

THE STUDY  
ON  
THE NATIONAL TRANSPORT PLAN  
IN  
THE ISLAMIC REPUBLIC OF PAKISTAN

FINAL REPORT

Part II SOCIO-ECONOMIC STUDY AND  
TRANSPORT DEMAND ANALYSIS

March 1988

JAPAN INTERNATIONAL COOPERATION AGENCY

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## **SOCIO-ECONOMIC FRAMEWORK**





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## CHAPTER 1 PROJECTION OF POPULATION

### 1.1 Some Notable Characteristics of the Structure of Population

The population in Pakistan grew at a rate of 3.06% per annum between the 1972 Census and the 1981 Census. Some notable characteristics are observed of the structure of population in Pakistan.

#### 1.1.1 Crude Birth Rate and Crude Death Rate

The crude birth rate is estimated at 43.0 persons per thousand persons in 1985 (44.1 for 1980) and 11.6 persons per thousand persons for death rate in the same year (12.6 for 1980) according to PDD materials.

#### 1.1.2 Structure of Population by Age Group

Table 1.1 shows distribution of population by age group in the 1972 Census and 1981 Census. Comparing the two Census data, the following facts are observed:

- (1) Distribution share of 0-14 years age group and 15-24 age group increased in the 1981 Census compared to 1972 Census. The share of 25-39 years age group in the 1981 census was less than that in the 1972 census. These features are observed for both sexes, in both urban and rural areas.

This fact indicates that the population in Pakistan shifted to younger age groups (0-14 years and 15-24 years) and the crude burth rate will only slightly decline, even if the specific birth rate (birth rate to 15-39 years female age group) declines moderately in the future (at least up to 2005).

- (2) Distribution of the 40-59 age group for males declined in the 1981 Census compared to 1972 Census, but for females this has not been observed. General reasons for this fact is not clear, but it is considered, as a possibility, to the influence of temporal emigration to foreign countries in the males of the middle age groups.
- (3) Distribution of the 60 and above age group was constant, generally. This means that the population in Pakistan is not yet experiencing increase of the old age groups.
- (4) Compared to the distribution share for males and females, as well as, for urban and rural areas, a composition of domestic migration is observed. More males, who were born in rural area, emigrate to urban area in the 15-24 and 25-39 age groups than females. Distribution share of males of 15-24 age group and 25-39 age group in the urban area exceed 3.4 percentage points and 2.0 percentage

Table 1.1 Distribution of Population by Age Group, Sex, Urban/Rural Areas in 1981 and 1972 Censuses

(%)

Age Group	Total			Urban			Rural		
	1981 Census	1972 Census	Difference	1981 Census	1972 Census	Difference	1981 Census	1972 Census	Difference
(Male)									
0-4	14.3	14.2	0.1	14.2	13.6	0.6	14.4	14.4	0.0
5-9	15.8	15.9	-0.1	14.4	14.6	-0.2	16.4	16.4	0.0
10-14	13.7	13.1	0.6	12.9	13.0	-0.1	14.0	13.2	0.8
15-19	9.9	8.7	1.2	10.7	9.5	-1.2	9.4	8.4	1.0
20-24	7.6	7.0	0.6	9.1	8.3	-0.8	7.0	6.6	0.4
25-29	6.7	7.3	-0.6	7.4	8.0	-0.6	6.4	7.1	-0.7
30-34	5.5	6.2	-0.7	5.9	6.6	-0.7	5.4	6.0	-0.6
35-39	4.9	5.4	-0.5	5.2	5.7	-0.5	4.8	5.2	-0.4
40-44	4.5	4.9	-0.4	4.7	5.3	-0.6	4.4	4.8	-0.4
45-49	3.7	3.8	-0.1	3.8	4.0	-0.2	3.7	3.8	-0.1
50-54	3.8	3.9	-0.1	3.6	3.8	-0.2	3.9	4.0	-0.1
55-59	2.0	1.9	0.1	1.9	1.8	0.1	2.0	2.0	0.0
60-	7.6	7.5	0.1	6.1	5.8	0.3	8.3	8.2	0.1
(Female)									
0-4	43.8	43.2	0.6	41.6	41.2	0.4	44.8	44.0	0.8
15-24	17.4	15.8	1.6	19.8	17.8	2.0	16.4	15.0	1.4
25-39	17.2	18.9	-1.7	18.6	20.4	-1.8	16.6	18.3	-1.7
40-59	14.0	14.6	-0.6	14.1	14.9	-0.8	14.0	14.6	-0.6
60-	7.6	7.5	0.1	6.1	5.8	0.3	8.3	8.2	0.1
(Male)									
0-4	16.5	16.1	0.4	15.9	15.5	0.4	16.7	16.3	0.4
5-9	16.2	16.6	-0.4	15.5	16.1	-0.6	16.5	16.7	-0.2
10-14	12.6	11.9	0.7	13.2	13.0	0.2	12.3	11.5	0.8
15-19	9.0	8.3	0.7	10.6	9.9	0.7	8.4	7.8	0.6
20-24	8.0	7.6	0.4	8.6	8.6	0.0	7.8	7.3	0.5
25-29	6.6	7.6	-1.0	7.0	7.9	-0.9	6.4	7.4	-1.0
30-34	5.7	6.5	-0.8	5.7	6.5	-0.8	5.7	6.6	-0.9
35-39	5.3	5.3	0.0	5.5	5.4	0.1	5.3	5.3	0.0
40-44	4.9	4.9	0.0	4.7	4.6	0.1	5.0	5.0	0.0
45-49	3.7	3.6	0.1	3.5	3.2	0.3	3.8	3.7	0.1
50-54	3.4	3.4	0.0	3.0	3.0	0.0	3.5	3.6	-0.1
55-59	1.9	1.9	0.0	1.6	1.5	0.1	2.0	2.0	0.0
60-	6.1	6.3	-0.2	5.0	4.9	0.1	6.5	6.8	-0.3
(Female)									
0-4	45.3	44.6	0.7	44.7	44.6	0.1	45.5	44.6	0.9
15-24	17.0	15.9	1.1	19.2	18.4	0.8	16.2	15.1	1.1
25-39	17.6	19.4	-1.8	18.2	19.7	-1.5	17.4	19.3	-1.9
40-59	14.0	13.8	0.2	13.0	12.4	0.6	14.3	14.2	0.1
60-	6.1	6.3	-0.2	5.0	4.9	0.1	6.5	6.8	-0.3

Source: Pakistan Statistical Yearbook, 1986

Note 1. Percentage distribution of the both Censuses figures are calculated as the shares to the all age population.

2. All figures are rounded off.

points than those in the rural area, as against in the case of females in the said age groups are 3.0 percentage points and 0.8 percentage points. This trend is also found in the 40-59 age group. On the other hand, 0-14 age group males live in the rural areas with a larger distribution share.

#### 1.1.3 Sex Ratio

Table 1.2 shows the sex ratio of the population. This table reinforces the argument mentioned above (4). Some rural male population have begun to emigrate to the urban area from approximately 20-24 age group in a larger scale than females. And these domestic emigrants stay in the urban area up to approximately 55-59 age group. It is an appropriate explanation of the different distribution of age groups by sex and by urban and rural areas.

#### 1.1.4 Migrant Population by Province

1981 Census provides data on migrant population by province. Table 1.3 shows it in a summarized form from Statistical Appendix 1-1, which is calculated from Table 21 of the 1981 Census Report, that is, the table shows an inflow of migrants in the percentage of 1981.

Main findings in Table 1.3 are as follows:

- a) The Punjab and NWFP area compose a provincial group of low rate of immigrants. That is, both provinces receive only a small amount of immigrants in the rural area as well as in the urban area from Sind and Baluchistan.
- b) In Sind, a few immigrants (inflow) are found in even the rural areas.
- c) The urban areas in Sind and Baluchistan receive relatively large numbers of immigrants from Punjab and NWFP.

#### 1.1.5 Problems of Population in Baluchistan

Population increase in Balchistan had an extreme high rate of 7.08% per annum between the 1972 Census and 1981 Census. (See Statistical Appendix 1-2) But, its causes cannot be explained clearly from the Census data.

Table 1.2 Sex Ratio of Population by Age Group and Urban/Rural Areas in the 1981 and 1972 Census

(Female = 1.0)

Age Group	1981 Census			1972 Census		
	Total	Urban	Rural	Total	Urban	Rural
0-4	0.958	1.027	0.932	1.008	1.043	0.996
5-9	1.080	1.073	1.083	1.104	1.086	1.110
10-14	1.204	1.127	1.236	1.270	1.190	1.302
15-19	1.196	1.161	1.212	1.201	1.162	1.218
20-24	1.049	1.220	0.976	1.062	1.153	1.026
25-29	1.127	1.217	1.090	1.116	1.215	1.079
30-34	1.073	1.193	1.027	1.081	1.207	1.036
35-39	1.021	1.100	0.990	1.164	1.281	1.122
40-44	1.007	1.151	0.954	1.161	1.379	1.090
45-49	1.103	1.250	1.051	1.229	1.474	1.155
50-54	1.236	1.364	1.194	1.326	1.501	1.274
55-59	1.154	1.326	1.112	1.182	1.361	1.133
60-	1.380	1.407	1.372	1.368	1.400	1.359
0-14	1.070	1.073	1.069	1.114	1.101	1.118
15-24	1.127	1.188	1.099	1.135	1.158	1.125
25-39	1.078	1.174	1.039	1.117	1.230	1.076
40-59	1.108	1.250	1.059	1.223	1.445	1.159
60-	1.380	1.407	1.372	1.368	1.400	1.359
All ages	1.105	1.153	1.087	1.149	1.193	1.133

Source: Pakistan Statistical Yearbook, 1986

Table 1.3 Percentage Distribution of Migrant Population by Place of Previous Residence, 1981

(%)

	Total	within own province <sup>1)</sup>	other provinces <sup>1)</sup>	All others <sup>2)</sup>
<b>NWFP</b>				
Urban	13.7	5.3	4.3 (0.2) <sup>3)</sup>	4.1
Rural	2.8	1.7	0.5 (0.2) <sup>3)</sup>	0.6
<b>Punjab</b>				
Urban	20.5	9.1	1.5 (0.5) <sup>3)</sup>	9.9
Rural	10.6	4.3	0.5 (0.2) <sup>3)</sup>	5.8
<b>Sind</b>				
Urban	26.8	2.4	10.2	14.2
Rural	5.2	2.0	2.0	1.2
<b>Baluchistan</b>				
Urban	20.1	4.8	10.9	4.4
Rural	3.5	2.3	0.6	0.6
<b>Islamabad</b>				
Urban	50.6	27.6	9.5 (1.7) <sup>3)</sup>	13.5
Rural	7.1	4.0	2.1 (0.0) <sup>3)</sup>	1.0

Note: 1) Islamabad is included in Panjab.

2) All others are immigrants from AK/NA and other countries including non replying persons.

3) Figures in parentheses are percentages from Sind and Baluchistan.

4) All figures are shown on immigrant base (inflow base of migrants). That is, for example, 13.7% of urban population in NWFP are persons who came from other provinces or other places in NWFP.

Source: Compiled by the Study Team based on 1981 Census data.



## 1.2 Projection of the National Level

Population growth rate at the national level is defined as follows:

Population growth rate = crude birth rate - crude death rate - net emigrant rate;

Crude birth rate = specific birth rate in the 15-39 year age group of female x ratio of 15-39 year age group of females to the total population

More important is the fact that these factors are influenced by mainly social causes rather than economic causes, so a simplified regression could not be used for the projection.

The directions of these factors are predicted as follows.

### 1.2.1 Specific Birth Rate

Attending to the extension of family planning and increase of income level in the households, the specific birth rate will decline gradually, but its pace will be moderate.

### 1.2.2 Ratio of the 15-39 Year Age Group of Females

The ratio of the 15-39 year age group in 1986 corresponds to the 10-34 years age group in 1981 Census after the adjustment for the change of total population and death of the said age group females up to 1986. In 1991 and 1996, it corresponds to the ones of the 5-29 year age group and 0-24 year age group in 1981 Census respectively, after making necessary adjustments.

The shift to a more younger age group of the female population between 1972 Census and 1981 Census will bring to increase the ratio of 15-39 year age group of females in the projected period.

### 1.2.3 Death Rate

The death rate will decline gradually, and declining death rate will become a causes of the population growth. Especially, the decline of infant mortality rate and younger girl's death rate will bring directly a population growth.

### 1.2.4 Net Emigrant Rate (to Foreign Countries)

Any reliable data is not available for consideration. However, this rate will have a slight declining trend on the analogy of net factor income from abroad in the national accounts, in which net factor income from abroad is in a declining trend in real terms after 1983-84. (See Statistical Appendix 2-5 and 2-6)

This factor is also a cause of the acceleratation in the population growth.

Summarized above in 1.2.1-1.2.4, the only factor to bring a decline in the rate of population growth is the decline of specific birth rates, and the other three factors will work to increase the rate of population growth.

The Study Team projects the future population in Pakistan as shown in Table 1.4 under consideration of various factors, including other population estimates carried out officially and unofficially.

As shown in Table 1.4, the population in Pakistan is projected to grow at an annual rate of 3.1% for the period of 1987-88 to 1992-93, 3.0% for the period of 1992-93 to 1997-98 and 2.6% for the period of 1997-98 to 2005-06.

### 1.3 Projection of the Provincial Level

As seen in 1.1 above, the domestic migration contributed greatly to the population growth. Although the growth of the population in rural areas was 2.5% per annum in the period between 1972 and 1981, it would be approximately 2.9% if net emigrant from the rural areas did not take place and assumption was made of the same specific birth rate between the urban and rural areas (This figure is calculated from Table 1.2). A relative high growth rate of the population in Sind (3.6%) can also be attributed to the domestic immigrants from the other provinces.

The projection of provincial level was carried out by dividing projected population of the national level to each province. For the breakdown, following points are considered.

- (a) Emigration based on social factor of population will continue in the rural areas of the Punjab and NWFP.
- (b) Ratio of emigration from the rural area of Sind and Baluchistan will be less than those of Punjab and NWFP.
- (c) Excess population in the rural areas, who have lost means to go abroad as emigrants, will come and stay mostly in the urban areas. This factor will work more increasingly in the period up to 1992-93.
- (d) Population growth in Baluchistan will decline in the projected period, but it will be of relatively high rate when compared with the other three provinces.
- (e) After the years of 1992-93, the impact from net emigration in the urban areas will gradually weaken due to the decline of the rate of natural population growth in the rural area, although the out-flow of rural population will continue. It will contribute to reduce the pressure on population growth in the urban areas.

The results of projection are shown in Table 1.4.

Table 1.4 Projection on Population by Province and by Urban/Rural

Province Urban/ Rural	Population (in thousand)						Annual Growth Rate (%)			
	1981 Census	1985-86	1987-88	1992-93	1997-98	2005-06	1981 to 1987-88	1987-88 to 1992-93	1992-93 to 1997-98	1997-98 to 2005-06
<u>Pakistan</u>	84,253.6	97,670	103,852	120,955	139,975	172,485	3.1	3.1	3.0	2.6
Urban	23,841.5	29,608	32,205	39,579	48,051	63,912	4.6	4.2	4.0	3.6
Rural	60,412.1	68,062	71,647	81,376	91,924	108,573	2.6	2.6	2.5	2.1
<u>Punjab</u>	47,632.7	54,315	57,332	65,944	75,537	91,880	2.8	2.8	2.8	2.5
Urban	13,256.0	16,421	17,743	21,664	26,138	34,477	4.4	4.1	3.8	3.5
Rural	34,376.7	37,894	39,588	44,280	49,399	57,403	2.1	2.2	2.2	1.9
<u>Sind</u>	19,028.7	22,468	24,040	28,493	33,377	41,744	3.5	3.5	3.2	2.8
Urban	8,243.0	10,211	11,172	13,774	16,712	22,226	4.6	4.3	4.2	3.6
Rural	10,785.6	12,257	12,868	14,719	16,665	19,518	2.7	2.7	2.5	2.0
<u>N.W.F.P</u>	13,259.8	14,988	15,760	18,019	20,517	24,657	2.6	2.7	2.6	2.3
Urban	1,665.7	2,066	2,260	2,784	3,437	4,652	4.6	4.3	4.3	3.9
Rural	11,594.2	12,922	13,500	15,235	17,080	20,005	2.3	2.4	2.3	2.0
<u>Baluchistan</u>	4,332.4	5,899	6,720	8,499	10,544	14,204	6.8	4.8	4.4	3.8
Urban	676.8	910	1,030	1,357	1,764	2,557	6.4	5.7	5.4	4.8
Rural	3,655.6	4,989	5,690	7,142	8,780	11,647	6.8	4.7	4.2	3.6

Note: 1) Population except the 1981 census is the population on Jan. 1, of each year.

2) Punjab includes Islamabad, and NWFP includes FATA.

#### 1.4 Projection by District

The projection of district level is carried out by dividing the projected population of the province-wise level to each district, except Baluchistan. (See Statistical Appendix 1-2 for Census data.)

As some districts in Baluchistan have high growth rates of population compared with neighboring districts, their projected growth rates are adjusted to be within a certain range (for the part of surpassing 4% per annum).

Projection of population by district are calculated using the following equation:

$$(P_t)_{jk} = (P_o)_{jk} \cdot R_{jk}^t \cdot \frac{(P_o)_{jk} \cdot R_{jk}^t}{(P_t)_j}$$

where,  $(P_t)_{jk}$  is the projected population of k district in province in projected year of t

$(P_o)_{jk}$  is the population based on 1981 population census of k district in j province

$R_{jk}$  is annual growth rates of population between the inter-census, 1972 to 1981 of k district in j province

$(P_t)_j$  is the population of province in t projected year, which is projected separately and its result is shown in Table 1.4.

The results of district-wise projection are shown in Statistical Appendix 1-3.

## CHAPTER 2 PROJECTION OF NATIONAL ECONOMY

### 2.1 General

The basic principle for projection of the Pakistan economy is as follows.

#### (1) Basis Year

The basis year for the projections is the fiscal year of 1985-86. All projections are carried out using the basis of 1985-86.

#### (2) Valuation of Prices

All prices are valued at 1985-86 constant prices. As all official data at constant prices on the national accounts are valued at 1959-60 prices, therefore, all official figures are converted to the figures at 1985-86 constant prices. The conversion is carried out by using the published economic aggregates, such as major crops, livestock, large-scale manufacturing, private consumption expenditure, indirect taxes, and so on.

Following equation is adopted for the conversion:

$$\begin{aligned} & \text{(Figures at 1985-86 constant prices in each items by year)} \\ & = \text{(Figures at 1959-60 constant prices in each items by year)} \\ & \times \frac{\text{(Figures at current prices of 1985-86 in each items)}}{\text{(Figures at 1959-60 constant prices in each items)}} \end{aligned}$$

Broader aggregates such as GDP are calculated by summing up the figures of their component items.<sup>1/</sup>

Such conversion of price valuation basis may create discrepancies among projected figures, for example, between exports and imports and also between GDP and Expenditure on GDP, so these discrepancies will be eliminated by a balancing item.

The converted data, which are valued at 1985-86 constant prices, are shown in Statistical Appendix 2-1 and 2-2 for GDP and GNE between 1970-71 and 1986-87.

#### (3) Projected Years

Projected years are 1992-93, 1997-98 and 2005-06.

All figures up to 1987-88 are decided in consideration of the government target, performance in the recent years, other various information, and the target for 1987-88.

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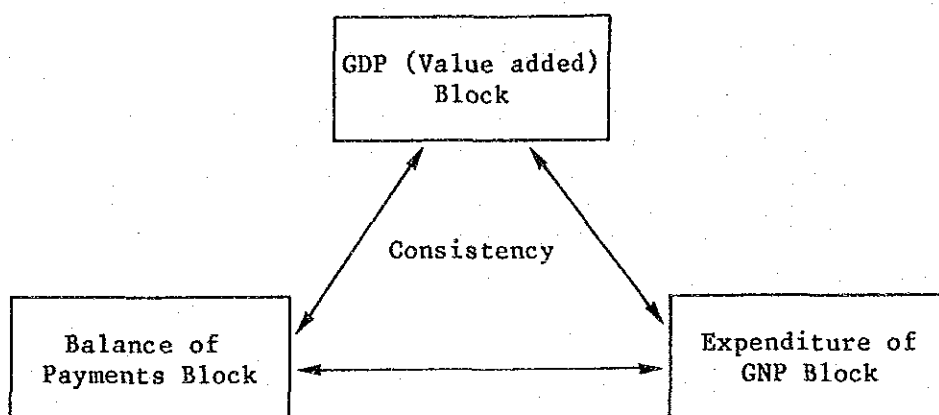
<sup>1/</sup> Due to the different price valuation basis, the growth rate in aggregates such as GDP and GNP differ from the official data in principle.

## 2.2 Methodology

The projection of the national economy is carried out by directly using various trends, coefficients and variables. The projection is approached from three sides, namely production side, expenditure side, and balance of payments side. After these approaches are made, the results are co-ordinated under various consideration and are brought to converge to a specific figure. That is, consistency is maintained among the three sides and mutual checks are carried out step by step.

The overall framework for the projection is shown in Fig.2.1.

Fig. 2.1 Mutual Check System for the National Projection



### 2.2.1 Process of Mutual Checks

At first, the tentative projection is carried out independently by three sides, using three factors of (1) past trend (adopting generally the trend after 1978-79), (2) special development programmes based on on-going projects, such as fields of domestic crude oil, natural gas, and iron and steel, and (3) inevitable change of economic structure, such as marginal capital coefficient in fixed capital formation.

Results of the tentative projection have some inconsistency among the estimated figures. For example, value added from internal trade increases at a higher rate, while output from correspondent agriculture sector shows a relatively low growth. The difference should be narrowed. Other many examples for inconsistency have also been found out. Those inconsistencies are dissolved by a series of mutual check among figures one after another, and finally, a consistent projection on the national economy can be made.

Followings are main particulars by the blocks.

## 2.2.2 Balance of Payments Block

This block is originally enumerated at current prices, so it is necessary to make an adjustment to value it at real terms. Factors included are changes in the terms of trade. The other major problem is the debt servicing. The Study Team sets up the following assumption for the projection.

### (1) Terms of Trade

Table 2.1 shows the development of terms of trade in recent years. The facts are confirmed from the Table; The terms of trade in 1985-86 was an abnormally high level compared with many other years and an average of recent years is in the level of approximately 85% for 1985-86.

Table 2.1 Terms of Trade in Terms of National Accounts

(The year of 1985-86 = 100)

	Export of Goods & NFS	Imports of Goods & NFS	Terms of Trade	(Ref) net factor income from rest of the world
1974-75	35.07	44.79	78.3	41.71
1975-76	35.17	42.47	82.8	39.48
1976-77	41.24	45.72	90.2	39.70
1977-78	43.48	49.84	87.2	42.57
1978-79	54.12	51.80	104.5	44.48
1979-80	58.49	63.37	92.3	54.42
1980-81	61.92	77.09	80.3	75.63
1981-82	60.93	85.13	71.6	83.77
1982-83	65.74	92.02	71.4	90.28
1983-84	73.56	96.50	76.2	94.65
1984-85	76.98	102.53	75.1	100.61
1985-86	100.00	100.00	100.0	100.00
1986-87	95.60	112.27	85.2	98.55

Note: 1. Deflators are converted to 1985-86 = 100 using the official data supplied by PDD on the national accounts, which is valued at 1959-60 = 100.

2. Terms of trade =  $\frac{\text{Exports of G\&NFS}}{\text{Imports of G\&NFS}} \times 100$

3. Average of 1974-75 to 1986-87 : 84.2  
Average of 1984-85 to 1986-87 : 86.8

As to be shown in Statistical Appendix 2-3, this projection assumes that the terms of trade will be improved up to 1997-98 and it will deteriorate again after 2000-01. If the terms of trade are stable at a level of 85 (1985-86 = 100), which is the same level with 1986-87, the total imports of goods and non-factor services in the 7th Five Year Plan period will decline by 9.1%

from the original projection (the original projection in column (5) of Statistical Appendix 2-3; Rs. 760,359 million, stable case Rs. 691,119 million), and annual growth rate of imports of Goods and NFS will decline to 4.9%.

Moreover, if the other variables and co-efficients are the same as the projection, the economic growth rate will decline to approximately 5% per annum.

## (2) Official Long-term Foreign Loans

If one projects the total value of new commitments of official long-term in the world, it will be a growth at approximately 2.5% per annum, which is the trend in recent years, in terms of constant U.S. dollars.<sup>2/</sup> The projection set up a favourable condition under various considerations.

In the interest payments for disbursed long-term loans, a favourable assumption of 4.0% per annum is set up for Pakistan. (See Table 2.2 and also Statistical Appendix 2-4)

Table 2.2 Interest Rates to Foreign Loans in Pakistan

Years	(US dollar base)			
	Interest Rate of New Commitments (%)		Interest Rate Paid to Debt Outstanding (%)	
	Official Creditors	Private Creditors	Official <sup>1)</sup> Creditors	Private <sup>2)</sup> Creditors
1980	1.8	10.9	-	7.8
1981	3.6	17.5	1.7	11.0
1982	4.6	13.9	2.0	9.6
1983	4.1	10.4	2.4	12.7
1984	3.7	9.7	2.5	10.3
1985	5.4	8.5	2.6	9.3

Note: 1) Interest paid in the years/debt outstanding in the previous years.

2) Interest paid in the years/debt outstanding in the years.

These figures are calculated by the JICA Study Team based on IBRD data.

Source: IBRD, World Debt Tables, 1986-87 edition.

<sup>1/</sup> The past growth rate of the official development finance is 2.5% per annum. However, the recent five years (1981 to 1986) shows almost stable performance in terms of constant U.S. dollars (Source: 1987 Report of Development Co-operation, OECD).



(3) Import Dependence Ratio

Import dependence ratio to GDP at factor cost was 24.9% for the 5th Five Year Plan period, and it is forecasted to be 23.1% in the 6th Five Year Plan period (see Table 2.3).

In the projection, it is assumed at 22.8% for the 7th Five Year Plan period and 23.8% for the 8th Five Year Plan period and afterwards. This ratio is considered to be a reasonable level.

The import dependence ratio to GDP may be a possibility to show a declining trend in the near future due to the promotion of import substitution policies on the one hand. However, after possibilities to increase import dependence ratio exists in the long-terms, due to the promotion of industrialization in engineering and other new industries to be seen in some developing countries on the other side.

If the terms of trade in the 7th Five Year Plan Period is stable at the level of 85% (1985-86 = 100) and the other variables and co-efficients are the same with the projection, the import dependence ratio must decline to 20.8% of GDP under the projected export growth. In such case, some appropriate measures will be needed to be in force by the Government to maintain the balance of payments position.

(4) Exports Growth Rate to be Requested

Exports of goods and non-factor services are defined as the following equation:

$$\begin{aligned} \text{Exports of goods and non-factor services} = & \\ & \text{Imports of goods and non-factor services} \\ & + \text{factor income to abroad} \\ & + \text{value of balancing item} \\ & + \text{factor income from abroad} \\ & - \text{other net transfers} \\ & - \text{capital account (net receipts)} \\ & - \text{decrease in foreign exchange reserve (decrease = +)} \end{aligned}$$

of which;

- a) Imports of goods and non-factor services are a function of GDP at factor cost;
- b) Factor income to abroad relates closely to the values of interest and dividend payments to abroad which are a function of the debt outstanding and interest rate;
- c) Balancing item relates to the terms of trade which are already mentioned above (1);

Table 2.3 Import Dependence (Imports G&NFS/GDP at Factor Cost)

Year	At current prices	At 1959-60 prices	At 1985-86 constant prices	
1970-71	11.6	13.3	21.9	
1971-72	9.5	10.7	17.7	
1972-73	17.6	11.3	18.6	
1973-74	22.0	13.2	22.0	Average 22.8
1974-75	24.1	13.4	22.1	
1975-76	22.2	14.6	24.0	
1976-77	20.9	14.1	23.3	
1977-78	20.4	13.8	22.7	
1978-79	24.9	17.1	28.1	Average 24.9
1979-80	26.8	16.5	27.3	
1980-81	25.9	14.5	23.9	
1981-82	24.0	13.3	21.9	
1982-83	26.1	14.1	23.3	
1983-84	25.8	14.6	24.0	Average 23.1
1984-85	25.0	14.1	23.3	
1985-86	24.4	14.8	24.4	
1986-87(P)	23.3	13.1	21.5	
1987-88	-	-	22.1	
1988-89	-	-	22.2 (21.2)	Average 22.8 (20.8)
1989-90	-	-	22.5 (20.9)	
1990-91	-	-	22.8 (20.7)	
1991-92	-	-	23.1 (20.5)	
1992-93	-	-	23.4 (20.6)	

Note: Figures of no parentheses are the ratios in the projection. Figures in parentheses are the ratios in the case of terms of trade of 85 (1985-86 = 100) in the 7th Five Year Plan Period.

Source: Up to 1986-87 : Economic survey, 1986-87, after 1987-88; projection by the Study Team.

- d) Factor income from abroad relates to the remittance from Pakistan residents abroad and its volume is presumed by the Study Team based on various materials such as the recent trend;
- e) Other net transfers are assumed to grow at a rate of 3.0% per annum;
- f) Capital account (net receipts) relates to both disbursement and repayment of the official foreign loan, which is presumed in the basis of the recent tendency, and net private capital inflow. Capital account has an inverse correlative, in a certain range, to net exports at current prices in national accounts. As to be seen in Table 2.4, net exports show deficits of approximately 3.7% to GNP at market prices. Therefore, net private capital inflow is projected to refer values of net official foreign loan (disturbments minus repayments) minus net exports as well as scale of GNP; and

Table 2.4 Net Exports Ratio to GNP (at Current Price Basis)

Year	(1)		(2)		Ratio of (1)/(2) (%)
		Net Exports, G & S (Rs. million)		GNP at Market Prices (Rs. million)	
1970-71	(-)	1,483		50,709	(-) 2.9
1971-72	(-)	705		54,772	(-) 1.3
1972-73	(-)	1,429		67,955	(-) 2.1
1973-74	(-)	5,431		88,719	(-) 6.1
1974-75	(-)	11,560		112,330	(-) 10.3
1975-76	(-)	9,385		133,356	(-) 7.0
1976-77	(-)	10,404		153,926	(-) 6.8
1977-78	(-)	5,979		186,765	(-) 3.2
1978-79	(-)	11,029		207,623	(-) 5.3
1979-80	(-)	11,285		250,507	(-) 4.5
1980-81	(-)	10,266		297,573	(-) 3.4
1981-82	(-)	16,183		343,911	(-) 4.7
1982-83	(-)	7,119		395,623	(-) 1.8
1983-84	(-)	13,905		452,856	(-) 3.1
1984-85	(-)	25,260		510,637	(-) 4.9
1985-86	(-)	19,901		574,787	(-) 3.5
1986-87(P)	(-)	15,959		633,566	(-) 2.5
Average of 1978-79 to 1986-87.					(-) 3.7

Source: FBS, National Accounts of Pakistan.

- g) Foreign exchange reserve is assumed at certain ratios to imports of goods and services.

Exports of goods and non-factor services are projected by the procedure above mentioned, and those are checked by GDP and other macro-economic variables. As a result of this, exports of goods and non-factor services are projected to grow at an annual rates of 9.8% for the 7th Five Year Plan period, 8.5% for 8th Five Year Plan period, and 7.7% for the periods afterwards. This projection is impossible to achieve by extrapolation of any past trend. To realize this projection, a few new mass exportable commodities, corresponding to cotton yarn, raw cotton and rice at the present time, must newly appear in the export market.

Some export promotion measures by the Government may be needed to achieve this long-terms object.

### 2.2.3 Expenditure on GNP Block

#### (1) Gross Domestic Fixed Capital Formation

A core of the projection is in gross domestic fixed capital formation (investment), specially, in marginal capital co-efficient with one year lag and investment ratio to GDP.

Such defined marginal capital co-efficient was 2.57 as shown in Table 2.5. For 1987-88, the marginal capital coefficient will be 2.87, if economic growth is realized as the Government target.

In the projection, the marginal capital coefficient is assumed at an average of 2.96 for the 7th Five Year Plan period, an average of 3.25 for the 8th Five Year Plan period and an average of 3.71 for the years afterwards under a presumption, in which an economic growth centering the growth of heavy and chemical manufacturing is forecast.

Any linear increase of the marginal capital coefficient has not consistent with the investment ratio to GDP at factor cost of 1985-86 prices.

Such defined investment ratio is expected to be 17.4% in the 6th Five Year Plan period. It is projected to be 19.1% for the 7th Five Year Plan period, 20.1% for the 8th Five Year Plan period and 21.4% for the years afterwards. In the process of adjustment between marginal capital coefficient and investment ratio, priority is given to the investment ratio rather than the marginal capital co-efficient.

#### (2) Change in Stocks

Since reliable data is not available, the ratio of change in stocks/GNP at market prices is assumed at the levels of approximately 1.5% and so on.

#### (3) Check of Exports and Imports

Exports and imports of goods and non-factor services are originally projected in the balance of payments block. However, they are also necessary to be checked in this block to maintain consistency within the expenditure on GNP block.

For example, both exports and imports of goods and non-factor services are checked with GNP and its components, because imports of capital goods relate to investment and imports of consumer goods relate to consumption expenditure.

Table 2.5 Marginal Capital Coefficient with One-year Lag

(at 1985-86 Constant Prices)

Year	I	$\Delta Y$	$I_{n-1} / \Delta Y_n$
	(M.Rs.)		
1970-71	34,693	-	
		(M.Rs.)	
1971-72	32,705	4,090	8.48
1972-73	33,084	14,085	2.32
1973-74	36,193	16,678	1.98
1974-75	36,379	9,556	3.79
1975-76	50,361	8,618	4.22
1976-77	53,803	7,490	6.72
1977-78	53,609	21,185	2.54
1978-79	52,186	16,071	3.34
1979-80	53,408	21,935	2.38
1980-81	52,040	21,069	2.53
1981-82	59,533	24,450	2.13
1982-83	67,801	24,004	2.48
1983-84	71,142	18,498	3.67
1984-85	76,060	36,849	1.93
1985-86	81,319	33,382	2.28
1986-87		33,702 (P)	2.41
Average of 1977-78 to 1986-87.			2.57

Where, I : Gross fixed capital formation  
Y : Gross domestic product at factor cost  
n : Fiscal year

Note: Calculated by the Study Team using the National Accounts of Pakistan.

## 2.2.4 GDP (Value Added) Block

The block projects GDP at factor cost by economic activity. In this block, attention is directed to the following points. GDP at factor cost by economic activity will not be projected independently from the other blocks. Projected figures will be restricted by results of the other blocks. The value added of manufacturing, for example, will be influenced by the investment in the expenditure on GNP block and the import of various materials for industrial production in the balance of payments block.

### (1) Tentative Extrapolation

At first, the value added is extrapolated by 44 commodity groups using the past trend, and these results are adjusted after considering completion of on-going projects and assumed market trends in the future, etc. The 44 commodity groups consist of 13 for agriculture, 6 for mining and quarrying, 14 for manufacturing, 2 each for the three sectors of electricity and gas distribution, transport, storage and communication and wholesale and retail trade, and one each for the 5 sectors of construction, banking and insurance, ownership of dwellings, public administration and defence and services. (The list of projected commodity groups is shown in Statistical Appendix 2-7. See the table.)

The tentative GDP at factor cost is compiled by summing up these tentatively extrapolated value added by 44 commodity groups. That is;

$$\text{Tentative GDP} = \sum (\text{value added by commodity groups in 1985-86}) \\ \times (\text{Projected growth rate by commodity group})$$

Where, projected growth rate is determined to consider past trends as well as other various factors.

### (2) Coordination with the Other Blocks

The tentatively projected GDP is, in principle, has no impact on the value of the other blocks, especially to the value of expenditure on GNP block. The reasons are already described in the summary comments of this block.

Coordination is carried out by re-examination of the tentatively projected values by commodity group in the total production frame. When it is found that there is no appropriate project in any commodity group, such values are revised and this process is continued until it is fully consistent with the other blocks.

### (3) Consideration of Changing Price Structure

It is important to consider the change of price structure for the project period.

Reviewing the performance in the past 27 years, Pakistan has experienced inflation brought on by domestic factors, and its annual average rates were, for example, 9.1% for 1975-76 to 1980-81, and 7.1% for 1980-81 to 1985-86.<sup>1/</sup>

A summary data is shown in Table 2.6, and this table suggests an important cause for a gradual decline in the foreign exchange rate. On the other hand, the relative price level in Pakistan is changing. Table 2.7 shows the change of price structure in Pakistan. As can be seen in the last two columns of Table 2.7, the share of value added by major economic activity differs in terms of 1959-60 prices and in terms of 1985-86 prices. For example, the share of agriculture in 1985-86 was 25.8% at 1959-60 prices while it was 24.5% at 1985-86 prices. That is, the relative price level for value added of agriculture declined to those of the average of total value added in the national economy.

In the projection, influences by the change of relative price level are considered for not only this block but also for the other blocks.

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3/ Theoretically GDP is estimated by the following equation:  
(GDP) = (value of output) - (value of intermediate input)

Assuming an economy, where some inflation by only foreign factors exists and any inflation by domestic factors does not exist, the value of intermediate input will increase despite the same volume of intermediate input. Under such situation, the value of output will increase only by the increased portion of the value of intermediate input because of no existence of inflation by domestic factors, that is, the marginal value of increase for output will be equivalent to the increased value of intermediate input. Therefore, no increase is found in the value of GDP.

That is, the rise of GDP deflator is, as concept, different the rise of wholesale price and/or retail price.

Table 2.6 Annual Rates of Inflation by Domestic Factor

Years	Deflator for GDP at factor cost (1959-60 = 100.0)	Year	Annual rates of rising the GDP deflator (%)
1970-71	140.5	1959-60 to 1970-71	3.1
1975-76	290.4	1970-71 to 1975-76	15.6
1980-81	448.7	1975-76 to 1980-81	9.1
1982-83	519.1	1980-81 to 1982-83	7.5
1985-86	632.7	1980-81 to 1985-86	7.1
1986-87 (P)	654.5	1982-83 to 1986-87	6.0

Note: Calculated by the Study Team based on data of Federal Bureau Statistics; National Accounts of Pakistan 1983-84 to 1986-87. See also Note 3/ in the previous page.

Table 2.7 Distribution of GDP at Factor Cost

	1959-60	1975-76 at 1959-60 prices	1975-76 at current prices	1985-86 at 1959-60 prices	1985-86 at current prices
Agriculture	45.8	33.1	32.0	25.8	24.5
Mining, quarrying, manufacturing and construction	14.9	21.5	21.3	26.0	25.9
of which;					
Manufacturing	12.0	16.0	14.9	19.8	17.2
Other economic activities	39.2	45.4	46.7	48.2	49.7
of which;					
Transport, storage and communication	5.7	6.3	7.0	7.3	8.1
Others	33.6	39.1	39.7	40.9	41.5
GDP at factor cost	100.0	100.0	100.0	100.0	100.0

Source: Federal Bureau of Statistics; National Accounts of Pakistan, 1983-84 to 1986-87



## 2.3 Results and Findings of the Projection

Results of the projection are summarized in Table 2.8 and Table 2.9. (Refer also to Statistical Appendix 2-5 - 2-7.)

Main findings are as described in the following.

### 2.3.1 Projection up to 2005-06

#### (1) Growth Rate

After a growth of 6.6% per annum in the two years of 1985-86 to 1987-88, the growth rate of GDP at factor cost is projected by 6.4% per annum in 1988-89 to 1992-93, by 6.0% per annum in 1993-94 to 1997-98, and by 5.7% in 1998-99 to 2005-06.

The growth rates will decline gradually in all sectors. In agriculture, they will decline from 4.0% in 1988-89 to 1992-93 to 3.5% in 1998-99 to 2005-06, and in manufacturing 8.1% in 1988-89 to 1992-93 to 7.5% in 1998-99 to 2005-06. In transport, storage and communication, they will be 7.1% for 1988-89 to 1992-93 and 6.6% for 1998-99 to 2005-06.

The growth rate of GNP at market prices is projected by 5.9% per annum in 1988-89 to 1992-93, by 5.8% per annum in 1993-94 to 1997-98, and by 5.6% per annum in 1998-99 to 2005-06. The difference with GDP at factor cost is mainly due to the decline of net factor income from abroad.

Gross domestic fixed capital formation is projected to realize a higher growth of 7.5% per annum for 1988-89 to 1992-93, 7.1% for 1993-94 to 1997-98 and 6.7% for 1998-99 to 2005-06.

Exports of goods and non-factor services are also projected to another higher growth and their annual growth rate will be by 9.8% for 1988-89 to 1992-93, by 8.5% for 1993-94 to 1997-98, and by 6.7% for 1998-99 to 2005-06, while imports of goods and non-factor services will grow at rates of respectively 7.6%, 6.5% and 5.5% for the same periods.

#### (2) Scale of National Economy

As a result of economic growth mentioned above, the scale of national economy will grow from 575 billion rupees in 1985-86 to 648 billion rupees in 1987-88, 864 billion rupees in 1992-93, and 1,767 billion rupees in 2005-06 at 1985-86 prices.

Per capita GNP at market prices will grow from 5,885 rupees in 1985-86 to 7,145 rupees in 1992-93, 8,170 rupees in 1997-98, and 10,247 rupees in 2005-06 at 1985-86 prices.

Table 2.8 Projection of GDP and GNP at 1985-86 Constant Prices

	Value at 1985-86 Constant Prices (million Rs.)				Annual Growth Rates (%)			Distribution Share (%)				
	1985-86	1987-88	1992-93	1997-98	2005-06	1988-89 -1992-93	1993-94 -1997-98	1998-99 -2005-06	1987-88	1992-93	1997-98	2005-06
1. Agriculture	118,670	130,714	158,913	191,822	253,561	4.0	3.8	3.5	23.7	21.2	19.1	16.1
2. Mining & quarrying	11,448	13,321	21,454	31,523	52,170	10.0	8.0	6.5	2.4	2.9	3.1	3.3
3. Manufacturing	83,670	97,121	144,934	207,909	345,607	8.3	7.5	6.6	17.6	19.3	20.7	22.0
4. Construction	30,421	36,387	51,274	71,245	120,594	7.1	6.8	6.8	6.6	6.8	7.1	7.7
5. Electricity and gas distribution	11,136	13,226	19,523	28,686	51,161	8.1	8.0	7.5	2.4	2.6	2.9	3.3
6. Transport, storage & communication	39,429	44,855	63,206	87,005	145,078	7.1	6.6	6.6	8.1	8.4	8.6	9.2
7. Wholesale and retail trade	81,045	92,796	129,544	176,655	283,693	6.9	6.4	6.1	16.8	17.2	17.6	18.1
8. Banking and insurance	14,855	16,272	23,036	31,710	52,087	7.2	6.6	6.4	3.0	3.1	3.2	3.3
9. Ownership of dwellings	13,623	14,620	17,617	21,025	27,901	3.8	3.6	3.6	2.7	2.3	2.1	1.8
10. Public administration & defence	42,053	48,240	64,536	84,372	127,534	6.0	5.5	5.3	8.8	8.6	8.4	8.1
11. Services	38,860	43,414	57,280	74,509	111,772	5.7	5.4	5.2	7.9	7.6	7.4	7.1
Gross domestic product at factor cost	485,210	550,966	751,337	1,006,461	1,571,158	6.4	6.0	5.7	100.0	100.0	100.0	100.0
12. Net indirect taxes	54,327	66,116	90,160	120,775	188,539	6.4	6.0	5.7				
13. Net factor income from abroad	35,250	30,606	22,667	16,146	7,714	(-)5.2	(-)6.6	(-)8.8				
Gross national product at market prices	574,787	647,688	864,164	1,143,652	1,767,411	5.9	5.8	5.6				

Note: GDP at market prices = GDP at factor cost + Net indirect taxes  
 GNP at market prices = GDP at market prices + Net factor income from abroad

Source: JICA Study Team, See Statistical Appendix 2-5.

Table 2.9 Projection of Expenditure on GNP at Market Prices of 1985-86

	Value at 1985-86 Constant Prices (million Rs.)				Annual Growth Rates (%)				Distribution Share (%)			
	1985-86	1987-88	1992-93	1997-98	2005-06	1988-89 -1992-93	1993-94 -1997-98	1998-99 -2005-06	1987-88	1992-93	1997-98	2005-06
Consumption expenditure	504,369	542,462	722,138	941,266	1,414,189	5.9	5.4	5.2	83.8	83.6	82.3	80.0
(of which balancing item)	0	(-)10,621	(-) 5,780	(-) 1,312	(-)12,008	(5.6)	(5.3)	(5.3)	(85.4)	(84.2)	(82.4)	(80.7)
Gross domestic capital formation	81,319	102,069	146,736	206,626	347,697	7.5	7.1	6.7	15.8	17.0	18.1	19.7
Change in stocks	9,000	9,504	13,148	17,613	27,495	6.7	6.0	5.7	1.5	1.5	1.5	1.6
Exports of goods and non factor services	63,075	84,811	135,288	203,040	341,109	9.8	8.5	6.7	13.1	15.7	17.8	19.3
(Less) Imports of goods and non-factor services	118,226	121,764	175,813	241,309	370,793	7.6	6.5	5.5	18.8	20.3	21.1	21.0
Net factor income from abroad	35,250	30,606	22,667	16,416	7,714	(-)5.2	(-)6.6	(-)8.8	4.7	2.6	1.4	0.4
Expenditure on gross national product at market prices	574,787	647,688	864,164	1,143,652	1,767,411	5.9	5.8	5.6	100.0	100.0	100.0	100.0

Source: The Study Team. See Statistical Appendix 2-7.

### (3) Change of Economic Structure

The economic structure changes with the economic growth.

In the production side, the share of agriculture will decline from 24.5% of GDP at factor cost in 1985-86 to 21.2% in 1992-93, and 16.1% in 2005-06, while that of manufacturing will rise from 17.2% in 1985-86 to 19.3% in 1992-93 and 22.0% in 2005-06.

In the expenditure side, the share of gross domestic fixed capital formation will rise 19.7% in 2005-06 from 14.1% in 1985-86 and 15.8% for 1987-88. The share of exports will rise from 11.0% of GNP at market prices in 1985-86 to 15.7% in 1992-93 and 17.8% in 1997-98 to 19.3% in 2005-06, while the share of imports will stay approximately at a level of 20 to 21% through all project years.

#### 2.3.2 Projection of the 7th Five Year Plan Period

The results are summarized in Table 2.8 and 2.9 mentioned above. Main findings are as follows.

##### (1) Growth Rate

The annual growth rate of GDP at factor cost is projected by 6.4% through the 7th Five Year Plan period. This growth is expected to achieve under a strained balance of payments position.

Reviewing economic activity, agriculture sector will grow at a rate of 4.0%. This is 0.4% below the performance of 1982-83 to 1986-87 but approximately at the same rate to 1977-78 to 1985-86. By sub-sector, the growth rate is at 3.3% for major crops, 4.1% for minor crops, 5.0% for livestock, 4.5% for fishing and 2.0% for forestry. (see Statistical Appendix 2-7).

Mining and quarrying will grow at a rate of 10.0%. This is due to a higher growth of natural gas.

Manufacturing will grow at a rate of 8.3% and its growth rate will accelerate compared with the 6th Five Year Plan Period. Relative higher growth is expected for woods and papers (including publishing), chemicals (including oil refineries) and machinery and equipment in the large-scale manufacturing. In the small-scale manufacturing, relative higher growth is expected for foods, woods and furniture.

Electricity and gas distribution services will also continue a higher growth. Growth rate of transport, storage and communication will show a decline from the 6th Five Year Plan period, but its rate will surpass the average of the national economy.

##### (2) Economic Structure

The share of agriculture to GDP at factor cost will decline to 21.2% in 1992-93 from 23.7% in 1987-88, while the share of

manufacturing will increase to 19.3% in 1992-93 from 17.6% in 1987-88. The share of mining and quarrying, construction, electricity and gas distribution, transport, storage and communication, and wholesale and retail trade will also increase in the 7th Five Year Plan period. While the share of ownership of dwellings, public administration and defence and other services will decline.

### (3) Economic Scale

GDP at 1985-86 constant prices is projected to expand by 751,337 million rupees in 1992-93. Its scale corresponds to 136.4% of GDP in 1987-88.

Per capita GNP at 1985-86 constant prices is projected to increase by 7,144 rupees, and is expected to grow at annual rate of approximately 3.3%.

## 2.3.3 Restraint Factor for Economic Growth

### (1) Balance of Payments

Within the whole frame of the projection, balance of payments functions as the biggest restraint factor for economic growth through all periods. It means, if balance of payments moves to an unfavourable situation, the projected economic growth would decrease at a more lower rate.

That is, the projection of balance of payments is understood to be not a standard case but a higher case. In the case of exports of goods and non-factor services for the 7th Five Year Plan period, it is to be understood as the highest case.

Therefore, the results are rather to be a higher case in view of economic growth rate than of a standard case. This could be the core point, since the balance of payments is a crucial factor as well as the biggest bottleneck for economic growth through all project periods in this projection.

### (2) Some Other Minor Problems

A problem may be for gross domestic fixed capital formation. It is necessary for a more domestic and foreign fund is mobilized to investment out of the total fund through the project period. To realize this need, it is necessary the domestic financial fund is directed to investment with higher ratio than for the past performance.

Another problem may be in agriculture. The past trend of agricultural production was performed to realize the projected growth for agricultural production, however, when yield per acre, productivity of livestock, growth of areas sown, etc. are considered by commodity group, a few commodity groups are need more effort to secure the projected objectives.

## CHAPTER 3 PROJECTION OF REGIONAL ECONOMY

### 3.1 General

Pakistan has four broad regions of Punjab, Sind, NWFP and Balchistan, so the projection of regional economy is carried out, at first, for these four broad regions.

Available basic data are limited to population, labour force and production, and there is very little data available for expenditure and balance of payments. The projection of regional economy is, therefore, carried out only from the production side.

After the projection by province, the projection by district is carried out as the second step.

### 3.2 Methodology

#### 3.2.1 Province-wise Economy

Gross regional product (GRP) by province is projected by dividing GDP at factor cost in each year by using various indicators. GRPs by province are projected from only the production side due to the limitation of available data.

The projection is carried out by major commodity and/or commodity group. The definition and equation for this are, in generally, as follows.

Definition:  $Y_t = \sum (Y_n)_i$   
 $(Y_t)_i = \sum (Y_t)_{ij}$   
 $(\Gamma_t)_{ij} = 1.000$  (100.0 in the terms of percentage)

Equation:  $(Y_t)_{ij} = (Y_t)_i \cdot (R_o)_{ij} \cdot \frac{(\Gamma_t)_{ij}}{(\Gamma_o)_{ij}}$

where, Y is the GDP at factor cost (in the national economy) and/or GRP at factor cost (in the provincial economy).

$R_o$  is the distribution share in 1985-86 by i and by j.

$\Gamma$  is the indicators for dividing in terms of distribution share by i and by j.

t is the projected year, in which the basis year (= 1985-86) is expressed as o.

i is the commodity and/or commodity group.

j is the province.

(Note) In many cases,  $R_o$  equals  $\Gamma_o$ , but, in a few cases like electricity generation,  $R_o$  does not equal  $\Gamma_o$ .

(1) Explanation of the Equation

$(Y_t)_{ij}$  shows gross value added at factor cost of  $i$  commodity and/or commodity group by province in  $t$  year.

$(Y_t)_i$  shows gross value added at factor cost of  $i$  commodity and/or commodity group of the domestic total in  $t$  year, which was shown in Statistical Appendix 2-7.

$(R_o)_{ij}$  shows distribution share of  $i$  commodity and/or commodity group for  $i$  province in 1985-86, which is shown in Statistical Appendix 3-1.

$\frac{(P_t)_{ij}}{(P_o)_{ij}}$  shows change of relative distribution share of  $i$  commodity and/or commodity group by province in  $t$  year.

(2) Estimation of Distribution Share by Province in the Basis Year (1985-86)

Each data source and some comments are described in the notes on Statistical Appendix 3-1. In the agriculture sector, the distribution shares are estimated by using the production volume in 1985-86 except a few adjustments of irregular movement in livestock, fishing and forestry. In large-scale manufacturing, they are estimated by multiplying value added of "the Census of Manufacturing Industries after a few adjusted figures, 1981-82" by correspondent growth rates in 1981-82 to 1985-86, which are estimated by the Study Team based on Statistical Yearbook of Pakistan.

All other sectors are generally estimated directly from the data sources.

(3) Estimation of Change of Relative Distribution Share by Province in the Projected Year

a) Agriculture

The actual agricultural production by commodity group is available by province from Agricultural Statistics of Pakistan and PDD.

Change of relative production by province are assumed to continue up to 2005-06 with the same direction but with slower changes than the past 10 years. Their projected changes differ by commodity and/or commodity group.

b) Mining and Quarrying

The Statistical Yearbook of Pakistan is used as basic reference. In the case of projection of crude oil and natural gas, irregular growth rates are assumed in the national level as well as by province, using information in the Mid-Plan Review of the 6th Five

Year Plan and other official documents. In lime-stone, it has the same consistency with the cement production by province.

c) Large-scale Manufacturing

Changes of relative production by industry by province in recent years are studied. Development Statistics of each province are used for this comparison.

It is found in these statistical data that there is a similarity in activities between Panjab and Sind, and there are other common features between Sind and NWFP. Therefore, relative changes in production by industry in Punjab are estimated with a Sind base, and those in NWFP are estimated with another Sind base. In Baluchistan, those changes are assumed to have the same trend with the overall industrial production, because there is no suitable statistics for such comparison.

Moreover, production of iron and steel by the Pakistan Steel Mills Co. is estimated independently from all other industries.

d) Small-scale Manufacturing

Changes of relative production by province are estimated from the Survey of Small and Household Manufacturing Industries, 1983-84.

e) Electricity and Gas Distribution

Estimation is conducted separately by generation sector and by distribution sector. In the generation sector, it is allocated to the provinces with estimated relative changes of the generation capacity in the basis year (1985-86).

In the distribution sector, it is allocated to the provinces with estimated relative changes of population.

The ratio of generation sector and distribution sector at the national level is assumed to be 50 : 50.

f) Transport, Storage and Communication

The values of each year at the national level are allocated by 60% for passenger and/or household use, and by 40% for freight and/or business use based on input-output tables in some countries.

For passenger and/or household use, the relative changes of population by province are adopted as indicator for dividing.

For freight and/or business use, the relative growth rates of production in goods production sector, which consists of agriculture, mining and quarrying, manufacturing, construction and electricity and gas distribution, are adopted as the indicators.



g) Wholesale and Retail Trade

In the wholesale, it is allocated to the provinces using relative change of volume weighted by manufacturing and agriculture production. The retail trade is allocated to the provinces using relative change of population.

h) Other Economic Activities

Relative change of population is selected as their indicators.

3.2.2. District-wise Economy

Provincial economy is further broken down to the districts. Methodology is mostly the same as that used in the forecast of Provincial economy. The methodology adopted for the projection of district-wise economy is discussed in Appendix B.

The results are shown in Statistical Appendix 3-3. These forecasts are used to estimate the growth of transport demand in each district.

3.3. Results and Findings of the Projection

Tables 3.1, 3.2. and 3.3. summarize the results (See also Statistical Appendix 2-7)

3.3.1 Scale of Provincial Economy

The relative share of provincial economy will change in limited ranges. The share of Punjab will decline from 53.5% in 1985-86 to 51.3% for 1992-93, and 48.9% for 2005-06 and the share of NWFP will gradually decline from 11.2% in 1985-86 to 11.1% for 1992-93 and 11.0% for 2005-06, while the share of Sind and Baluchistan will rise from 30.2% and 5.1% in 1985-86 to 32.0% and 5.6% for 1992-93 and 33.9% and 6.1% for 2005-06, respectively.

Those changes reflect difference of growth rates of population and also GRP by province. The difference of population growth has been described in 1.3 above already. For the difference of economic growth, as shown in Table 3.2, growth rates in Sind and Baluchistan will exceed the averages of the nation, and those in Punjab will fall below the averages. Reasons are that Sind has an industrial area in Karachi division and Baluchistan has development frontiers in various fields.

Table 3.1 Projection of Provincial Economy

(in million rupees)

	Punjab					Sind				
	1985-86	1987-88	1992-93	1997-98	2005-06	1985-86	1987-88	1992-93	1997-98	2005-06
1. Agriculture	72,967	79,451	94,762	112,211	145,716	23,477	26,419	32,828	40,332	54,106
2. Mining & quarrying	3,596	3,990	5,327	6,698	10,745	3,499	4,516	8,220	12,884	22,972
3. Manufacturing	37,247	42,606	62,931	89,937	147,906	40,727	47,945	72,223	102,574	171,312
4. Construction	18,283	21,869	30,181	41,494	69,296	5,537	6,622	9,558	13,449	23,162
5. Electricity and gas distribution	4,610	5,476	7,890	11,504	20,322	3,887	4,616	6,738	10,030	18,148
6. Transport, storage & communication	18,609	21,028	28,613	38,509	62,635	13,992	16,064	23,279	32,553	55,455
7. Wholesale and retail trade	42,732	48,426	66,113	88,707	139,478	24,507	28,441	40,892	56,716	93,658
8. Banking and insurance	7,086	7,762	11,011	15,189	25,002	6,417	7,029	9,975	13,763	22,658
9. Ownership of dwellings	7,588	8,143	9,596	11,318	14,790	4,727	5,073	6,251	7,548	10,133
10. Public administration & defence	24,895	28,558	37,442	48,430	72,248	9,798	11,240	15,616	20,401	31,373
11. Services	22,111	24,703	31,843	40,906	60,580	10,026	11,201	15,065	19,819	29,955
Gross regional product of factor cost	259,724	292,012	385,714	504,903	768,718	146,594	169,166	240,445	330,069	532,972

(in million rupees)

	NWFP					Baluchistan				
	1985-86	1987-88	1992-93	1997-98	2005-06	1985-86	1987-88	1992-93	1997-98	2005-06
1. Agriculture	14,305	15,997	19,921	24,719	33,629	7,921	8,847	11,402	14,560	20,110
2. Mining & quarrying	246	258	413	570	900	4,107	4,557	7,494	11,371	17,553
3. Manufacturing	4,787	5,492	8,013	12,388	20,625	909	1,078	1,767	3,010	5,764
4. Construction	5,232	6,259	8,851	12,301	20,714	1,369	1,637	2,684	4,001	7,422
5. Electricity and gas distribution	2,455	2,916	4,333	6,279	11,025	184	218	562	873	1,666
6. Transport, storage & communication	4,385	4,993	6,945	9,551	15,718	2,443	2,770	4,369	6,392	11,270
7. Wholesale and retail trade	9,779	11,159	15,356	20,894	32,870	4,027	4,770	7,183	10,338	17,687
8. Banking and insurance	981	1,074	1,497	2,029	3,281	371	407	553	729	1,146
9. Ownership of dwellings	940	1,009	1,217	1,453	1,914	368	395	553	706	1,024
10. Public administration & defence	5,930	6,802	9,141	11,955	17,970	1,430	1,640	2,557	3,586	5,943
11. Services	5,130	5,730	7,561	9,835	14,642	1,593	1,780	2,806	3,949	6,595
Gross regional product of factor cost	54,170	61,689	83,248	111,974	173,288	24,722	28,099	41,930	59,515	96,180

Table 3.2 Growth Rate of GRP by Economic Activity

	(%)															
	Punjab				Sind				NWFP				Baluchistan			
	1986-87	1988-89	1993-94	1998-99	1986-87	1988-89	1993-94	1998-99	1986-87	1988-89	1993-94	1998-99	1986-87	1988-89	1993-94	1998-99
	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to
	1987-88	1992-93	1997-98	2005-06	1987-88	1992-93	1997-98	2005-06	1987-88	1992-93	1997-98	2005-06	1987-88	1992-93	1997-98	2005-06
1. Agriculture	4.3	3.6	3.4	3.3	6.1	4.4	4.2	3.7	5.7	4.5	4.4	3.9	5.7	5.2	5.0	4.1
2. Mining & quarrying	5.3	6.0	4.7	6.1	13.6	12.7	9.4	7.5	2.4	9.9	6.4	5.9	5.3	10.5	8.7	5.6
3. Manufacturing	7.0	8.1	7.4	6.4	8.5	8.5	7.3	6.5	7.1	7.8	9.1	6.6	8.9	11.9	11.1	8.5
4. Construction	9.4	6.7	6.6	6.6	9.0	7.6	7.1	7.0	9.4	7.2	6.8	6.7	9.4	10.4	8.3	8.1
5. Electricity and gas distribution	9.0	7.6	7.8	7.4	9.0	7.9	8.3	7.7	9.0	8.2	7.7	7.3	8.8	20.9	9.2	8.4
6. Transport, storage & communication	6.3	6.4	6.1	6.3	7.1	7.7	6.9	6.9	6.7	6.8	6.6	6.4	6.5	9.5	7.9	7.3
7. Wholesale and retail trade	6.5	6.4	6.1	5.8	7.7	7.5	6.9	6.5	6.8	6.6	6.4	5.8	8.8	8.5	7.6	6.9
8. Banking and insurance	4.7	7.2	6.7	6.4	4.7	7.3	6.6	6.5	4.6	6.9	6.3	6.2	4.7	6.3	5.7	5.8
9. Ownership of dwellings	3.6	3.3	3.4	3.4	3.6	4.3	3.9	3.8	3.6	3.8	3.6	3.5	3.6	7.0	5.0	4.8
10. Public administration & defense	7.1	5.6	5.3	5.1	7.1	6.5	5.8	5.5	7.1	6.1	5.5	5.2	7.1	9.3	7.0	6.5
11. Services	5.7	5.2	5.1	5.0	5.7	6.1	5.7	5.3	5.7	5.7	5.4	5.1	5.7	9.5	7.1	6.6
Gross regional product at factor cost	6.0	5.7	5.5	5.4	7.4	7.3	6.5	6.2	6.7	6.2	6.1	5.6	6.6	8.3	7.3	6.2

Table 3.3 Percentage Distribution of GRP by Economic Activity

	Punjab						Sind						NWFP						Baluchistan						
	1985-86		1992-93		2005-06		1985-86		1992-93		2005-06		1985-86		1992-93		2005-06		1985-86		1992-93		2005-06		
	(%)		(%)		(%)		(%)		(%)		(%)		(%)		(%)		(%)		(%)		(%)		(%)		
1. Agriculture	28.1	24.6	19.1	16.0	13.7	10.2	26.4	23.9	19.4	32.0	27.2	20.9	1.4	1.4	1.4	2.4	3.4	4.3	0.5	0.5	0.5	16.6	17.9	18.3	
2. Mining & quarrying	14.3	16.3	19.2	27.8	30.0	32.1	8.8	9.6	11.9	3.7	4.2	6.0	7.0	7.8	9.0	3.8	4.0	4.3	9.7	10.6	12.0	5.5	6.4	7.7	
3. Manufacturing	1.8	2.0	2.6	2.7	2.8	3.4	4.5	5.2	6.4	0.7	1.3	1.7	1.8	2.0	2.6	2.7	2.8	3.4	4.5	5.2	6.4	0.7	1.3	1.7	
4. Construction	7.2	7.4	8.1	9.5	9.7	10.4	8.1	8.3	9.1	9.9	10.4	11.7	7.2	7.4	8.1	9.5	9.7	10.4	8.1	8.3	9.1	9.9	10.4	11.7	
5. Electricity and gas distribution	16.5	17.1	18.1	16.7	17.0	17.6	18.1	18.4	19.0	16.3	17.1	18.4	16.5	17.1	18.1	16.7	17.0	17.6	18.1	18.4	19.0	16.3	17.1	18.4	
6. Transport, storage & communication	2.7	2.9	3.3	4.4	4.2	4.3	1.8	1.8	1.9	1.5	1.3	1.2	2.7	2.9	3.3	4.4	4.2	4.3	1.8	1.8	1.9	1.5	1.3	1.2	
7. Wholesale and retail trade	2.9	2.5	1.9	3.2	2.6	1.9	1.7	1.5	1.1	1.5	1.3	1.1	2.9	2.5	1.9	3.2	2.6	1.9	1.7	1.5	1.1	1.5	1.3	1.1	
8. Banking and insurance	9.6	9.7	9.4	6.7	6.4	5.9	10.9	11.0	10.4	5.8	6.1	6.2	9.6	9.7	9.4	6.7	6.4	5.9	10.9	11.0	10.4	5.8	6.1	6.2	
9. Ownership of dwellings	8.5	8.3	7.9	6.8	6.3	5.6	9.5	9.1	8.4	6.4	6.7	6.9	8.5	8.3	7.9	6.8	6.3	5.6	9.5	9.1	8.4	6.4	6.7	6.9	
10. Public administration & defence	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
11. Services																									
Gross regional product at factor cost																									

Note: The sum of each economic activity may not add up to 100.0 for due to rounding off.

### 3.3.2 Comparison on Economic Structure of Provinces

The economic structure of each province will change with the same direction as the shares of agriculture will decline gradually and those of manufacturing will rise.

A remarkable characteristic of economic structure by province is in manufacturing. In Sind, its share (27.8%) was already larger than the share of agriculture (16.0%) in 1985-86, and the former will rise to 32.1% and the latter will decline to 10.2% in 2005-06. In Punjab, the share of manufacturing was 14.3% in 1985-86, and it will rise to 19.2% and will exceed the share of agriculture in 2005-06. In contrast, the share of manufacturing in NWFP and Balchistan will be below those of agriculture even in 2005-06.

Minor characteristics are in electricity and gas distribution, and banking and insurance. In NWFP, the share of electricity and gas distribution will continue to relative large share such as 4.5% in 1985-86 and 6.4% in 2005-06. In Sind, the share of banking and insurance will continue to a relative large share through all project periods compared with the other provinces.

### 3.3.3 Change of Economic Structure by Province

#### (Punjab)

The share of manufacturing to GRP will rise from 14.3% in 1985-86 to 19.2% in 2005-06 and those of wholesale and retail trade will also rise to 16.5% in 1985-86 from 18.1% in 2005-06, while those of agriculture will decline from 28.1% to 19.1% in the same period. The share of banking and insurance will rise from 2.7% to 3.3% in th project period, and public administration and defence will decline only slight in the share due to the inclusion of Islamabad in this province.

#### (Sind)

The share of manufacturing will rise from 27.8% in 1985-86 to 32.1% in 2005-06 and those of wholesale and retail trade will also rise from 16.7% to 17.6%, while those of agriculture will decline from 16.2% to 10.2% in the same project period. The share of mining and quarrying and electricity and gas distribution will rise in their share to GRP due to newly developing gas fields such as Mari, etc. On the other hand, the share of public administration and defence will decline from 6.7% in 1985-86 to 5.9% in 2005-06.

#### (NWFP)

The share of agriculture will be 19.4% in 2005-06, although it will decline though the project period. The share of manufacturing will be 11.9% in 2005-06, although it will rise during the project period. The share of electricity and gas distribution will rise from 4.5% in 1985-86 to 6.4% in 2005-06.

(Baluchistan)

The share of agriculture will be 20.9% even in 2005-06, although it will decline during the project period. On the other hand, the share of manufacturing will only be 6.0% in 2005-06. These are due to an underdeveloped industrial base at the present time.

The share of mining and quarrying, public administration and defence and services will rise 16.6%, 5.8% and 6.4% in 1985-86 to 18.3%, 6.2% and 6.9% in 2005-06, respectively.

### 3.3.4 Per Capita GRP by Province

Per Capita GRP in the project period is shown in Table 3.4.

The relative level of Sind will rise from 131 (Average of Pakistan = 100) in 1985-86 to 140 in 2005-06, while that of Punjab will decline from 96 in 1985-86 to 92 in 2005-06.

The relative levels of NWFP and Baluchistan will stay in the 70's through the project period. This is due to the fact that NWFP is included in FATA, which is economically underdeveloped, and Baluchistan is projected to have a high population growth and has less of industrial base.

### 3.3.5 Changes in the 7th Five Year Plan Period

The structural change in the 7th Five Year Plan period will be brought up in context of the long-term change of the economic structure.

For different growth rates by economic activity by province, the structural change of each province will be promoted but those changes will have limited ranges.

Table 3.4 Per Capita GRP and its Relative Index by Province

Per capita GRP	1985-86	1987-88	1992-93	1997-98	2005-06 (Unit: Rs.)
Punjab	4,782	5,093	5,849	6,684	8,369
Sind	6,525	7,037	8,439	9,889	12,768
NWFP	3,614	8,914	4,620	5,458	7,028
Baluchistan	4,191	4,181	4,934	5,644	6,771
Pakistan, Total	4,968	5,305	6,212	7,190	9,109

Index of per capita GRP	(Pakistan = 100)				
Punjab	96	96	94	93	92
Sind	131	133	136	138	140
NWFP	73	74	74	76	77
Baluchistan	84	79	79	78	74
Pakistan, Total	100	100	100	100	100

Source: JICA Study Team

#### 3.4 Projection of District-wise Economy

District-wise economy is projected by dividing the provincial economy of each province using various indicators. The dividing procedure is carried out using a computer due to limited data and informations.

The results of projection have, therefore, to be understood with certain ranges.

The methodology for the district-wise projection is described in Appendix B, and the results are shown in Statistical Appendix 3-3.

## CHAPTER 4 FINANCIAL FRAMEWORK FOR INVESTMENT

### 4.1 Overall Investment - Saving Balance

There are no national accounts available for the institutional sector in Pakistan. Under this condition, the Study Team tried a macro-analysis on investment and saving using the national accounts of Pakistan.

The demand-supply balance of Pakistan economy is compiled by rearranging the official "National Accounts of Pakistan".

Following definitional equations are realized in "a system of national accounts".

GDP at factor cost = Net domestic product at factor cost + depreciations;  
GNP at market prices = GDP at factor cost + ( indirect taxes - current subsidies) + net factor income from abroad; and  
GNP at market prices = Expenditure on GNP at market prices = Consumption + investment + net exports of goods and non-factor services + net factor income from abroad

Rearranging these definitional equations, a definitional equation is formulated as follows:

Consumption + Investment = NDP at factor cost + net indirect taxes + depreciations + net factor income from abroad + (net imports of goods and non-factor services - net factor income from abroad).

Where, NDP = Net domestic product  
Net imports = - Net exports

This balance in 1985-86 and some projected years are shown in Table 4.1, which is made by rearranging Tables 2.8 and 2.9.

According to Table 4.1, net income originated from domestic economic activities is Rs. 509,212 million for 1985-86, Rs. 582,547 million for 1987-88, Rs.793,734 million for 1992-93, Rs.1,062,512 million for 1997-98 and Rs.1,657,394 for 2005-06. Domestic saving ratio<sup>1/</sup> is calculated by only 1.0% for 1985-86, by 5.1% for 1987-88, by 8.2% for 1992-93, by 11.3% for 1997-98 and by 13.9% for 2005-06.

It is important that such defined domestic saving ratio will make a rapid increase through the projected period.

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<sup>1/</sup> Domestic saving ratio

$$= \frac{\text{Net income originated from domestic economic activities} - \text{consumption}}{\text{Net income originated from domestic economic activities}} \times 100$$



Table 4.1 Domestic Balance on Income and Expenditure

(Million Rs. at 1985-86 constant prices)

1. 1985-86			
Consumption	504,369	NDP	454,885
Balancing item	0	Net indirect taxes	54,327
Investment	90,319	Depreciations	30,325
		Net factor income from abroad	35,250
		Net imports - NFI from abroad	19,901
Total domestic demand	594,688	Financing for total domestic demand	594,688
2. 1987-88			
Consumption	553,083	NDP	516,431
Balancing item	-10,621	Net indirect taxes	66,116
Investment	111,573	Depreciation	34,535
		Net factor income from abroad	30,606
		Net imports - NFI from abroad	6,347
Total domestic demand	654,035	Financing for total domestic demand	654,035
3. 1992-93			
Consumption	727,918	NDP	703,574
Balancing item	-5,780	Net indirect taxes	90,160
Investment	159,884	Depreciation	47,763
		Net factor income from abroad	22,667
		Net imports - NFI from abroad	17,858
Total domestic demand	882,022	Financing for total domestic demand	882,022
4. 1997-98			
Consumption	942,578	NDP	941,737
Balancing item	-1,312	Net indirect taxes	120,775
Investment	224,239	Depreciations	64,724
		Net factor income from abroad	16,416
		Net imports - NFI from abroad	21,853
Total domestic demand	1,165,505	Financing for total domestic demand	1,165,505
5. 2005-06			
Consumption	1,426,197	NDP	1,468,855
Balancing item	-12,008	Net indirect taxes	188,539
Investment	375,192	Depreciations	102,303
		Net factor income from abroad	7,714
		Net imports - NFI from abroad	21,970
Total domestic demand	1,789,381	Financing for total domestic demand	1,789,381

Note: 1) Depreciations are estimated by the Study Team based on the explanatory notes of National Accounts of Pakistan.

2) Investment includes change in stocks.

Source: Projection by JICA Study Team

The financing for investment (gross domestic fixed capital formation and change in stocks) which is derived from Table 4.1. Table 4.2 shows the values and shares by the origin of saving.

As shown in Table 4.2 approximately 60% of total value corresponding to domestic investment is financed by the sources abroad in 1985-86, but their share is projected to decline by approximately 25% for 1992-93, by approximately 17% for 1997-98, and by approximately 8% for 2005-06. Of the share of saving by sources abroad, the share by non-residents will decline to approximately 11% for 1992-93, approximately 10% for 1997-98, and approximately 6% for 2005-06 from 22% in 1985-86.

In contrast, the share of domestic saving will increase by approximately 41% for 1992-93, approximately 54% for 1997-98, and approximately 62% for 2005-06 from only approximately 5% in 1985-86.

It is observed that the larger share of saving corresponding to domestic investment will be financed by the domestic saving in the course of the projected years. This trend is observed more clearly in Table 4.3, and this is the conclusion in macro-economic scope on the financing for the projected investment demand in the project period.

Table 4.2 Financing for Domestic Investments

(Million Rs. at 1985-86 constant prices)

1.	1985-86	(%)
	Financing from domestic saving	4,843 (5.4)
	Depreciations	30,325 (33.6)
	Saving abroad by residents	35,250 (39.0)
	Saving abroad by non-residents	19,901 (22.0)
		<u>90,319 (100.0)</u>
2.	1987-88	
	Financing from domestic saving	29,464 (26.4)
	Depreciations	34,535 (31.0)
	Saving abroad by residents	30,606 (27.4)
	Saving abroad by non-residents	6,347 (5.7)
	Balancing item	10,621 (9.5)
		<u>111,573 (100.0)</u>
3.	1992-93	
	Financing from domestic saving	65,816 (41.1)
	Depreciations	47,763 (29.9)
	Saving abroad by residents	22,667 (14.2)
	Saving abroad by non-residents	17,858 (11.2)
	Balancing item	5,780 (3.6)
		<u>159,884 (100.0)</u>
4.	1997-98	
	Financing from domestic saving	119,934 (53.5)
	Depreciations	64,724 (28.9)
	Saving abroad by residents	16,416 ( 7.3)
	Saving abroad by non-residents	21,853 ( 9.7)
	Balancing item	1,312 ( 0.6)
		<u>224,239 (100.0)</u>
5.	2005-06	
	Financing from domestic saving	231,197 (61.6)
	Depreciations	102,303 (27.3)
	Saving abroad by residents	7,714 ( 2.1)
	Saving abroad by non-residents	21,970 ( 5.8)
	Balancing item	12,008 ( 3.2)
		<u>375,192 (100.0)</u>

Note: Saving abroad by residents corresponds to net factor income from abroad. Saving abroad by non-residents is import of foreign capital, and corresponds to net imports of goods and non-factor services minus net factor income from abroad.

Table 4.3 Percentage Distribution of Saving at Current Prices

Years	Investment (Million rupees)	Saving in Abroad			Domestic Saving			Balancing Item
		Of Resident	Of Non- resident	Total	Depreciation	Of Others	Total	
(Actual)								
1975-76	24,057	12.4	39.0	51.4	30.5	18.1	48.6	-
1976-77	28,856	14.5	36.0	50.5	29.0	20.5	49.5	-
1977-78	31,505	32.8	19.0	51.8	31.2	17.0	48.2	-
1978-79	34,876	35.9	31.6	67.5	31.1	1.4	32.5	-
1979-80	43,345	36.9	26.0	62.9	30.2	6.9	37.1	-
1980-81	47,473	41.3	21.6	62.9	32.0	5.1	37.1	-
1981-82	57,032	38.7	28.3	67.0	31.2	1.8	33.0	-
1982-83	63,443	52.7	11.3	64.0	31.9	4.1	36.0	-
1983-84	70,928	48.9	19.6	68.5	33.4	(-)1.9	31.5	-
1984-85	80,397	40.6	31.4	72.0	33.5	(-)5.5	28.0	-
1985-86	90,319	39.0	22.0	61.0	33.6	5.4	39.0	-
1986-87 <sup>(P)</sup>	103,855	30.2	15.4	45.6	32.4	22.0	54.4	-
(Projection)								
1987-88	111,573	27.4	5.7	33.1	31.0	26.4	57.4	9.5
1992-93	159,884	14.2	11.2	25.4	29.9	41.1	71.0	3.6
1997-98	224,239	7.3	9.7	17.0	28.9	53.5	82.4	0.6
2005-06	375,192	2.1	5.8	7.9	27.3	61.6	88.9	3.2

- Note
1. The figures of period between 1975-76 and 1986-87 are valued at current prices, but the figures of 1987-88 and afterward are valued at 1985-86 constant prices. Therefore, consistency in its strict conception does not exist between actual and projection.
  2. Investment includes change in stocks.
  3. Balancing item is originated from difference between exports prices and imports prices of balance of payments in the project period. Therefore, distribution share of the item does not always correspond to investment.

Sources: Calculated by National Accounts of Pakistan 1983-84 to 1986-87 and data provided by Planning and Development Division, for actual and the Study Team for projection.

## 4.2 Investment and its Financing in Transport Sector

### 4.2.1 Investment

Both public and private sectors are acting for transport sector, and are investing to the transport sector. Table 4.4 shows conceptually the investment for transport sector by objective, by means and by institution in Pakistan. The investment for transport infrastructure is conducted by the public sector. For transport equipment, the public sector invests to all means of transport, while the private sector invests to some parts of road and water transport.

Table 4.4 Classification of Investment in Transport Sector

By Objectives	By Means	By Institutional Sector	
		Public	Private
Infrastructure	Road	0	X
	Railway	0	X
	Water	0	X
	Air	0	X
Transport equipment	Road	0	0
	Railway	0	X
	Water	0	0
	Air	0	X

Note: Mark '0' shows the major investment by the institutional sector, Mark 'X' shows those having no investment or investment in only a marginal part.

The investment in transport sector is excluded to purchase transport equipment by other industries, such as manufacturing, trade and agriculture, and households.

The ratio of investment to transport sector in the total investment in the national accounts (investment is used as a synonym for gross domestic fixed capital formation) is shown in Table 4.5.

#### (1) Public Sector

The public sector is playing a critical role in the investment for the transport sector, because almost all investment for infrastructure of transportation are implemented by the public sector. In an approach from the national accounts, it is impossible to estimate the investment for road, which seems to be included in the general government.

Table 4.5 Composition of Investment in Transport & Communication Sector

(%)

Year	Composition to gross fixed capital formation			Composition to total of each sector	
	Public Sector		Private Sector	Except P.O. & T&T Public Sector	Transport & Communication Private Sector
	Total	Except P.O. & T&T Dept.			
1970-71	-	-	7.4	-	14.7
1971-72	-	-	8.9	-	17.1
1972-73	-	-	12.7	-	26.0
1973-74	15.3	12.6	9.4	19.8	26.0
1974-75	10.0	8.0	6.3	11.9	19.5
1975-76	7.3	6.2	4.5	9.1	13.8
1976-77	8.3	6.5	4.2	9.8	12.7
1977-78	6.5	5.1	4.0	7.6	12.0
1978-79	7.6	6.4	4.2	9.6	12.3
1979-80	15.9	14.9	5.1	23.3	14.1
1980-81	10.4	9.3	4.3	12.8	11.0
1981-82	10.9	8.9	3.6	14.0	9.9
1982-83	7.9	5.5	3.4	8.9	8.9
1983-84	8.5	5.8	3.8	9.7	9.3
1984-85	10.5	8.0	4.4	13.6	10.6
1985-86	9.4	7.0	4.5	11.8	11.0
1986-87 <sup>(P)</sup>	7.2	5.3	4.3	8.8	11.7

Note: Transport and communication except P.O and T&T Department of Public Sector includes Pakistan Television and Broadcasting Corporation. Investment of storage and communication sub-sector in private sector is estimated as marginal.

Source: National Accounts of Pakistan

Estimated under such limitation, the share of public transport sector is approximately 6.3% of the total investment in the five years of 1982-83 to 1986-87, and approximately 10.3% of the total public sector investment in the same period (the investment for transport sector here is defined by figures excluding the Post Office and T&T Department, therefore, a few investments for storage and communication are included). This share is fluctuating to some degree year by year and has no definite upward trend. (See Table 4.6)

## (2) Private Sector

The Private sector is investing in the transport sector through purchasing of transport equipment such as auto vehicles, other non-mechanized transport equipment and shipping vessels. One characteristic is that this kind of investment is influenced by growth of demand and existing stocks of transport equipment. That is, it is influenced by demand and supply in transportation, in which the private sector is participating.

The investment of private transport sector is a level of slightly over 4% of the total gross domestic capital formation in the average of the recent five years, and has a level of slightly over 10% of the total private investment in the same period. Those shares seem to have a cycle having several years period rather than a general trend. (See Table 4.6)

### 4.2.2 Financing

The investment in private transport sector is implemented with the market mechanism based on the demand-supply position, therefore, its financing is also implemented with the market mechanism within the total frame work of financing mentioned above. Any big problem does not exist in the proper sphere of private transport sector.

Problems are in financing of public transport sector, and this financing is carried out by foreign and domestic sources. These problems will be examined in the next section.

Table 4.6 Percentage Distribution of Investment by Institutional Section

Year	Private Sector				Public Sector				General Government	
	Total	Manufacturing	Transport & Communication	Total	Total	Government Bodies		Transport and Communication		
						Manufacturing	Transport and Communication			
1975-76	100.0	32.3	7.6	4.5	67.7	47.3	13.2	7.3	(6.2)	20.4
1976-77	100.0	33.1	7.6	4.2	66.9	45.4	16.2	8.3	(6.5)	21.5
1977-78	100.0	33.6	7.0	4.0	66.4	47.8	20.1	6.5	(5.1)	18.5
1978-79	100.0	34.0	7.5	4.2	66.0	46.1	20.1	7.6	(6.4)	19.9
1979-80	100.0	36.1	8.5	5.1	63.9	47.4	15.9	15.9	(14.9)	16.5
1980-81	100.0	39.3	10.1	4.3	60.7	39.9	11.3	10.4	(9.3)	20.9
1981-82	100.0	36.4	9.1	3.6	63.6	38.5	9.5	10.9	(8.9)	25.1
1982-83	100.0	38.3	9.5	3.4	61.7	39.3	9.1	7.0	(5.5)	22.4
1983-84	100.0	40.4	11.2	3.8	59.6	37.2	9.0	8.5	(5.8)	22.4
1984-85	100.0	41.4	12.6	4.4	58.6	36.4	5.4	10.5	(8.0)	22.2
1985-86	100.0	41.0	14.3	4.5	59.0	36.7	5.7	9.4	(7.0)	22.3
1986-87	100.0	40.0	14.6	4.7	60.0	37.6	1.8	7.2	(5.3)	22.4

Source: National Accounts of Pakistan 1983-84 to 1986-87

Note : Government bodies include government departments/autonomous and semi-autonomous bodies. Transport and communication include Railways, Post Office, T&T Department. Total means gross domestic fixed capital formation, excluding change in stocks.

Figures in parentheses show percentage distribution of public transport and communication sector excluding Post Office and T&T Department.



#### 4.3 Financing in the Annual Development Programmes

The analysis of investment and its financing using annual development programmes has weak points that ADPs include some current subsidies like for the fertilizer subsidies and some other current expenditure such as expenditure for research institutes, and they are excluded as a part of capital expenditure self-financed by autonomous bodies.

On the other hand, ADPs have an important advantageous factor which are the development plan themselves and express development policies by the government. Especially, they occupy an important position on investment analysis and on financing for infrastructure on transport.

##### 4.3.1 ADPs Position in the Total Public Finance

Table 4.7 shows a summarized position on the total consolidated expenditure of federal and provincial governments (public sector's expenditure). As shown in Table 4.7, the consolidated development expenditure has a ratio of approximately 6.5% of GNP at market prices in the average of the recent five years, and its ratio has a moderate declining trend under an increasing trend of the total public expenditure. This is due to an increase of current expenditure by the public sector.

Attention is drawn to the gaps between revenue and expenditure. The gaps (expenditure/revenue) are approximately 45% of revenue since the first year of the 5th Five Year Plan with no declining trend.

This gap is filled by borrowing from the domestic and foreign sources, and it also means to be absorbed by the scarce domestic saving originated from other institutional sectors to the public finance.

##### 4.3.2 Expenditures in Transport Sector in ADP

The ratio of transport and communication to the total ADP expenditure is shown in Table 4.8 and 4.9.

The average ratio of the Five Year Plan period is 19.2% of the total ADP for the 5th Five Year Plan period and 15.1% (including the budget for 1987-88) for the 6th Five Year Plan period.

The ratio of rural development, in which construction of local roads is implemented to the total ADP expenditure is 1.9% and 3.1% for both plan periods.

Therefore, the ratio of transport and communication sector in the total ADP does not increase in recent years. This is due to, as to be shown in Table 4.8, the distribution shares of power and water for infrastructure, fuel and minerals for industrial bases,

Table 4.7 Consolidated Expenditure of Federal and Provincial Governments

(Million Rs. at current prices)

Year	GNP at Market Prices	Consolidated Federal & Provincial Governments Revenue		Consolidated Federal & Provincial Governments Expenditure		Percentage distribution (%)			(4) at 1985-86 prices	GFCF of Public sector at 1985-86 Prices %	
		(1)	(2)	(3)	(4)	(5)	(2/1)	(3/1)			(4/1)
1975-76	133,356	19,264	19,963	12,366	32,329	14.4	15.0	9.3	25,887	34,095	75.9
1976-77	153,926	21,910	20,133	15,038	35,171	14.2	13.1	9.8	29,045	36,006	80.7
1977-78	186,765	26,482	25,545	15,353	40,898	14.2	13.7	8.2	26,981	35,589	75.8
1978-79	207,623	30,704	30,500	18,494	48,954	14.8	14.7	8.9	29,135	34,431	84.6
1979-80	250,507	38,502	35,547	19,082	54,629	15.4	14.2	7.6	24,649	34,128	72.2
1980-81	297,573	47,002	40,318	23,321	63,639	15.8	13.5	7.8	28,242	31,604	89.4
1981-82	343,911	51,937	46,370	24,643	71,013	15.1	13.5	7.2	29,834	37,843	78.8
1982-83	395,623	59,181	59,686	27,435	87,121	15.0	15.1	6.9	32,782	41,825	78.4
1983-84	452,856	72,290	73,411	26,591	100,002	16.0	16.2	5.9	29,820	42,383	70.4
1984-85	510,637	77,403	85,270	31,549	116,819	15.2	16.7	6.2	33,422	44,584	75.0
1985-86	574,789	89,523	97,798	36,681	134,479	15.6	17.0	6.4	36,681	48,012	76.4
1986-87(P)	633,566	103,374	109,464	44,190	153,654	16.3	17.3	7.0	43,094	55,165	78.1

Note: Deflators for 1985-86 prices are calculated by the Study Team, using gross fixed capital formation of FBS, National Accounts of Pakistan, 1982-83 to 1985-86.

GFCF: Gross fixed capital formation

Source: FBS; National Accounts of Pakistan, 1983-84 to 1986-87 and Finance Division; Economic Survey, 1986-87.

Table 4.8 Expenditure Share under ADP by Sector, 1978-79 to 1987-88

	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87 (P)	1987-88 (B)
Agriculture	9.9	14.5	12.8	12.7	12.2	9.6	8.6	11.6	7.4	7.2
Water	8.5	7.7	6.2	10.4	13.6	13.2	11.5	13.0	12.2	10.7
Power	14.3	14.8	14.7	17.0	18.8	17.5	23.5	22.0	23.6	24.3
Industry	22.4	21.5	17.1	9.9	10.8	7.9	4.7	1.8	0.9	0.7
Fuels and Minerals	3.2	3.9	6.4	5.2	6.6	6.9	9.1	6.8	5.9	8.1
Transport & Communication	19.6	17.7	19.1	20.1	19.7	17.2	16.3	17.0	13.2	11.8
Physical Planning and Housing	7.5	6.5	7.4	7.0	7.3	9.0	8.1	7.7	11.4	9.7
Education	3.8	3.8	4.6	5.0	5.1	5.3	5.8	7.6	8.2	8.2
Health	3.1	3.1	3.5	3.8	3.8	5.4	5.0	4.6	5.5	5.2
Population Planning	0.6	0.6	0.5	0.6	0.6	0.7	1.0	1.2	1.1	1.2
Social Welfare	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.6
Manpower	0.2	0.2	0.2	0.4	0.6	0.1	0.6	0.4	0.3	0.2
Whole Programme/Rural Development	1.0	0.8	1.8	2.6	3.5	3.3	3.1	2.3	3.3	3.7
Indus Basin/Tarbela	5.0	4.0	4.7	3.2	3.5	-	-	1.6	-	-
Miscellaneous	0.9	0.7	1.0	1.9	1.3	1.5	1.1	-	4.5	6.1
Social Development Programme	-	-	-	-	0.5	1.3	1.5	2.2	2.1	2.2
Operational Shortfall	-	-	-	-	(-)4.6	-	-	-	-	-
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Economic Survey 1986-87 and ADP for 1987-88.

Note: 1986-87 is provisional and 1987-88 is budget base.

and physical planning and housing, education and health for social affairs bases increased in the 6th Five Year Plan period compared to the 5th Five Year Plan period.

That is, the financing for expenditure on transport and communication sector is in competition with other sectors like other infrastructures, industrial and social affairs bases.

The investment by self-financing of the semi-public sector such as PIA and KPT is excluded from the figures mentioned above and is included in investments by the communication sector.

The figures excluded in the communication sector are shown in Table 4.10. If the ADP development expenditure are calculated at real terms by deflation using a deflator of gross domestic fixed capital formation, the growth rate at constant prices between 1984-85 and 1986-87 will be nearly zero.

Table 4.9 Composition of Transport and Communication in Expenditure under ADP, 1972-73 to 1985-86

Year	Transport & Communication	Works Programme/ Rural Development
1972-73	16.1	3.0
1973-74	19.8	2.3
1974-75	20.0	1.2
1975-76	19.8	1.4
1976-77	19.6	1.1
1977-78	18.4	0.7
1978-79	19.6	1.0
1979-80	17.7	0.8
1980-81	19.1	1.8
1981-82	20.1	2.6
1982-83	19.7	3.5
1983-84	17.2	3.3
1984-85	16.3	3.1
1985-86	17.0	2.3
1986-87 <sup>(R)</sup>	13.2	3.3
1987-88 <sup>(P)</sup>	11.8	3.7

Source: Economic survey 1986-87 upto 1985-86 and Annual Plan 1987-88 for 1986-87 and 1987-88.

Table 4.10 Financial Allocation for Transport Sector

	(Million Rs.)				
	1983-84	1984-85	1985-86	1986-87	1987-88
Federal	2,379	2,652	3,058	3,454(R)	3,339(B)
Provincial	908	883	1,071	979(B)	N.A
Semi-Public	1,807	3,826	3,356	3,432(B)	N.A

Note: (R) is revised, (B) is budgetary allocation.

Source: Detailed Annual Plan 1986-87 and Annual Plan 1987-88

#### 4.4 An International Comparison on Transport Investment

International comparison must be understood with various limitations due to the different institutional systems, different economic structures, problems on foreign exchange rate, etc. Following is an international comparison on transport investment by the central government.

Based on IMF's definition, Pakistan's capital expenditure by the central government was 13.2% of the total outlay, and 3.1% of GDP (calculated by  $13.2\% \times 0.232$ ) in 1983, against 18.7% and 4.9% for the average of developing countries respectively. Reasons are in the relative low ratio of total central government outlay to GDP and that of capital expenditure to the total central government outlay in Pakistan (Refer to Table 4.11).

Expenditure on road, other transportation and communication in Pakistan was 9.7% of the total expenditure by the central government (including current expenditure), against 6.8% for the average of developing countries in 1983. The ratio to GDP was 1.8% in Pakistan, while 1.6% was for the average of developing countries in 1983.

Table 4.11 shows the another summary which is compared by region on the subject. The table shows that Pakistan's share of road, and other transportation and communication to GDP is not lower than the other developing countries. But the following are noted; the share of road is lower than the average of developing countries as well as the average of Asian developing countries, while that of other transportation and communication is higher than the averages of developing countries.

Table 4.11 International Comparison on Road, Other Transportation and Communication  
Expenditure by Central Government, 1980-83 (Summary)

	Expenditure on other trans-				Total outlay (1 + 2)
	Expenditure on road as % of total expenditure	portation and communication	Capital expenditure as % of total outlay	Total expenditure	
	(1)	(2)	(3)	(4)	(5)
World	1.8	2.5	8.7	94.9	32.1
Industrial countries	1.4	2.2	5.6	97.0	34.1
Developing countries of which:	3.4	3.4	18.7	88.7	26.4
Asia	4.8	3.7	20.5	83.3	21.7
Middle east	2.3	1.8	20.2	94.7	39.0
Africa	-	-	25.1	-	24.9
Europe	3.2	1.5	17.3	99.1	28.9
Western Hemisphere	2.4	3.4	15.1	86.3	25.3
Oil exporting countries	4.7	5.0	31.3	90.5	27.6
Non-oil developing countries	3.1	2.9	16.0	88.2	26.1
Pakistan	1.7	8.0	13.2	81.2	23.2

Source: IMF "Supplement on Government Finance (Supplement Series No. 11  
of International Financial Statistics)"

For detail, refer to App. Table 4-1.

## 4.5 Projection of Investment and its Financing in Transport Sector

### 4.5.1 Restricting Factors

It is considered that various factors between the private sector and the public sector will restrict the investment in the project period.

#### (1) Private Sector

In the private sector, problems on investment financing will not exist because the saving ratio in the private sector is projected to rise satisfactorily through the project period. The investment for the private transport sector will grow at a rate corresponding to demand growth. (See the section 2 above).

#### (2) Public Sector

In the public sector, problems are rather in financing than demand growth. Although the more important problem is acquisition of requested investment funds to promote infrastructure in the transport sector, it is not easy to be discussed in the sections above. The restricting factor for the public sector is, therefore, in the financing of requested investments.

### 4.5.2 Projection Base for Investment and its Financing

The projection is carried out at national accounts basis for the private sector and at ADP basis for the public sector.

At first the investment scale is projected by private and public sectors in the 7th Five Year Plan period then the total investment scale is projected up to 2005-06.

### 4.5.3 Investment Scale in the 7th Five Year Plan Period

Gross domestic capital formation in the national economy is projected to be invested by approximately 638.0 thousand million rupees at 1985-86 constant prices in the 7th five Year Plan period as against approximately 422.6 thousand million rupees at 1985-86 constant price in the 6th Five Year Plan Period. That is, the total value of gross domestic fixed capital formation in the 7th Five Year Plan period will be approximately 1.5 times that of the 6th Five Year Plan period.

The investment of private transport sector is growing at approximately the same rate with the total investment. Therefore, it will be invested by 25 to 26 thousand million rupees at 1985-86 constant prices in the 7th Five Year Plan period.

The investment of public transport sector will be largely influenced by the economic policies of the Government, so that its projection is possible only under a certain presumption. Moreover, it would be projected to be divided into two categories of departmental one and semi-public sector enterprises.

A key factor for the projection is improvement of self-financing capacity in semi-public sector enterprises. If it is realized that for the investment in semi-public sector enterprises could increase by nearly 1.5 times the 6th Five Year Plan period, that is, by approximately 23 thousand million rupees at 1985-86 constant prices in ADP basis, as against approximately 16 thousand million rupees at 1985-86 constant prices in the 6th Five Year Plan period. In the case of the present financing situation, the investment will stay at approximately 22 thousand million rupees, which corresponds to the economic growth rate, at 1985-86 constant prices.

The investment of departmental transport sector is estimated to be approximately 20 thousand million rupees at 1985-86 constant prices in ADP basis of the 6th Five Year Plan period. If the present investment environment in the public sector continues up to the end of the 7th Five Year Plan, the total investment value will increase by approximately 25 thousand million rupees (apart from the rural road) at 1985-86 constant prices in the 7th five Year Plan period. In the case of improved situation the total amount will increase to approximately 27 thousand million rupees in the period.

#### 4.5.4 Total Investment Scale up to 2005-06

The assumption of projection is as follows:

- (1) Private Sector: The investment will increase in proportion to the total gross domestic fixed capital formation.
- (2) Semi-public Enterprises: If the financing capacity grows at the proportion to present situation in the future, the investment will stay on the low side in the projection. If the financing capacity increase to approximately the same level with the private sector, investment could grow at approximately the same growth rate with the private sector and could increase up to the value of the high side.
- (3) Departmental Organizations: The financing will be restricted by the government revenue and other factors such as competition with the other sectors such as electricity and water.

The investment will increase in proportion to, in principle, economic growth rate. If the financial availability of this sub-sector is promoted by any means, it will increase to the higher case.



(4) Investment to rural road is excluded from the projection.

As a result, the total investment value at 1985-86 constant prices is projected for the period between 1988-89 and 2005-06 as shown in Table 4.12.

Table 4.12 Projection of the Total Investment Value in Transport Sector between 1988-89 and 2005-06

Period	(Rs. billion of 1985-86 constant prices)				
	Private Sector	Public Sector			Grand Total
		Semi Public Enterprise	Departmental Organization	Total	
7th Five Year Plan period	25-26	22-23	25-27	47-50	72-76
8th Five Year Plan period	36-37	29-33	34-38	63-71	99-108
9th Five Year and afterward	89-90	68-82	79-89	147-171	236-261
<b>Total</b>	<b>150-153</b>	<b>119-138</b>	<b>138-154</b>	<b>257-292</b>	<b>407-445</b>

Note: National accounts basis for private sector, and ADP basis for public sector

Source: JICA Study Team



**APPENDIX FOR**

**SOCIO-ECONOMIC/FINANCIAL FRAMEWORK**



## Appendix A. Review of the 1983 Master Plan Framework

### 1. Limitations of the Review

A few limitations exist for the review of the 1983 master plan framework. The main reasons are as follows:-

#### (1) Revision of the Basic Data

A major source for macro-economic framework is the data on National Accounts. Data on National Accounts was largely revised after May 1983 when the 1983 Master Plan was finalized.

The revised ranges and ratios of 1980-81 prices are shown in App. Table A-1-1. As shown in App. Table A-2-1, the revised ranges in terms of value are more than 5% in net factor income from rest of the world, livestock, mining and quarrying, and fishing. Items of more than 3% and less than 5% are crops, transport, storage and communication, exports of G&NFS, and forestry.

Various regression analyses are the main tool for the projection. When the basic data are revised, the results will be influenced by those revisions. That is, the regression in the 1983 Master Plan may be distorted in view of the present official data series, especially in items revised by more than 5%.

#### (2) Change of Relative Price Levels

Change of the relative price levels influence the projection as shown in App. Table A-1-2, implicit deflators rise by more than 100% in mining and quarrying, by more than 50% in agriculture except crops (livestock, fishing and forestry), while the rise of implicit deflators in imports of G&NFS, crops and manufacturing are approximately 30% between 1980-81 and 1985-86. (Rise of implicit deflator for GDP at factor cost is 44.3%).

The difference of price rising rates is also influencing the results of projection through price effects.

### 2. Review of Performance for the 1983 Master Plan Projection

As mentioned above, an exact quantitative examination is limited. Following are results under such limitations and considering their influence.

Main conclusions are as follows. (Refer App. Table A-1-3).

App. Table A-1-1 Revision of GDP and its Components and Foreign Trade Items in 1980-81

	Revised Value (in Million Rs.)	Rate of Revision %
Agriculture	(-) 2,926	(-) 3.9
Crops	1,790	3.6
Livestock	(-) 4,777	(-) 20.9
Fishing	79	5.5
Forestry	(-) 18	(-) 3.3
Mining and Quarrying	284	9.9
Manufacturing	(-) 1,037	(-) 2.5
Other Economic Activities	2,237	1.7
Transport, Storage and Communication	658	3.5
Others	1,579	1.4
Gross Domestic Product	(-) 1,442	(-) 0.6
Exports of G & NFS	(-) 1,166	(-) 3.3
Imports of G & NFS	1,847	2.9
New Factor Income from Rest of the World	(-) 6,482	(-) 24.8

Note:

Revised Value = (Present Official Figure) - (Master Plan Figure)

Rate of Revision =  $\left( \frac{\text{Present Official Figure}}{\text{Master Plan Figure}} - 1 \right) \times 100$

App. Table A-1-2 Rate of Price Increase by GDP and Economic Economic Activity between 1980-81 and 1985-86

GDP and Economic Activity	Rate of Increase in Implicit Deflators (%)
Agriculture	37.1
Crops	30.5
Others	53.0
Mining and Quarrying	107.0
Manufacturing	32.1
Other Economic Activities	43.3
Transport, Storage and Communication	37.5
Others	44.3
GDP at Factor Cost	41.0
Exports of G & NFS	47.9
Imports of G & NFS	29.7

Source: National Accounts of Pakistan 1983-84 to 1986-87 and data supplied by PDD.

(1) Agriculture

a) Crops

Crops are slightly over-projected. As shown in App. Table A-1-3, the actual growth rates converted to 1980-81 constant prices are 0.4 - 0.5% less than the projection. Revision of the basic data and change of relative price levels are estimated to cancel each other.

b) Others (Livestock, Fishing and Forestry)

The actual growth rates are 1.3 - 1.5% more than the projection. However, the basic data upto 1980-81 are largely revised to a downward trend and the relative prices developed an advantageous direction to this item after 1981-82.

Considering the two factors, the projection is not an under-projection, but it has even the possibility of a slight over-projection.

(2) Mining and Quarrying

The actual growth rates are 0.4 - 2.0% more than the projection. Although both factors of revision of basic data and development of relative price levels work advantageous to this sector, the projection is concluded as to slight underestimated.

(3) Manufacturing

Considering three App. Tables, manufacturing is under-projected at 0.2 - 1.1% less than the performance.

(4) Other Economic Activities

The difference of growth rates between the 1983 Master Plan projection and the present data is only marginal. However, the growth rates of transport, storage and communication are slightly high in the Master Plan projection.

(5) Exports of Goods and Non-factor Services

The concept and definition on exports, imports and net factor income from rest of the world differs between the 1983 Master Plan and the present data.

But the 1983 Master Plan is over-projected to exports of G&NFS even after the conceptional adjustment.

(6) Imports of Goods and Non-factor Services

Due to the conceptional difference, any correct judgement is impossible, however, it seems that the difference of growth rates are relatively small.

(7) Net Factor Income from Rest of the World

The 1983 Master Plan is under-projected largely upto 1977-88 compared with the performance, after the conceptional adjustment.

3. Review of Projection for the 7th Five Year Plan Period in the 1983 Master Plan

A comparison between the 1983 Master Plan and the 1987 Master Plan is shown in App. Table A-1-3. This comparison is carried out by 1980-81 constant prices.

A overall feature is as follows:

(1) Growth Rate of GDP at Factor Cost

The difference is only 0.1% per annum (6.4% for the 1987 Master Plan and 6.5% for the 1983 Master Plan). This difference is in the range of statistical discrepancy.

(2) Production of Goods Sector

A contrast is seen between the primary industries and the secondary industries.

In agriculture, the projected annual growth rates in the 1987 Master Plan are less than the 1983 Master Plan by approximately 1.6%. In mining, quarrying and manufacturing, the projected annual growth rates in the 1987 Master Plan are more than the 1983 Master Plan by 2.9% and 1.6% respectively. This difference reflects changes of the economic structure and economic environment in recent years.

(3) Production of the Other Sectors

The difference between both projection is 0.3% in the total. But there is a difference of 0.6% per annum in transport, storage and communication sector.



App. Table A-1-3 Comparison Projection between 1983 Master Plan and 1987 Master Plan

	Difference of projected value at 1980-81 constant prices (million Rs.)			Difference of growth rates at 1980-81 prices (%)	
	1980-81	1985-86	1987-88	1981-82 to 1985-86	1988-89 to 1992-93
Agriculture	2,976	(-) 380	(-) 816	(-) 0.2	(-) 0.1
Crops	(-)1,790	1,457	1,641	0.5	0.4
Others	4,716	(-)1,837	(-)2,457	(-) 1.5	(-) 1.3
Mining and quarrying	(-) 284	(-) 480	(-) 179	(-) 2.0	(-) 0.4
Manufacturing	1,037	673	5,130	0.2	1.1
Other economic activities	(-)2,237	(-) 319	1,026	0.0	0.1
Transport, storage and communication	(-) 658	(-)1,111	(-) 479	(-) 0.9	(-) 0.2
Others	(-)1,579	792	1,505	0.1	0.2
GDP at factor cost	(-)1,442	506	5,161	(-) 0.1	0.2
	(0.6)	(-0.1)	(1.3)	(6.9)	(6.7)
Exports of G & NFS	1,166	12,645	10,321	2,945	3.1
Imports of G & NFS	1,847	(-)1,283	5,670	(-)7,188	(-) 3.0
Net factor income from abroad	6,482	6,025	(-)2,494	(-) 5.3	(-) 1.7

Note: 1. All values are valuated at 1980-81 constant prices.

2. For difference of projected values

- (a) 1980-81; (figures of 1983 Master Plan) - (present official figures)  
 (b) Other years; (figures of 1983 Master Plan of each year x  $\frac{\text{present official figure for 1980-81}}{\text{figure of 1983 Master Plan for 1980-81}}$ )  
 (c) Figures in parentheses show the difference ratio in % for GDP

3. For difference of growth rates

- (a) (Growth rates in 1983 Master Plan) - (Growth rates in 1987 Master Plan)  
 (b) Figures in parentheses show the annual growth rates of 1987 Master Plan valuated at 1980-81 constant prices.

(4) Exports and Imports of Goods and Non-factor Services

These categories have a different projected result. The 1987 Master Plan projects higher exports and imports in the period compared with the 1983 Master Plan, and the difference is 3.6% for exports and 2.7% for imports. Reasons for this difference concern the overall framework for projection. That is, the balance of payments and consistency among various economic co-efficients are considered as main factors for projection in the 1987 Master Plan, as against regression by commodity in the 1983 Master Plan.

It may also be noted that the growth rate valued at constant prices and growth of physical volume are different concept to each other. (When the quality of manufactured goods is transformed to high rank goods, the value at constant prices will increase under the same physical volume.)

(5) Net Factor Income from Rest of the World

The 1987 Master Plan projects an absolute declining trend, as against a moderate increasing trend in the 1983 Master Plan. This reflects the change of international economic environment in recent years.