Dry bulb			Wet bulb		
	00	03	12	00	03	12	00	03	12	00	03	12
	1	2	3	4	5	6	7	8	9	10	11	12
January	975.2	976.3	974.6	1018.5	1019.7	1016.4	5.7	5.4	16.2	4.0	3.7	10.4
February	973.4	974.6	972.7	1016.1	1017.4	1014.2	8.1	8.0	17.9	6.4	6.2	11.4
March	970.8	972.1	969.9	1012.9	1014.2	1010.6	12.5	13.4	22.3	10.6	11.1	15.0
April	967.3	968.6	966.0	1008.5	1009.5	1005.7	17.4	20.2	28.2	14.6	16.3	18.8
May	962.7	964.1	961.2	1003.1	1003.9	999.7	22.2	26.9	34.3	16.9	19.5	21.2
June	957.1	958.7	955.0	996.6	997.6	992.8	26.6	30.7	38.7	20.1	22.3	24.0
July	956.7	958.1	954.6	996.0	997.3	992.8	27.6	29.4	36.1	23.7	24.5	26.3
August	958.7	960.1	956.9	998.2	999.5	995.3	26.7	27.9	34.1	24.2	24.6	26.7
September	963.4	964.9	961.8	1003.5	1004.9	1000.6	23.7	25.1	32.8	20.8	21.5	24.1
Octobor	969.7	971.2	968.4	1011.1	1012.4	1008.1	17.2	18.3	28.4	14.3	14.9	20.0
November	973.9	975.3	972.9	1016.4	1017.8	1013.8	10.8	10.9	21.3	8.6	8.5	15.3
December	975.7	976.9	975.0	1018.8	1020.1	1016.8	6.4	6.3	16.4	4.9	4.6	11.5
Year	967.1	968.4	965.7	1008.3	1009.5	1005.6	17.1	18.5	27.2	14.1	14.8	18.7
Begin	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961
No. of Years	30	30	30	30	30	30	30	30	30	30	30	30

Month	Temperature (degree centigrade						Relative Humidity (%)			Vapour Pressure (mb)		
	Dew point			Mean Temp.	Mean daily Range							
	00	03	12				00	03	12	00	03	12
	13	14	15	16	17		18	19	20	21	22	23
January	1.4	0.9	3.2	11.2	14.3		75	74	44	6.9	6.7	8.0
February	4.0	3.6	3.4	12.9	13.1		76	75	40	8.3	8.0	8.3
March	8.4	8.7	8.2	17.4	12.6		78	74	42	11.3	11.4	11.2
April	12.3	13.3	11.7	23.2	13.6		73	66	38	14.4	15.5	14.2
May	12.8	14.2	11.9	28.6	14.6		57	48	27	15.1	16.7	14.6
June	15.5	17.2	15.1	33.1	14.7		52	46	26	18.2	20.2	18.3
July	21.6	22.1	21.4	32.2	11.1		71	66	44	26.2	26.9	26.2
August	22.9	23.1	23.3	30.7	10.0		80	76	54	28.0	28.4	28.7
September	19.0	19.3	19.5	28.9	12.3		76	71	46	22.3	22.7	23.1
Octobor	11.7	11.9	14.2	23.7	15.1		71	67	43	14.0	14.2	16.6
November	5.8	5.5	10.1	17.6	16.1		72	70	50	9.5	9.3	12.7
December	2.6	2.0	6.1	12.5	15.2		77	75	52	7.4	7.2	9.7
Year	11.5	11.8	12.3	22.7	13.6		71	67	42	15.1	15.6	16.0
Begin	1961	1961	1961	1961	1961		1961	1961	1961	1961	1961	1961
No. of Years	30	30	30	30	30		30	30	30	30	30	30

Contd.

Table C–09

Normals of Pressure, Temperature, Humidity and Vapour Pressure
Quetta (Samungli), 1961 – 90

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

Month	Pressure (mb or gpm)						Temperature (degree centigrade					
	Station Level			Reduced to Mean Sea Level/GPM			Dry bulb			Wet bulb		
	00	03	12	00	03	12	00	03	12	00	03	12
	1	2	3	4	5	6	7	8	9	10	11	12
January	842.4	843.3	841.6	1516.1	1526.1	1505.4	−1.2	−1.5	9.3	−2.2	−2.5	4.6
February	841.1	842.0	840.3	1505.5	1512.3	1495.8	1.2	1.2	11.5	−0.1	−0.1	6.3
March	840.7	841.7	839.7	1497.3	1507.2	1484.8	5.5	6.8	17.1	3.6	4.6	10.1
April	839.7	840.8	838.6	1485.5	1496.0	1471.2	10.0	13.4	23.3	7.1	9.5	13.7
May	838.0	839.1	837.0	1467.6	1477.6	1450.6	13.2	19.4	29.1	9.0	12.6	16.3
June	834.5	835.4	833.2	1430.4	1437.2	1407.1	17.4	23.7	34.0	11.8	15.4	18.2
July	832.8	834.0	831.2	1410.0	1418.8	1385.4	21.3	24.8	34.3	16.5	18.4	19.4
August	834.4	835.2	832.7	1426.5	1434.9	1403.2	19.5	22.4	33.0	15.0	16.6	18.2
September	838.4	839.5	836.9	1472.2	1480.1	1451.1	12.8	16.2	29.7	8.9	10.6	15.8
Octobor	842.9	844.0	841.7	1519.5	1530.0	1502.6	5.9	9.0	23.7	2.7	4.4	12.1
November	844.4	845.5	843.2	1535.2	1544.7	1519.8	1.1	2.3	17.2	−0.9	−0.2	8.5
December	843.5	844.5	842.7	1526.9	1536.4	1516.4	−1.1	−1.1	11.5	−2.3	−2.5	5.7
Year	839.4	840.4	838.2	1482.7	1491.8	1466.1	8.8	11.4	22.8	5.7	7.2	12.4
Begin	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961
No. of Years	30	30	30	30	30	30	30	30	30	30	30	30

Month	Temperature (degree centigrade					Relative Humidity (%)			Vapour Pressure (mb)		
	Dew point			Mean Temp.	Mean daily Range						
	00	03	12			00	03	12	00	03	12
	13	14	15	16	17	18	19	20	21	22	23
January	−4.0	−4.2	−2.1	3.7	14.1	81	82	50	4.5	4.5	5.4
February	−2.1	−2.0	−0.3	6.0	13.8	80	80	50	5.3	5.3	6.2
March	1.1	1.7	2.8	11.1	15.2	75	71	43	6.7	6.9	8.0
April	4.2	5.7	5.2	16.6	16.5	69	62	35	8.3	9.2	9.6
May	4.8	6.8	6.1	21.0	18.9	59	46	27	8.7	10.3	10.5
June	6.9	9.1	6.2	25.6	19.4	52	41	21	10.3	12.2	10.8
July	13.1	14.5	9.5	27.9	16.0	61	55	26	15.6	17.1	13.0
August	11.7	12.7	7.7	26.4	17.0	63	56	24	14.3	15.3	11.4
September	4.9	5.3	4.0	21.1	20.5	60	50	22	8.9	9.3	9.0
Octobor	−1.9	−1.8	−0.1	14.6	21.6	58	49	24	5.4	5.6	6.7
November	−4.3	−4.3	−2.4	9.2	20.1	67	62	29	4.5	4.4	5.8
December	−4.6	−4.9	−2.2	5.1	16.5	77	76	43	4.2	4.2	5.4
Year	2.5	3.2	2.9	15.7	17.5	67	61	33	8.1	8.7	8.5
Begin	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961	1961
No. of Years	30	30	30	30	30	30	30	30	30	30	30

Source: Pakistan Meteorological Department

Table C – 10

Mean Monthly Wind Velocities at Selected Centres, 1961 – 90

(knots)

Period	Name of Station							
	Badin	Hyder–abad	Jacob–abad	Jhelum	Khanpur	Karachi (Airport)	Lahore	Faisal–abad
January	4.5	2.7	2.8	1.5	2.1	3.0	1.3	1.4
February	4.6	2.7	3.8	1.9	2.9	3.7	2.0	1.9
March	5.6	3.3	5.1	2.3	3.5	5.0	2.4	2.2
April	7.8	4.6	5.6	2.5	3.4	6.3	2.6	2.3
May	11.0	6.8	6.3	2.7	3.6	8.2	2.6	2.6
June	11.3	8.6	7.4	2.8	4.9	8.7	2.8	2.8
July	11.2	8.4	7.9	2.4	–	9.1	2.8	2.9
August	10.3	7.4	6.8	1.9	–	8.6	2.2	2.5
September	8.3	5.8	5.8	1.5	–	7.1	1.7	2.1
October	5.0	2.9	3.4	1.3	–	4.0	1.3	1.5
November	3.9	2.3	2.5	1.0	1.8	2.7	0.9	1.2
December	4.2	2.7	2.3	1.2	1.9	2.8	1.0	1.1

Contd.

Table C – 10

Mean Monthly Wind Velocities at Selected Centres, 1961 – 90

(knots)

Period	Multan	Pesha– war	Quetta	Sialkot	Dalban– din	Jiwani	Punjgur Punjgur	Chhor Chhor
January	1.2	1.7	3.7	1.0	3.7	5.3	5.8	3.4
February	1.9	2.0	4.4	1.6	4.3	5.9	5.9	3.8
March	2.6	2.4	4.9	2.0	4.7	7.3	5.9	4.5
April	2.6	2.4	4.9	1.0	4.7	8.1	6.0	6.7
May	2.7	3.0	5.3	1.8	4.5	8.0	6.3	10.4
June	4.1	3.0	5.1	2.1	4.5	8.0	6.7	12.1
July	3.6	3.1	6.0	1.8	4.7	8.2	5.9	10.8
August	3.3	2.7	5.0	1.3	4.2	7.7	–	9.0
September	2.9	–	3.7	1.1	3.5	6.1	–	7.5
October	1.6	–	3.4	0.8	3.5	5.3	5.0	4.2
November	1.0	1.4	2.8	0.5	3.2	4.8	5.6	3.1
December	1.0	–	3.1	0.8	3.3	4.8	5.5	3.0

Contd.

Table C – 10

Mean Monthly Wind Velocities at Selected Centres, 1961 – 90

(knots)

Period		Padidan	Chaklala	Murree	Sargo– dha	D.I.Khan	Kohat	Para– chinar
January		2.4	1.7	4.0	2.5	2.1	4.4	3.3
February		2.6	2.4	4.2	3.1	2.5	5.0	3.3
March		3.2	2.7	4.5	3.7	2.7	5.3	3.7
April		3.7	2.5	4.7	4.1	3.1	5.7	4.3
May		4.5	2.7	4.5	4.3	3.5	5.9	4.4
June		6.6	2.5	3.6	4.7	3.5	5.2	4.6
July		6.5	2.4	2.8	4.9	3.9	4.4	4.3
August		–	1.7	2.6	4.1	3.4	3.8	4.4
September		3.8	1.3	2.9	3.3	2.6	4.1	4.2
October		3.3	1.1	3.3	2.6	2.0	4.8	3.8
November		1.9	1.0	3.4	2.2	1.5	4.6	3.8
December		2.1	1.3	4.1	2.3	1.6	4.1	3.8

Source:– Pakistan Meteorological Department.

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

Table C – 11

Normals of Wind Speed and Direction, 1961 – 90

Islamabad (Chaklala)

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

Height of anemometer above ground = 43ft.(13m).

Month	Wind Frequency (Percent) Speed in Knot Ranges								
	Calm	1 to 3	4 to 6	7 to 10	11 to 16	17 to 21	22 to 27	28 to 33	> 33
	1	2	3	4	5	6	7	8	9
January	72	13	7	7	1.0	0.0	0.0	0.0	0.0
February	63	14	9	11	3.0	0.1	0.1	0.0	0.0
March	57	15	11	12	5.0	1.0	0.3	0.0	0.0
April	59	15	11	11	3.0	1.0	0.0	0.0	0.1
May	54	14	12	14	4.0	1.0	0.4	0.1	0.1
June	49	18	12	18	3.0	0.4	0.1	0.0	0.1
July	59	18	12	10	1.0	0.1	0.1	0.1	0.0
August	71	17	6	5	1.0	0.0	0.1	0.0	0.0
September	78	13	4	3	1.0	0.1	0.1	0.0	0.0
October	87	6	4	2	1.0	0.4	0.1	0.0	0.0
November	86	8	3	3	0.4	0.0	0.0	0.0	0.0
December	83	9	5	3	0.0	0.0	0.0	0.0	0.0
Year	68	13	8	8	2.0	0.3	0.1	0.0	0.0
Begin					1976				
No. of years					3				

Contd.

Table C – 11

Normals of Wind Speed and Direction, 1961 – 90

Islamabad (Chaklala)

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

Height of anemometer above ground = 43ft.(13m).

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

Contd.

Table C – 11

Normals of Wind Speed and Direction, 1961 – 90

Karachi (Airport)

LAT.24 45'N LONG: 67 08'E

Height of anemometer above ground = 23ft.(7m).

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

Contd.

Table C – 11

Normals of Wind Speed and Direction, 1961 – 90

Karachi (Airport)

LAT.24 45'N LONG: 67 08'E

Height of anemometer above ground = 23ft.(7m).

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

Contd.

Table C – 11

Normals of Wind Speed and Direction, 1961 – 90

Karachi (Airport)

LAT.24 45'N LONG: 67 08'E

Height of anemometer above ground = 23ft.(7m).

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

Contd.

Table C – 11

Normals of Wind Speed and Direction, 1961 – 90

Karachi (Airport)

LAT 24 45'N LONG: 67 08'E

Height of anemometer above ground = 23ft.(7m).

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

Contd.

Table C – 11

Normals of Wind Speed and Direction, 1961 – 90

Lahore

LAT.31 33'N LONG: 74 20'E

Height of anemometer above ground = 37ft.(11m).

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

Contd.

Table C – 11

Normals of Wind Speed and Direction, 1961 – 90

Lahore

LAT.31 33'N LONG: 74 20'E

Height of anemometer above ground = 37ft.(11m).

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

Contd.

Table C – 11

Normals of Wind Speed and Direction, 1961 – 90

Lahore

LAT.31 33'N LONG: 74 20'E

Height of anemometer above ground = 37ft.(11m).

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

Contd.

Table C – 11

Normals of Wind Speed and Direction, 1961 – 90

Lahore

LAT.31 33'N LONG: 74 20'E

Height of anemometer above ground = 37ft.(11m).

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

Contd.

Table C – 11

Normals of Wind Speed and Direction, 1961 – 90

Peshawar

LAT.34 01'N LONG: 71 35'E

Height of anemometer above ground = 41ft.(12m).

Month	Wind Frequency (Percent) Speed in Knot Ranges								
	Calm	1 to 3	4 to 6	7 to 10	11 to 16	17 to 21	22 to 27	28 to 33	> 33
	1	2	3	4	5	6	7	8	9
January	52	41	4	3	0.1	0.1	0	0	0
February	40	49	6	4	1	0.4	0	0	0
March	36	49	6	6	2	1	0.1	0	0
April	36	45	9	8	1	0.3	0	0	0
May	34	42	12	9	2	1	0.1	0.1	0
June	25	44	13	13	3	1	0.1	0.1	0.1
July	17	52	15	15	1	0.3	0.3	0	0
August	20	54	13	12	1	0.3	0.1	0	0.1
September	35	53	6	5	0.1	0.1	0	0	0
October	57	39	2	1	0.4	0	0	0	0
November	59	38	2	1	0.1	0.1	0	0	0
December	69	30	1	1	0	0	0	0	0
Year	40	45	7	7	1	0.4	0.1	0	0
Begin					1976				
No. of years					3				

Contd.

Table C – 11

Normals of Wind Speed and Direction, 1961 – 90

Peshawar

LAT.34 01'N LONG: 71 35'E

Height of anemometer above ground = 41ft.(12m).

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

Contd.

Table C – 11

Normals of Wind Speed and Direction, 1961 – 90

Peshawar

LAT.34 01'N LONG: 71 35'E

Height of anemometer above ground = 41ft.(12m).

Month	Mean Wind at Synoptic Hour								
	Speed (Knots)						Direction (degrees & 8 points)		
	06 GMT	09 GMT	12 GMT	15 GMT	18 GMT	21 GMT	00 GMT	03 GMT	06 GMT
	20	21	22	23	24	25	26	27	28
January	1.5	2.9	1.7	0.9	1.5	1.2	169	176	107
			1.4				S	S	VRB
February	2.5	4.2	3.0	1.5	1.5	1.3	189	195	351
			2.7				S	S	N
March	2.8	4.6	3.8	1.9	2.2	2.1	200	208	350
			3.2				S	SW	N
April	2.7	3.9	3.3	2.0	2.4	2.2	181	204	7
			3.7				S	SW	N
May	4.1	4.9	4.9	2.0	1.9	1.9	207	290	12
			4.6				SW	VRB	N
June	4.1	5.3	6.6	3.3	2.7	2.3	323	341	28
			5.4				NW	N	NE
July	3.5	5.2	5.3	3.5	2.9	2.7	335	344	10
			5.1				NW	N	N
August	3.3	4.2	4.9	2.9	2.5	2.9	340	345	13
			4.4				N	N	N
September	2.5	3.2	4.1	1.7	1.7	1.5	321	337	21
			3.6				NW	NW	N
October	1.7	2.4	1.6	1.0	1.0	1.2	210	239	17
			1.6				SW	VRB	N
November	1.3	2.0	1.0	1.0	0.8	1.1	185	185	63
			0.7				S	S	VRB
December	1.0	1.0	0.4	0.6	0.7	0.9	183	180	120
			0.7				S	S	VRB
Year	2.6	3.7	3.4	1.9	1.8	1.8	245	306	15
			3.1				SW	NW	N
Begin			1976						
			1961						
No. of years			3						
			28						

Contd.

Table C – 11

Normals of Wind Speed and Direction, 1961 – 90

Peshawar

LAT.34 01'N LONG: 71 35'E

Height of anemometer above ground = 41ft.(12m).

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

Contd.

Table C – 11

Normals of Wind Speed and Direction, 1961 – 90

Quetta (Samungli)

LAT.30 15'N LONG: 66 53'E

Height of anemometer above ground = 27ft.(2m).

Month	Wind Frequency (Percent) Speed in Knot Ranges								
	Calm	1 to 3	4 to 6	7 to 10	11 to 16	17 to 21	22 to 27	28 to 33	> 33
	1	2	3	4	5	6	7	8	9
January	49	20	12	13	5	1	0.2	0	0
February	51	12	13	16	6	2	0.4	0	0
March	46	13	12	18	7	2	0.3	0	0.1
April	44	15	14	20	6	1	1	0	0
May	51	12	10	17	8	2	1	0	0
June	37	19	14	20	8	3	0	0	0
July	24	22	16	26	10	2	0.1	0	0.1
August	37	21	17	19	4	1	0.1	0	0
September	50	18	16	14	2	0.4	0.1	0	0
October	55	21	12	10	1	0.2	0	0	0
November	54	18	12	12	3	0.2	0.1	0	0
December	61	16	11	8	3	1	0	0	0
Year	47	17	13	16	5	1	0.2	0	0
Begin					1975				
No. of years					4				

Contd.

Table C – 11

Normals of Wind Speed and Direction, 1961 – 90

Quetta (Samungli)

LAT.30 15'N LONG: 66 53'E

Height of anemometer above ground = 27ft.(2m).

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

Contd.

Table C – 11

Normals of Wind Speed and Direction, 1961 – 90

Quetta (Samungli)

LAT.30 15'N LONG: 66 53'E

Height of anemometer above ground = 27ft.(2m).

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

Contd.

Table C – 11

Normals of Wind Speed and Direction, 1961 – 90

Quetta (Samungli)

LAT.30 15'N LONG: 66 53'E

Height of anemometer above ground = 27ft.(2m).

Month	Mean Wind at Synoptic Hour					MEAN WIND			Max. Wind Speed (Kts)
	Direction (degrees & 8 points)					Speed (KTS)	Direction Deg & 8Pt	Steadiness (Percent)	
	09 GMT	12 GMT	15 GMT	18 GMT	21 GMT				
	29	30	31	32	33	34	35	36	37
January	276	304	201	182	193	3.0	242	20	23
	W	NW	VRB	S	S	3.7	VRB		
February	269	274	209	153	152	3.5	214	23	24
	W	W	SW	SE	SE	4.4	VRB		
March	283	275	210	146	163	3.9	246	32	35
	W	W	SW	SE	S	4.9	SW		
April	268	262	175	175	163	4.0	232	28	27
	W	W	S	S	S	4.9	SW		
May	297	300	292	275	165	3.8	294	70	26
	NW	NW	W	W	S	5.2	NW		
June	294	296	194	151	147	4.4	228	21	21
	NW	NW	S	SE	SE	5.1	VRB		
July	239	251	166	152	154	5.3	161	51	50
	SW	W	S	SE	SE	6.0	S		
August	285	264	189	158	156	3.8	190	33	23
	W	W	S	S	SE	5.0	S		
September	303	297	196	155	135	2.8	268	22	22
	NW	NW	S	SE	SE	3.7	VRB		
October	308	305	239	136	149	2.2	302	57	17
	NW	NW	SW	SE	SE	3.4	NW		
November	300	301	259	157	158	2.5	292	43	25
	NW	NW	VRB	SE	S	2.8	W		
December	296	302	166	147	147	2.2	273	24	21
	NW	NW	S	SE	SE	3.1	VRB		
Year	289	290	197	156	155	3.4	244	35	50
	W	W	S	SE	SE	4.4	SW		
Begin	1975					1975	1975	1975	1975
						1961			
No. of years	4					4	4	4	4
						30			

Source: Pakistan Meteorological Department

Table C – 12

Normals of cloud and precipitation, 1961 – 90

Islamabad (Chaklala)

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

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

* Yearly averages, totals and extremes as applicable.

Contd.

Table C – 12

Normals of cloud and precipitation, 1961 – 90

Islamabad (Chaklala)

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

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

* Yearly averages, totals and extremes as applicable.

Contd.

Table C – 12

Normals of cloud and precipitation, 1961 – 90

Islamabad (Chaklala)

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

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

* Yearly averages, totals and extremes as applicable.

Contd.

Table C – 12

Normals of cloud and precipitation, 1961 – 91

Karachi (Airport)

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

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

* Yearly averages, totals and extremes as applicable.

Contd.

Table C – 12

Normals of cloud and precipitation, 1961 – 91

Karachi (Airport)

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

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

* Yearly averages, totals and extremes as applicable.

Contd.

Table C – 12

Normals of cloud and precipitation, 1961 – 91

Karachi (Airport)

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

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

* Yearly averages, totals and extremes as applicable.

Contd.

Table C – 12

Normals of cloud and precipitation, 1961 – 90

Lahore

LAT:31 33'N Long :74 22'E

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

* Yearly averages, totals and extremes as applicable.

Contd.

Table C – 12

Normals of cloud and precipitation, 1961 – 90

Lahore

LAT 31 33'N Long :74 22'E

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

* Yearly averages, totals and extremes as applicable.

Contd.

Table C – 12

Normals of cloud and precipitation, 1961 – 90

Lahore

LAT:31 33'N Long :74 22'E

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

* Yearly averages, totals and extremes as applicable.

Contd.

Table C – 12

Normals of cloud and precipitation, 1961 – 90

Peshawar

LAT:34 01'N Long :71 35'E

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

* Yearly averages, totals and extremes as applicable.

Contd.

Table C – 12

Normals of cloud and precipitation, 1961 – 90

Peshawar

LAT:34 01'N Long :71 35'E

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

* Yearly averages, totals and extremes as applicable.

Contd.

Table C – 12

Normals of cloud and precipitation, 1961 – 90

Peshawar

LAT:34 01'N Long :71 35'E

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

* Yearly averages, totals and extremes as applicable.

Contd.

Table C – 12

Normals of cloud and precipitation, 1961 – 90

Quetta (Samungli)

LAT:30 15'N Long :66 53'E

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

* Yearly averages, totals and extremes as applicable.

Contd.

Table C – 12

Normals of cloud and precipitation, 1961 – 90

Quetta (Samungli)

LAT:30 15'N Long :66 53'E

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

* Yearly averages, totals and extremes as applicable.

Contd.

Table C – 12

Normals of cloud and precipitation, 1961 – 90

Quetta (Samungli)

LAT:30 15'N Long :66 53'E

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

Source:– Pakistan Meterological Department

* Yearly averages, totals and extremes as applicable.

Table C – 13

Area of Crops Covered by Ground Plant Protection Measures in Pakistan

Area '000 hectares

Year	Cropped area	Area sprayed		Spray hectare
		Actual	Percent	
1980–81	19,330	673	4	1,505
1981–82	19,780	1,021	5	2,300
1982–83	20,130	1,097	5	2,552
1983–84	19,990	941	5	2,680
1984–85	19,920	1,177	6	3,711
1985–86	20,280	1,845	9	6,059
1986–87	20,900	1,942	9	6,297
1987–88	19,520	2,394	12	7,408
1988–89	21,820	2,440	11	5,237
1989–90	21,890	2,465	11	6,996
1990–91	21,820	3,772	17	8,197
1991–92	21,720	4,251	20	8,937
1992–93	22,440	NA	NA	NA
1993–94	21,870	NA	NA	NA
1994–95	22,140	6,774	31	NA
1995–96	22,550	7,167	32	NA

Source: Provincial Agriculture Department.

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

Table C – 14

Area Covered by Aerial Plant Protection Operation in Pakistan

Area '000 hectares

Year	Cropped area	Area Sprayed	% Area Sprayed	Spray hectare
1980–81	19,330	173	0.90	250
1981–82	19,780	161	0.80	191
1982–83	20,130	183	0.90	273
1983–84	19,990	165	0.80	250
1984–85	19,920	190	1.00	319
1985–86	20,280	166	0.80	173
1986–87	20,900	196	0.90	294
1987–88	19,520	123	0.60	270
1988–89	21,820	68	0.30	80
1989–90	21,460	66	0.30	80
1990–91	21,820	94	0.40	110
1991–92	21,720	217	1.00	231
1992–93	22,440	355	1.60	376
1993–94	21,870	12	0.10	36
1994–95	22,140	89	0.40	89
1995–96	22,550	22	0.10	62

Source: Department of Plant Protection.

Table C – 15

Area Irrigated by Different Sources

(Million Hectares)

Year	Total	Canals		Tube-wells	Wells	Canal Tube-wells	Canal Wells	Tanks	Others
		Govern-ment	Private						
1980-81	14.84	7.77	0.37	1.83	0.21	3.95	0.10	(*)	0.61
1981-82	15.30	7.84	0.40	1.99	0.19	4.17	0.11	(*)	0.60
1982-83	15.48	7.73	0.36	1.98	0.18	4.53	0.07	(*)	0.63
1983-84	15.46	7.61	0.34	1.95	0.18	4.58	0.08	(*)	0.72
1984-85	15.28	7.39	0.39	1.97	0.19	4.68	0.08	(*)	0.58
1985-86	15.79	7.44	0.40	2.05	0.19	4.95	0.08	(*)	0.68
1986-87	16.31	7.55	0.41	2.20	0.18	5.16	0.07	(*)	0.74
1987-88	15.68	7.32	0.41	2.30	0.16	5.23	0.07	(*)	0.19
1988-89	16.64	7.44	0.42	2.46	0.16	5.53	0.08	(*)	0.55
1989-90	16.89	7.31	0.43	2.57	0.16	5.72	0.08	(*)	0.62
1990-91	16.75	7.47	0.42	2.56	0.13	5.87	0.08	(*)	0.22
1991-92	16.85	7.42	0.43	2.59	0.16	5.93	0.11	(*)	0.21
1992-93	17.33	7.47	0.44	2.67	0.18	6.23	0.10	(*)	0.24
1993-94	17.13	7.25	0.48	2.78	0.14	6.22	0.09	(*)	0.17
1994-95	17.20	7.06	0.45	2.83	0.17	6.41	0.10	(*)	0.18
1995-96	17.58	7.15	0.45	2.89	0.18	6.58	0.11	(*)	0.22
1996-97	17.85	7.35	0.46	2.88	0.18	6.61	0.11	(*)	0.26

Source: Provincial Agriculture Departments.

Note: (*) Nominal

Table C – 16

Tentative Reclamation Programme for Kharif, 1997 (PUNJAB)

Canal Circle	Total Thur * Area (acres)	Reclamation Supply (Cusec)					Area for which reclamation supply is demanded	Area reclaimed previously upto date
		Utilized during Kh. 1997	Released after Kh. 1997	To be repeated during Kh.1997	New proposed for Kh.1997	Total proposed for Kh.1997		
Sahiwal LBDC	156,861	38.75	–	38.75	246.00	284.75	12,814	322,741
Faisalabad East LCC	248,839	3.80	–	3.80	348.50	352.50	15,853	161,729
Faisalabad West LCC	133,405	3.12	–	3.12	240.00	243.12	10,940	161,406
Multan HCC	387,337	64.20	5.87	58.33	165.00	223.33	10,049	130,113
Bahawal Pur	924,689	70.99	1.00	69.99	668.15	738.14	33,288	143,104
Lahore UCC	119,023	69.67	–	69.67	344.00	413.67	18,614	264,339
Lahore General	110,629	3.00	–	3.00	209.00	212.00	9,540	30,025
Total	2,080,783	253.53	6.87	246.66	2,220.65	2,467.31	111,098	1,213,457

Source: Salinity Assessment and Management; Annual report 1995–96
Directorate of Land Reclamation Irrigation and Power
Department, Lahore (Punjab)

Table C – 17

Tentative Reclamation Programme for Kharif, 1996

(PUNJAB)

Canal Circle	Total Thur * Area (acres)	Reclamation Supply (Cusec)					Area for which reclamation supply is demanded	Area reclaimed previously upto date
		Utilized during Kh. 1995	Released after Kh. 1995	To be reported during Kh.1996	New proposed for Kh.1996	Total proposed for Kh.1996		
Sahiwal LBDC	299,290	44.00	19.00	25.00	275.00	300.00	13,500	322,228
Faisalabad East LCC	224,165	–	–	–	353.50	353.50	15,908	161,558
Faisalabad West LCC	133,545	–	–	–	240.00	240.00	10,800	161,231
Multan HCC	395,770	51.20	51.20	–	223.50	223.50	10,058	127,233
Bahawal Pur	1,035,739	74.25	73.25	1.00	897.15	898.15	40,416	140,003
Lahore UCC	110,776	153.04	153.04	–	340.00	340.00	15,300	261,204
Lahore General	108,527	7.75	–	7.75	205.50	213.25	9,796	29,890
Total	2,307,812	330.14	196.49	33.75	2,534.60	2,568.40	115,578	1,203,347

Source: Soil Salinity–A threat Annual Report 1994–95
Directorate of Land Reclamation Irrigation and power
Department. Lahore (Punjab)

* = Total Thur included in the reclamation programme

Table C – 18

River Flow Availability (Kharif and Rabi)

(Million Acre Feet)

Year	Kharif				Rabi			
	Jehlum at Mangla	Chenab at Marala	Indus at * Kalabagh	Total	Jehlum at Mangla	Chenab at Marala	Indus at Kalabagh	Total
1980–81	17.73	20.48	71.60	109.81	5.71	5.71	15.16	26.58
1981–82	18.37	23.45	75.87	117.69	4.22	4.64	14.07	22.93
1982–83	15.65	22.88	58.57	97.10	5.68	4.92	14.67	25.27
1983–84	22.72	26.20	79.36	128.28	3.50	3.62	14.55	21.67
1984–85	15.66	21.28	79.50	116.44	3.01	2.80	13.12	18.93
1985–86	12.07	19.37	60.22	91.66	5.57	4.86	15.61	26.04
1986–87	20.62	22.19	73.57	116.38	7.22	5.51	17.54	30.27
1987–88	21.38	20.41	70.00	111.79	6.45	4.80	18.03	29.28
1988–89	19.74	27.46	89.36	136.56	4.24	5.23	15.37	24.84
1989–90	18.01	19.74	64.26	102.01	6.70	5.67	16.94	29.31
1990–91	19.71	23.42	87.85	130.78	7.69	6.56	20.89	35.14
1991–92	25.13	23.26	93.14	141.53	5.98	5.55	19.04	30.57
1992–93	25.18	22.60	90.84	138.62	6.82	5.18	19.06	31.06
1993–94	18.69	19.53	66.45	104.67	4.01	3.45	15.33	22.49
1994–95	20.82	24.55	92.65	138.02	5.67	5.65	16.47	27.79
1995–96	21.91	26.40	81.49	130.20	6.17	5.47	17.42	29.06
1996–97	24.93	27.48	85.08	137.49	4.11	4.41	15.26	23.78

Year	Total (Kharif & Rabi)			
	Jehlum at Mangla	Chenab at Marala	Indus at Kalabagh	Total
1980–81	23.44	26.19	85.98	135.61
1981–82	22.59	28.09	86.21	123.88
1982–83	21.33	27.80	64.24	113.37
1983–84	26.22	29.83	81.58	137.63
1984–85	18.67	24.08	83.44	126.19
1985–86	17.64	24.23	66.13	108.00
1986–87	27.84	27.70	87.65	143.19
1987–88	27.83	25.21	81.06	134.10
1988–89	23.98	32.69	92.76	149.43
1989–90	24.71	25.41	77.31	127.43
1990–91	27.40	29.98	97.09	154.47
1991–92	31.11	28.81	107.75	167.67
1992–93	32.00	27.78	96.20	155.98
1993–94	22.70	22.97	22.97	68.64
1994–95	26.48	30.20	10.52	67.20
1995–96	28.08	31.87	96.57	156.52
1996–97	29.04	31.88	92.98	153.90

Source Water and Power Development Authority (WAPDA).

* Un–regulated

Table C – 19

Summary of Protected Areas in Pakistan (based on NCCW data)

Region/Province	National Parks	Wildlife Sanctuaries	Game Reserves	Not Classified	Total PAs	Total Area Conserved (ha)	% of Total Land Area Protected
Azad Jammu Kashmir	1	0	8	0	9	51998	3.91
Balochistan	2	15	7	7	31	1837704	5.29
Punjab	2	37	19	0	58	3315803	16.14
NWFP	3	6	38	5	52	470675	6.30
Sindh	1	35	14	4	54	1307575	9.27
Federal Territory	1	1	1	0	3	94186	100.00
Northern Areas	4	5	9	0	18	2092180	2.97
Totals	14	99	96	16	225	9170121	10.40

Source: Ministry of Environment, Local Government and Rural Development.
Note: NCCW = National Council for Conservation of Wildlife
PA = Protected Area

Table C – 20

Forest Area

(000 ha)

Forest Type	Punjab	NWFP	Sindh	Baloch–istan	Azad Kashmir	Northern Areas	Total
Coniferous Forests	64	963	–	131	407	285	1,850
Irrigated Plantations	143	–	106	0.3	–	8	257
Riverain Forests	56	–	267	45	–	–	368
Scrub Forests	377	38	1	142	9	652	1219
Coastal Forests	–	–	281	0.3	–	–	282
Linear Plantations	46	5	–	–	–	–	51
Private Plantations	21	213	–	15	–	–	249
Total	707	1219	655	334	416	945	4276
Range Lands	2684	133	393	795	151	2104	6260
Grand Total	3391	1352	1048	1129	567	3049	10536

Source: Reports from Provincial Forest Departments 1997–98

Table C – 21

Sectoral Share of Forestry in Agriculture and GDP

Year	Value added at constant factor cost of 1980–81 (Million Rupees)			Percentage share of Forestry	
	GDP	Agriculture	Forestry	In Agriculture	In GDP
1980–81	247,831	76,399	777	1.02	0.31
1981–82	266,571	80,008	800	1.00	0.30
1982–83	284,667	83,532	912	1.09	0.32
1983–84	295,977	79,502	1,038	1.31	0.35
1984–85	321,751	88,187	1,039	1.18	0.32
1985–86	342,224	93,433	1,070	1.15	0.31
1986–87	362,110	96,473	1,190	1.23	0.33
1987–88	385,416	99,108	1,218	1.23	0.32
1988–89	403,948	105,917	1,257	1.19	0.31
1989–90	422,484	109,127	1,379	1.26	0.33
1990–91	446,005	114,542	1,446	1.26	0.32
1991–92	480,413	125,425	1,139	0.91	0.24
1992–93	491,325	118,795	1,132	0.95	0.23
1993–94	513,635	125,005	1,192	0.95	0.23
1994–95	540,528	133,215	1,211	0.91	0.22
1995–96	568,593	140,946	909	0.64	0.16
1996–97	575,999	141,032	962	0.68	0.17
1997–98	607,325	149,357	739	0.49	0.12

Source: Federal Bureau of Statistics.

Table C – 22

Area of Forests and Range Lands under the Control of Forest Departments – by Legal Category in 1997–98

(000 Hectares)

Category	Total	Balochistan	NWFP	Punjab	Sindh	Northern Areas
1	2	3	4	5	6	7
Total	9,784	1,088	1,155	3,324	1,168	3,049
State	684	684	–	–	–	–
Reserved	649	–	95	338	216	–
Protected	4,654	404	578	2,742	863	67
Unclassed	191	–	68	98	25	–
Resumed	103	–	37	9	57	–
Guzara	337	–	269	68	–	–
Communal	3,016	–	34	–	–	2,982
Section 38	51	–	31	20	–	–
Chose Act	1	–	–	1	–	–
Miscellaneous	98	–	43	48	7	–

Source: Ministry of Environment, Local Government & Rural Development (Stat–IGF)

Table C – 23

Forest Area under the Control of Forest Departments by Types of Vegetation in 1997–98

(000 Hectares)

Category	Total	Balochistan	NWFP	Punjab	Sindh	Northern Areas
1	2	3	4	5	6	7
Total	10,026	1,128	1,337	3,344	1,168	3,049
Coniferous	1,443	131	963	64	–	285
Irrigated – plantation	226	–	–	142	82	2
Riverain	342	45	–	56	241	–
Scrub	1,225	142	38	377	10	658
Coastal	345	–	–	–	345	–
Range Lands	6,206	795	133	2,684	490	2,104
Private – Plantations	239	15	203	21	–	–

Source: Ministry of Environment, Local Government & Rural Development (Stat–IGF)

Table C – 24

Area Afforested

(000 hectares)

Year	Total	Balochistan	NWFP	Punjab	Sindh
1980–81	15.6	0.1	10.2	4.3	1.0
1981–82	19.4	0.2	12.7	4.9	1.6
1982–83	24.2	0.1	18.2	5.1	0.8
1983–84	19.5	–	13.0	5.1	1.4
1984–85	20.2	0.6	12.2	6.3	1.1
1985–86	26.9	0.1	18.6	6.3	1.9
1986–87	15.9	0.1	12.2	1.2	2.4
1987–88	17.9	0.1	13.2	1.8	2.8
1988–89	33.8	–	23.1	7.9	2.8
1989–90	35.8	–	18.7	13.6	3.5
1990–91	22.1	–	13.9	4.5	3.7
1991–92	29.4	–	19.7	5.8	3.9
1992–93	34.9	1.2	28.4	3.7	1.6
1993–94	13.1	–	9.9	2.5	0.7
1994–95	14.7	1.8	9.8	1.5	1.6
1995–96	19.1	0.9	13.6	2.7	1.9
1996–97	19.9	–	15.1	1.9	2.9
1997–98	21.4	1.0	14.7	2.9	2.8

Source: Ministry of Environment, Local Government & Rural Development(Stat–IGF)

Table C – 25

Area Regenerated

(000 hectares)

Year	Total	Balochistan	NWFP	Punjab	Sind
1980–81	22.6	–	3.2	2.2	17.2
1981–82	15.2	–	3.2	2.0	10.0
1982–83	31.0	–	3.2	2.0	25.8
1983–84	30.8	–	3.0	2.0	25.8
1984–85	30.4	–	3.2	1.3	25.9
1985–86	27.1	–	3.0	1.8	22.3
1986–87	30.8	0.1	–	3.6	27.1
1987–88	17.4	–	3.1	3.3	11.0
1988–89	20.5	–	7.4	2.1	11.0
1989–90	16.0	–	3.2	1.6	11.2
1990–91	19.3	–	4.4	3.4	11.5
1991–92	16.2	–	2.9	1.3	12.0
1992–93	36.2	–	6.3	4.6	25.3
1993–94	27.2	–	–	2.3	24.9
1994–95	31.9	0.2	1.9	4.2	25.6
1995–96	32.1	–	2.0	4.5	25.6
1996–97	18.7	0.1	2.5	3.6	12.5
1997–98	16.5	0.1	1.9	3.0	11.5

Source: Ministry of Environment, Local Government & Rural Development(Stat–IGF)

Table C – 26

Area Requiring Drainage Facilities by Province, 1991

Province	Total		Surface		
	Surface	Sub – Surface	Completed	On – going	New
Total	9.68	6.38	1.28	2.98	5.42
Balochistan	0.76	–	0.07	0.50	0.19
N.W.F.P.	–	0.37	–	–	–
Punjab	2.28	3.23	–	1.08	1.20
Sindh	4.64	2.78	1.21	1.40	4.03

Province	Sub – Surface		
	Completed	On – going	New
Total	0.94	1.61	3.83
Balochistan	–	–	–
N.W.F.P.	–	0.13	0.24
Punjab	0.78	0.46	1.99
Sindh	0.16	1.02	1.60

Source: Centre of Excellence in Water Resources, University of Engineering and Technology, Lahore.

Table C – 27

Quality of Ground Water at Various Locations of Islamabad
(Physical and Biological Parameters)

Year/Location	Colour	Taste	Smell	Temp in Centigrade	Conductivity μ Second	Turbidity NTU	No. of Coliform
1996							
St.6, G–9/3	Col	Uable	Odl	14	785	1.8	Nil
Labour Colony G–9/3	Col	Uable	Odl	14	740	1.0	Nil
St.24, G–10/1	Col	Uable	Odl	14	560	1.6	Nil
Tubewell, G–10/4	Col	Uable	Odl	14	562	1.0	Nil
FG Jr.Model School, G–10/1	Col	Uable	Odl	14	681	1.0	Nil
Sump, G–10/2	Col	Uable	Odl	14	802	1.7	Nil
Block–3, G–10/2	Col	Uable	Odl	14	800	2.0	Nil
Over head Tank, G–10/3	Col	Uable	Odl	14	560	1.7	–
G–10/3	Col	Uable	Odl	14	650	0.8	–
G–10/4	Col	Uable	Odl	14	720	0.6	–
1997							
F.G. Margalla College, F–7/4	Col	Uable	Odl	26	396	0.8	Growth
IMC, F–10/2	Col	Uable	Odl	26	640	0.5	Nil
Tubewell, F–11/3	Col	Uable	Odl	26	660	1.5	Nil

Source: Pakistan Council of Research in Water Resources (PCRWR).

Note: Analysis based on sample

Col = Colourless Uable = Unobjectionable Odl = Odourless

Table C–28

Quality of Ground Water at Various Locations of Islamabad (Chemical Parameters)

mg/L

Year/Location	D.O	Ca	Mg	Na	Iron	Chlo–ride	NO3
1996							
St.6, G–9/3	6.5	84	36	25	0.043	18	2.0
Labour Colony G–9/3	6.9	60	12	72	0.06	28	0.3
St.24, G–10/1	6.5	70	28	20	0.063	18	1.0
Tubewell, G–10/4	6.5	70	30	20	0.14	14	1.0
FG Jr.Model School, G–10/1	6.4	80	29	35	0.05	18	1.5
Sump, G–10/2	6.0	96	24	50	0.034	32	3.0
Block–3, G–10/2	6.3	92	28	50	0.12	28	2.6
Over head Tank, G–10/3	6.5	53	26	30	0.13	18	0.5
G–10/3	6.3	84	31	32	0.1	16	1.4
G–10/4	6.0	84	24	40	0.042	21	2.6
1997							
F.G. Margalla College, F–7/4	–	50	13	14	0.068	14	2.8
IMC, F–10/2	–	60	24	27	0.009	21	1.0
Tubewell, F–11/3	–	70	25	28	0.08	18	0.4

Year/Location	CO3	HCO3	SO4	PO4	Alkalinity mg/L as CaCO3	TDS	Residual Chlorine
1996							
St.6, G–9/3	Nil	320	23	0.2	6.4	486	Nil
Labour Colony G–9/3	Nil	280	42	0.8	5.6	459	Nil
St.24, G–10/1	Nil	225	24	0.0	4.5	347	0.8
Tubewell, G–10/4	Nil	230	24	0.3	4.6	348	0.8
FG Jr.Model School, G–10/1	Nil	260	23	0.5	5.2	422	Nil
Sump, G–10/2	Nil	310	30	0.2	6.2	497	0.8
Block–3, G–10/2	Nil	300	32	0.2	6	496	0.9
Over head Tank, G–10/3	Nil	220	29	0.6	4.4	348	0.05
G–10/3	Nil	235	27	0.4	4.7	403	0.3
G–10/4	Nil	275	26	0.5	5.5	446	0.6
1997							
F.G. Margalla College, F–7/4	10	170	41	0.3	3.4	277	Nil
IMC, F–10/2	Nil	330	40	0.8	6.6	448	Nil
Tubewell, F–11/3	Nil	320	30	0.7	6.4	462	0.8

Source: Pakistan Council of Research in Water Resources (PCRWR)
Note: Analysis based on sample

Table C–29

Quality of Ground Water at Various Location of Faisalabad during 1996–97
(Physical and Biological Parameters)

Location	Colour	Taste	Smell	Temperature Centigrade	Oxygen Contents mg/l	Conductivity μ Second	Turbidity NTU	Coliform Per 100ml
1. Well–field area near River Chenab Faisalabad Sample No.1	Col	Good	Odl	32	–	–	2	0/100
2. Well–field area near River Chenab Faisalabad Sample No.2	Col	Good	Odl	32	–	–	2	0/100
3. Well–field area near River Chenab Faisalabad Sample No.3	Col	Good	Odl	32	–	–	3.5	0/100
4. Well–field area near River Chenab Faisalabad Sample No.4	Col	Good	Odl	33	–	–	3	0/100
5. Well–field area near River Chenab Faisalabad Sample No.5	–	–	–	–	–	–	2	0/100

Source: Fasilablad Development Authority
Note: Col = Colourless Odl = Odorless

Table C–30

Quality of Ground Water at Various Location of Faisalabad during 1996–97
(Chemical Parameters)

Location	Alkalinity mg/L as CaCO3	Acidity pH	TDS mg/L	Average Dissolved Metals		Average Dissolved Salt	
				Name	Quantity mg/l	Name	Quantity mg/l
1. Well–field area near River Chenab Faisalabad Sample No.1	200	7.6	320	Ca Mg Na Zn Cu Fe Pb Ni	38 14 30 – – – – –	Cl2 HNO3 CO3 HCO3 SO4 PO4	31 – Nil 210 – –
2. Well–field area near River Chenab Faisalabad Sample No.2	204	7.6	444	–	–	–	–
3. Well–field area near River Chenab Faisalabad Sample No.3	210	7.7	610	–	–	–	–
4. Well–field area near River Chenab Faisalabad Sample No.4	202	7.6	424	–	–	–	–
5. Well–field area near River Chenab Faisalabad Sample No.5	200	7.6	464	–	–	–	–

Source: Fasilablad Development Authority
Note: Analysis based on sample

Table C–31

List of Ozone Depleting Substance (ODS) Phase out Projects Approved by the Multilateral Fund (MF)

Name of Project	Sector	Date of Approval	Total Cost US $	ODS to be Phase Out (MT)	Implementing Agency
Mater Industries Karachi	Foam	July 1995	1,247,300.00	205.50	The World Bank/IBRD
Pak Elektron Ltd.(PEL), Lahore	Refrigeration	Nov 1995	1,210,295.00	68.00	UNIDO
Riaz Electic Co.Ltd. Lahore	Refrigeration	Nov 1995	822,987.00	48.20	UNIDO
Razi Sons Karachi	Foam	Nov 1995	508,100.00	60.00	The World Bank/IBRD
Domestic Appliances Ltd.Karachi	Refrigeration	May 1996	257,650.00	21.80	The World Bank/IBRD
Treet Corporation Lahore	Solvent	May 1997	510,162.00	50.67	UNIDO
Treet Corporation Hyderabad	Solvent	May 1997	321,172.00	23.61	UNIDO
Thermoware Industries Umbrella Project	Foam	Nov 1997	1,600,000.00	239.60	The World Bank/IBRD
Diamond Group of Industries	Foam	Nov 1997	563,339.00	64.10	The World Bank/IBRD
Synthetic Projects Enterprise (Pvt.) Ltd.	Foam	Nov 1997	160,625.00	13.60	The World Bank/IBRD
Cool Industries (Pvt.) Ltd.	Refrigeration	Nov 1997	841,750.00	117.60	The World Bank/IBRD
Singer Pakistan Ltd.	Refrigeration	Nov 1997	205,893.00	17.80	The World Bank/IBRD
Kold Kraft Ltd.	Refrigeration	Nov 1997	175,000.00	11.50	The World Bank/IBRD
Hirra Farooq's (Pvt.) Ltd.	Refrigeration	Nov 1997	521,580.00	31.20	UNIDO
Demonstration Project Methyl Bromide	Fumigation	Mar 1998	30,000.00	–	UNIDO
Project preparation in Foam and Refrigeration Sector	Multi–Sector	Mar 1998	63,000.00	–	The World Bank/IBRD
Thermoware Industries Terminal Umbrella Project	Foam	July 1998	718,900.00	105.65	The World Bank/IBRD
Dawlance Private Limited	Refrigeration	July 1998	477,894.00	37.90	The World Bank/IBRD
United Refrigeration Industries Ltd.	Refrigeration	July 1998	457,815.00	96.00	The World Bank/IBRD
Shadman Electronic Industries (Pvt.) Ltd.	Refrigeration	July 1998	236,936.00	17.00	The World Bank/IBRD
TOTAL			10,930,398.00	1,229.73	

Sourc: Ministry of Environment, Local Government & Rural Development.

Note: UNIDO = United Nations Industrial Development Organization
IBRD = International Bank for Reconstruction and Development

Table C – 32

List of Published Families as a Flora of Pakistan National Herbarium Programme

No.	Family	No.	Family
188.	Acanlhaceae	84.	Commelianaceae
92.	Aceraeeae	126.	Convolvulaceae
151.	Adoxaceae	43.	Coriariaceae
156.	Agavaceae	88.	Cornaceae
41.	Aizoaceae	22.	Corylaceae
50.	Alangiaceae	154.	Cueurbitaceae
68.	Alismataceae	184.	Cupressaceae
83.	Alliaceae	189.	Cuseutaceae
71.	Amaranthaceae	178.	Cyeadaceae
134.	Amaryllidaceae	37.	Datiseaceae
152.	Anacardiaceae	42.	Dilleniaceae
167.	Annonaceae	53.	Dioseoreaceae
148.	Apocynaceae	94.	Dipsacaceae
124.	Aquifoliaceae	116.	Ebenaceae
120.	Araceae	35.	Elaeagnaceae
86.	Araliaceae	19.	Elatinaceae
181.	Arancariaceae	186.	Ephedraceae
110.	Aristolochiacea	5.	Ericaceae
150.	Aselepiadaceae	142.	Erioeaulaceae
11.	Averrhoacea	172.	Euphorbiaceae
49.	Avicenniacea	104.	Fagaceae
135.	Balanophoracea	1.	Flacourtiaceae
133.	Balsaminaceae	7.	Frankeniaceae
161.	Basellaceae	73.	Fumariaceae
95.	Betulacea	197.	Gentianaceae
96.	Begoniacea	149.	Geraniaceae
87.	Berberidaceae	180.	Ginkgoaceae
129.	**Biebersteiniaceae**	**30.**	**Goodeniaceae**
131.	Bigneniaceae	27.	Grossulariaceae
119	Bombacaceae	32.	Guttiferae
191	Boraginaceae	105.	Haemodoraceae
55.	**Brassicaceae**	**113.**	**Haloragidaceae**
56.	Buddlegaceae	2.	Hamamelidaceae
26.	Burseraceae	82.	Hippoeastanaceae
69.	Butomaceae	31.	Hippuridaceae
65.	**Buxaceae**	**16.**	**Hydrangiaceae**
54.	CaCaesalpiniaceae	169.	Hydrocharitaceae
155.	Campanulaceae	127.	Hydrophllyaceae
44.	Cannabaceae	47.	Illecebraceae
145.	**Cannaceae**	**9.**	**Iteaceae**
34.	Capparidaceae	14.	Juglandaceae
174.	Capprifoliaceae	138.	Juneaceae
117.	Carieaceae	48.	Juneaginaceae
175.	**Caryophyllaceae**	**192.**	**Labitatae**
109.	Celastraceae	60.	Lardizablaceae
70.	Ceratophyllaceae	118.	Lauraceae
112.	Cistaceae	160.	Lecythidaceae
125.	**Colehieaceae**	**173.**	**Lemnaceae**
122.	Combretaceae	196.	Lntibulariaceae

Contd.

Table C – 32

List of Published Families as a Flora of Pakistan
National Herbarium Programme

No.	Family	No.	Family
58.	Leonlieaceae	79.	Potamogetonaceae
21.	Linaceae	157.	Primulaceae
35.	Loranthaceae	72.	Proteaceae
78.	Lythraceae	102.	Punicaceae
64.	Magnoliaceae	128.	Pyrolaceae
45.	Malpighiaceae	193.	Ranuneulaceae
130.	Malvaceae	90.	Resedaceae
13.	Martyniaceae	140.	Rhamnaceae
17.	Meliaceae	158.	Rhizophoraceae
74.	Menispermaceae	190.	Rubiaceae
111.	Menyanthaceae	80.	Ruppiaceae
36.	Mimosaceae	106.	Ruseaceae
40.	Molluginaceae	132.	Rutaceae
6.	Monotropaceae	91.	Sabiaceae
171.	Moraceae	29.	Salvadoraceae
67.	Morinaceae	123.	Sambucaceae
38.	**Moringaceae**	159.	**Santalaceae**
144.	Musaceae	39.	Sapindaceae
89.	Myrsinaceae	163.	Sapotaceae
176.	Nagadaceae	108.	Saxifragaceae
194.	**Nelumbonaceae**	162.	**Simaroubaceae**
115.	Nyetaginaceae	107.	Smilacaceae
195.	Nymphaeaceae	168.	Sonneratiaceae
136.	Olacaceae	103.	Sphenoeliaceae
59.	**Oleaceae**	25.	**Symplocaceae**
139.	Onagraceae	24.	Tamarieaceae
164.	Orehidaceae	99.	Taxaceae
98.	Orobaneliaceae	63.	Taxodiaceae
4.	**Oxalidaceae**	141.	**Thymelaeaceae**
121.	Paeoniaceae	185.	Tiliaceae
153.	Palmae	183.	Trapaceae
187.	Pandanaceae	12.	Trilliaceae
61.	**Papaveraceae**	75.	**Typhaceae**
100.	PPipilionaceae	97.	Ulmaceae
31.	Parnassiaceae	105.	Umbelliferae
66.	Passifloraceae	117.	Urtieaceae
33.	**Pedaliaceae**	170.	**Vahliaceae**
15.	Philadelphaceae	20.	Valerianaceae
46.	Phytolaceaceae	137.	Verbenaceae
3.	Pinaceae	10.	Violaceae
182.	**Pinaceae**	101.	**Vitaceae**
93.	Pittosporaceae	77.	Zamiaceae
62.	Plantaginaceae	166.	Violaceae
23.	Platanaceae	147.	Vitaceae
28.	**Plnmbaginaceae**	179.	**Zamiaceae**
143.	Poaceae	13.	Znnichelliaceae
57.	Podophyllaceae	146.	Zingiberaceae
8.	Polemoniaceae	76.	Zygophyllaceae
52.	**Polygalaceae**		
114.	Pontederiaceae	Total Nos. 197	
51.	Portulaceae		

Source: Pakistan Agriculture Research Council (PARC)

D - Inventories, Stocks and Background Conditions

Section D

Inventories, Stocks and Background Conditions

This section presents historical background and development in education and health sectors. In addition to the literacy levels, educational infrastructure by type, enrollment at various stages, availability of teachers, student - teacher ratios, it also highlights, availability of health facilities to the population in terms of doctors, nurses, midwives, hospitals, dispensaries, hospitals beds, family planning statistics, immunization coverage, etc.

D-I Education

Education is one of the major component of economic and social development which significantly contributes to the economic growth of a country. It is considered to be the investment in human capital as it builds human capability which is an important factor for building the nation. As illiterate society can not accelerate the development of the country, so realizing the importance of education, Government of Pakistan is making strenuous efforts to improve the literacy rate by providing education to all school-going children at all levels.

D-I.i Literacy

Literacy rate is one of the basic indicators to judge level of development in the country. Pakistan is among the countries where literary rate is very low. It is mainly due to high population growth rate in the country. An analysis of data for the period 1961-1997 indicates a moderate increase in literacy rates. The literacy rate among the population 10 years and above was 16.7% according to 1961 Population Census which had increased to 39% in 1996-97 as revealed by PIHS, 1996-97. Fig D.1 presents trends of literacy rates during 1961-97. The sex wise analysis indicates that male literacy rate was 25.1 percent in 1961 which increased to 51 percent in 1996-97. For females, it was 6.7 percent in 1961 and had increased to 28 percent in 1996-97. The urban-ural analysis indicates that the literacy rate was 34.8 percent in 1961 in urban areas which had increased to 58 percent in 1996-97. As regards the literacy level among the population 10 years and above in rural areas it was 10.6 percent in 1961, which had increased to 31 percent in 1996-97. The sex wise analysis by urban-rural areas also indicates similar pattern during the period 1961-97. However, there is a crucial need to augment the education facilities in both urban and rural areas by public and private sectors to improve the present situation. With the present policies and priorities to universalize primary education, it is expected that the literacy rate will improve more rapidly as compared to previous years. Below table gives the data on literacy by province, urban/rural and sex which indicates that literacy rate was higher in Sindh as compared to other provinces. It was 21 percent in 1961 and had increased to 45 percent in 1996-97.

Fig. D-1 Literacy Rates by Sex and Urban-Rural Areas (1961 to 1996-97)

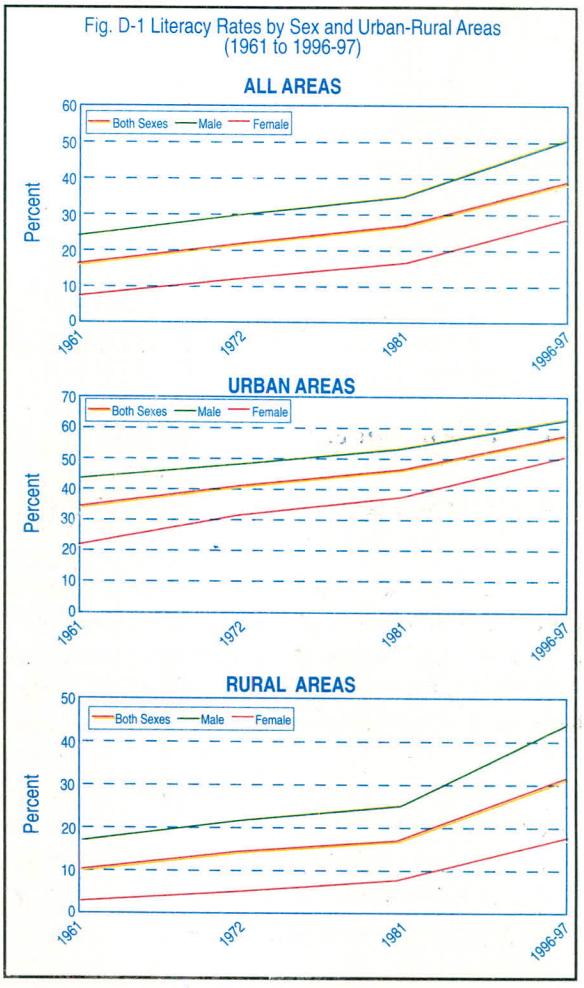


Table D-I Literacy Rates (10 Years & above) by Province, Sex and Area

Year/Area	Total			Urban			Rural		
	Both Sex	Male	Female	Both Sex	Male	Female	Both Sex	Male	Female
PAKISTAN									
1961	16.7	25.1	6.7	34.8	44.9	21.3	10.6	18.0	2.2
1972	21.7	30.2	11.6	41.5	49.9	30.9	14.3	22.6	4.7
1981	26.2	35.0	16.0	47.1	55.3	37.3	17.3	26.2	7.3
1996-97	39.0	51.0	28.0	58.0	65.0	50.0	31.0	44.0	17.0
PUNJAB									
1961	16.1	29.1	6.2	34.6	45.5	20.4	10.9	18.3	2.5
1972	20.7	36.8	10.7	38.9	47.8	28.0	14.7	22.9	5.2
1981	27.4	52.0	16.8	46.7	55.2	36.7	20.0	29.9	9.4
1996-97	40.0	51.0	28.0	57.0	64.0	51.0	32.0	45.0	21.0
SINDH									
1961	21.0	29.0	10.6	36.1	44.3	25.0	11.5	19.0	2.2
1972	30.2	39.1	19.2	47.4	54.54	38.4	17.6	27.5	5.8
1981	31.4	39.7	21.6	50.8	57.8	42.2	15.6	24.5	5.2
1996-97	45.0	57.0	33.0	61.0	67.0	54.0	30.0	46.0	12.0
NWFP									
1961	13.8	23.2	3.4	30.9	43.4	13.3	9.7	17.6	1.4
1972	14.5	23.1	4.7	33.7	44.7	19.9	11.0	19.0	2.2
1981	16.7	25.8	6.5	35.8	47.0	21.9	13.2	21.7	3.8
1996-97	30.0	46.0	17.0	46.0	58.0	34.0	27.0	43.0	13.0
BALOCHISTAN									
1961	9.8	15.2	2.9	34.8	46.1	16.2	4.0	7.0	0.3
1972	10.1	14.8	4.2	32.2	42.4	19.2	5.6	9.2	1.3
1981	10.3	15.2	4.3	32.2	42.4	18.5	6.2	9.8	1.7
1996-97	27.0	44.0	9.0	45.0	61.0	27.0	24.0	41.0	5.0

Source: 1. Population Census Organization.
2. Federal Bureau of Statistics (PIHS. Round 2.)

D-I.ii Enrollment

a. Primary Schools

At the time of independence, the primary level enrollment in schools i.e. for class I-V was 0.770 million which was estimated as 15.553 million for the year 1996-97 (Table D-05). It indicates more than 20 times increase in 50 years. The annual average growth rate in terms of primary level enrollment during the period 1947-48 to 1996-97 is 6.2 percent which is almost double to the population growth rate during this period. However, due to low base of enrollment, we had not been able to achieve the desired level.

Below table gives a comparison of primary school age population i.e. 5-9 years with primary level enrollment during 1951-1995 indicates that the enrollment rate in 1951 was 20 percent of the population aged 5-9 years and it has increased to 67.4 percent in 1995. It means that about 30 percent of population for primary level education have still not been enrolled in schools. However, it reveals significant improvement in the parents attitude towards education.

Table D-II Population Aged (5-9 Years) and Primary School Enrollment

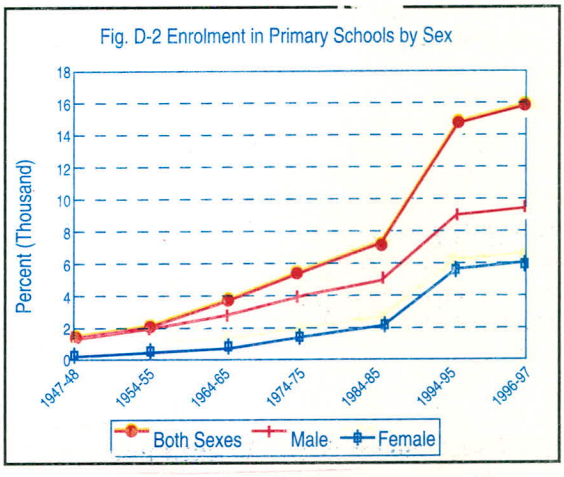
(000 Nos.)

Years	Population 5-9 Years of age			Number of Student Enrolled			Population 5-9 Years not Enrolled		
	Both Sex	Male	Female	Both Sex	Male	Female	Both Sex	Male	Female
1951	5225	2799	2426	1050	910	140	4175	1889	2286
1956	5815	3109	2706	1690	1420	270	4125	1689	2436
1961	6472	3454	3018	2060	1630	430	4412	1824	2588
1966	7976	4223	3753	3160	2410	750	4816	1813	3003
1971	9853	5174	4679	3960	2920	1040	5893	2254	3639
1976	11639	6069	5570	5319	3770	1549	6320	2299	4021
1981	13434	6962	6472	5474	3692	1782	7960	3270	4690
1986	15510	7988	7522	7094	4794	2365	8416	3259	5157
1990	18301	9431	8870	10400	7058	3342	7901	2373	5528
1995	21168	10909	10259	14264	8626	5638	6904	2283	4621

Source::- Federal Bureau of Statistics

Sex wise comparison indicates high participation rate of male population as compared to females. The male enrollment rate of school age population (5-9 years) was 32.5 percent in 1951 which has increased to 79 percent in 1995. As regards females, it was only 5.8 percent in 1951 and it had increased to about 55 percent in 1995, which indicates that male - female gap in enrollment at primary level has significantly decreased. However, it shows positive behavioral change towards female education.

Despite improvement in enrollment rate of primary school population (5-9 years), it is worth mentioning here that the absolute number of children who were not enrolled in the educational system has also increased over time. In 1951 about 4.175 million children aged 5-9 years have no access to primary education or had not been enrolled. This number has increased to 6.904 million in 1995. It is mainly due to rapid population growth and lack of resources for opening primary schools. The ratio of female population is high as compared to male i.e. 2.286 million female children were not enrolled to educational system in 1951 as compared to 1.889 million male children (5-9 years). The female population increased to 4.621 million in 1995 as compared to 2.283 million of male population (5-9 years).



The gap is widening between the population enrolled into primary schools and those not in schools which is visible from Fig D.2. The pace of enrollment is not according to the growth of population aged 5-9 years. This situation is alarming and needs priority attention. Firstly it is needed to make primary school accessible to each and every village and secondly, to motivate parents to enroll their children in the schools.

Primary school enrollment indicates sharp increase for both sexes since 1984-85. A comparison of data on number of primary schools and population aged 5-9 years as given in table below, indicates that in 1950-51, one primary school was available for 555 children whereas, one primary school was available for 148 children in 1995-96.

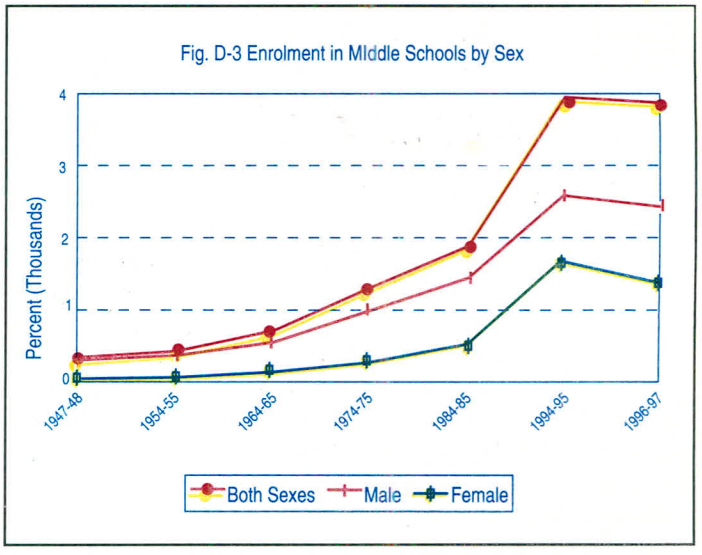
Table D-III Relationship of Primary Schools and Population Aged (5-9 Years)

Year	Number of Primary Schools	Population 5-9 Years (000)	Population/School
1950-51	9411	5225	555
1960-61	20909	6472	310
1970-71	45854	9853	215
1980-81	59169	13434	227
1990-91	114142	18301	160
1995-96	143130	21168	148

Source:- 1. Central Bureau of Education.
2. Federal Bureau of Statistics.

b Middle Schools

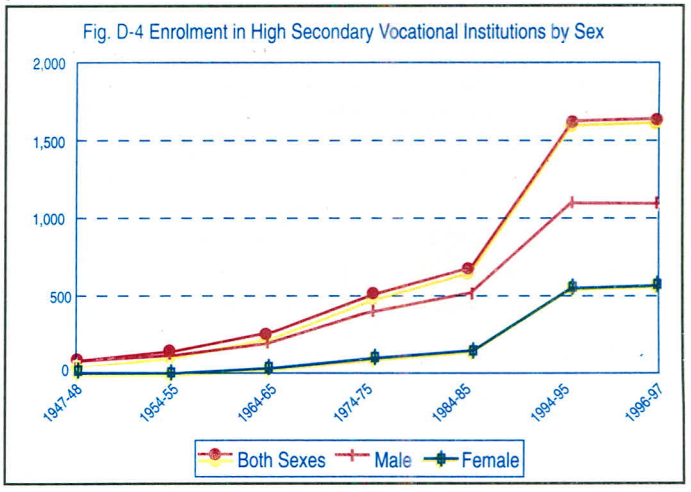
The middle level enrollment (i.e. class VI-VIII) was only 221 thousand in 1947-48, which has increased to 3,756 thousand during the year 1996-97, showing about 17 times increase during 50 years (Table D-05). The average annual growth rate during this period is 5.8 percent which is slightly lower as compared to growth in primary schools enrollment.



An analysis of sex wise enrollment at the middle level indicates wide gap during the period 1947-48 to 1954-55 and started narrowing from 1964-65. However, it is still very high i.e. the male enrollment at middle level is as 2,364 thousand in 1996-97 as compared to 1,392 thousand for females. The male enrollment to the middle schools increased at an annual growth rate of 5.1 percent during 1947 to 1997. As regard females, it is 8.7 percent which indicates behavioral change for female education. However, still there is need to motivate parents to put their daughters into middle stage education. Fig D.3 indicates sharp increase in middle level enrollment since 1984-85 for both sexes. The male-female gap is also visible in this figure.

High and Secondary Vocational Institutions

Enrollment for high school or secondary level school comprises of IXth and Xth classes or equivalent vocational classes. An analysis of data indicates that high school enrollment also increased at an average annual growth rate 6.8 percent during 1947-48 to 1996-97. About 62 thousand students were enrolled in high school level classes in 1947-48. The number has increased to 1,641 thousand during the year 1996-97



(Table D-05). The sex wise analysis of data indicates that male - female gap was very high during first three decades i.e. up to 1974-75. During the year 1947-48 the female enrollment at High School level was only 14.8 percent of the male enrollments i.e. only 8 thousand female students were enrolled at high school level as compared to 54 thousand male students. The male-female gap has declined during 1996-97 and female enrollment for high school level is 52 percent of the male enrollment. Fig D.4 indicates that the enrollment to the high and secondary level education also rapidly increased during 1984-85 to 1996-97. The male - female gap is also visible in Fig. D.4. However, the comparison of graphs for enrollment at different levels indicates significant upward trends since 1984-85.

d. Arts and Science Colleges

The arts and science colleges include enrollment of class XI and XII (Intermediate) and BA/B.Sc students. There were 43 thousand students enrolled in arts and science colleges during 1954-55. The enrollment for this category of educational institutions has increased to 830 thousand during last 50 years, which is higher than other categories of enrollment i.e. primary, middle and high school. It reveals upward trend for seeking higher education among the youths (Table D-05).

The sex wise analysis of enrollment data indicates that 37 thousands boys students were enrolled at intermediate and degree level in 1954-55. Only 6 thousand girls were enrolled in arts and science colleges and their enrollment has increased to 317 thousand in 1996-97. The sex wise analysis therefore reflects positive attitude towards female education for higher levels.

e. Professional Colleges

The professional colleges includes Agriculture, Medical, Engineering, Law, Commerce, Tibb and Homeopathic. Table D-05 indicates that at the time of independence, 4,368 students were enrolled in the above categories of professional colleges. It has increased to 151 thousands in 1996-97 at an average annual growth rate of 7.3 percent during 1947-97. Sex wise analysis of data reveals that 4,041 male students were enrolled in professional colleges in 1947-48 and it has increased to 127 thousands in 1996-97 as compared to this only 327 female students were enrolled in 1947-48 and their share was 7.5 percent of the total enrollment in 1947-48, which has become 16 percent of the total enrollment in 1996-97. This is still on the lower side and indicates that most of the female students drop outs after BA/B.Sc. or either join universities for Post-graduate studies. It may also be due to the reason that there are very few professional colleges specifically available for female or either concentrate in big cities, where most of the female students living in places other than big cities do not want to live in the hostels or not allowed to leave their homes for various socio-economic and cultural reasons.

f. Universities

There were 644 students enrolled in 2 Universities existed in the country at the time of independence. These includes degree and post graduate level enrollments for various subjects. The enrollments in 1996-97 are estimated at about 72 thousand in 25 universities in the country (Table D-05). The enrollment in universities increased at an annual growth rate of 9.9 percent, it is the highest among all level of education. It indicates the desire of students to acquire higher education in the country.

D-I.iii Educational Infrastructure

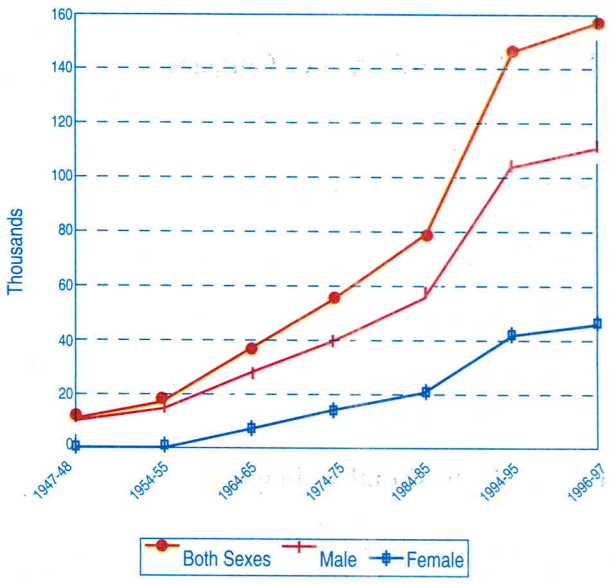
a. Primary Level Schools

At the time of independence (1947-48) there were 8,413 primary schools in the country. The number of primary schools has increased to 150,963 during 1996-97. The average annual growth rate in primary schools is 5.9 percent as against 6.2 percent annual growth rate of enrollment to the primary schools during the same period.

One primary school was available for about 4 thousand population in 1947-48 while one primary school is now available for less than one thousand population in 1996-97. Fig. D.5 presents trends of availability of primary school by sex during 1947-97.

Sex wise analysis indicates that 6,864 primary schools were available for boys in 1947-48 as compared to 1,549 schools for females. A comparison of enrollments at primary level with primary schools during 1947-48 reveals that one primary school was available for 96 boys as against one school for 71 girls. The number of male primary schools has increased to 104 thousand in 1996-97, whereas, the female primary schools are estimated as 47 thousands. If existing primary schools in 1996-97 are compared with enrollment, it indicates that for 89 male students there is one primary school as against one primary school for 135 female students which indicates that the ratio per school for female students has increased, whereas, for boys it has declined.

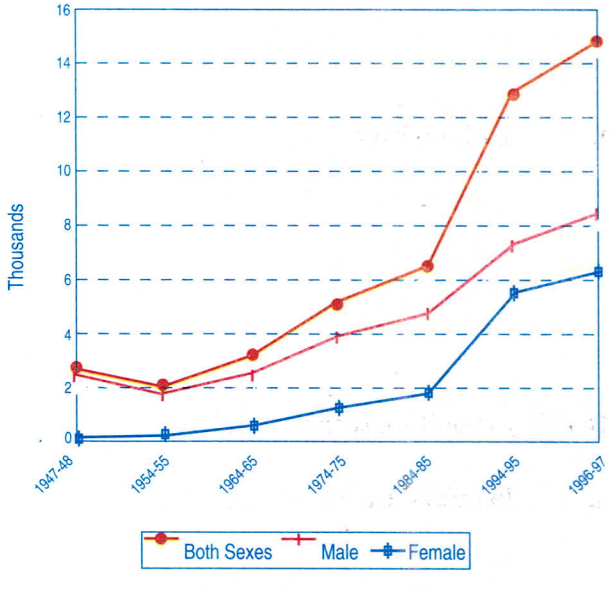
Fig. D-5 Number of Primary Schools by Sex



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 339 thousands in 1996-97, however, the ratio of teachers per school almost remained the same as was in 1947-48 i.e. two teachers per school, while number of students per teacher has slightly increased i.e. from 43 students in 1947-48 to 46 students per teacher in 1996-97.

Sex wise analysis indicates that about 15 thousands male primary school teachers were available in 1947-48 and their number has increased to 227 thousands in 1996-97 (Table D-05). On the average, about two male teachers for one boys school were available in 1947-48, whereas, only 1.5 female teachers for one girls primary school were available during the same period. The average number of female teachers per girl's school has increased from 1.5 teacher in 1947-48 to 2.4 teacher per school in 1996-97, whereas for boy's schools the ratio has remained almost the same. However students teacher ratio has increased for female student i.e. one female primary school teacher for 46 girls students was available in 1947-48 which has increased to 56 students per female teacher in 1996-97 (Table D-05).

Fig. D-6 Number of Middle Schools by Sex



b. Middle Schools

There were about 2,190 middle schools available at the time of independence (1947-48). The number of middle schools has increased to 14,595 schools in 1996-97. (Table D-05), which indicates about 7 times increase in the umber of middle schools in the country during 50 years. An analysis of data on schools and enrollments at

middle level indicates that one school was available for about 100 students in 1947-48 whereas one school is now available for 257 students in 1996-97. Showing 2.57 times increase in the number of middle level students per school. It indicates more pressure on existing middle level schools in the country. On the average 5.5 teachers were available for one middle school in 1947-48, which has increased to 6.6 teachers per school in 1996-97. The students - teacher ratio which was about 18 students per teacher in 1947-48 has increased to 39 students per teacher in 1996-97, indicating pressure on the teachers as well (Table D-05).

Sex wise analysis of data (Table D-05) for middle level schools indicates that 2,037 boys middle schools for boys were available in 1947-48 which has increased to 8,170 in 1996-97, as against 153 middle schools for girls were available in 1947-48 and their number has increased to 6,425 in 1996-97. The middle schools for boys has increased at an average annual growth rate of 2.8 percent, whereas, the middle schools for girls has registered an annual growth rate of 7.8 percent during the last 50 years. Fig. D-6 indicates trends of availability of middle school during 1947-97 by sex.

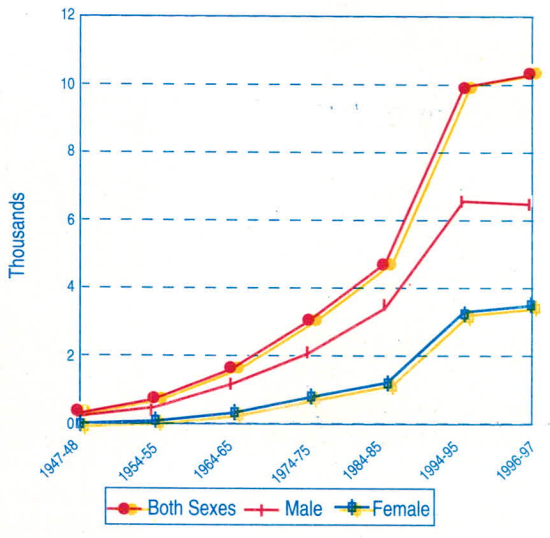
The middle schools for girls were only 7.5% of the existing middle schools for boys in 1947-48, which has increased to 78 percent in 1996-97. A very significant change at the middle level schools has been observed in male-female infrastructure. It indicates more emphasis on education for females at middle level in the country, which is very encouraging.

Only 800 female teachers were available during 1947-48, their number has increased to 39 thousands in 1996-97. The data on students - teachers ratio of middle level indicate that one teacher was available for 18 students in 1947-48, which has increased to 39 students per teacher in 1996-97. The ratio was high for male students as compared to female students in 1996-97 which was reverse in 1947-48 (Table D-05).

c. High and Secondary Vocational Institutions

At the time of independence (1947-48), 454 high/secondary schools were available in the country, which has increased to 10,481 schools in 1996-97, at an average annual growth rate of 6.5 percent. The existing number of high schools when compared with the population of age group 10-14 years, reveals that population per school which was 9 thousands in 1947-48 has declined to about 1,700 per high school showing a significant increase in the number of high schools.

Fig. D-7 Number of High Secondary Vocational Institutions by Sex



Sex wise analysis of data indicates that 372 high schools were available for males in 1947-48 which has increased to 6,745 schools in 1996-97. As compared to this 82 high schools for female were in 1947-48 and their number has increased to 3,736 in 1996-97. (Fig. D.7). The female high schools were only 18 percent of the total high schools in 1947-48, whereas, it has become 36 percent of the total high school in 1996-97 i.e. the gap in schools for males and females has considerably been reduced. Although, it is still high, but a significant change has occurred. A comparison of high school enrollment with the existing schools indicates that on the average one high school was available for 137 students in 1947-48 which has increased to 157 students per high school in 1996-97.

Sex wise analysis indicates that one high school was available for 145 male students in 1947-48 as against one school for 98 female students, whereas, in 1996-97 the position for male students has increased slightly i.e. one high school was available for 160 male student. However, the number of female students has increased to 151 per high school for girls, showing more female enrollment in the high schools.

About 16 teachers per school were available in 1996-97 whereas sex wise analysis indicates that 17 teachers for one high school for boys and about 14 teachers for one high school for girls were available during the same period (Table D-05).

d. Arts and Science Colleges

There were 40 arts and science colleges in the country in 1947-48 which has increased to 798 colleges in 1996-97, registering 20 times increase in the number of colleges during 50 years. Sex wise analysis indicates that 35 arts and science colleges for boys were available in 1947-48 which has increased to 502 colleges in 1996-97, whereas, only 5 female colleges were available in 1947-48 and their number has increased to 296 in 1996-97 i.e. the colleges for girls were only 12.5 percent of the total colleges in 1947-48 which has increased to 37 percent of the total existing arts and science colleges in the country in 1996-97 (Table D-05).

The data reveal that female educational infrastructure as well as enrollment have shown a significant improvement as compared to males which indicates upward trend for women status in the country. A comparison of enrollment with number of colleges indicates that one college was available for 350 students in 1947-48 which has increased to more than one thousand students per college in 1996-97. Sex wise analysis of the data reveals that one college for female students was available for 200 girls in 1947-48 which raised to more than one thousand girls per college in 1996-97. Similarly one college was available for 371 male students in 1947-48 which has also increased to more than one thousand male students per college in 1996-97. It shows an upward trend for seeking higher education, for both sexes.

e. Professional Colleges

There were 24 professional colleges (Agriculture, Medical, Engineering, Law, Tibb, Commerce and Homeopathic) in the country in 1954-55, which has increased to 161 in 1996-97. Sex wise analysis indicates that there were no professional college available for females upto 1954-55 and all the 24 colleges were for males but female can get admission in male colleges. There were 6,200 teachers for 161 professional colleges in the country in 1996-97 i.e. 39 teachers per college. Out of the total teachers about 1,100 were female teachers and 5,100 male teachers in 1996-97 i.e. only 22 percent were female teachers at professional colleges. There were 24 student per teacher in 1996-97.

f. Universities

There were only 2 universities in the country at the time of independence which has now increased to 25 universities in 1996-97. There were about 1,300 teachers for 6 universities available in 1964-65 i.e. 217 teachers per university which has increased to about 7,000 teachers in 1996-97 i.e. on the average 280 teacher per university. The students teacher ratio was 10 students per teacher in 1964-65 which had remained same in 1996-97.

D-II Health

D-II.i Historical Background

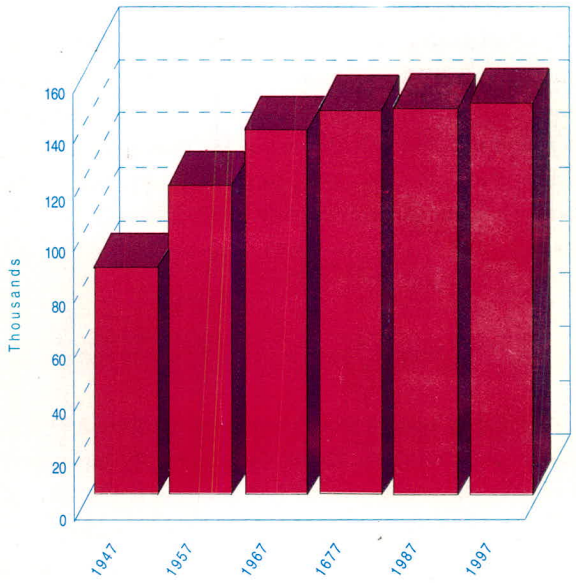
Similar to other social sectors, the country inherited very limited resources both in terms of infrastructure as well as manpower in the health sector at the time of its creation. The Government had taken the responsibilities to provide primary health care services free to the citizens. The health programme in the public sector is decentralized i.e. the implementation and supervision of the health policies and programmes are the responsibility of the provincial governments, whereas, at the federal level the Ministry of Health has overall responsibility for formulating policies, plans and ensure its implementation (Ministry of Health, 1997).

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 in 1997 become 865 (Table D-11). It indicates about 3 fold increase in 50 years. The annual average growth rate in terms of availability of hospitals was 2.20 percent, which is below to the annual population growth rate in the country during last 50 years. It reveals that the pace of development in the health sector remains low as compared to population growth, resulting more pressure on the hospitals which are mainly situated in major urban localities. It is estimated that population per hospital which was 111 thousand per hospital in 1947 has raised to 147 thousand per hospital in 1997. Fiq D.8 presents population per hospital during 1947 to 1996. As compared to this population per hospital bed was 2,360 in 1947 which declined to 1,415 per hospital beds in 1997. It indicates availability of more beds in the hospitals (Table D-11).

Fig. D-8 Population Per Hospital



b. Dispensaries

The dispensaries normally supervised by a MBBS doctor and supported by a Lady Health Visitor, dispenser, midwife, aya, chowkidar and sweeper. There were 722 dispensaries in 1947, which increased to 4,523 in 1997. It shows more than 6 times increase in number of dispensaries in 50 years (Table D-11), as compared to hospitals the annual average growth rate of dispensaries was higher i.e. 3.74 percent as against 2.24 percent for hospitals.

c. Maternal and Child Health Centre (MCH)

The Maternal and Child Health Centres (MCH) are mostly established in the rural areas, which provide services to the pregnant mothers and new born babies. Centres are supervised by Lady Health Visitors. There were 91 such centres at the time of independence, and their number raised to 853 in 1997, registered more than 9 times increased in 50 years. The annual average growth rate for MCH Centre in the country was 4.58 percent during 1947-97.

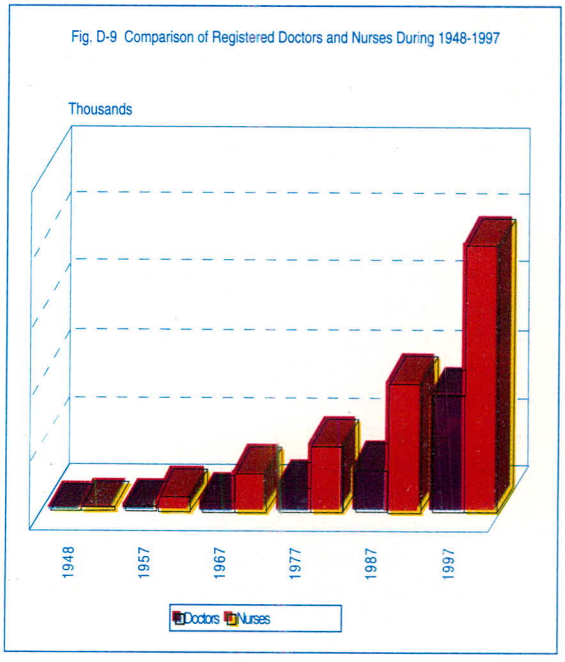
d. Beds in Hospitals and Dispensaries

The hospitals and dispensaries have the facilities to admit patients who need continue medical care or surgical treatment. There were about 14 thousand beds in the hospitals and dispensaries in 1947 i.e. one bed for about two thousand four hundred population in the country. There was more than 6 times increase in availability of beds in hospitals and dispensaries during last 50 years in the country i.e. the number raised to about ninety thousand in 1997.

D-II.iii Health Manpower

a. Doctors

There were only 1,360 registered doctors in 1948 in the country for about 30 million population i.e. one doctor for about twenty two thousand persons. The situation gradually improved and there was one doctor available for about nine thousand population in 1956, and it is estimated that in 1997 there were more than seventy eight thousand registered doctors in the public and private sectors in the country, which means one doctor for 1,622 persons (Table D.10). The average annual growth rate of registered doctors during 1948 to 1997 was 8.45 percent.



b. Nurses

The nurses play very important role in the health care services, there were only 88 registered nurses in the country in 1948 i.e. one nurse for 0.41 million population. The situation improved over time and there were 24,776 registered nurses in 1997 i.e. number of registered nurses increased with an average annual growth rate of 12.2 percent which is higher than the annual growth rate of registered doctors. However, they were only 32 percent of the registered doctors in 1997 (Table D-10). Population per registered nurse was 5,138 in 1997. The difference in the availability of registered doctors and nurses is quite visible in Fig. D.9.

c. Dentists

There were 846 registered dentists in 1979. The number of registered dentists increased to 3,159 in 1997 which means one dentist was available for about forty thousand population in 1997 (Table D-10). The number registered dentists increased at an annual growth rate of 7.6 percent during 1979 -1997. However, population per dentist is still very high. The available dentists are mainly available in big hospitals and large cities, whereas, rural population which is almost 67 percent of the total population in the country do not have easy access to dental surgeon in their areas.

D-II.iv Basic Health Indicators

Below table gives a comparison of basic demographic health indicators of some Asian countries in 1997 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 was also slightly higher than India, Bangladesh and Nepal, however, it is lower than Turkey, Iran, Sri Lanka, Thailand, Indonesia and China.

Table D-IV Basic Health Indicators, Pakistan and Other Countries of Region, 1997

Country	Births per 1,000 Population	Deaths per 1,000 Population	Infant Mortality Rate	Life Expectancy at Birth (Years)		
				Total	Male	Female
TURKEY	23	7	47	68	65	70
BANGLADESH	31	11	77	58	58	58
INDIA	29	10	75	59	59	59
IRAN	34	7	53	67	66	69
NEPAL	35	12	79	54	53	54
PAKISTAN	39	11	91	61	61	61
SRI LANKA	20	5	17	73	70	75
INDONESIA	25	8	66	62	60	64
THAILAND	18	7	32	69	66	72
CHINA	17	7	31	70	68	72

Source:- World Population Data Sheet, 1997.

D-II.v Unani System of Medicines (Hakeems)

The Unani System of Medicines is one of the most popular of the traditional medicines in the east, commonly known as the Tibb System in the Indo-Pak sub-continent and its practitioners are called as tabib/hakeem.

In our socio-economic set-up, hakeems enjoy respect as community curer and to some extent as local leaders. The matabs/clinics provide health guidance and services to about 25% population in the country.

Realizing the importance of hakeems in providing health facilities, Government of Pakistan has introduced Tibbi Act, 1965. Under this act hakeems were registered, whereas, Tibbia Colleges, which were nine in number at that time also recognized. A Tibbi Board was established for the administration of Tibbia Colleges, registration of hakeems and provision and approval of curriculum for Tibbia Colleges.

At the time of independence there were 1,500 registered hakeems, their number become 50,550 in 1997 indicates about 34 fold increase in 50 years for registered hakeems. 23 Tibbia Colleges were registered in 1997 from which 2,000 students become qualified every year after studying 4 years course of "Fazil-e-Tibb-Wal-Jarahat".

Table D-V Hakeems/tabibs in Pakistan (1947-1997)

S.No	SUBJECT	1947	1965	1985	1997 upto 31st Dec.
01.	Registered Hakeems (Class-A)	1500	4500	9000	15550
02.	Registered Hakeems (Class-B)	-	35000	35000	35000
03.	Hakeems in 1965 (under Unani Act, 1965) and are practicing to date.	1500	39500	44000	50550
04.	Vaid (class-A&B) (First time registered in 1965 under Unani Act 1965. There is no institution for vaidic education in Pakistan today)	150	550	550	550
05.	Tibbia Colleges (recognized by Ministry of Health and National Council for Tibb.	3	9	19	23
06.	Unani Tibbi Dispensary (under Local Govt.).	10	25	85	95
07.	Govt.Unani Dispensary (under Health Deptt: of Provincial Govts.)	-	-	111	325
08.	Govt. Unani Research Centre, Karachi under the M/O Health.	-	1	1	1
09.	Unani Drug Section (National Institute of Health, Islamabad.	-	-	1	1
10.	Directorate of Hakeems & Homoeopath (under M/O Papulation Welfare).	-	-	1	1
11.	Assistant Director (Unani) (under Ministry of Health).	-	1	1	1
12.	Directorate of Tibb (each in Punjab & Sindh) under Health Department.	-	-	2	2
13.	Hajj Tibbi (Medical)Mission.	-	-	from 1982 to 1990	-
14.	Basic Health Units (Unani) under Health Department, Punjab only)	-	-	-	35
15.	National Council for Tibb (former Tibbi Board under Unani Act, 1965).	-	1	1	1
16.	Involvement of Hakeems in Population Welfare Programme.	-	--	1100	8051

Source: Directorate of Hakeems & Homeopaths, Ministry of Population Welfare, Islamabad.

D-II.vi Programmes and Projects in Health Sector

During late fifties government gave due attention on the preventive measures in the health sector, particularly, environmental sanitation, establishment of maternal and child health care centres, availability of family planning services, nutrition and control of communicable diseases. The government had launched malaria eradication, small pox, leprosy, trachoma, mental diseases and malnutrition programmes, manufacturing of vaccines and sera had started in the Bureau of laboratories at Karachi and afterward shifted to Islamabad to the National Institute of Health, which established itself as a leading organization in manufacturing of vaccines and sera, also become a reference Laboratory (Ministry of Health, 1997).

Some of the leading health programme introduced by the government during 1950-96 are listed below (Ministry of Health, 1997).

1. Maternal and Child Health (1954).
2. Malaria Control Programme (1960).
3. Nutrition Programme (1960).
4. Tuberculosis (TB) Control Programme (1962).
5. Leprosy Control Programme (1962).
6. Population Control Porgramme (1960).
7. Small Pox Eradication Programme (1968).
8. Expanded Programme of Immunization (EPI) (1979).
9. Control of Diarrhoeal Diseases (CDD), (1983).
10. Guinea Worm Disease Eradication Programme (1986).
11. AIDS Prevention & Control Programme (1987).
12. Acute Respiratory Infections Control Programme (1989).
13. Prime Minister's Programme for Family Planning and Primary Health Care (1994).

D-III Biomass

The data given in respect of Biomass in table D-17 and D-18 relates to Household Energy Study conducted during 1991-93 (Energy Year Book 1996). Table D-17 indicates that about 58% area of agro-ecological zone consist of Semi-arid (Climate and region characterized by little yearly rainfall and by the growth of short grasses and shrubs) and Desert where the Biomass total standing stock (tonnes/ha) is minimum. The remaining area consist of agro-ecological zone Irrhigh N (High Productivity Irrigated North), Irrhigh S (High Productivity Irrigated South), Irrlow N (Low Productivity Irrigated North), Irrlow S (Low Productivity Irrigated South), Barani (Rain-fed agriculture) and Forhigh (Forested, shrub and high land). Among these areas quantity of Biomass total standing stock is maximum in Irrlow N (8.40 tonnes/ha) followed by Forhigh (6.27 tonnes/ha), Irrhigh S (5.55 tonnes/ha), Irrlow S (1.94 tonnes/has) and Barani (1.61 tonnes/ha). Productivity of Biomass in Irrhigh N is maximum (7.08 tonnes/ha) followed by Forhigh (5.22 tonnes/ha), Irrlow N (3.98 tonnes/ha), Irrlow S (2.66 tonnes/ha), Desert (1.48 tonnes/ha), Semi-arid (0.94 tonnes/ha), Irrlow S (0.91 tonnes/ha) and Barani (0.42 tonnes/ha). With regards to Biomass by type, table indicates that quantity of standing stock against round wood is maximum (45.74%) while quantity of shrubs is on the lowest side (4.64%). Table also indicates that twigs and roundwood are used as fuel frequently. The province-wise break up of standing stock and productivity is given in the table D-18.

D-IV Family Planning

The Family Planning Programme in the country was first introduced in 1953 through the private sector by a non-governmental organization " Family Planning Association of Pakistan". The Population Welfare Programme in the public sector has been operating since 1960. Initially the achievement of the family planning programme was slow, however, during the seventh and eighth five year plan periods there was significant progress. The recently conducted population census indicates a fertility decline and intercensal growth rate which was 3.06 during 1972-81 has declined to 2.61 during 1981-98.

At present the population welfare programme is operating both in the public and private sectors supported by the government. A net work of service delivery 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-IV.i Knowledge of Methods

The knowledge of specific method has substantially increased during last 6-7 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 for 94.3 percent in 1996-97 (Pakistan Fertility and Family Planning Survey 1996-97). Table below presents method specific knowledge of country married women aged 15-49 years.

Table D-VI Currently Married Women by Knowledge of Specific Method

(Percent)

Contraceptive Method	PDHS 1990-91	PCPS 1994-95	PFFPS 1996-97
Any Method	77.9	90.7	94.3
Female Sterilization	69.7	86.2	88.5
Male Sterilization	20.2	15.4	31.0
Injection	62.2	80.5	86.0
IUD	51.5	73.4	82.4
Pill	62.2	72.7	86.6
Condom	35.3	46.0	61.2
Vaginal Method	12.7	9.0	13.8
Rytehm	17.8	23.3	33.7
Withdrawal	14.3	28.5	40.7
Other Method	3.5	4.3	3.7

Source: Pakistan Integrated Household Survey, 1995-96, Federal Bureau of Statistics.

D-IV.ii Contraceptive Performance and Use

The population welfare programme in the country is providing services of contraception through public or private sector out lets. 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-20. According to the latest survey conducted in 1996-97 the

contraceptive prevalence rate among the currently married women aged 15-49 years was 36.4 percent. Table below gives contraceptive prevalence rates by method.

Table D-VII Current Contraceptive Prevalence Rates by Method and Sources

Method	PCPS 1984-85	PDHS 1990-91	PCPS 1994-95	PFFPS 1996-97
Any Method	9.1	11.8	17.7	23.7
Method for Women	5.5	6.3	8.8	12.5
Pill	1.4	0.7	0.7	1.6
IUD	0.8	1.3	2.1	3.4
Injection	0.6	0.8	1.0	1.4
Vaginal Methods	0.1	0.0	0.0	0.1
Female Sterilization	2.6	3.5	5.0	6.0
Method for Men	3.0	3.9	7.9	8.8
Condom	2.1	2.7	3.7	4.2
Withdrawal	0.9	1.2	4.2	4.6
Method for either use	0.6	1.6	1.0	2.4
Periodic Abstinence	0.1	1.3	1.0	1.9
Other	0.5	0.3	-	0.5

Source: Compendium on Gender Statistics Pakistan, published by FBS.

D-V Extended Programme of Immunization (EPI)

This programme was launched for the first time in 1979 on a very comprehensive scale with the prime objective to reduce morbidity and mortality resulting from six deadly diseases (Polio, Diphtheria, Whooping Cough, Tetanus, Measles and Tuberculousis) through the process of channelizing immunization to children of less than one year of age and Tetanus immunization of all women of the child bearing age. The programme extended service delivery from all static centres in public and private sectors and by special out reach and mobile approach. In a year, special immunization programmes were launched twice to boost up immunization coverage on large scale in the country. The data on immunization is not easy to collect or interpret as coverage is often reported on the basis of respondent recall than written records. The service statistics is also not adequate to provide reliable and accurate data on immunization of eight recommended immunizations. However based on survey through recall, about 78 percent of children have had at least one immunization. Amongst children aged 0-11 months, 59 percent were immunized as reported in Pakistan Integrated Household Survey 1995-96. Based on clinic card records the rate was 54 percent during the same year. Immunization rates in Punjab were higher than other provinces. Although under Social Action Programme (SAP), the immunization coverage rate is planned to rise 80-90 percent by the year

1998. Due to this campaign, the target diseases has considerably reduced. A selective number of such diseases were reduced during 1985-1995. Yearwise detail of immunization coverage is given in Table D-19.

Table D-VIII Percentage of Children Upto Age - 5 years Atleast One Immunization, 1995-96 - Pakistan

Location	Percentage of children immunized (Based on recall)		
	Female Baby	Male Baby	Both
All Areas	77	78	78
Urban Area	86	88	87
Rural Area	74	74	74
Children 0-11 month			
All Areas	59	57	58
Urban Area	70	72	71
Rural Area	55	51	53

Source: Compendium on Gender Statistics Pakistan, published by FBS.

STATISTICAL TABLES

Table D-01

Population (10 years and above) by Level of Educational Attainment, Sex, Urban and Rural Areas, 1981 Census

(000 Number)

Level of Education	All areas			Urban areas			Rural areas		
	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female
Total	13,131	9,553	3,579	7,246	4,707	2,539	5,885	4,846	1,040
Primary	5,944	4,107	1,837	2,692	1,589	1,103	3,252	2,518	734
Middle	2,981	2,241	739	1,664	1,088	576	1,317	1,153	164
Matric	2,568	1,963	606	1,627	1,124	503	942	839	102
Intermediate	776	576	201	583	402	180	194	173	21
Certificate (*)	105	87	19	58	45	13	47	42	6
B.A./B.Sc.	497	366	131	413	291	122	84	75	9
M.A./M.Sc.	140	106	35	115	83	32	25	23	2
B.Sc./(Engg) and above	37	35	2	31	30	1	5	5	0
MBBS/BDS and above	33	25	7	28	21	7	5	4	0
LL.B & above	37	36	1	30	29	1	7	7	0
Others	13	11	2	6	4	1	7	7	1

Source:Population Census Organization

Note: This table includes the data based on the results of sample.

(*) Certificates include also diploma (less than degree).

Table D 02

Literacy – Population 10 Years and Older by Region and Province (PIHS)

Region and Province	Percentage of Population 10 Years and Older					
	1995–96–PIHS			1996–97–PIHS		
	Both Sex	Male	Female	Both Sex	Male	Female
PAKISTAN	39	52	26	39	51	28
Punjab	40	52	29	40	51	30
Sindh	45	57	31	45	57	33
NWFP	28	43	14	30	46	17
Balochistan	30	47	11	27	44	9
URBAN AREA	58	66	49	58	65	50
Punjab	58	65	50	57	64	51
Sindh	61	68	53	61	67	54
NWFP	45	58	31	46	58	34
Balochistan	41	58	23	45	61	27
RURAL AREA	31	45	16	31	44	17
Punjab	33	46	20	32	45	21
Sindh	29	47	10	30	46	12
NWFP	25	40	11	27	43	13
Balochistan	28	45	8	24	41	5

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

Note: 1. Population aged 10 years and older that is literate, expressed as a percentage of the population aged 10 years and older.

2. Literacy: For the 1995–96 and 1996–97 PIHS, literacy was taken as the ability to read a newspaper, and to write a simple letter.

3. This table uses a different definition of literacy compared to the 1995–96 PIHS report. Under the new definition, the ability to perform simple sum has been excluded.

Table D – 03

Literacy – Population 10 Years and older – by Region and Province, Censuses 1981 & 1972

Region and Province	Percentage of Population 10 Years and Older					
	1981 Census			1972 – Census		
	Both Sex	Male	Female	Both Sex	Male	Female
PAKISTAN	26.2	35.1	16.0	21.7	30.2	11.6
Punjab	27.4	36.8	16.8	20.7	29.1	10.7
Sindh	31.5	39.7	21.6	30.2	39.1	19.2
NWFP	16.7	25.9	6.5	14.5	23.1	4.7
Balochistan	10.3	15.2	4.3	10.1	14.8	4.2
URBAN AREA	47.1	55.3	37.3	41.5	49.9	30.9
Punjab	46.7	55.2	36.7	38.9	47.8	28.0
Sindh	50.8	57.8	42.2	47.4	54.5	38.4
NWFP	35.8	47.0	21.9	33.7	44.7	19.9
Balochistan	32.2	42.4	18.5	32.3	42.4	19.2
RURAL AREA	17.3	26.2	7.3	14.3	22.6	4.7
Punjab	20.0	29.6	9.4	14.7	22.9	5.2
Sindh	15.6	24.5	5.2	17.6	27.5	5.8
NWFP	13.2	21.7	3.8	11.0	19.0	2.2
Balochistan	6.2	9.8	1.8	5.6	9.2	1.3

Source: Population Census Organization.

Table D – 04

Literacy Ratios of Population (10 years and above) by Age, Sex, Province, Urban and Rural Areas

Age group (years)	Total			Urban			Rural		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
	1981 – Census								
Pakistan (a)									
10 and above	26.2	35.1	16.0	47.1	55.3	37.3	17.3	26.2	7.3
10 – 14	26.0	31.3	19.6	45.8	48.1	43.2	17.9	24.8	9.7
15 – 19	36.6	45.0	26.6	59.1	63.3	54.1	25.6	36.2	13.1
20 – 24	35.0	46.0	22.8	57.5	65.3	48.0	23.4	35.4	10.9
25 – 34	28.7	40.4	15.9	51.0	62.0	37.7	18.8	30.2	6.9
35 – 44	23.2	35.1	11.1	43.3	56.6	28.3	14.7	25.3	4.3
45 – 54	19.0	28.1	8.5	36.8	48.3	21.7	12.2	19.8	3.8
55 and above	13.6	20.2	5.0	28.0	38.8	13.1	9.1	14.3	2.5
Balochistan									
10 and above	10.3	15.2	4.3	32.2	42.4	18.5	6.2	9.8	1.8
10 – 14	8.4	11.2	4.7	27.1	32.5	20.4	5.4	7.9	2.0
15 – 19	13.4	17.3	7.1	39.8	48.9	27.4	8.2	11.7	2.6
20 – 24	14.7	21.1	6.5	41.3	53.1	24.4	7.9	12.4	2.3
25 – 34	12.3	19.3	4.5	37.0	50.1	18.9	6.8	11.5	1.6
35 – 44	9.4	15.5	3.0	29.6	42.2	13.3	5.6	9.9	1.3
45 – 54	7.9	12.8	2.6	23.9	33.6	11.2	5.2	8.9	1.3
55 and above	6.3	9.8	2.1	18.4	26.6	7.4	4.5	7.2	1.4
N.W.F.P									
10 and above	16.7	25.9	6.5	35.8	47.0	21.9	13.2	21.7	3.8
10 – 14	14.3	20.1	7.4	29.8	34.3	24.7	11.8	17.9	4.5
15 – 19	24.3	35.2	10.9	46.3	55.7	34.2	19.7	30.9	6.2
20 – 24	24.3	37.6	9.9	47.5	60.1	30.4	19.0	31.7	5.8
25 – 34	19.3	31.7	6.5	40.1	54.4	22.0	15.1	26.4	3.8
35 – 44	14.6	25.7	4.3	32.8	48.3	15.7	11.1	21.0	2.4
45 – 54	12.2	19.9	3.7	26.9	39.3	11.3	9.6	16.4	2.5
55 and above	8.5	13.3	2.3	20.8	30.8	6.9	6.8	10.7	1.7
Punjab (a)									
10 and above	27.4	36.8	16.8	46.7	55.2	36.7	20.0	29.6	9.4
10 – 14	28.0	34.0	21.0	44.5	46.7	42.0	21.6	29.2	12.7
15 – 19	39.1	49.0	28.0	59.3	63.5	54.4	30.3	42.7	16.7
20 – 24	37.4	49.3	24.6	58.6	66.7	49.1	27.8	40.8	14.3
25 – 34	30.3	42.6	17.0	51.8	63.7	38.0	21.5	33.6	9.0
35 – 44	24.0	36.7	11.3	43.7	58.4	27.7	16.4	27.8	5.3
45 – 54	19.2	28.4	8.3	35.6	47.8	20.3	13.4	21.3	4.4
55 and above	13.7	20.4	4.8	26.4	37.1	11.8	10.0	15.5	2.8
Sindh									
10 and above	31.5	39.7	21.6	50.8	57.8	42.2	15.6	24.5	5.2
10 – 14	32.4	36.9	26.9	52.2	54.1	50.2	16.6	24.0	7.4
15 – 19	41.6	46.8	35.1	62.3	65.4	58.7	19.5	28.2	7.9
20 – 24	38.0	47.1	27.5	58.7	65.0	50.9	17.7	28.3	6.3
25 – 34	33.4	44.1	20.8	52.7	61.7	41.6	17.6	29.0	4.8
35 – 44	28.5	40.0	16.1	45.3	56.4	32.4	14.9	25.8	3.8
45 – 54	24.6	34.3	12.8	41.0	51.4	26.7	12.4	20.4	3.7
55 and above	17.9	25.9	7.7	32.9	44.2	17.0	9.0	14.2	2.6

Contd.

Table D – 04

Literacy Ratios of Population (10 years and above) by Age, Sex, Province, Urban and Rural Areas

Age group (years)	Total			Urban			Rural		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
	1972 – Census								
Pakistan (a)									
10 and above	21.7	30.2	11.6	41.5	49.9	30.9	14.3	22.6	4.7
10 – 14	24.8	31.4	16.4	44.9	49.3	39.6	17.1	24.8	7.1
15 – 19	32.2	42.0	20.3	54.6	61.5	46.6	22.5	33.9	8.7
20 – 24	28.4	40.3	15.7	50.1	60.1	38.6	18.8	31.1	6.2
25 – 34	22.7	33.6	10.7	42.2	53.3	28.8	15.1	25.4	4.2
35 – 44	18.0	26.7	7.9	36.3	46.6	22.5	11.1	18.5	2.9
45 – 54	14.7	21.9	5.6	31.7	41.7	16.8	9.0	14.5	2.2
55 and above	10.5	15.8	3.5	23.4	32.4	10.9	7.1	11.3	1.5
Balochistan									
10 and above	10.1	14.8	4.2	32.3	42.4	19.2	5.6	9.2	1.3
10 – 14	11.3	14.9	6.3	36.2	44.1	26.5	6.1	9.2	1.8
15 – 19	13.9	18.4	7.4	42.7	53.2	29.5	7.6	11.3	2.0
20 – 24	12.9	19.0	5.9	38.7	51.9	23.9	6.8	11.4	1.5
25 – 34	10.5	16.5	3.7	32.3	44.5	17.0	5.8	10.2	1.1
35 – 44	8.3	13.3	2.5	26.9	37.3	12.2	4.7	8.2	0.9
45 – 54	7.3	11.5	1.9	23.9	33.3	8.9	4.2	7.0	0.8
55 and above	5.5	8.9	1.4	17.5	25.4	6.4	3.8	6.4	0.7
N.W.F.P									
10 and above	14.5	23.1	4.7	33.7	44.7	19.9	11.0	19.0	2.2
10 – 14	17.0	25.0	7.2	37.3	44.7	28.6	13.4	21.5	3.3
15 – 19	23.2	35.1	9.1	46.4	57.4	33.5	18.5	30.6	4.1
20 – 24	19.8	33.2	6.6	42.2	56.1	25.7	15.0	27.7	2.9
25 – 34	15.0	25.6	4.0	34.8	48.7	17.4	11.2	20.7	1.8
35 – 44	11.2	19.0	2.9	28.7	41.3	12.3	7.9	14.3	1.3
45 – 54	8.9	14.8	1.9	23.0	33.6	7.7	6.4	11.2	1.0
55 and above	6.1	10.0	1.2	16.0	24.5	4.5	4.8	8.0	0.7
Punjab (a)									
10 and above	20.7	29.1	10.7	38.9	47.8	28.0	14.7	22.9	5.2
10 – 14	23.5	30.0	15.3	41.1	45.4	35.9	17.5	24.9	8.1
15 – 19	32.1	42.7	19.7	53.6	60.8	45.1	24.1	35.9	10.2
20 – 24	27.6	39.6	14.9	49.1	60.1	36.8	19.6	31.7	7.0
25 – 34	21.8	32.7	9.9	40.5	53.1	26.0	15.5	25.6	4.6
35 – 44	16.7	25.3	6.9	33.4	44.6	19.4	11.2	18.6	3.0
45 – 54	13.6	20.5	4.8	28.5	38.7	14.1	9.0	14.6	2.2
55 and above	9.9	15.1	2.8	20.6	29.2	8.4	7.3	11.6	1.4
Sindh									
10 and above	30.2	39.1	19.2	47.4	54.5	38.4	17.6	27.5	5.8
10 – 14	35.5	42.1	27.0	53.2	57.0	48.6	22.0	31.6	8.4
15 – 19	40.2	48.0	30.4	58.3	63.7	52.3	23.9	35.2	8.7
20 – 24	36.3	47.9	23.6	53.5	61.1	44.4	21.5	35.7	7.0
25 – 34	30.7	41.9	17.7	46.4	54.6	35.7	19.1	31.7	5.6
35 – 44	26.0	35.5	14.2	42.4	50.8	30.3	14.7	23.7	4.5
45 – 54	22.6	31.1	11.0	39.1	48.5	24.3	11.8	18.5	3.6
55 and above	16.2	23.1	7.5	30.8	40.9	17.2	8.8	13.7	2.7

Source: Population Census Organization

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

(a) Includes the data of Islamabad.

Table D – 05

Number of Institutions, Enrollment and Number of Teachers by Sex and Level of Educational Institutions

Institute/Year	Number of Institutions			Enrollment (000. No.)		
	Total	Male	Female	Total	Male	Female
	1	2	3	4	5	6
Primary School						
1947 – 48	8,413	6,864	1,549	770	660	110
1954 – 55	14,162	11,688	2,474	1,550	1,310	240
1964 – 65	32,589	24,568	8,021	3,050	2,350	700
1974 – 75	51,744	36,066	15,678	4,971	3,541	1,430
1984 – 85	73,812	52,261	21,551	6,828	4,576	2,252
1994 – 95	139,634	97,667	41,967	14,264	8,626	5,638
1996 – 97 P	150,963	104,272	46,691	15,553	9,241	6,312
Middle School						
1947 – 48	2,190	2,037	153	221	200	21
1954 – 55	1,517	1,321	196	332	287	45
1964 – 65	2,701	2,112	589	624	496	128
1974 – 75	4,713	3,447	1,266	1,196	917	279
1984 – 85	6,132	4,315	1,817	1,805	1,359	446
1994 – 95	12,571	7,009	5,562	3,816	2,469	1,347
1996 – 97 P	14,595	8,170	6,425	3,756	2,364	1,392
High Secondary Vocational Institutions						
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	10,113	6,703	3,410	1,622	1,082	540
1996 – 97 P	10,481	6,745	3,736	1,641	1,077	564

Contd.

Table D – 05

Number of Institutions, Enrollment and Number of Teachers by Sex and Level of Educational Institutions

Institute/Year	Number of Institutions			Enrollment (000. No.)		
	Total	Male	Female	Total	Male	Female
	1	2	3	4	5	6
Arts and Science Colleges						
1947 – 48	40	35	5	–	–	–
1954 – 55	77	58	19	43	37	6
1964 – 65	225	163	62	127	103	24
1974 – 75	361	265	96	208	150	58
1984 – 85	467	314	153	373	256	117
1994 – 95	688	437	251	723	458	265
1996 – 97 P	798	502	296	830	513	317
Professional Colleges						
1947 – 48	–	–	–	4.4	4.1	0.3
1954 – 55	24	24	–	8.2	7.4	0.8
1964 – 65	45	40	5	17.4	14.4	3.0
1974 – 75	83	75	8	44.7	36.6	8.1
1984 – 85	99	91	8	59.2	49.5	9.7
1994 – 95	153	144	9	131.9	108.3	23.6
1996 – 97 P	161	152	9	150.9	126.8	24.1
Universities						
1947 – 48	2	(a)	(a)	0.6	0.5	0.1
1954 – 55	4	(a)	(a)	2.0	1.9	0.1
1964 – 65	6	(a)	(a)	13.2	10.5	2.7
1974 – 75	10	(a)	(a)	21.4	16.9	4.5
1984 – 85	21	(a)	(a)	54.0	45.6	8.4
1994 – 95	24	(a)	(a)	70.2	53.6	16.6
1996 – 97 P	25	(a)	(a)	71.8	53.9	17.9

Note: (a) There is co – edecation system in universities.

Contd.

Table D – 05

Number of Institutions, Enrollment and Number of Teachers by Sex and Level of Educational Institutions

Institute/Year	000 Number of Teachers			Student Per Teacher		
	Total	Male	Female	Total	Male	Female
	7	8	9	10	11	12
Primary School						
1947–48	17.8	15.4	2.4	43	43	46
1954–55	35.5	29.7	5.8	44	44	41
1964–65	75.9	59.2	16.7	40	40	42
1974–75	125.5	83.1	42.4	40	43	34
1984–85	179.0	121.8	57.2	38	38	39
1994–95	334.0	219.5	114.5	43	39	49
1996–97 P	339.5	226.9	112.6	46	41	56
Middle School						
1947–48	12.0	11.2	0.8	18	18	26
1954–55	10.7	9.2	1.5	31	31	30
1964–65	22.1	17.4	4.7	28	29	27
1974–75	43.5	30.7	12.8	27	30	22
1984–85	57.4	40.4	17.0	31	34	26
1994–95	86.4	48.0	38.4	44	51	35
1996–97 P	95.8	57.1	38.7	39	41	36
High Secondary Vocational Institutions						
1947–48	6.8	6.0	0.8	N.A	N.A	N.A
1954–55	12.7	10.4	2.3	N.A	N.A	N.A
1964–65	29.2	22.8	6.4	N.A	N.A	N.A
1974–75	53.6	37.7	15.9	N.A	N.A	N.A
1984–85	82.7	57.3	25.4	N.A	N.A	N.A
1994–95	185.6	117.2	68.4	N.A	N.A	N.A
1996–97 P	168.1	115.7	52.4	N.A	N.A	N.A

Note: 1. The high school enrollments are only for class IX and X.

2. The total enrollment for high schools are not available, therefore students/teachers raito can not be workedout.

N.A = Not available

Contd

Table D – 05

Number of Institutions, Enrollment and Number of Teachers by Sex and Level of Educational Institutions

Institute/Year	000 Number of Teachers			Student Per Teacher		
	Total	Male	Female	Total	Male	Female
	7	8	9	10	11	12
Arts and Science Colleges						
1947 – 48	–	–	–	–	–	–
1954 – 55	–	–	–	–	–	–
1964 – 65	5.4	4.0	1.4	24	26	17
1974 – 75	9.6	7.0	2.6	22	21	22
1984 – 85	14.0	9.7	4.3	27	26	27
1994 – 95	20.8	12.8	8.0	35	36	33
1996 – 97 P	20.9	12.5	8.4	40	41	38
Professional Colleges						
1947 – 48	–	–	–	–	–	–
1954 – 55	–	–	–	–	–	–
1964 – 65	1.2	1.0	0.2	15	14	15
1974 – 75	2.6	2.1	0.5	17	17	16
1984 – 85	3.9	3.3	0.6	15	15	16
1994 – 95	5.9	4.8	1.1	22	23	21
1996 – 97 P	6.2	5.1	1.1	24	25	22
Universities						
1947 – 48	–	–	–	–	–	–
1954 – 55	–	–	–	–	–	–
1964 – 65	1.3	1.2	0.1	10	9	27
1974 – 75	2.5	2.2	0.3	9	8	15
1984 – 85	3.6	3.1	0.5	15	15	17
1994 – 95	6.4	5.6	0.8	11	10	21
1996 – 97 P	7.0	6.0	1.0	10	9	18

Source: 1. Central Bureau of Education 2. Federal Bureau of Statistics.

Note: (*) Professional Colleges includes Agriculture, engineering, Medical, Commerce, Law, Home Economics, Education, Educational Research, Physical Education, Tibb, Homeopathand Fine Arts Institutions.

Table D-06

Professional Colleges by Type and Sex

(Number)

Year	All Professional colleges		Agricu-lture (a)	Engin-eering (b)	Medical (c)		Comm-erce (d)	Law	Home Econo-mics	Education (e)		Others (f)
	Total	Female	Total	Total	Total	Female	Total	Total	Total	Total	Female	Total
1980-81	100	8	3	11	19	2	18	15	4	17	2	13
1981-82	102	8	4	12	19	2	18	15	4	17	2	13
1982-83	102	8	4	12	19	2	18	15	4	17	2	13
1983-84	99	8	3	11	22	2	16	13	4	17	2	13
1984-85	99	8	3	11	22	2	16	13	4	17	2	13
1985-86	99	8	3	11	22	2	16	13	4	17	2	13
1986-87	99	8	3	11	22	2	16	13	4	17	2	13
1987-88	99	8	3	11	22	2	16	13	4	17	2	13
1988-89	99	8	3	11	22	2	16	13	4	17	2	13
1989-90	99	8	3	11	22	2	16	13	4	17	2	13
1990-91	99	8	3	11	22	2	16	13	4	17	2	13
1991-92	139	9	3	11	22	2	33	31	4	18	3	17
1992-93	147	9	3	11	22	2	36	36	4	18	3	17
1993-94	165	10	5	10	25	2	52	36	4	21	4	12
1994-95	167	10	5	10	25	2	54	36	4	21	4	12
1995-96(P	167	10	5	9	25	2	54	38	4	21	4	11
1996-97(P	172	10	5	9	25	2	55	39	4	24	4	11

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

Note:- (a) Includes Forestry and Animal Husbandary Colleges.
(b) Includes colleges of Textile Technology.
(c) Includes colleges of Dentistry and Institute of Hygiene and Preventive Medicines.
(d) Includes Institute of Business Administration, University of Karachi.
(e) Includes Institutes of Educational Research of the University of Punjab and Sind also Colleges of Physical Education.
(f) Includes Tibb, Homoeopath and Fine Arts.
(P) Provisional

Table D–07

Teachers in Professional Colleges by Type and Sex

(Number)

Year	All Types		Agriculture		Engineering		Medical		Commerce	
	Total	Female	Total	Female	Total	Female	Total	Female	Total	Female
1980–81	3,712	540	288	–	991	8	1,203	260	240	2
1981–82	4,025	520	399	–	487	12	1,474	216	380	38
1982–83	5,004	522	500	–	612	12	1,850	217	477	38
1983–84	3,693	609	201	–	651	6	1,773	347	257	5
1984–85	3,884	628	216	–	619	–	1,808	378	255	6
1985–86	3,825	762	105	–	753	6	1,659	384	249	42
1986–87	4,274	802	106	–	704	6	2,159	446	297	12
1987–88	4,389	826	101	–	767	6	2,160	443	297	12
1988–89	4,138	837	121	–	682	–	2,101	463	321	14
1989–90	4,506	851	121	–	698	–	2,151	470	326	16
1990–91	4,544	907	125	1	706	6	2,159	472	327	19
1991–92	4,591	913	126	1	713	–	2,167	475	333	19
1992–93	4,520	927	126	1	720	–	2,175	479	339	19
1993–94	6,494	1,381	340	9	355	10	3,109	723	1,100	65
1994–95	6,650	1,355	353	8	379	10	2,155	702	1,136	77
1995–96(P)	6,290	1,373	186	3	248	9	3,109	724	1,142	75
1996–97(P)	6,334	1,386	186	3	250	9	3,111	725	1,163	80

Year	Law		Home Economics		Education		All Others (a)	
	Total	Female	Total	Female	Total	Female	Total	Female
1980–81	310	7	165	165	328	88	187	10
1981–82	412	–	182	182	480	70	211	2
1982–83	517	–	183	183	602	70	263	2
1983–84	179	4	156	156	300	74	176	17
1984–85	166	3	154	154	466	59	200	28
1985–86	146	7	154	154	480	115	279	54
1986–87	386	38	180	180	442	120	–	–
1987–88	408	41	183	183	473	141	–	–
1988–89	220	3	214	214	479	143	–	–
1989–90	217	3	221	221	480	141	292	–
1990–91	224	3	221	221	485	147	297	38
1991–92	226	3	226	226	490	149	310	40
1992–93	226	3	230	230	497	153	207	42
1993–94	582	18	230	230	603	268	175	58
1994–95	606	22	224	224	611	249	166	63
1995–96(P)	614	27	211	211	609	271	171	53
1996–97(P)	630	31	212	212	610	272	172	54

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

Note: (P) = Provisional (a) = All others include Tibb, Homoeopath and Fine Arts.

Table D – 08

Number of Secondary Vocational Institutions

Year	Commercial	Industrial / Vocational	Polytechnics / Technical
1980 – 81	54	90	23
1981 – 82	61	79	23
1982 – 83	62	83	23
1983 – 84	63	87	23
1984 – 85	73	103	24
1985 – 86	74	114	25
1986 – 87	116	150	35
1987 – 88	125	169	42
1988 – 89	137	240	46
1989 – 90	156	180	48
1990 – 91	156	186	55
1991 – 92	157	188	55
1992 – 93	143	195	55
1993 – 94	143	190	51
1994 – 95	144	190	52
1995 – 96 (P)	145	191	53
1996 – 97 (P)	145	191	53

Source: i). Ministry of Education P = Provisional

ii). Provincial Directorates of Technical Education

Table D-09

Enrollment in Secondary Vocational Institutions by Kind and Sex

(Number)

Year	Type of institution								
	Commercial			Industrial/Vocational			Polytechnic/Technical		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
1980-81	5,580	5,571	9	9,584	3,169	6,415	10,631	10,342	289
1981-82	12,506	12,351	155	9,864	4,441	5,423	14,416	14,177	239
1982-83	14,620	14,398	222	11,093	5,441	5,652	14,733	14,482	251
1983-84	16,734	16,466	268	12,322	6,441	5,881	15,050	14,787	263
1984-85	15,304	15,184	120	10,537	2,882	7,655	13,074	11,947	1,127
1985-86	16,828	16,708	120	10,567	2,769	7,798	13,797	12,516	1,281
1986-87	14,032	14,032	-	10,743	2,707	8,036	14,132	12,629	1,503
1987-88	20,919	20,847	72	13,729	2,288	11,441	21,068	19,370	1,698
1988-89	22,550	22,449	101	13,976	2,447	11,529	22,878	21,280	1,598
1989-90	18,138	17,988	150	11,618	2,257	9,361	23,541	21,860	1,681
1990-91	20,216	19,913	303	10,697	3,582	7,115	23,258	21,725	1,533
1991-92	22,020	20,527	1,493	11,068	3,980	7,088	23,588	21,634	1,954
1992-93	22,715	22,250	465	11,018	1,963	9,055	28,215	26,204	2,011
1993-94	24,144	23,663	481	10,805	2,029	8,776	27,547	25,607	1,940
1994-95	25,532	24,496	567	12,275	2,076	10,199	28,018	26,207	1,811
1995-96(P)	25,811	25,256	555	12,340	2,047	10,293	28,458	26,717	1,741
1996-97(P)	25,820	25,270	550	12,353	2,040	10,313	28,485	26,750	1,735

Source: i) Ministry of Education. P = Provisional
ii) Provincial Directorates of Technical Education.

Table D – 10

Medical Personnel in Pakistan

(Number)

Year	Doctors	Dentists	Nurses	Qualified Lady Health visitors	Registered Midwives	Pharmists
1980	23,594	928	9,098	2,009	4,200	1,673
1981	26,668	1,018	9,872	2,171	4,846	1,771
1982	29,931	1,121	10,554	2,368	5,482	1,830
1983	20,865	1,222	7,348	1,144	6,031	1,953
1984	25,633	1,349	8,280	1,374	7,078	2,196
1985	30,044	1,416	10,529	1,574	8,133	2,425
1986	34,034	1,558	12,014	2,144	10,315	2,785
1987	38,580	1,636	13,002	2,384	11,505	3,153
1988	42,862	1,772	14,015	2,697	12,866	3,262
1989	47,289	1,918	15,861	2,917	13,779	3,484
1990	51,883	2,077	16,948	3,106	15,009	3,718
1991	55,572	2,193	18,150	3,463	16,299	3,601
1992	60,042	2,279	19,389	3,796	17,678	3,772
1993	63,003	2,401	20,245	3,920	18,641	–
1994	66,196	2,589	21,419	4,107	19,759	–
1995	69,691	2,751	22,299	4,185	20,910	–
1996	74,229	2,938	24,776	4,407	21,662	–
1997 (P)	78,470	3,159	24,776	4,439	21,698	–

Source:Health Division

Note : Figures for 1997 (P) have been taken from Economic Survey 1997–98

Table D – 11

Hospitals, Dispensaries, Maternity & Child Health Centres and Beds

(Number)

Year (As on Ist January)	Hospitals	Dispen – saries	Maternity and Child Health Centres	Rural Health Centre	Basic Health Unit/Sub Health Centre	T.B. Clinic	Total Beds
1980	602	3,466	812	217	736	98	47,412
1981	600	3,478	823	243	774	99	48,441
1982	613	3,459	817	283	1,587	98	50,335
1983	626	3,351	794	302	1,982	98	52,161
1984	633	3,386	787	319	2,366	96	53,603
1985	652	3,415	778	334	2,647	100	55,886
1986	670	3,441	773	349	2,902	101	57,709
1987	682	3,498	798	383	3,150	104	60,093
1988	710	3,616	998	417	3,454	211	64,471
1989	719	3,659	1,027	448	3,818	211	66,375
1990	756	3,795	1,050	459	4,213	220	72,997
1991	776	3,993	1,057	465	4,414	219	75,805
1992	778	4,095	1,055	470	4,526	228	76,938
1993	799	4,206	849	485	4,663	233	80,047
1994	822	4,280	853	496	4,902	242	84,883
1995	827	4,253	859	498	4,986	260	85,805
1996	858	4,513	853	505	5,143	262	88,454
1997 (p)	865	4,523	853	513	5,121	262	89,929

Source : Health Division

Note : Figures for 1997 (P) have been taken from Economic Survey of Pakistan 1997–98

Table D – 12

Electricity Balances (Public Utilities only)

(GWh)

Sector	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97
Total Generation	41,042	45,440	48,750	50,640	53,545	56,946	59,119
Auxiliary Consumption	1,354	1,504	1,486	1,720	1,744	2,039	2,357
Net purchases from PASMIC	N.A	26	60	7	10	10	0
Net Supply	39,688	43,962	47,325	48,928	51,811	54,917	56,762
Consumption	31,534	33,878	36,493	37,381	39,448	41,738	42,715
T & D Losses	8,154	10,084	10,831	11,547	12,363	13,179	14,047
(as % of Net Supply)	20.5%	22.9%	22.9%	23.6%	23.9%	24.0%	24.7%

Source: Pakistan Energy Year Book – 1996 & 1997 published by Hydrocarbon Development Institute of Pakistan.

Table D – 13

Natural Gas Reserves as on June 30th, 1997

(Trillion Cubic Feet)

Non Associated Gas Field	Operator Company	Original Recoverable Reserves	Cumulative Production	Balance Recoverable Reserves
1. Adhi	PPL	0.116	0.047	0.069
2. Kandkot	"	0.784	0.268	0.516
3. Mazarani	"	0.033		0.033
4. Sui	"	8.624	6.438	2.186
5. Khairpur	PEPL	1.000		1.000
6. Pirwali	POL	0.049	0.007	0.042
7. Mari	MGCL	6.300	1.760	4.540
8. Bagla	OGDC	0.008		0.008
9. Bhal Syedan	"	0.003	0.001	0.002
10. Bobi	"	0.023	0.004	0.019
11. Buzdar & Dhamraki	"	0.008		0.008
12. Dakhni	"	0.312	0.053	0.259
13. Daru	"	0.011		0.011
14. Dhodak	"	0.390	0.033	0.357
15. Hundi	"		Included in Sari	
16. Jamdran	"	0.019		0.019
17. Kothar	"	0.012		0.012
18. Lashari South	"	0.001		0.001
19. Loti	"	0.292	0.125	0.167
20. Mithrao	"	0.003		0.003
21. Nandpur	"	0.295		0.295
22. Nur	"	0.014		0.014
23. Panjpir	"	0.176		0.176
24. Pirkoh	"	1.504	0.681	0.823
25. Qadirpur	"	2.800	0.134	2.666
26. Rodho	"	0.004		0.004
27. Sadkal	"	0.045	0.033	0.012
28. Sari(includes Hundi)	"	0.044	0.037	0.007
29. Uch	"	3.100		3.100
30. Zin	"	0.100		0.100
31. Ratana	OPI	0.048	0.048	
32. Bhatti(includes Bachal & Nakurji)	UTP	0.071	0.020	0.051

Contd.

Table D – 13

Natural Gas Reserves as on June 30th, 1997

(Trillion Cubic Feet)

Non Associated Gas Field	Operator Company	Original Recoverable Reserves	Cumulative Production	Balance Recoverable Reserves
33. Bukhari	"	0.085	0.061	0.024
34. Buzdar South & South	"	0.116	0.005	0.111
35. Dabhi South	"		Included in Dhabi	
36. Golarchi	"	0.052	0.045	0.007
37. Jabo	"	0.007		0.007
38. Jalal	"	0.019	0.014	0.005
39. Kato	"	0.005		0.005
40. Khorewah & Deep	"	0.142	0.052	0.090
41. Koli	"	0.028	0.008	0.020
42. Lare Deep	"	0.005		0.006
43. Mahi	"	0.007	0.004	0.003
44. Matli	"	0.049	0.045	0.004
45. Mukhdumpur & Deep	"	0.071	0.028	0.043
46. Nakurji	"		Included in Bhatti	
47. Pir	"	0.007		0.007
48. Rind	"	0.002		0.002
49. sonro	"	0.017	0.006	0.011
50. Tando Ghulam Ali	"	0.006		0.006
51. Turk	"	0.162	0.105	0.057
52. Turk Deep	"	0.126	0.009	0.117
53. Zaur & Deep	"	0.053		0.053
54 Savi Ragha	BG	0.030		0.030
55. Kadanwari	LASMO	0.167	0.059	0.108
56. Miano	OMV	0.320		0.320
57. Chachar	Tullow	0.101		0.101
58. Sara	"	0.040		0.040
59. Associated Gasses	Tullow	0.70	0.461	0.238
TOTAL: TCF		28.506	10.591	17.915
Million:TOE		563.70	234.05	329.65

Source: Pakistan Energy Year Book,1997 published by Hydrocarbon Development Institute of Pakistan

Note: (a) Includes cummulative production Hundi Gas Field.

Table D – 14

Associated Gas Reserves as on 30th June, 1997

(Trillion cubic feet)

Oil Field	Operator	Original Recoverable Reserves	Cumulative Production	Balance Recoverable Reserves
01 Meyal	POL	0.273	0.24	0.033
02 Pindori	POL	0.048	0.002	0.046
03 Fimkassar	OGDC	0.049	0.007	0.042
04 Kunar	OGDC	0.044	0.002	0.042
05 Missakaswal	OGDC	0.029	0.017	0.012
06 Tando Alam (*)	OGDC	0.023	0.009	0.014
07 Toot	OGDC	0.037	0.033	0.004
08 Bhangali	OPI	0.005	0.004	0.001
09 Dhurnal	OPI	0.127	0.119	0.008
10 Dabhi & Dhabi South	UTP	0.021	0.006	0.015
11 Halipota	UTP	0.01	0.002	0.008
12 Mazari & Mazari S	UTP	0.013	0.012	0.001
13 Sakhi (**)	UTP	0.02	0.008	0.012
Total:TCF	–	0.699	0.461	0.238
Million TOE	–	18.38	12.12	6.26

Spource: Pakistan Energy Year Book–1997 Published by Hydrocarbon Development Institute of Pakistan

(*) Includes Kal, Lashari Centre,Pasaki,Sono & Thora

(**) Includes Duphri, Lairi, Nari

Table D – 15

Pakistan Coal Resources as on 30th June, 1997

Province Coal Field	Seam Thickness Range (Metres)	Resources (Million Tonnes)					Status	Heating Value Range (Btu/lb)
		Measured	Indicated	Inferred	Hypothetical	Total		
Balochistan								
Duki	0.3–2.3	14	11	26	–	51	Dev.	8291–11475
Mach–Abegum	0.6–1.3	9	–	14	–	23	Dev.	9900–11500
Sor Range–Degari	0.3–1.3	15	–	19	–	34	Dev.	9000–10500
Pir Ismail Ziarat	0.4–0.7	2	2	8	–	11	Dev.	9627–10681
Khost–Sharig–Hamal	0.3–2.3	13	–	63	–	76	Dev.	7950–12590
Sub–Total:		53	13	130	–	195		
NWFP								
Hangu	0.43–0.6	1	5	76	–	81	Non–Dev.	10500–12500
Sub–Total:		1	5	76	–	81		
Punjab								
Makarwal	0.3–2.0	5	8	10	–	22	Dev.	9352–12194
Salt Range	0.43–0.46	43	13	0	178	234	Dev.	6766–11097
Sub–Total:		48	21	10	178	256		
Sindh								
Lakhra	0.3–3.3	244	629	455	–	1,328	Dev.	4622–7554
Sonda–Thatta	0.3–1.5	60	511	2,197	932	3,700	Non–Dev.	6762–10251
Jherruck	0.3–6.2	106	310	907	–	1,323	Non–Dev.	7618–11029
Ongar	0.3–1.5	18	77	217	–	312	Non–Dev.	4600–9618
Indus East	0.3–2.5	51	170	1,556	–	1,777	Non–Dev.	6700–7500
Meting–Jhimpir	0.15–1.2	15	53	93	–	161	Dev.	6740–7460
Badin	0.55–3.1	3	13	–	–	16	Non–Dev.	9823–9912
Thar Coal	0.25–12.58	2,331	6,407	62,710	104,059	175,506	Non–Dev.	6223–10288
Sub–Total:		2,828	8,170	68,135	104,991	184,123		
Total:		2,928	8,208	68,350	105,169	184,655		

Source: Pakistan Energy Year Book–1997, Published by Hydrocarbon Development Institute of Pakistan

Table D – 16

Bunkering of Petroleum Products

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

Products	Year						
	1990 – 91	1991 – 92	1992 – 93	1993 – 94	1994 – 95	1995 – 96	1996 – 97
JP – 1	147,156	145,488	156,893	129,317	134,307	125,236	131,263
	151,806	150,085	161,851	133,403	138,551	129,193	135,411
	(67.81)	(42.36)	(51.06)	(36.27)	(37.27)	(36.93)	(45.20)
HSD	1,567	936	2,074	2,021	2,518	2,555	2,566
	1,647	984	2,180	2,125	2,647	2,686	3,698
	(0.60)	(0.37)	(0.94)	(1.01)	(1.01)	(1.02)	(0.99)
LDO	2,284	1,135	705	817	1,087	864	851
	2,379	1,182	734	851	1,132	900	887
	(0.84)	(0.42)	(0.26)	(0.39)	(0.39)	(0.33)	(0.30)
Furnace Oil	13,852	10,689	11,935	14,303	11,244	9,356	15,081
	13,488	10,408	11,621	13,927	10,948	9,110	14,684
	(2.18)	(1.14)	(1.40)	(1.37)	(1.43)	(1.20)	(1.95)
Total:	164,859	158,248	171,607	146,458	149,156	138,011	149,761
	169,321	162,660	176,387	150,306	153,279	141,890	153,679
	(71.43)	(44.30)	(53.65)	(39.04)	(40.10)	(39.48)	(48.44)

Source: Pakistan Energy Year Book(1996,97) Published by Hydrocarbon Development Institute Of Pakistan
ACGR = Annual cummulative growth rate.

Table D–17

Biomass Standing Stock and Productivity by Agro–ecological Zones

Type of Biomass	Pakistan	Agro–ecological Zones (*)							
		Irrhigh N	Irrhigh S	Irrlow N	Irrlow S	Barani	Forhigh	Semi–arid	Desert
Area (km2)	877,227	91,848	19,870	31,864	44,609	27,878	129,966	253,832	252,342
Standing Stocks	Million tonnes	Tonnes/ha							
Twigs	31.39	1.41	0.98	1.28	0.13	0.46	0.63	0.04	0.05
Roundwood	96.41	2.52	3.00	3.63	0.70	1.01	3.09	0.22	0.16
Timber	73.19	2.51	1.47	3.14	0.52	0.11	2.32	0.17	0.01
Shrubs	9.78	0.01	0.10	0.35	0.59	0.03	0.23	0.01	0.09
Total Stocks	210.78	6.45	5.55	8.40	1.94	1.61	6.27	0.44	0.31
Productivity									
Twigs	4.36	0.26	0.09	0.20	0.02	0.07	0.05	–	–
Roundwood	7.46	0.27	0.19	0.47	0.07	0.06	0.15	0.02	0.01
Timber	5.13	0.24	0.08	0.29	0.05	–	0.10	0.01	–
Shrubs	5.74	0.01	0.09	0.29	0.46	0.01	0.10	0.01	0.04
Total productivity	22.70	7.08	0.91	3.98	2.66	0.42	5.22	0.94	1.48
of which;									
Used as fuel	20.13	5.98	0.82	3.51	2.55	0.42	4.56	0.80	1.48
Twigs fuel	10.10	2.44	0.35	1.56	2.14	0.24	2.01	0.20	1.16
Round fuel	10.03	3.55	0.47	1.96	0.41	0.18	2.55	0.59	0.32

Source: Pakistan Energy Year Book–1996, Published by Hydrocarbon Development Institute of Pakistan

Note: The data given in this table relates to Household Energy Study conducted during 1991–93.

Barani Rain–fed agriculture

Table D – 18

Biomass Standing Stock and Productivity by Province

(Million Tonnes)

Type of Biomass	Pakistan	Balochistan	NWFP	Punjab	Sindh	NA & AJK
Standing Stocks						
Twigs	31.39	1.83	5.40	17.39	3.06	3.71
Roundwood	96.40	7.00	21.87	37.72	11.75	18.06
Timber	73.20	2.85	16.46	33.34	7.00	13.55
Shrubs	9.77	2.15	1.50	1.61	3.16	1.35
Total Stocks	210.78	13.82	45.24	90.06	24.98	36.67
Productivity						
Twigs	4.36	0.15	0.59	2.99	0.32	0.31
Roundwood	7.46	0.55	1.24	3.97	0.85	0.85
Timber	5.14	0.18	0.86	3.04	0.47	0.59
Shrubs	5.75	1.00	0.70	1.13	2.33	0.59
Total productivity	22.70	1.88	3.39	11.13	3.96	2.35
of which;						
Used as fuel	20.13	1.79	2.96	9.60	3.73	2.05
Twigs fuel	10.10	1.15	1.29	4.12	2.64	0.90
Round fuel	10.03	0.64	1.67	5.49	1.08	1.15

Source: Hydrocarbon Development Institute of Pakistan

Note: The data given in this table relates to Household Energy Study conducted during 1991 – 93.

Table D – 19

Immunization Coverage

(000 Number)

Year	B.C.G	Polio				D.P.T			
		I	II	III	BR	I	II	III	BR
1980	680	557	289	164	44	292	167	110	19
1981	1,116	1,013	494	184	58	472	237	138	25
1982	1,317	1,297	742	289	162	576	363	254	40
1983	4,203	6,467	4,614	1,850	226	2,334	1,357	852	81
1984	6,674	6,364	5,960	6,055	794	2,747	2,422	2,382	295
1985	3,459	3,779	3,272	2,313	2,108	2,498	2,057	1,832	762
1986	4,295	4,912	3,959	3,005	1,014	3,685	3,134	2,905	615
1987	4,238	4,751	3,899	3,130	1,272	3,705	3,276	3,066	812
1988	4,236	4,769	3,768	3,169	1,139	3,756	3,277	3,115	950
1989	4,066	4,883	3,900	3,511	992	4,018	3,603	3,494	923
1990	4,674	5,479	4,279	4,018	1,028	4,552	4,070	3,965	980
1991	4,429	5,610	4,468	3,899	1,135	4,417	3,953	3,887	956
1992	4,493	5,470	4,083	3,772	1,460	4,368	3,997	3,756	1,182
1993	4,387	5,332	3,952	3,686	916	4,308	3,892	3,688	717
1994	4,092	5,383	3,730	3,466	308	4,091	3,647	3,406	265
1995	3,448	4,681	3,141	2,845	547	3,639	3,125	2,876	225
1996	4,841	6,170	4,282	3,994	4,137	4,805	4,294	4,012	137
1997	4,804	6,261	4,221	3,947	4,039	4,740	4,213	3,936	89

Year	D.T			T.T			Measles
	I	II	BR	I	II	BR	
1980	245	114	9	82	38	–	61
1981	361	171	20	283	141	2	195
1982	476	263	45	371	173	7	318
1983	3,960	2,656	105	511	245	–	1,416
1984	3,585	3,510	531	463	280	8	2,522
1985	1,251	1,157	1,302	671	385	23	2,383
1986	1,169	799	51	1,848	1,208	19	3,124
1987	775	619	463	242	1,497	49	3,373
1988	557	497	193	2,938	2,079	133	3,172
1989	332	292	68	4,422	3,113	260	3,535
1990	279	228	39	5,192	3,670	1,043	4,393
1991	127	108	180	4,348	3,728	748	3,985
1992	110	86	275	3,593	2,907	847	4,003
1993	74	58	160	3,311	2,625	982	3,819
1994	76	53	23	3,232	3,465	97	3,690
1995	–	–	–	2,871	3,224	100	2,991
1996	–	–	–	3,830	4,431	166	4,428
1997	–	–	–	3,733	4,455	251	4,242

Source: Helath Division

Note: Data from 1968 to 1979 are not available

Table D – 20

Performance of Contraceptive Delivery Services Through Population Welfare Programme, Pakistan

(Number)

Year	IUD (No. of insertions)	Sterilization (No. of cases male/female)	Oral Pills (No. of cycles)	Condom (In gross)	injectable (vials)	Foam (bottles)
1980–81	92,103	24,764	1,210,951	182,011	24,035	–
1981–82	78,195	25,475	233,398	54,794	25,379	–
1982–83	95,793	17,501	231,055	288,448	40,989	121
1983–84	152,310	41,068	740,707	406,692	96,035	38,460
1984–85	196,636	58,926	927,439	566,443	110,427	44,930
1985–86	241,905	69,962	1,274,049	586,035	225,179	76,717
1986–87	315,769	69,439	1,445,372	699,514	384,190	104,977
1987–88	507,884	77,386	1,879,216	954,188	434,603	139,405
1988–89	379,432	79,167	1,562,513	971,372	567,852	123,274
1989–90	599,900	79,717	1,637,961	922,107	672,457	135,329
1990–91	646,598	69,684	1,623,419	911,458	740,133	105,386
1991–92	750,125	79,663	1,018,360	599,659	841,088	53,943
1992–93	638,901	85,164	860,765	296,548	662,298	16,382
1993–94	542,999	85,436	844,065	305,289	878,776	89,198
1994–95	713,922	93,553	1,017,405	564,158	1,026,290	116,483
1995–96	692,474	99,336	1,235,905	666,150	1,079,867	27,475
1996–97	632,880	96,652	1,477,514	807,304	1,196,998	3,285

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

Contd.

Table D – 20

Performance of Contraceptive Delivery Services Through Population Welfare Programme, Balochistan

Year	IUD (No. of insertions)	Sterilization (No. of cases male/female)	Oral Pills (No. of cycles)	Condom (In gross)	injectable (vials)	Foam (bottles)
1980–81	2,113	20	30,783	5,282	18	–
1981–82	1,191	77	6,817	496	55	–
1982–83	2,288	65	16,571	12,900	161	–
1983–84	3,877	320	69,217	44,129	2,215	444
1984–85	4,563	245	63,587	42,236	1,366	840
1985–86	6,075	664	38,786	13,123	5,283	848
1986–87	8,894	876	46,601	21,954	12,314	2,782
1987–88	11,006	939	61,008	29,428	12,706	3,762
1988–89	10,489	536	48,414	25,437	15,154	3,584
1989–90	17,092	544	46,482	15,230	16,433	3,690
1990–91	19,921	641	52,479	16,751	18,412	1,619
1991–92	21,401	643	38,795	10,087	21,459	493
1992–93	14,932	845	24,096	2,327	11,570	279
1993–94	13,435	894	30,190	4,040	22,349	2,868
1994–95	12,872	1,136	47,597	5,883	21,567	4,274
1995–96	11,590	1,299	53,733	5,012	23,532	696
1996–97	12,537	1,467	71,612	5,051	32,215	–

Contd.

Table D – 20

Performance of Contraceptive Delivery Services Through Population Welfare Programme, N.W.F.P

Year	IUD (No. of insertions)	Sterilization (No. of cases male/female)	Oral Pills (No. of cycles)	Condom (In gross)	injectable (vials)	Foam (bottles)
1980–81	16,661	2,386	324,751	26,532	9,435	–
1981–82	13,883	2,239	60,288	6,560	9,095	–
1982–83	13,013	1,798	45,955	29,740	14,952	27
1983–84	17,038	3,173	118,790	43,634	11,746	2,502
1984–85	26,910	3,815	145,736	67,380	13,594	2,633
1985–86	28,696	4,969	126,927	34,610	22,643	4,477
1986–87	39,607	4,887	188,115	40,330	45,056	6,405
1987–88	92,797	5,653	335,326	49,241	52,654	15,249
1988–89	55,867	6,441	239,016	36,493	69,014	9,408
1989–90	68,087	5,671	198,848	27,782	69,031	7,331
1990–91	52,339	5,753	224,353	34,236	66,129	4,577
1991–92	73,535	6,781	145,997	23,531	83,763	1,121
1992–93	74,877	6,447	94,953	7,238	60,554	808
1993–94	64,724	7,969	124,041	9,334	101,082	9,340
1994–95	68,454	8,252	137,922	17,220	113,730	12,934
1995–96	62,259	9,822	174,655	19,111	114,198	2,633
1996–97	48,911	8,738	208,787	16,786	156,110	2

Contd.

Table D – 20

Performance of Contraceptive Delivery Services Through Population Welfare Programme, Punjab

Year	IUD (No. of insertions)	Sterilization (No. of cases male/female)	Oral Pills (No. of cycles)	Condom (In gross)	injectable (vials)	Foam (bottles)
1980–81	49,070	12,635	575,866	109,850	12,732	–
1981–82	45,726	14,752	106,869	31,716	15,004	–
1982–83	54,798	10,790	105,288	128,505	23,823	–
1983–84	85,707	20,856	326,759	153,201	51,296	6,153
1984–85	107,276	28,599	450,052	245,264	59,193	17,077
1985–86	154,146	37,627	835,782	444,777	141,300	37,847
1986–87	190,365	31,460	846,628	519,232	221,462	53,566
1987–88	311,370	36,048	1,007,544	616,050	232,496	77,020
1988–89	206,758	33,649	761,429	589,626	299,216	62,816
1989–90	366,887	31,554	822,902	361,313	328,775	69,022
1990–91	393,915	29,891	687,914	243,224	361,019	24,512
1991–92	466,706	36,779	303,132	166,531	403,138	3,376
1992–93	367,614	34,369	162,794	41,798	205,327	2,736
1993–94	271,634	40,601	258,144	49,426	307,186	42,071
1994–95	362,542	46,105	428,708	81,113	384,438	57,338
1995–96	351,566	48,206	509,884	78,684	381,553	13,614
1996–97	323,875	46,678	648,783	76,954	414,860	337

Note: – Islamabad is included in Punjab.

Contd.

Table D – 20

Performance of Contraceptive Delivery Services Through Population Welfare Programme, Sindh

Year	IUD (No. of insertions)	Sterilization (No. of cases male/female)	Oral Pills (No. of cycles)	Condom (In gross)	injectable (vials)	Foam (bottles)
1980–81	24,259	9,723	279,551	40,346	1,850	–
1981–82	17,395	8,407	59,424	16,022	1,225	–
1982–83	25,694	4,848	63,241	117,303	2,053	94
1983–84	33,974	6,237	167,125	153,134	2,098	4,872
1984–85	43,727	8,462	208,900	203,657	7,542	5,760
1985–86	33,343	8,920	204,929	85,336	11,881	6,494
1986–87	43,077	10,656	280,217	105,798	37,472	13,045
1987–88	49,790	12,500	338,376	142,358	36,440	18,839
1988–89	58,929	12,329	339,812	138,631	59,114	19,168
1989–90	87,910	11,218	397,744	96,884	98,713	23,667
1990–91	114,063	11,578	436,846	106,286	140,023	8,842
1991–92	118,955	14,861	267,900	76,981	144,125	1,170
1992–93	85,216	15,845	140,947	13,288	78,091	1,146
1993–94	99,637	17,191	201,545	26,999	164,336	19,669
1994–95	167,677	18,016	221,132	37,075	187,896	25,420
1995–96	121,343	20,210	262,835	32,873	174,090	1,995
1996–97	117,605	20,644	268,095	34,055	209,426	–

Source: Population Welfare Division

Table D – 21

Selected Wild Life of Pakistan

S.No.	Common Name	Scientific Name
	MAMMALS	
01.	African wild cat	Felis libyca
02.	Baluchistan Black Bear	Selenarctos thibetanus gedrosiabnus
03.	Barking Deer	Muntiacus muntjac
04.	Black Buck	Antelope cervicapra
05.	Blue sleep or Bharal	Pseudois nayaur
06.	Brown Bear	Ursus arctos
07.	Cape Hare	Lepus capensis
08.	Caracal	Felis caracal
09.	Chiltan Markhor	Capra falconeri chiltannensis
10.	Chinkara	Gazella gazella
11	Chittal or Spotted Deer	Axis axis
12	Common Indian Mangoose	Herpestes edwardsi
13.	Common Otter	Lutra lutra
14.	Fishing cat	Felis viverrina
15.	Giant Red Flying Squirrel	Petaurista petaurista
16.	Goitred Gazelle	Gazella subgutturosa
17.	Goral	Naemorhaedus goral
18.	Grey Langur	Presbytis entellus
19.	Hill Fox	Vulpes vulpes griffithi
20.	Himalayan Palm Civet	Paguma larvata.
21.	Hog Deer	Axis porcinus
22.	Ibex	Capra ibex
23.	Indian Flying Fox	Pteropus giganteus
24.	Indian Hare	Lepus nigricollis
25.	Indian Porcupine	Hystrix indica
26.	Indus Dolphin	Platanista indi
27.	Jackal	Canis aureus
28.	Jungle cat	Felis chaus
29.	Leopar Cat	Felis benghalsnsis
30.	Leopard	Panthera pardus
31.	Lynx	Felis lynx
32.	Morcopolo sleep	Ovis ammon
33.	Musk deer	Moschus moschiferus

Contd.

Table D – 21

Selected Wild Life of Pakistan

S.No.	Common Name	Scientific Name
34.	Nilgai or Blue Bull	Boselaphus tragocamelus
35.	Pallas Cat	Felis manul
36.	Pangolin	Manis crassicaudata
37.	Persian wild goat	Capra hircus
38.	Ratel or Honey Badger	Melliovra capensis.
39.	Rhesus Monkey	Macaca mulatta
40.	Samall Indian Mangoose	Herpestes auropunatatus
41.	Sand Cat	Felis margarita
42.	Small Indian Civet	Viverricula indica
43.	Smooth Coated Otter	Lutra perspicillata
44.	Snow Leopard	Panthera uncia
45.	Striped Hyaena	Hyaena hyaena
46.	Suleman Markhor	Capra falconeri jerdoni
47.	Urial	Ovis vignei
48.	Wild Ass	Equus hemionus
49.	Wild boar	Sus scrofa
50.	Wolf	Canis lupus
51.	Yellow – Throated Marten	Martes flavigula.
	BIRDS	
01.	Baikal Teal	Anas formosa
02.	Barn owl	Tyto albea
03.	Black Coot	Fulica atra
04.	Black Kite	Milvus migrans
05.	Black oartridge	Francolinus francolinus
06.	Cheer pheasant	Catreus wallichi
07.	Chukor	Alectoris chukar
08.	Comb Duck or Nakta	Sarkibdiornis melanotos
09.	Common Crane	Grus grus
10.	Common Kestrel	Falco tinnunculus
11.	Common Pochard	Aythya ferina
12.	Common Quail	Coturnix coturnix
13.	Common Shelduck	Tabdorna tabdorna

Contd.

Table D – 21

Selected Wild Life of Pakistan

S.No.	Common Name	Scientific Name
14.	Common Teal	Anas Crecca
15.	Cream coloured courser	Cursorius cursor
16.	Eurpean Nightjar	Caprimulgus europaeus
17.	Falcated Teal	Anas falcata
18.	Ferruginous duck	Aytha nyroca
19	Fulvous Whistling Teal	Dendrocygna bicolor
20.	Gadwall	Anas strepera
21.	Garganey	Anas querquedula
22.	Golden Eagle	Aquila chrysaetos
23.	Golden Eyed Duck	Bucephala clangula
24.	Goosander	Mergus merganser
25.	Goshawk	Accipiter gentilis
26.	Great CrestedGrebe	Podiceps cristatus
27.	Great Indian Bustard	Ardiotis nigriceps
28.	Greater Sand Plover	Charadrius leschenaulti
29.	Green plover	Vanellus vanellus
30.	Grey partridge	Francolinus pondicerianus
31.	Himalayan Jungle Crow	Corvus levaillanti
32.	Himalayan monal	Lophophorus impeganus
33.	Hmalian Jungle Nightjar	Caprimulgus Indicus
34.	Houbara Bustard	Chlamydotis undulata
35.	House Crow	Corvus splendens
36.	Indian Sandgrouse	Pterocles exustus
37.	Kalis pheasant	Lophura leucomelana
38.	Koklas pheasant	Pucracia macrolophba
39.	Laggar Falcon	Falco jugger
40.	Large Indian Parakeet	Psittacula eupatria
41.	Lesser Whistling Teal	Dendrocygna Javanica
42.	Little Brown Dove	Streptopelia senegalensis
43.	Little Bustard	Tetrax tetrax
44.	Long Tailed Duck	Clangula hyemalis
45.	Long tailed Nightjar	Caprimulugs Macrurus
46.	Mallard	Anas platyrhynchos
47.	Marbled Teal	Marmaronetta angustirostis

Contd.

Table D – 21

Selected Wild Life of Pakistan

S.No.	Common Name	Scientific Name
48.	Marsh Harrier	Circus aeruginosus
49.	Merlin	Falco columbarius
50.	Northern Hobby	Falco subbuteo
51.	Painted Sand grouse	Petrocles indicus
52.	Painted Sandgrouse	Pterocls indicus
53.	Painted Snipe	Gallinago stenura
54.	Peafowl	Pavo cristatus
55.	Pheasant Tailed Jacana	Hydrophasianus chirurgus
56.	Pied Avocet	Recurvirostra avosetta
57.	Pintailed Sandgrouse	Pterocles alchata
58.	Red Breasted Merganser	Mergus serrator
59.	Red turtule Dove	Streptopelia tranquebarica
60.	Rock Pigeon	Columba livia
61.	Rose Ringed Parakeet	Psittacula krameri
62.	Rosy Pelican	Pelicanus onocrotalus
63.	Ruff	Philomachus pugnax Scolopax Rusticola
64.	Saker Falcon	Falco cherrug
65.	Seesee partridge	Ammoperdix griseogularis
66.	Sheen Falcon	Falco peregrinus
67.	Shovelber	Anas clypeata
68.	Smew	Mergus albellus
69.	Snow partridge	Lerwa lerwa
70.	Sociable Lapwing	Chettusia gregaria
71.	Solitary Snipe	Gallinago solitaria
72.	Spotbilled Duck	Anas poecilorhyncha
73.	Spotted Dove	Streptopelia chinensis
74.	Tufted Duck	Aythya fuligula
75.	Water Cock	Gallicrex cinerea
76.	Water Rail	Rallus aquaticus
77.	Wedge Tailed Green pigeon	Treron sphenura
78.	Western Tragopan	Tragopan melanocephalus
79.	White backed Vulture	Gyps bengalensis
80.	White Breasted Waterhen	Amaurornis phoenicurus

Contd.

Table D – 21

Selected Wild Life of Pakistan

S.No.	Common Name	Scientific Name
81.	White Headed Duck	Oxyura leucocephala
82.	Wigeon	Anas penelope
83.	Wood cock	Scolopax rusticola
84.	Yellow – wattled Lapwing	Vanellus malabaricus
	REPTILES	
01.	Azdha	Python species
02.	Gharial	Gavialis gangeticus
03.	Marsh Crocodile	Crocodilus palustris
04.	Monitor Lizards	Varanus species
05.	Muggar	Crocodilus species
06.	Rock Python	Python molurus
07.	Sea Turtles	Trutles of the genera Chelone, caretta and Eretomochelys
08.	Snakes	Genus Python, colubridae
09.	Tortoises	
	FISHES	
01.	Bam	Mastacembelus species
02.	Daula	Channe species
03.	Fidar	Colisa fasciata
04.	Kalbans	Labeo calbasu
05.	Khagga	Rita rita
06.	Mahaseer	Barbus species
07.	Mirgal	Cirshina mrigala
08.	Mullee	Vallago attu
09.	Rohu	Labeo rohita
10.	Saul	Ophicephalus marulius
11.	Singhara	Mystus species
12.	Thaila	Catla catla
13.	Trout	Salmo fario

Source: Provincial departments of Wildlife.

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 (CO2)

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 (O2) actually present in water expressed in terms either of its presence in the volume of water (milligrams of O2 per littre) 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 take 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 and 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 populatation (human, animal, plant, micro-organism) lives.

Hazardous Air Pollutants

Air pollutants that may reasonably be expected to cause or contribute to irrevesible illness or death are called Hazardous Air Pollutants. They include asbestos, beryllium, mercury, benzene, coke oven emissions, radionuclides 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 artifical application of water to land to assist in the growing of crops and pastures. It is carried out by spraying water under pressure (spry 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, envrionmental 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 introudction 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, commerical 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, fuelwood, peat, oil shale and tar sands.

Night-soil

These are the contents of cesspools and so forth removed at night, especially for use as manure.

Nitrate

Nitrogen-containing compounds are called nitrates. These nitrates can exist in the atmosphere or as a dissolved gas in water.

Noise Pollution

Sound at excessive levels that may be detrimental to human health is called noise pollution.

p.p.m./p.p.b./p.p.t.

parts per million/ parts per billion/parts per trillion, measures of the concentrations of pollutants in air, water, soil, human tissue, food or other products.

Ozone (O3)

Ozone is pungent, colourless, toxic gas which contains three atoms of oxygen in each molecule. It occurs naturally at a concentration of about 0.01 parts per million (p.p.m) of air. Lelvels 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
B.A	Bachelor of Arts
B.C.G	Bacillues of Calmette and Guerin
BCM	Billion cubic metre
BDL	Below Detection Limit
BDS	Bachelor of Dental Surgery
Bm3	Billion cubic metre
BOD	Biological Oxygen Demand
(BOD)5	BOD for 5 days
B.Sc	Bachelor of Science
BTU	British Thermal Unit
BTX	Benzyne Toulene Xylene
C	Centigrade
Ca	Calcium
CaCo3	Calcium Carbonate
CH4	Methane
CO	Carbon Monoxide
CO2	Carbon Dioxide
CO3	Carbonate
COD	Chemical Oxygen Demand
Cft	Cubic feet
Cl	Chlorine
cm3	Cubic centimeter
CNG	Compressed Natural Gas
Cond	Conductivity
Cr	Chromium
Cu	Copper (Cprum)
Cub.	Cubic
Cu.m	Cubic metre
Cusec	Flow of Water Cubic Feet Per Second
d	Day
dBA	Decibel (International scale of noise level)
D.G. Khan	Dera Ghazi Khan
DO	Dissolved Oxygen
D.P.T	Diphtheria, Pertussis and Tetanus

D.T	Diphtheria and Tetanus
Engg.	Engineering
EPM	Department of Environmental Planning and Management, Peshawar University
FATA	Federally Administered Tribal Areas
Fe	Iron
FO	Furnace Oil
Forhigh	Forested, Shrub and Highlands
ft	Feet
FSMP	Forestry Sector Master Plan
GDP	Gross Domestic Product
gm	Gram
GMT	Greenwich Mean Time
GNP	Gross National Product
GTPS	Gas Turbine Power Station
GWh	Gega watts hour
ha	Hectare
HCC	Haveli Canal Circle
HCO3	Bicarbonate
HDIP	Hydrocarbon Development Institute of Pakistan
H.Hold	Household
HOBC	High Octane Blending Compound
hr	Hour
HSD	High Speed Diesel Oil
HUBCO	The Hub Power company
HUM	Humidity
Irrhigh N	High Productivity Irrigated (North)
Irrlow N	Low Productivity Irrigated (North)
Irrhigh S	High Productivity Irrigated (South)
Irrlow S	Low Productivity Irrigated (South)
IUCN	IUCN-The World Conservation Union
JBO	Jute Batch Oil
JP-1, JP-4	Aviation fuels
K	Potash Fertilizers
KANUPP	Karachi Nuclear Power Plant
KAPCO	Kot Addu Power Company
KESC	Karachi Electric Supply Corporation
Kg/c/day	Kilogram per capita per day
Kg/h/day	Kilogram per household per day
Kh	Kharif
Kg	Kilogram
Km	Kilometer

Km2	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	Nitrogeneous Fertilizers
NA	Sodium
NA & AJK	Northern Areas and Azad Jamun & Kashmir
NEQS	National Environmental Quality Standards
NGO	Non-Governmental Organization
NGPS	Natural Gas Power Station
NH3	Ammonia
Ni	Nickel

nm/cm	Nanometre per centimeter
N-Meth	N-Methyl
NO2	Nitrite
NO3	Nitrate
NOx	Nitrogen Oxides
NRL	National Refinery Limited
NTU	Nephelometric turbidity unit
NWFP	North West Frontier Province
OGDC	Oil and Gas Development Corporation
OH	Hydroxyl-ion
OTPS	Oil Thermal Power Station
OXY	Occidental of Pakistan Inc.
P	Phosphorous Fertilizers
PAEC	Pakistan Atomic Energy Commission
PASMIC	Pakistan Steel Mills Corporation
Pb	Lead
PCSIR	Pakistan Council for Scientific and Industrial Research
PCSP	Pakistan Contraceptive Prevalence Survey
PDHS	Pakistan Demographic and Health Survey
PFFPS	Pakistan Fertility and Family Planning Survey
pH	Power of Hydrogenion
PIHS	Pakistan Integrated Household Survey
PM10	Particles at matter having size 10-micron(Respirable dust)
PMDC	Pakistan Mineral Development Corporation
Po4	Phosphate
POL	Pakistan Oilfields Limited
ppb	Particle passed per billion
PPL	Pakistan Petroleum Limited
ppm	Particle passed per million
PRL	Pakistan Refinery Limited
Qty	Quantity
RCC	Reinforcement of Concrete and Cement
RBC	Reinforcement of Bricks and Cement
Rs.	Rupees
S	Sulphur
Set S	Setteable Solids
SGW	Saline Ground Water
SNGPL	Sui Northern Gas Pipelines Limited
SO2	Sulphur Dioxide
SO3	Sulphide
SO4	Sulphates
SPS	Steam Power Station

ssagl	Stevenson Screen Above ground level
SSGCL	Sui Southern Gas Company Limited
Sq.	Square
STEL	Short Term Exposure Limit
T.B	Tuberculosis
TCF	Trillion Cubic Feet
TCU	Time colour unit
TDS	Total Dissolved Solids
TEL	Tapal Energy Limited
TEMP	Temperature
TLV	Threshold Limit Value
TNTC	Too numerious to be counted
TOE	Ton of Oil Equivalent
Tonne	Metric Tonne
TPS	Thermal Power Station
TSP	Total Suspended Particle
TSS	Total Surface Salinity
T.T	Tetanus Toxoid
UB	US Barrel
UCC	Upper Chanab Canal
U/S	Up Stream
WAPDA	Water and Power Development Authority
WASA	Water and Sanitation Agency
W.DIR	Wind Direction
WHO	World Health Organization
W/M2	Watt per square meter
W.SPD.m/s	Wind Speed Miles Per Second
Zn	Zinc
μg	Micro Gram
μg/m3	Microgram per cubic meter
μm	Micro Mhose
μs	Micro Sem

Appendix-III

REFERENCES

01. Government of Pakistan, Environment Statistics of Pakistan, 1986, Federal Bureau of Statistics, Islamabad.

02. Government of Pakistan, 50 Years of Pakistan in Statistics, Federal Bureau of Statistics, Islamabad.

03. Government of Pakistan, Statistical Year Book of Pakistan, Federal Bureau of Statistics, Islamabad.

04. Government of Pakistan, Statistical Pocket Book of Pakistan, Federal Bureau of Statistics, Islamabad.

05. Government of Pakistan, Pakistan Demographic Survey, Federal Bureau of Statistics, Islamabad.

06. Government of Pakistan, Women and Men in Pakistan - A Statistical Profile, Federal Bureau of Statistics, Islamabad.

07. Government of Pakistan, Pakistan Integrated Household Survey (Round 2: 1996-97), Federal Bureau of Statistics, Islamabad .

08. Government of Pakistan, Labour Force Survey, Federal Bureau of Statistics, Islamabad.

09. Government of Pakistan, Provisional Results of Fifth Population and Housing Census, March, 1998, Population Census Organization, Islamabad.

10. Government of Pakistan, Census Districts Reports of Population, 1972 & 1981, Population Census Organization, Islamabad.

11. Government of Pakistan, Census Districts Reports of Housing, 1960 & 1980, Population Census Organization, Islamabad.

12. Government of Pakistan, Household, Economic & Demographic Survey,1973, Population Census Organization, Islamabad.

13. Government of Pakistan, Livestock Census,1996, Agricultural Census Organization, Lahore, Pakistan.

14. Government of Pakistan, Pakistan Census of Agricultural Machinery, 19984, Agricultural Census Organization, Lahore, Pakistan.

15. Government of Pakistan, Environment in Pakistan, Challenges and Achievements, Ministry of Environment, Urban Affairs, Forestry and Wildlife, Islamabad.

16. Government of Pakistan, Pakistan National Report Habitat-II (June, 1996), Ministry of Environment, Urban Affairs, Forestry and Wildlife, Islamabad.

17. 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, Islamabad.

18. Government of Pakistan, Agriculture Statistics of Pakistan, 1995-96, Ministry of Food, Agriculture & Livestock Economic Wing, Islamabad.

19. Government of Pakistan, Development in Health Sector, 1947, Ministry of Health, Islamabad.

20. Government of Pakistan, Tourism Growth in Pakistan, 1995, Sports & Tourism Division, Islamabad.

21. Government of Pakistan, 7th Fiver Year Plan 1988-93 and Perspective Plan, 1988-2003 (Proposals), Planning Commission, Islamabad.

22. Government of Pakistan, 8th Fiver Year Plan 1993-98 (June,1994), Planning Commission, Islamabad

23. Government of Pakistan, Economic survey of Pakistan, Finance Division, Economic Advisor's Wing, Islamabad.

24. Government of Pakistan, Pakistan Energy Yearbook, 1995, 1996 & 1997, Hydrocarbon Development Institute of Pakistan, Islamabad.

25. Government of Pakistan, Rangeland Management in Pakistan (Rangeland Management and Forestry), International Centre for Integrated Mountain Development PARC, Islamabad.

26. Government of Pakistan, Hand book of Fisheries Statistics of Pakistan Vol. 17 Export of Fish and Fishery Commodities, Marine Fisheries Department Karachi, Pakistan.

27. Government of Punjab, Statistical Pocket Book of the Punjab, Provincial Bureau of Statistics, Lahore, Pakistan.

28. Government of Punjab, Survey Report on Hazardous Chemical Industries and Safety Measures in Pakistan, PCSIR Laboratories, Lahore, Pakistan.

29. Government of Punjab, Soil Salinity-A Threat Annual Report, 1994-95, Directorate of Land Reclamation Irrigation and Power Department, Lahore, Pakistan.

30. Government of Punjab, Indus Basin Irrigation System Historic Rivers and Canals Discharge Data 1995-96, Water Resources Management Directorate of WAPDA, Lahore, Pakistan.

31. Government of Sindh, Statistical Pocket Book of Sindh, Provincial Bureau of Statistics, Karachi, Pakistan.

32. Government of Sindh, Housing Town Planning & Environment Department Management and Disposal Project Report, 1994-95, Hyderabad Development Authority, Hyderabad, Pakistan.

33. Government of Sindh, Research on Use of Effluent Water of LBOD for Afforestation in Un-commanded Forest Area Adjoining Thar Desert, 1993, Silviculture Research Division Forest Department, Hyderabad, Pakistan.

34. Government of N.W.F.P, Statistical Pocket Book of N.W.F.P, Provincial Bureau of Statistics, Peshawar, Pakistan.

35. Government of N.W.F.P, Development Statistics, Provincial Bureau of Statistics, Peshawar, Pakistan.

36. Government of N.W.F.P, FATA Development Statistics, Provincial Bureau of Statistics, Peshawar, Pakistan.

37. Government of Balochistan, Statistical Pocket Book of Balochistan, Provincial Bureau of Statistics, Quetta, Pakistan.

38. Government of Balochistan, Development Statistics of Balochistan, Provincial Bureau of Statistics, Quetta, Pakistan.

39. Dr. Muhammad Latif, Editor, Director, Proceeding of the Workshop on Groundwater and Irrigation Management Issues (April 21-22, 1996), Centre of Excellence in Water Resources Engineering, University of Engineering & Technology, Lahore, Pakistan.

40. Pakistan Population Review, National Institute of Population Studies, Islamabad.

41. Khan Fazle Kureshi, A Geography of Pakistan, 1991 , Oxford University Press Karachi.

42. Kureshy. K.U. Geography of Pakistan, 1991, National Book Service, Lahore.

43. The Pakistan National Conservation Strategy (PNCS,1994).

44. Changes in Chemical Quality of Groundwater in Scarp-III Between 1969-74 & 1989-90, Scarp Monitoring Canal Bank, Lahore, Pakistan.

45. Environmental Profile of Karachi , Lodhi & Rajput (Pvt) Limited Karachi, Pakistan.

46. Airport Trafic, 1995, International Civil Aviation Organization.

PIDE LIBRARY
P.O. Box 1091, Islamabad.
Acc No. 31034
Date 28-5-97

Date Due