

No. 2

ISLAMIC REPUBLIC OF PAKISTAN
GOVERNMENT OF SINDH

FEASIBILITY STUDY
ON
WATER RESOURCES DEVELOPMENT PROJECT
IN
MALIR BASIN

VOLUME II
ANNEXES

NOVEMBER 1990

JAPAN INTERNATIONAL COOPERATION AGENCY

AFT

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ISLAMIC REPUBLIC OF
PAKISTAN

FEASIBILITY STUDY ON WATER RESOURCES
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ON
WATER RESOURCES DEVELOPMENT PROJECT
IN
MALIR BASIN**

**VOLUME II
ANNEXES**

NOVEMBER 1990

JAPAN INTERNATIONAL COOPERATION AGENCY

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ABBREVIATIONS

AFLFD	Agriculture, Food, Livestock and Fisheries Department, GOS
FAO	Food and Agriculture Organization, United Nations
GDP	Gross Domestic Product
GNP	Gross National Product
GOJ	Government of Japan
GOP	Federal Government of Pakistan
GOS	Government of Sindh, GOP
IPD	Irrigation and Power Department, GOS
JICA	Japan International Cooperation Agency
KESC	Karachi Electric Supply Corporation
UNDP	United Nation Development Programme
WAPDA	Water and Power Development Authority
DA	General Director of Agriculture
ADA	Assistant Director of Agriculture
EADA	Extra Assistant Director of Agriculture
APPO	Assistant Plant Protection Officer
AO	Agricultural Officer
FA	Field Assistant

ABBREVIATIONS OF MEASUREMENT

Length

cm	=	Centimeter
m	=	Meter
km	=	Kilometer
ft	=	Foot
yd	=	Yard

Area

cm ²	=	sq.cm	=	Square centimeter
m ²	=	sq.m	=	Square meter
ha	=	Hectare		
km ²	=	sq.km	=	Square kilometer

Volume

cm ³	=	cu.cm	=	Cubic centimeter
l	=	lit	=	liter
kl	=	Kiloliter		
m ³	=	cu.m	=	Cubic meter
gal.	=	Gallon		
MCM	=	Million Cubic Meters		

Weight

mg	=	Milligram
g	=	Gram
kg	=	Kilogram
ton	=	Metric ton
lb	=	Pound

Time

sec	=	s	=	Second
min	=	Minute		
hr	=	Hour		
d	=	Day		
yr	=	Year		

Electrical Measures

V	=	Volt
A	=	Ampere
Hz	=	Hertz (cycle)
W	=	Watt
kW	=	Kilowatt
MW	=	Megawatt
GW	=	Gigawatt

Other Measures

%	=	Percent
PS	=	Horsepower
°	=	Degree
'	=	Minute
"	=	Second
°C	=	Degree centigrade
10 ³	=	Thousand
10 ⁶	=	Million
10 ⁹	=	Billion (milliard)

Derived Measures

m ³ /s	=	m ³ /sec	=	Cubic meter per second
cusec	=	Cubic feet per second		
mgd	=	Million gallon per day		
kWh	=	Kilowatt hour		
MWh	=	Megawatt hour		
GWh	=	Gigawatt hour		
kWh/yr	=	Kilowatt hour per year		
kVA	=	Kilovolt ampere		
BTU	=	British thermal unit		

Money

Rs.	=	Pakistan Rupees
US\$	=	US dollar
Yen	=	Japanese Yen

CONVERSION FACTORS

	<u>From Metric System</u>		<u>To Metric System</u>			
Length	1 cm	=	0.394 inch	1 inch	=	2.54 cm
	1 m	=	3.28 ft = 1.094 yd	1 ft	=	30.48 cm
	1 km	=	0.621 mile	1 yd	=	91.44 cm
				1 mile	=	1.609 km
Area	1 cm ²	=	0.155 sq.in	1 sq.ft	=	0.0929 m ²
	1 m ²	=	10.76 sq.ft.	1 sq.yd	=	0.835 m ²
	1 ha	=	2.471 acres	1 acre	=	0.4047 ha
	1 km ²	=	0.386 sq.mile	1 sq.mile	=	2.59 km ²
Volume	1 cm ³	=	0.0610 cu.in	1 cu.ft	=	28.32 lit
	1 lit	=	0.220 gal. (imp.)	1 cu.yd	=	0.765 m ³
	1 kl	=	6.29 barrels	1 gal. (imp.)	=	4.55 lit
	1 m ³	=	35.3 cu.ft	1 gal. (US)	=	3.79 lit
	10 ⁶ m ³	=	811 acre-ft	1 acre-ft	=	1,233.5 m ³
Energy	1 kWh	=	3,413 BTU	1 BTU	=	0.293 Wh
Temperature	°C	=	(°F-32) 5/9	°F	=	1.8°C + 32
Derived Measures						
	1 m ³ /s	=	35.3 cusec	1 cusec	=	0.0283 m ³ /s
	1 kg/cm ²	=	14.2 psi	1 psi	=	0.703 kg/cm ²
	1 ton/ha	=	891 lb/acre	1 lb/acre	=	1.12 kg/ha
	10 ⁶ m ³	=	810.7 acre-ft	1 acre-ft	=	1,233.5 m ³
	1 m ³ /s	=	19.0 mgd	1 mgd	=	0.0526 m ³ /s

EXCHANGE RATE

US\$1.0 = Rs. 21.5 = J. Yen 150.0

ANNEX-A

*BACKGROUND OF THE COUNTRY
AND STUDY AREA*

ANNEX - A

BACKGROUND OF THE COUNTRY AND STUDY AREA

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ANNEX-A BACKGROUND OF THE COUNTRY AND STUDY AREA

A.1 INTRODUCTION

This Annex presents the background information on the whole country and the study area under the feasibility study on water resources development project in Malir basin, Sindh Province.

Basic data on Pakistan are summarized as follows:

Official Name	:	Islamic Republic of Pakistan
Form of State	:	Federated parliamentary system
Provincial Government	:	Pakistan has four provinces which enjoy considerable autonomy; each province has a governor, Council of Ministers, headed by a chief minister appointed by the governor, and provincial assembly.
Land Area	:	796,000 km ²
Population	:	107.0 million (Jan. 1989 estimate)
Main Towns	:	Population in 10 ³ , 1981
		Islamabad 201 Faisalabad 1,090
		Karachi 5,100 Rawalpindi 920
		Lahore 2,920 Hyderabad 795
Languages	:	Urdu is the official language, although English is still widely used in government and business.
Currency	:	Rupee = 100 paisa
Fiscal Year	:	July 1 - June 30

A.2 COUNTRY BACKGROUND

A.2.1 Land and Population

Pakistan lies between the latitudes of 23°30' and 36°45' north and between the longitudes of 61° and 75°31' east, and stretches over 1,600 km north to south and is about 885 km broad east to west. The total area is 796,095 km². Of the total, about 475,885 km² in the north-west and west form a highly differentiated mountainous terrain. The remaining 320,211 km² present a flat and gradational surface. The whole land, excluding most of Baluchistan, falls into the hydrological unit drained by the Indus system of rivers. The unit includes the north-western hills, northern and north-western submontane, upper and lower Indus plains and parts of Baluchistan, which is a region of small rivers. Large parts of it form areas of inland drainage.

Of the country's total area of 79.6 million ha, 20.6 million ha were cultivated in 1987/88, of which 15.8 million ha were irrigated. Most of the irrigated lands are in the Indus plain in Punjab (about 11 million ha) and Sindh (about 3.3 million ha). It is estimated that four fifths of cropping depends on irrigation and that the increase in cultivated land by over a third since 1947 has largely been due to improvement in irrigation. However, there is still believed to be considerable scope for extension of the irrigation system to potentially cultivable areas as well as improvement in the management of the existing system, which is regarded as being geared to extensive rather than intensive farming. Total water availability in 1988/89 was put at 114.7 million acre/ft, of which surface water contributed approximately two thirds and groundwater one third. The land and land use in Pakistan and Sindh Province are given in Table A.2.1, and summarized as follows:

Land Use	(Unit: 10 ⁶ ha)			
	Pakistan		Sindh	
Total Area	79.6	100%	14.1	100%
Not Available for Cultivation	44.7	56%	5.3	37%
Forest Area	3.2	4%	0.7	5%
Cultivated Waste Area	11.1	14%	2.5	18%
Cultivated Area	<u>20.6</u>	<u>26%</u>	<u>5.6</u>	<u>40%</u>
Irrigated Area	15.8	(76%)	3.3	(59%)

Source: Pakistan Statistical Yearbook, 1989

The population of Pakistan according to the March 1981 census was 84.3 million, making it the ninth most populous country in the world. The estimated population for January 1989 is 107 million. Population density for the whole country was recorded at 106 per km² at the time of the 1981 census and was around 133 per km² in early 1989. The majority of the population lives in the fertile Indus river plain in the Punjab and Sindh; the other major geographical areas of the country are far less hospitable. Demographic conditions of Pakistan and Sindh Province in the 1981 Population Census are summarized as follows:

Items	Unit	Pakistan	Sindh Province
Total Area	10 ³ km ²	796.1	140.9
Total Population in 1981	10 ⁶ persons	84.3	19.0
Male	10 ⁶ persons	44.2 (52%)	10.0 (53%)
Female	10 ⁶ persons	40.0 (48%)	9.0 (47%)
Population Density	person/km ²	106	135
Nos. of Household	10 ³ Nos.	12,588	2,718
Household Size	person	6.7	7.0
Average Annual Growth Rate (1972-1981)	%	3.05	5.56

Source: Pakistan Statistical Yearbook, 1989

In Pakistan, population over 10 years of age and above is defined as productive-aged population, accounting for 56.3 x 10⁶ in 1981. In 1981, the working population was about 21.9 x 10⁶ consisting of 21.2 x 10⁶ of male and 0.77 x 10⁶ of female. It corresponds to about 26% of the total population. A rate of the working population in the productive-aged population showed about 70% for male, 3% for female and 39% as a whole. More than 90% of female of these ages was engaged in the house-keeping work without economic activity. The working population in agricultural occupations shared 53% of the total working population. The agricultural sector provides with largest employing opportunities in Pakistan. The working population by occupation in Pakistan is summarized below:

Occupation	(Unit: 10 ³ person)		
	Total	Male	Female
Population (10 years and above)	56,339	30,078	26,261
Working Population	21,925	21,152	773
- Agriculture, forestry, fishing, hunting	11,560	11,256	304
- Manufacturing	2,008	1,890	118
- Wholesale, retailer, restaurants, hotels	2,064	2,017	47
- Community, social, personal services	3,003	2,774	229
- Others	3,290	3,215	75
Looking for Work	702	639	63
House-keeping	24,064	-	24,064
Students	4,506	3,149	1,357
Others	5,142	5,138	4

Source: Pakistan Statistical Yearbook, 1989

A.2.2 National Economy

According to the Pakistan Statistical Yearbook 1989, the Gross Domestic Production (GDP) in 1988/89 at constant factor cost (1980/81 prices) amounted to 404,140 million Rs. among which agriculture sector shared about 26%. The annual growth rate of GDP was 5.1%, and the per capita income at constant prices was 3,910 Rs. The GDP at constant factor cost of 1980/81 is given in Tables A.2.2 and A.2.3, and summarized as follows:

(Unit: million Rs.)

Item	1987/88		1988/89		%
Agriculture	<u>99,060</u>	26%	<u>105,140</u>	26%	<u>6.1%</u>
- Major crops	48,330		52,100		7.8%
- Minor crops	16,820		17,360		3.2%
- Livestock	28,910		30,610		5.9%
- Fishery	3,780		3,800		0.5%
- Forestry	1,220		1,270		3.9%
Manufacturing	67,620	18%	69,700	17%	3.1%
Wholesale, Retailer	63,930	17%	67,160	17%	5.1%
Others	153,800	39%	162,140	40%	5.4%
Total GDP	<u>384,410</u>	100%	<u>404,140</u>	100%	5.1%
Population (million)	105		107		
Per Capita Income (Rs.)	3,870		3,910		

A.3 AGRICULTURE IN PAKISTAN AND SINDH

Agriculture accounted for about 53% of GDP at the time of Independence and was the dominant sector of the economy. Its share has fallen to around 26% today while the share of manufacturing, construction and services has risen. Agriculture growth averaged about 4% over the period 1960-1988. Despite its relatively slow growth agriculture remains the single largest contributor to GDP and the largest employer. Today, it employs 54% of the labour force compared to around 66% in the late 1940's. The volume of agricultural output has been distorted due to a pricing policy which has held down domestic prices in favour of consumers. In real terms, therefore, it is likely that agriculture's contribution to GDP would be higher.

Agriculture and agro-based products account for about three-quarters of the volume of export earnings. It is a major supplier of raw materials to industry and consumes one third of industrial finished goods. It has been observed that agriculture continues to be the foundation of the country's economy by virtue of the share of population employed in it, its contribution to national income, supply of raw materials to and as a market for industry, and its role in earning foreign exchange.

Crop production accounts for about 66% of total agricultural GDP in 1988/89 of Rs. 105,140 million (1980/81 prices) annually, livestock for 30% and forestry and fisheries 4%. The total cropped area of the country is about 21 million ha. The irrigated area is about 16 million ha of which about 11.5 million is under canal irrigation. There are four major crops namely wheat, rice, cotton and sugarcane which account for about 60% of the cropped area. The fifth major crop is maize.

Among the minor crops the most important are fruits and vegetables, followed by pulses and oilseeds. Rice and wheat together currently account for over 45% of the total cropped area, cotton for 12% and sugarcane for 4%. Fruit and vegetables have increased steadily over the past two decades and now account for about 4% compared to a little over 1% in 1958/59 - 1960/61. The limits to the expansion of cultivated land are rapidly approaching, especially of the more productive land. However, productivity has increased substantially for major crops under the impact of increased supplies of water for irrigation (canal and tubewell), of fertilizer and agro-chemicals, increasing tractor cultivation, and the growth of supply services.

In 1987/88 the National Commission on Agriculture (NCA) undertook a wide ranging in depth review of the achievements and inadequacies of the agricultural sector. It prepared comprehensive recommendations on agricultural strategies, policies and programmes for the period 1988 to 2000. The NCA's recommendations to GOP are designed to accelerate the rate of agricultural growth from an average of 4% annually over the period 1960-1987/88 to 5% annually from 1988 to the turn of the century. The overall objectives include growth in production to almost double that of population, the production of large exportable surpluses, and making agriculture the leading sector of the economy. The report makes detailed

recommendations for increasing yields of all major and minor crops and for diversification into high value sub-sectors such as horticulture and livestock.

The output of fruit and vegetable at national level has been increasing at a much faster rate than the growth of population, with the growth of fruits being twice that of vegetables. By 1984/85 407,700 ha were under fruit and 335,000 ha under vegetables and the total area is currently estimated at some 800,000 ha. Mangoes, citrus and banana are the main fruit crops, and chillies, potatoes and onions are the main vegetables. Because of varying climatic conditions in different parts of the country and changing conditions from the kharif or monsoon season to the Rabi or winter season it is possible to grow both temperate and tropical varieties of fruit and vegetables. The Sixth and Seventh National Development Plans, and, as noted above, more recently the NCA has pointed out that the highest growth potential is for minor crops, including fruit and vegetables (as well as traditional oilseed and pulses).

Total cropping area and production of major crops in Pakistan and Sindh Province are summarized on 2 years average basis of 1986/87 and 1987/88 (see Table A.3.1) as follows:

Crops	Pakistan*1			Sindh Province*2		
	Cropping Area (10 ³ ha)	Production (10 ³ tons)	Unit Yield (t/ha)	Cropping Area (10 ³ ha)	Production (10 ³ tons)	Unit Yield (t/ha)
Wheat	7,510	12,780	1.7	1,030	2,200	2.1
Rice	2,010	3,360	1.6	720	1,540	2.1
Cotton	2,540	1,390	0.5	660	1,340	2.0
Sugarcane	800	31,470	39.2	190	8,740	44.9
Maize	840	1,120	1.3	20	10	0.5
Millet	400	180	0.5	130	50	0.4
Sorghum	360	210	0.6	100	60	0.6
Pulses	1,220	610	0.5	110	80	0.7

Sources: *1 Pakistan Statistical Yearbook, 1989
 *2 Agricultural Statistics of Sindh, 1989

A.4 THE STUDY AREA

A.4.1 Administrative Divisions

The Malir river basin is located in Karachi East District of Sindh Province which lies to the east of the city of Karachi. The entire basin has a catchment area of some 2,240 km² of which some 1,205 km² lies above the confluence of the Mol and Khadeji rivers. The study area comprises the central flood plain and an adjoining area of the basin, which lies below the confluence and has a total area of 24.2 km² or 24,230 ha. Within the study area the Study Team has defined a proposed Project Area of 13.9 km², or 13,900 ha based on the area which is contiguous with the underlying aquifer, and which it is possible to take into command. The agricultural resources of the area including soils, land and land use, and agricultural activities are described in ANNEX-E.

Karachi East District includes parts of urban Karachi as well as the adjoining rural area. As elsewhere in Pakistan, the rural area is sub-divided into Union Councils for purposes of administration. Karachi East District includes five Union Councils. For land holding purposes each Union Council is further sub-divided into Dehs, the Five Union Councils include 60 Dehs. In rural areas each Deh contains two or three small rural settlements.

The study area itself includes four Union Councils. Councils, or parts thereof, and 15 Dehs are as follows:

Council	Deh
1. Dorsano Cahanno	Bail, Kathore, Amilano, Khadeji, Chuhar and Koteri (6 Dehs)
2. Kankar	Bazar, Darsano Channo, Kharkharo and Malh (4 Dehs)
3. Landhi	Kharkhar, Sanhro, Landhi and Khanto (4 Dehs)
4. Thano	Thano (1 Deh)

A.4.2 Population

The population of Karachi East District was 1.8 million persons in 1981, based on the most recent census, with an annual intercensal growth rate of 5.3% from 1972 to 1981. The rate of growth was high compared to the overall national rate of 3.1%. The population was 55% male and 45% female with a relatively high proportion of males. The working age group (15 to 49 years old) accounted for 45% of the total population.

The total population of the study area was 30,100 persons in 1961 increasing to 65,600 persons in 1981 as shown in Tables A.4.1 and A.4.2. The population is estimated to have increased to 90,400 by 1989, based on the overall growth rate of 5.3% for Karachi East District (see above). It is estimated that about 53% of the population is male and 47% female. Population density is an estimated 373 persons/km² which is about three times the average for Sindh Province of 135 persons/km², but considerably lower than that for Karachi

East District as a whole, which is 783 persons/km². The total number of households is estimated at 16,270 with an average household size of 5.6 persons. Details of the distribution of population, households and household size in the study area are given in Tables A.4.3 and A.4.4, and summarized below:

Item	Unit	1989
Total population	no.	90,400
Total area	km ²	242.3
Density	persons/km ²	373
Households	no.	16,270

A.4.3 Economic Conditions

The economic activities in the study area depend largely on agriculture which is mostly concentrated upon the production of high value vegetables, fruit and fodder crops, produced under relatively intensive conditions, to supply the Karachi city market. There is little production of staple food crops either for subsistence or sale. Despite the fact that the study area enjoys, in many respects, a significant comparative advantage in the production of fruit and vegetables by virtue of its location very close to the city of Karachi, agricultural production in the area is reported to have been in decline for two or three decades whilst the population of the area has at least doubled. The major constraints to maintaining or increasing production are overall shortage of water in relation to the area of irrigable land and the farming population. This has resulted in continuing over-pumping and depletion of the aquifers. Cropped area, production crop income and employment have fallen by one half over the decade 1978-1988. Thus the study area which was ever famous for its gardens and greenery is now facing problems for survival.

Traditional livestock production is largely confined to satisfying domestic requirements for milk and poultry products and kept by individuals. In addition, cow colonies have also been established to meet the milk demand for people of the Karachi city. In recent years, a number of small and medium scale intensive poultry units have been established, often by persons from outside the study area, to supply the Karachi market. These livestock units have also a difficulty in meeting their fresh water needs that are now transported from outside by water tank carriers. With the completion of the project, it can be predicted that development in the raising of livestock and their products along with the development of agriculture will be accelerated in the area.

Karachi being center of commerce and industry, labour force moves to the city and its industrial areas from the surroundings and even from the far flung areas of the country. This will result in a high population growth in the Karachi, as also seen in the statistical data on population growth of urban areas. It is anticipated from these situations that the consumption of commodities as well as of agricultural products such as fresh vegetables and fruit will increase in the Karachi. With this view, there will be no major constraints to the marketing of such agricultural products. In addition, all the necessary infrastructures like roads and transportation services are adequately available for the marketing.

LIST OF REFERENCES

1. STATISTICAL YEARBOOK, 1988, 1989, FEDERAL BUREAU OF STATISTICS
2. MONTHLY STATISTICAL BULLETIN, OCT. 1988 TO JAN. 1990, FEDERAL BUREAU OF STATISTICS, GOP
3. REPORT OF THE NATIONAL COMMISSION ON AGRICULTURE, 1988, MINISTRY OF FOOD AND AGRICULTURE, GOP
4. AGRICULTURAL STATISTICS OF SINDH, 1986, 1989, BUREAU OF STATISTICS, PLANNING AND DEVELOPMENT DEPARTMENT, GOVERNMENT OF SINDH
5. 1981 CENSUS REPORT OF SINDH PROVINCE, 1984, POPULATION CENSUS ORGANIZATION STATISTIC DIVISION, GOP
6. PAKISTAN DEMOGRAPHIC SURVEY, 1987, FEDERAL BUREAU OF STATISTICS, GOP
7. HANDBOOK OF POPULATION CENSUS DATA, SINDH, 1988, POPULATION CENSUS ORGANIZATION STATISTIC DIVISION, GOP
8. 1981 CENSUS REPORT OF KARACHI DIVISION, 1984, POPULATION CENSUS ORGANIZATION STATISTIC DIVISION, GOP
9. POPULATION OF DEHS 1951 - 81 CENSUSES, 1988, POPULATION CENSUS ORGANIZATION STATISTIC DIVISION, GOP
10. ECONOMIC SURVEY OF PAKISTAN, 1987, ASIAN DEVELOPMENT BANK
11. AGRICULTURAL STATISTICS OF PAKISTAN 1987 - 88, MINISTRY OF FOOD, AGRICULTURE AND COOPERATIVES, GOP

TABLES

Table A.2.1 LAND UTILIZATION IN PAKISTAN AND SINDH PROVINCE
(1984 / 85)

Land Categories	Unit: 1,000 ha		
	Pakistan (h)	Sindh Province (i)	Percentage (i/h)
Total Area (a)	<u>79,610</u>	<u>14,090</u>	(17.7%)
Reported Area	58,130	13,930	
Forest Area	3,160 (4.0%)	660 (4.7%)	
Not Available for Cultivation	2,326 (2.9%)	5,200 (36.9%)	
Cultivated Waste	11,110 (14.0%)	2,470 (17.5%)	
Cultivated Area (b) (c + d)	<u>20,610</u> (25.9%) (b/a)	<u>5,600</u> (39.7%) (b/a)	(27.2%)
Current Fallow (c)	5,000	2,780	
Net Area Sown (d)	15,610	2,820	
Sown more than Once (e)	4,310	900	
Total Cropped Area (d + e) (f)	<u>19,920</u> (96.7%) (f/b)	<u>3,720</u> (66.4%) (f/b)	(18.7%)
Irrigated Area (g)	<u>15,760</u> (76.5%) (g/b)	<u>3,300</u> (58.9%) (g/b)	(20.9%)

Sources : 1) Pakistan Statistical Yearbook, 1989, Federal Bureau of Statistics
2) Agricultural Statistics of Sind 1989, Bureau of Statistics, Sindh

Table A.2.2 GROSS DOMESTIC PRODUCTS AT CONSTANT FACTOR COST OF 1980-81

Sectors	Y e a r s					Unit: million Rupees	Growth Rate
	1884/85	1985/86	1986/87	1987/88	1988/89	1987 - 1988	
1) Agriculture	88,187	93,433	96,473	99,059	105,138	6.1%	
- Major crops	43,390	46,212	46,965	48,326	52,099	7.8%	
- Minor crops	16,109	16,742	17,317	16,825	17,355	3.2%	
- Livestock	24,356	25,865	27,351	28,906	30,614	5.9%	
- Fishing	3,293	3,544	3,650	3,784	3,804	0.5%	
- Forestry	1,039	1,070	1,190	1,218	1,266	3.9%	
2) Mining and quarrying	1,340	1,657	1,782	2,029	2,175	7.2%	
3) Manufacturing	53,166	57,180	61,484	67,622	69,695	3.1%	
4) Construction	13,155	14,035	15,784	16,563	17,045	2.9%	
5) Electricity and gas distribution	7,486	8,362	9,207	9,753	10,776	10.5%	
6) Transport, storage and communication	32,688	34,305	36,785	39,293	41,006	4.4%	
7) Wholesale and retail trade	51,876	55,361	58,661	63,932	67,158	5.0%	
8) Banking and insurance	8,752	9,057	9,111	9,452	9,889	4.6%	
9) Ownership of dwelling	17,849	18,791	19,784	20,828	21,928	5.3%	
10) Public administration and defence	23,916	25,183	26,556	27,666	29,276	5.8%	
11) Services	23,336	24,860	26,483	28,212	30,054	6.5%	
A. Gross Domestic Product	321,751	342,224	362,110	384,409	404,140	5.1%	
B. Net Factors Income from Abroad	28,814	31,282	26,575	17,100	13,771		
C. National Product	350,565	373,506	388,685	401,509	417,911		
D. Population (million)	94.73	97.67	100.70	103.82	107.04	3.1%	
E. Per Capita Income (rupees)	3,701	3,824	3,860	3,867	3,904	1.0%	

Source : Pakistan Statistical Yearbook, 1989 , Federal Bureau of Statistics

Table A.2.3 SECTORIAL SHARE IN GROSS DOMESTIC PRODUCT

Sectors	Y e a r s					Average
	1884/85	1985/86	1986/87	1987/88	1988/89	
1) Agriculture	27.4%	27.3%	26.6%	25.8%	26.0%	26.6%
2) Mining and quarrying	0.4%	0.5%	0.5%	0.5%	0.5%	0.5%
3) Manufacturing	16.5%	16.7%	17.0%	17.6%	17.2%	17.0%
4) Construction	4.1%	4.1%	4.4%	4.3%	4.2%	4.2%
5) Electricity , gas distribution	2.3%	2.4%	2.5%	2.5%	2.7%	2.5%
6) Transport, storage, comun.	10.2%	10.0%	10.2%	10.2%	10.1%	10.1%
7) Wholesale and retail trade	16.1%	16.2%	16.2%	16.6%	16.6%	16.3%
8) Banking and insurance	2.7%	2.6%	2.5%	2.5%	2.4%	2.6%
9) Ownership of dwelling	5.5%	5.5%	5.5%	5.4%	5.4%	5.5%
10) Public administration	7.4%	7.4%	7.3%	7.2%	7.2%	7.3%
11) Services	7.3%	7.3%	7.3%	7.3%	7.4%	7.3%
Total	100%	100%	100%	100%	100%	100%

Table A.2.4 EXPORTS BY COMMODITY GROUP

Sectors	Y e a r s					Unit: million Rupees	Percentage
	1884/85	1985/86	1986/87	1987/88	1988/89	1988/89	
1) Food and Live Animals	8,768.7	6,188.0	8,606.6	8,918.4	11,049.1	14.1%	
- Rice	5,688.4	3,339.7	5,527.2	5,139.2	6,404.4		
- Fish	1,007.1	1,231.1	1,334.9	1,929.7	2,186.4		
- Sugar, honey	445.7	380.8	503.8	467.9	758.0		
- Fruit, nuts	396.6	462.7	483.5	542.2	644.4		
- Spices	157.5	182.1	182.0	208.3	346.8		
- Vegetables	243.3	172.5	264.2	284.5	343.1		
- Live animals	83.3	179.9	145.4	171.2	135.0		
- Feed staff	104.1	46.3	113.7	90.3	94.9		
- Others	642.7	192.9	51.9	85.1	136.1		
2) Beverages and Tobacco	146.2	160.6	200.8	224.8	321.0	0.4%	
3) Crude Materials, inedible	2,915.6	5,684.1	9,578.7	9,173.2	12,917.5	16.5%	
- Cotton	1,967.4	4,506.3	8,377.9	7,776.9	10,931.4		
- Crude vegetable materials	307.0	371.9	466.6	576.2	922.7		
- Wool, animal hair	192.4	281.4	290.4	342.8	333.0		
- Crude animal materials	114.2	132.1	173.7	213.6	276.7		
- Others	334.6	392.4	270.1	263.7	453.7		
4) Mineral Fuels, Lubricants	544.3	525.0	519.4	443.7	480.8	0.6%	
- Petroleum products	539.5	520.7	487.2	369.4	417.3		
- Others	4.8	4.3	32.2	74.3	63.5		
5) Animal/ Vegetable Oils, Fats	0.5	0.1	0.4	1.5	4.7		
6) Chemicals	783.0	1,474.5	990.5	165.7	290.9	0.3%	
- Fertilizers	546.5	1,295.6	867.5	0.0	0.0		
- Medical products	43.2	51.8	44.3	47.8	73.4		
- Chemical materials	33.5	16.0	10.4	27.5	50.3		
- Others	159.8	111.1	68.3	90.4	167.2		
7) Manufactured Goods	17,955.9	17,440.1	21,348.0	31,746.7	39,001.7	49.7%	
- Textile yarn, thread	3,203.1	4,070.2	4,594.2	9,015.4	9,907.1		
- Cotton fabrics woven	4,856.1	4,637.8	5,082.7	5,931.1	8,539.5		
- Made-up articles	2,728.4	2,933.4	4,047.7	4,985.7	6,359.2		
- Leather	1,971.7	2,325.2	2,900.0	4,079.0	5,041.5		
- Floor tapestries	2,322.7	2,030.8	2,692.7	3,438.8	4,445.3		
- Textile fabrics woven	1,637.9	641.7	934.1	2,719.8	3,502.5		
- Others	1,236.0	801.0	1,096.6	1,576.9	1,206.6		
8) Machinery, Transport Equipment	373.7	526.9	355.9	301.8	132.7	0.2%	
9) Manufactured Articles	5,331.5	5,538.4	7,727.3	12,242.6	14,046.0	17.9%	
- Clothing	3,402.1	3,405.3	5,480.9	9,522.7	10,908.3		
- Perambulators, sport good	669.8	685.8	788.3	1,012.4	1,155.7		
- Measuring instruments	430.0	774.1	842.4	955.7	988.1		
- Others	829.6	673.2	615.7	751.8	993.9		
10) Others	519.3	441.6	264.7	136.5	200.2	0.3%	
Total	37,338.6	37,979.4	49,592.2	63,354.9	78,444.6	100%	

Source : Pakistan Statistical Yearbook, 1989 , Federal Bureau of Statistics

Table A.2.5 IMPORTS BY COMMODITY GROUPS

Sectors	Y e a r s					Unit: million Rupees	Percentage
	1884/85	1985/86	1986/87	1987/88	1988/89	1988/89	
1) Food and Live Animals	5,317.1	7,960.3	9,851.1	9,035.3	7,670.8	6.9%	
- Tea, mate	2,566.8	3,506.7	2,175.2	2,648.3	2,245.6		
- Wheat	858.5	2,750.4	4,719.9	1,184.0	1,850.5		
- Sugar, honey	22.7	35.8	996.4	2,847.8	1,069.7		
- Vegetables	423.5	240.3	460.3	669.1	614.6		
- Milk, cream	450.9	461.6	455.0	426.5	403.5		
- Fruits	294.7	348.9	400.4	463.3	389.8		
- Food preparation	265.1	282.6	370.0	320.4	343.7		
- Spices	175.7	171.5	152.4	234.4	281.3		
- Others	259.2	162.5	121.5	241.5	472.1		
2) Beverages and Tobacco	27.6	27.7	31.2	36.0	36.6		
3) Crude Materials, inedible	5,145.9	5,251.0	4,940.8	5,649.2	8,141.4	7.3%	
- Iron, steel scrap	644.7	722.9	880.0	1,020.5	2,593.8		
- Artificial fabrics	598.4	739.2	807.4	1,185.4	1,489.2		
- Wool, animal hair	203.6	208.9	239.9	309.6	574.7		
- Crude vegetable, materials	301.7	328.4	351.6	424.1	539.7		
- Crude rubber	342.4	327.5	338.7	447.4	514.2		
- Jute	433.1	691.7	650.2	484.1	441.7		
- Cotton	882.1	413.7	44.5	24.6	35.1		
- Waste materials	377.1	427.8	352.3	376.3	419.2		
- Others	1,362.8	1,390.9	1,276.2	1,377.2	1,533.8		
4) Mineral Fuels, Lubricants	19,655.7	22,489.3	17,629.8	14,806.2	18,057.5	16.2%	
- Petroleum crude	12,148.7	14,374.9	10,640.1	7,083.2	8,966.1		
- Petroleum products	6,939.8	7,258.9	6,022.7	6,791.8	8,141.4		
- Coal coke, briquettes	494.9	726.1	854.4	829.2	786.9		
- Others	72.3	129.4	112.6	102.0	163.1		
5) Animal/ Vegetable Oils, Fats	7,199.5	7,894.9	6,874.0	5,003.4	8,977.0	8.0%	
6) Chemicals	8,538.2	10,049.5	11,663.2	15,773.1	17,612.5	15.8%	
- Organic chemical	1,531.8	1,590.8	2,069.9	2,877.7	3,795.0		
- Fertilizers	1,538.8	1,789.9	2,079.1	3,247.3	3,161.8		
- Medical products	1,799.8	1,973.9	2,252.5	2,638.2	2,852.0		
- Plastic materials	1,181.3	1,431.8	1,523.7	2,082.3	2,702.7		
- Chemical materials	1,201.6	1,801.8	2,090.4	2,656.6	2,670.7		
- Others	1,284.9	1,461.3	1,647.6	2,271.0	2,430.3		
7) Manufactured Goods	9,514.7	10,161.0	10,038.5	11,483.7	13,914.1	12.5%	
- Textile yarn, thread	1,764.6	1,653.9	1,401.0	1,700.7	2,287.6		
- Iron, steel (plate)	2,439.0	2,286.1	1,935.7	2,132.4	2,193.4		
- Paper, paper board	1,024.0	1,402.7	1,455.7	1,755.5	2,140.8		
- Tubes, pipes (iron)	296.5	539.5	945.1	902.3	1,036.6		
- Aluminium	321.7	407.3	344.2	486.0	785.2		
- Others	3,668.9	3,871.5	3,956.8	4,506.8	5,470.5		
8) Machinery, Transport Equipment	19,526.3	23,730.1	27,247.7	27,543.5	32,869.0	29.5%	
9) Manufactured Articles	1,707.1	2,098.3	2,583.5	2,995.3	3,769.0	3.4%	
10) Others	74.7	116.1	86.5	105.1	334.2	0.3%	
Total	76,706.7	89,778.2	90,946.3	92,430.8	111,381.9	100%	

Source : Pakistan Statistical Yearbook, 1989 , Federal Bureau of Statistics

Table A.3.1 MAJOR CROP PRODUCTION AND UNIT YIELD (1986 - 1988)

Crops / Year	Pakistan			Sindh Province		
	Area (,000 ha)	Production (,000 tons)	Unit Yield (t/ha)	Area (,000 ha)	Production (,000 tons)	Unit Yield (t/ha)
1 Rice						
1986 - 87	2,065.6	3,486.3	1.69	721.0	1,548.5	2.15
1987 - 88	1,963.0	3,240.9	1.65	721.8	1,537.4	2.13
Average	2,014.3	3,363.6	1.67	721.4	1,543.0	2.14
2 Wheat						
1986 - 87	7,706.2	12,881.6	1.67	1,036.0	2,211.5	2.13
1987 - 88	7,308.4	12,675.1	1.73	1,024.8	2,180.3	2.13
Average	7,507.3	12,778.4	1.70	1,030.4	2,195.9	2.13
3 Bajra (Pearl Millet)						
1986 - 87	508.9	232.7	0.46	226.7	75.3	0.33
1987 - 88	292.7	135.3	0.46	26.1	13.7	0.52
Average	400.8	184.0	0.46	126.4	44.5	0.35
4 Jowar (Great millet, sorghum)						
1986 - 87	399.2	235.5	0.59	103.6	62.1	0.60
1987 - 88	319.9	180.6	0.56	91.3	54.3	0.59
Average	359.6	208.1	0.58	97.5	58.2	0.60
5 Maize						
1986 - 87	816.2	1,111.2	1.36	20.0	10.4	0.52
1987 - 88	853.9	1,126.9	1.32	18.0	8.7	0.48
Average	835.1	1,119.1	1.34	19.0	9.6	0.50
6 Barley						
1986 - 87	182.3	134.2	0.74	24.7	12.6	0.51
1987 - 88	145.0	111.8	0.77	25.8	12.9	0.50
Average	163.7	123.0	0.75	25.3	12.8	0.50
7 Gram (Bengal gram)						
1986 - 87	1,082.1	583.3	0.54	94.3	76.6	0.81
1987 - 88	820.6	371.5	0.45	87.8	70.9	0.81
Average	951.4	477.4	0.50	91.1	73.8	0.81
8 Masur (Lentil)						
1986 - 87	80.8	32.5	0.40	10.0	4.5	0.45
1987 - 88	76.0	30.9	0.41	9.2	4.2	0.46
Average	78.4	31.7	0.40	9.6	4.4	0.45
9 Mung (Green beans)						
1986 - 87	114.2	55.3	0.48	14.8	6.3	0.43
1987 - 88	94.1	43.3	0.46	11.6	5.0	0.43
Average	104.2	49.3	0.47	13.2	5.7	0.43
10 Other Pulses						
1986 - 87	167.0	81.0	0.49	1.4	0.6	0.43
1987 - 88	156.8	75.4	0.48	1.5	0.6	0.40
Average	161.9	78.2	0.48	1.5	0.6	0.41
11 Potato						
1986 - 87	60.5	594.3	9.82	1.0	7.5	7.50
1987 - 88	58.1	563.2	9.69	0.7	6.3	9.00
Average	59.3	578.8	9.76	0.9	6.9	8.12
12 Onion						
1986 - 87	51.1	576.8	11.29	26.4	241.4	9.14
1987 - 88	55.4	633.1	11.43	26.5	242.5	9.15
Average	53.3	605.0	11.36	26.5	242.0	9.15
13 Sesamum						
1986 - 87	33.2	12.5	0.38	12.4	3.7	0.30
1987 - 88	18.0	7.2	0.40	1.3	0.5	0.38
Average	25.6	9.9	0.38	6.9	2.1	0.31
14 Cotton						
1986 - 87	2,505.2	1,319.9	0.53	688.3	1,305.3	1.90
1987 - 88	2,567.8	1,468.5	0.57	629.5	1,374.4	2.18
Average	2,536.5	1,394.2	0.55	658.9	1,339.9	2.03
15 Sugarcane						
1986 - 87	762.0	29,925.8	39.27	182.7	7,906.1	43.27
1987 - 88	841.6	33,013.4	39.23	207.0	9,574.7	46.25
Average	801.8	31,469.6	39.25	194.9	8,740.4	44.86

Sources : 1) Pakistan Statistical Yearbook, 1989, Federal Bureau of Statistics
2) Agricultural Statistics of Sind 1989, Bureau of Statistics, Sindh

Table A.4.1 POPULATION IN THE ADMINISTRATIVE AREA

Name of Deh and Union Council	Population			Average Annual Projected	
	1961	1972	1981	Growth Rate (1972-81)	1989 (5.34%)
Sindh Province (x ,000)	8,367	14,156	19,029	3.32%	28,851
Karachi Division (x ,000)	2,044	3,607	5,438	4.90%	8,245
Karachi East District (x,000)	n.a.	1,214	1,885	<u>5.34%</u>	2,858
DARSANO CAHANNO					
1) Bail	142	400	487	2.10%	738
2) Kathore	1,429	2,963	4,623	5.41%	7,009
3) Amilano	317	640	823	2.76%	1,248
4) Khadeji	226	294	445	4.96%	675
5) Chuhar	1,000	2,000	3,123	5.42%	4,735
6) Kotero	1,125	1,582	2,475	5.45%	3,753
Sub-total	<u>4,239</u>	<u>7,879</u>	<u>11,976</u>	<u>4.35%</u>	<u>18,158</u>
KANKAR					
1) Bazar	979	1,220	1,795	4.55%	2,722
2) Darsano Channo	2,225	4,407	5,399	2.17%	8,186
3) Kharkharo	992	1,654	3,201	9.03%	4,853
4) Malh	7,153	13,164	16,089	2.14%	24,393
Sub-total	<u>11,349</u>	<u>20,445</u>	<u>26,484</u>	<u>4.47%</u>	<u>40,154</u>
LANDHI					
1) Kharkhar	769	n.a.	2,304	9.51%	3,493
2) Sanhro	1,158	n.a.	3,737	10.61%	5,666
3) Landhi	7,938	n.a.	7,545	-0.24%	11,439
4) Khanto	985	n.a.	5,993	24.21%	9,087
Sub-total	<u>10,850</u>	<u>n.a.</u>	<u>19,579</u>	<u>11.02%</u>	<u>29,685</u>
THANO					
1) Thano	<u>3,639</u>	<u>6,663</u>	<u>7,513</u>	<u>1.23%</u>	<u>11,391</u>
Total	30,077	n.a.	65,552	5.90%	99,388

Sources : 1981 Census Report, Karachi Division, May 1984

Population Census Organization Statistics Division, Government of Pakistan

Remarks : Population (1989) are projected at 5.34% average annual growth rate based on rate for Karachi East District.

Table A.4.2 POPULATION IN THE STUDY AREA BY SEX, 1981 AND 1989

Name of Deh and Union Council	Population 1981			Population 1989		
	Total	Male	Female	Total	Male	Female
DARSANO CAHANNO						
1) Bail	487	260	227	738	394	344
2) Kathore	4,623	2,453	2,170	7,009	3,719	3,290
3) Amilano	823	449	374	1,248	680	568
4) Khadeji	445	227	218	675	344	331
5) Chuhar	3,123	1,537	1,586	4,735	2,330	2,405
6) Kotero	2,475	1,375	1,100	3,753	2,085	1,668
Sub-total	<u>11,976</u>	<u>6,301</u>	<u>5,675</u>	<u>18,158</u>	<u>9,552</u>	<u>8,606</u>
KANKAR						
1) Bazar	1,795	959	836	2,722	1,454	1,268
2) Darsano Channo	5,399	2,675	2,724	8,186	4,055	4,131
3) Kharkharo	3,201	1,896	1,305	4,853	2,874	1,979
4) Malh	16,089	8,581	7,508	24,394	13,010	11,384
Sub-total	<u>26,484</u>	<u>14,111</u>	<u>12,373</u>	<u>40,155</u>	<u>21,393</u>	<u>18,762</u>
LANDHI						
1) Kharkhar	2,304	1,267	1,037	3,493	1,920	1,573
2) Sanhro	5,993	3,314	2,679	5,666	3,133	2,533
3) Landhi	7,545	4,005	3,540	11,439	6,072	5,367
4) Khanto	3,737	1,962	1,775	9,086	4,770	4,316
Sub-total	<u>19,579</u>	<u>10,548</u>	<u>9,031</u>	<u>29,684</u>	<u>15,895</u>	<u>13,789</u>
THANO						
1) Thano	7,513	3,982	3,531	11,391	6,037	5,354
Sub-total	<u>7,513</u>	<u>3,982</u>	<u>3,531</u>	<u>11,391</u>	<u>6,037</u>	<u>5,354</u>
Total	<u>65,552</u>	<u>34,942</u>	<u>30,610</u>	<u>99,388</u>	<u>52,877</u>	<u>46,511</u>

Sources : 1981 Census Report, Karachi Division, May 1984

Population Census Organization Statistics Division, Government of Pakistan, Islamabad

Remarks : Population (1989) are projected at 5.34% average growth rate based on rate for Karachi East District.

Table A.4.3 ESTIMATION OF POPULATION IN THE STUDY AREA

Name of Deh and Union Council	Administrative Area			Study Area		
	Total Area (Km2)	Total Population	No of Households	Total Area (Km2)	Total Population	No of Households
DARSANO CAHANNO						
1) Bail	51.7	738	176	9.7	138	33
2) Kathore	63.8	7,009	1,491	24.6	2,703	575
3) Amilano	11.5	1,248	290	11.5	1,248	290
4) Khadeji	58.2	675	147	4.5	52	11
5) Chuhar	29.8	4,735	877	29.8	4,735	877
6) Koteru	25.7	3,753	682	25.7	3,753	682
Sub-total	<u>240.7</u>	<u>18,158</u>	<u>3,663</u>	<u>105.8</u>	<u>12,629</u>	<u>2,468</u>
KANKAR						
1) Bazar	22.0	2,722	534	22.0	2,722	534
2) Darsano Channo	24.4	8,186	1,462	24.4	8,186	1,462
3) Kharkharo	32.1	4,853	851	32.1	4,853	851
4) Malh	15.9	24,393	4,435	15.9	24,393	4,435
Sub-total	<u>94.4</u>	<u>40,154</u>	<u>7,282</u>	<u>94.4</u>	<u>40,154</u>	<u>7,282</u>
LANDHI						
1) Kharkhar	9.9	3,493	647	9.9	3,493	647
2) Sanhro	10.1	5,666	944	10.1	5,666	944
3) Landhi	10.2	11,439	1,875	10.2	11,439	1,875
4) Khanto	8.6	9,087	1,540	5.3	5,600	949
Sub-total	<u>38.8</u>	<u>29,685</u>	<u>5,006</u>	<u>35.5</u>	<u>26,198</u>	<u>4,415</u>
THANO						
1) Thano	6.6	11,391	2,109	6.6	11,391	2,109
Sub-total	<u>6.6</u>	<u>11,391</u>	<u>2,109</u>	<u>6.6</u>	<u>11,391</u>	<u>2,109</u>
Total	380.5	99,388	18,060	242.3	90,372	16,274

Source : 1981 Census Report of Karachi Division, May 1984
Population Census Organization Statistics Division, Government of Pakistan

Remarks : Number of households are estimated based on household size for each Deh
in 1981 Census.

Table A.4.4 POPULATION DENSITY AND HOUSEHOLD SIZE IN THE STUDY AREA, 1989

Name of Deh and Union Council	Total Area (Km2)	Total Population	Population Density (persons/Km2)	No of Households	Household Size
DARSANO CAHANNO					
1) Bail	9.7 *	138	14	33	4.2
2) Kathore	24.6 *	2,703	110	575	4.7
3) Amilano	11.5	1,248	109	290	4.3
4) Khadeji	4.5 *	52	12	11	4.6
5) Chuhar	29.8	4,735	159	877	5.4
6) Kotero	25.7	3,753	146	682	5.5
Sub-total	<u>105.8</u>	<u>12,629</u>	<u>119</u>	<u>2,468</u>	<u>5.1</u>
KANKAR					
1) Bazar	22.0	2,722	124	534	5.1
2) Darsano Channo	24.4	8,186	335	1,462	5.6
3) Kharkharo	32.1	4,853	151	851	5.7
4) Malh	15.9	24,393	1,534	4,435	5.5
Sub-total	<u>94.4</u>	<u>40,154</u>	<u>425</u>	<u>7,282</u>	<u>5.5</u>
LANDHI					
1) Kharkhar	9.9	3,493	353	647	5.4
2) Sanhro	10.1	5,666	561	944	6.0
3) Landhi	10.2	11,439	1,121	1,875	6.1
4) Khanto	5.3 *	5,600	1,057	949	5.9
Sub-total	<u>35.5</u>	<u>26,198</u>	<u>738</u>	<u>4,415</u>	<u>5.9</u>
THANO					
1) Thano	6.6	11,391	1,726	2,109	5.4
Sub-total	<u>6.6</u>	<u>11,391</u>	<u>1,726</u>	<u>2,109</u>	<u>5.4</u>
Total	242.3	90,372	373	16,274	5.6

Source : 1981 Census Report, Karachi Division, May 1984
 Population Census Organization Statistics Division, Government of Pakistan

Remarks : *); These area are estimated in the study area only.

FIGURES

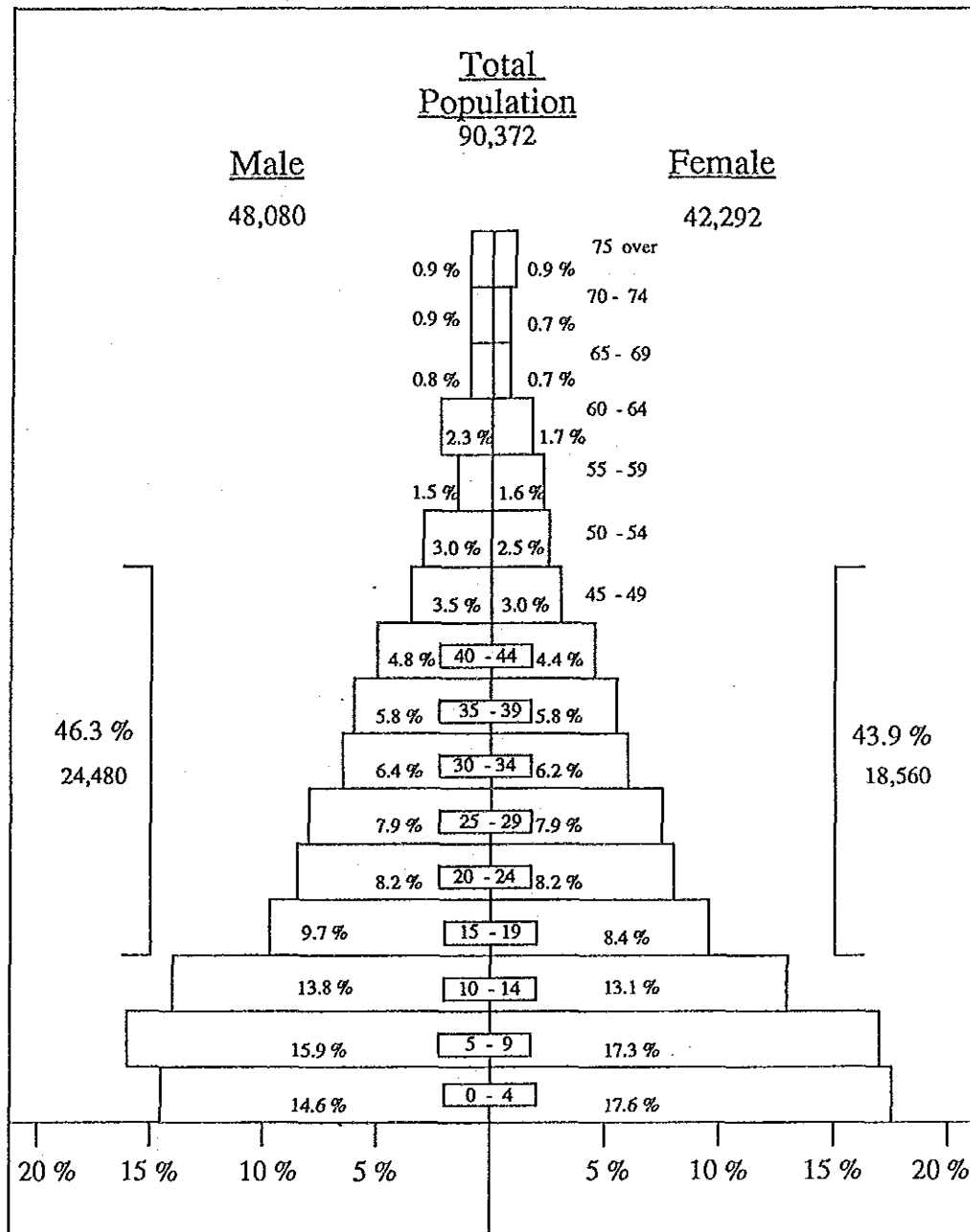


Fig. A.4-1 Population Structure in the Study Area

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