

***EXPLANATORY
NOTES***

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7. TRANSPORT AND COMMUNICATION

- 7.1 International Shipping-entered and cleared at Karachi Port and Port Qasim:(Table 7.1 and 7.2) Statistics on International shipping entered and cleared are compiled from the monthly returns received from Karachi Port and Port Qasim authorities. The table provides information on number and tonnage of vessels entered and cleared with cargo and in ballast at the Karachi Port and Port Qasim.
- 7.2 Cargo handled at Sea Ports (Table 7.3): The annual statistics on Cargo handled at Karachi Port and Port Qasim are compiled from the returns received from Karachi Port and Port Qasim authorities on monthly basis. These show the total tonnage of foreign cargo hand at these Ports.
- 7.3 Number and net registered tonnage of native crafts by nationalities entered/cleared in coastal shipping with cargo into/from the Port of Karachi (Table 7.4): Monthly data on astal shipping at Karachi Port are collectd from Karachi Port Trust. The table provides data on net registered tonnage of native crafts by nationalities i.e. Pakistan and Arabian entered and cleared on coastal shipping with cargo into/from the Port of Karachi. The total cargo handled covers both imports and exports.The coastal shipping relates to seaborne coastal trade between the ports of Karachi, Abudhabi, Yamen, Ajman Mascat, Bahrain, Gawadar, Pasni, Ormara, UAE, Sharjah, Iran, Bombay, etc.
- 7.4 Cargo handled in containers at Karachi Port (Table 7.5): Monthly data on cargo handled in containers at Karachi Port are collected from Karachi Port Trust. The table provides data on numbers of containers discharged, number of empty containers and weight of import cargo. It also provides data on number of containers loaded, number of empty containers and weight of export cargo. Containers are of two sizes 20' and 40'. Empty containers means container without cargo. Weight of import/export cargo means net weight of cargo only exclusive of weight of containers. The weight of empty container of 20' size is 2.5 tonnes and of 40' size is 3.5 tonnes.
- 7.5 Route and track kilometres of Pakistan Railways (Table 7.6): The statistics in respect of "Route and track kilometres of Pakistan Railways" are compiled from the annual returns received from Pakistan Railways, Lahore. These statistics are classified under three types of route and track kilometres as broad gauge = 1.676 metres, gauge = 1.000 metre and narrow gauge = 0.762 metre.
- 7.6 Locomotives owned: (Table 7.7) On 30th June, 1996 the Pakistan Railways steam locomotives totalled 40, diesel locomotives 534 and electric locomotives 29. The diesel and electric locomotives, which are steadily replacing the steam locomotives are used exclusively on broad-gauge.
- 7.7 Coaching vehicles owned: (Table 7.8) The total number of Pakistan Railways coaching vehicles at the end of the year 1995-96 was 2246. This number includes 1862 vehicles meant for the conveyance of passengers and 384 vehicles for carrying luggage, parcels, mails auto-mobiles, horses, etc. as well as departmental vehicles. The air-conditioned passenger coaches operating between important towns are also included in it.
- 7.8 Freight wagons owned: (Table 7.9) The number of freight wagons owned by the Pakistan Railways at the end of the year 1995-96 was 26755 comprising 26270 broad gauge, 425 metre gauge and 60 narrow gauge.

7.9 Passenger kilometres by class carried by Pakistan Railways: (Table 7.10) During the year 1995-96 the Pakistan Railways carried 73651000 passengers.

7.10 Freight wagons loaded: (Table 7.11) During 1995-96 a total 383122 wagons were loaded on the entire system. These figures do not include wagon received from foreign railways.

7.11 Freight carried by Pakistan Railways: (Table 7.12) The total freight carried by the Pakistan Railways during 1995-96 was 6854000 tonnes and 5077363000 tonne kilometres, averaging 742.3 kilometres travelled by a tonne. Traffic carried free of charge is not included in these figures.

7.12 Commodities carried by Pakistan Railways: (Table 7.13) The commodity-wise breakdown of the tonnes carried by the Pakistan Railways for the years 1980-81 to 1995-96 is given in the table.

7.13 Fuel consumed: (Table 7.14) Quantities of fuel for the various years are given in the table. During the year 1995-96 the Pakistan Railways consumed 680 tonnes of coal, 32248 tonnes of furnace oil and 145508 tonnes of H.S.D. oil. These quantities comprise the entire fuel consumed by the Railways, i.e. on locomotives, power houses, water pumps and workshops, etc.

7.14 Operating Revenue: (Table 7.15) During the year 1995-96 the total earnings of the Pakistan Railways amounted to 8363 million rupees consisting of 3602 million rupees from passengers, 559 million rupees from luggage, parcels, mails etc. 3957 million rupees from freight and 245 million rupees from telegraphs and other miscellaneous sources.

7.15 Operating expenses of Pakistan Railways: (Table 7.16) During the year 1995-96 the total ordinary working expenses of the Pakistan Railways amounted to 9242 million rupees consisting of 4291 million rupees on repairs and maintenance of track, building, rolling stock, etc. 1384 millions rupees on operation fuel; 1232 million rupees on operation staff; 953 million rupees on operation other than staff and fuel; 1317 million rupees on administration and 65 million rupees on miscellaneous expenses.

7.16 Persons employed by Pakistan Railways: (Table 7.17) On 30th June, 1996 the Pakistan Railways had 104281 persons on its pay rolls, chargeable to revenue account. Out of this number 25981 were employed in the Civil Engineering Department which maintains tracks and buildings; 32724 in Mechanical Engineering Department which repairs and maintains the rolling stock and operates the locomotives, 15555 in the Transportation Department; etc. The total cost of all these employees during 1995-96 was 4591 million rupees including appropriation to depreciation reserve fund but excluding interest on assets.

7.17 Road kilometres in Pakistan; (Table 7.18) Statistics in respect of "road kilometres" in Pakistan is received from Bureaus of Statistics, Government of Sindh, Punjab, NWFP and Balochistan showing figures in respect of high and low type roads in the province. These terms are defined as under:-

High type road ----- the road having cement concrete or bituminous concrete surface.

Low type road ----- the road generally made of stone, bricks, gravel or ordinary earth properly aligned and with drainage structures provided.

7.18 Air traffic of passengers, freight and mail of Pakistan International Airlines: (Table 7.19) Statistics on air traffic of passengers, freight and mail are received from the Civil

Aviation Authority, Karachi. The table provides information of kilometres flown, passenger kilometres performed, tonne kilometres performed in respect of passengers, freight and mail.

7.19 Aircraft movements at civil airports: (Table 7.20)

- i) Aircraft movements : An aircraft take off or landing at an airport is called aircraft movement. One arrival and one departure are counted as two movements.
- ii) Domestic Flight: A flight which originates from an airport in Pakistan and terminates within Pakistan.
- iii) International Flight: A flight which originates from any airport in Pakistan and terminates abroad or vice versa.
- iv) Scheduled movements: Aircraft movements of international/domestic flights scheduled and performed for remuneration according to a published time-table, or so regular or frequent and to constitute a recognizable systematic series, which are open to used by member of the public; extra revenue flights occasioned by overflow traffic from scheduled flights.
- v) Non-scheduled movements: Aircraft movements of international/domestic Charter and special flights other than those reported under scheduled flights, performed for remuneration on an irregular basis including empty flights related thereto, inclusive tours other than those eported under scheduled services.
- vi) General aviation: Any movement involving an aircraft operated by a private individual for personal or recreational purpose, flying club, or organizations performing aerial work such as; crop dusting, chemical or fertilizer spraying, aerial photography, advertising and government department.
- vii) Local: Movement of the aircraft which takes off and lands at the same airport within a short period of time. Under this category comes positioning, tests and training flights.

7.20 Passengers handled at civil airports: (Table 7.21)

- i) Embarked passengers: The revenue and non-revenue passengers whose air journey begins at the reporting airport or to disembarked passengers who continue their air journey in different aircrafts.
- ii) Disembarked passengers: The revenue and non-revenue passengers whose air journey terminates at the reporting airport or passengers who will continue their air journey in different aircrafts.
- iii) Transit passengers: The passengers who continue their journey in the same aircraft in which they arrived. Passengers in direct transit are thus counted once only.

7.21 Cargo handled at civil airports:(Table 7.22)

- i) Loaded: The term loaded will have meaning similar embarked.
- ii) Unloaded: The term unloaded will have meaning similar disembarked.

7.22 Mail handled at civil airports: (Table 7.23)

Loaded and unloaded terms as applied to mail will have meaning similar to cargo loaded and unloaded.

7.23 Motor vehicles registered: (Table 7.24) Data on number of motor vehicles registered in Pakistan are compiled on annual basis from the returns received from the A.D.G. Excise & Taxation Punjab, Director Excise & Taxation NWFP and Excise and Taxation Departments of Sindh and Balochistan. These statistics of public and private motor vehicles give information on number of vehicles registered by seven different types in the four Provinces and as well as on Pakistan basis.

7.24 Telecommunication Statistics: (Table 7.25) Telecommunication Statistics are collected from the Pakistan Telecommunication Company Limited. The terms used are explained below:-

The Automatic Exchange is that in which the subscriber can dial the number himself without the help of any operator through Electro Mechanical or Electronic Switching.

A Manual Exchange is that in which the call is established with the help of an operator.

A Public Call Office is that from where general public can make a telephone call local or trunk call including international calls on payment of prescribed charges.

A Subscriber Trunk Dialling (STD) System is that in which a local telephone subscriber can dial a long distance subscriber of distant stations connected on this system. This system is a point to point working.

A National Wide Dialling (NWD) System is that in which a local telephone subscriber can dial a long distance subscriber of distant stations connected on this system. This system connects a distant station through alternate routes and is an integrated system.

Gentex is the Teleprinter Exchange which connects the Departmental Telegraph Offices for transmission of telegraph messages through Teleprinter.

Telex is the teleprinter exchange through which one teleprinter subscriber can establish call with other teleprinter subscriber. Telex working is again either automatic or manual as is in case of telephone.

7.25 Postal Services Statistics: Table 7.26 The Postal Services statistics are collected from Pakistan Post Office, Islamabad. This table contains information in respect of No. of post Offices, No. of employees working in the post offices and No. of letter boxes. Other term used in the table are explained below:-

Mail Lines: The route, or part thereof, e.g., Railway, Airline, Ship, Road Service etc. through which mails are exchanged between various post offices (from the point of collection to the point of delivery) is termed as mail line.

Unregistered Articles: The expression "unregistered article" denotes those articles of mail (for example letters, postcards, printed papers, small packets, aerogrammes, newspapers and parcels) for which no distinct records are kept for their disposal in post offices and for which a distinctive rate of postage is prescribed.

Registered Articles: The expression "registered articles" stand, for those articles of mail (e.g., letters, postcards, printed papers, small packets, parcels and newspapers) for which a receipt of registration is given to the sender and distinct record of each such item is kept by the post office during its transmission from the point of collection to the point of delivery. An extra fee in excess of postage is charged for the registration of any postal article. The Postmaster General may grant to the sender or at his request to the addressee ex-gratia compensation, not in consequence of any legal liability, for the loss or damage of inland post in course of transmission.

Value Payable Letters and Parcels: Registered letters, parcels, printed papers, small packets, for which extra fee is charged in excess of registration fee and for which the addressee wish to pay the value of the articles sent to him at the time of receipt of the article is called a value payable (V.P) article. The amount to be recovered from the addressee will be the sum specified by the sender for remittance to himself plus a fee calculated at the amount specified for remittance to the sender through money order. The sum for payment to the sender, as collected from the addressee, will be remitted to him by means of Money Order.

Insured Letters and Parcels: Registered letters and parcels, value payable registered letters and parcels which are insured upto a certain value in any recognized post office, for which an extra insurance fee is charged and insurance thereof covers all the risks of loss of article or its contents or of any damage caused to it in course of transmission by post is an insured letter/parcel. Post office will pay compensation, not exceeding amount for which the article is insured, for the loss or damage of any insured article in course of transmission by post according to the rules as applicable in Pakistan Post Office.

7.26 Radio licences issued by circle: (Table 7.27) Statistics on "Number of radio licences issued in Pakistan by circle" are compiled from the returns received from Pakistan Post Office, on yearly basis and represent number of radio licences issued in Northern, Southern, Central, North Western and Balochistan circles. The districts of Attock, Gujrat, Jhelum, Mianwali, Rawalpindi, Sargodha, Islamabad and Azad Kashmir areas are included in Northern circle. All the districts of Sindh province are included in the Southern circle. The districts of Bahawalpur, D.G. Khan, Faisalabad, Gujranwala, Jhang, Lahore, Multan, Muzaffargarh, Bahawal Nagar, Sheikhpura, Rahim Yar Khan, Sahiwal, Sialkot, Kasur and Okara are included in the Central circle. All districts of the North-Western Frontier Province are included in the North Western circle. All the districts of the province of Baluchistan are included in the Balochistan circle. Since 1993-94 the circles have been revised city wise as shown in the table as a revised format.

7.27 Hours of Radio Pakistan by Station: (Table 7.28) Annual figures in respect of "Total transmission hours of Radio Pakistan by station" are compiled from the returns received from Pakistan Broadcasting Corporation on yearly basis and represent actual hours spent by Radio Pakistan in radio transmission for all its stations and for external services in all languages.

7.28 Estimated T.V. sets as on 30th June: (table 7.29) The data are collected from Pakistan Television Corporation, Islamabad. The table provides province and districtwise information in respect of estimated T.V. sets.

7.29 Estimated VCR sets: (Table 7.30) The data on VCR Sets have been started collection by P.T.V. Corporation in July, 1984. The data on number of VCR Sets are available for 1984-85, 1985-86, 1986-87, 1987-88, 1988-89, 1989-90, 1990-91, 1991-92, 1992-93, 1993-94, 1994-95 and 1995-96 prepared from the annual return received from P.T.V. Corporation.

7.30 Telecasting hours by language: (Table 7.31) The data are collected from Pakistan Television Corporation, Islamabad. The table provides information in respect of telecasting hours by languages. There are only two languages i.e. English and Urdu in which major programmes are telecasted. Each station also telecasted programmes in their local languages.

7.31 Tourist arrivals by mode of transport and receipt of foreign exchange: (Table 7.32) The term "tourist" is in principle, interpreted to mean any person travelling for a period of twenty four hours or more, but not exceeding 6 months, in a country other than that in which he usually resides. The following are to be regarded as tourist:-

- i) Persons travelling for pleasure, for domestic reasons and for health.
- ii) Persons travelling for meetings or in a representative capacity of any kind (Scientific, administrative, diplomatic, religious, etc.)
- iii) Persons travelling for business purposes.

Tourist arrivals by mode of transport shows data on number of tourist arrivals by air, sea and land. There are following points of entry:-

by air - Karachi, Islamabad, Lahore, Quetta, Peshawar.

by sea - Karachi, Gwadur.

by land- Chaman-Nokundi, Torkham, Wagha, Lahore.

7.32 Tourist arrivals by nationality (Table 7.33): The data in respect of tourist arrivals by nationality have been collected from Tourism Division. The table provides data in respect of tourist arrivals from different countries of Europe, America, South Asia, Pacific and East Asia, Middle East, Africa and others.

7.33 Tourist arrivals by sex: (Table 7.34) The data on tourist arrivals by sex have been collected from Tourism Division. This table provides information on tourist arrivals by sex (male and female).

8. NATIONAL ACCOUNTS

A) Gross National Product:

8.01 The estimates of Gross National Product (GNP) of Pakistan are based on the concepts and classification prescribed in the United National Accounts (UN-SNA). The estimates are computed by a combination of product, income and expenditure methods. Product method is applied to compute value added in agriculture, mining, quarrying, manufacturing, electricity & gas, distribution services, wholesale & retail trade and ownership of dwellings whereas income method is used to work out income accruing from transport, storage & communication, banking and insurance, public administration & defence and services sectors. Expenditure method is used to estimate value added in construction on the basis of investment made and the co-efficient of value added.

8.02 Tables 8.1 to 8.4 gives estimates of Gross National Product (GNP) and Net National Product (NNP) at current and constant factor cost of 1959-60 (old methodology). Also estimates of GNP & NNP at current & constant factor cost of 1980-81 (new methodology) for the years 1980-81 to 1996-97 (P) are given in these tables. The new series replace the 1959-60 old base estimates and takes care of the recommendations of Kazi Committee on National Accounts with respect to coverage, improvements in methodology & data availability. Now the work on 1995-96 as new base year is in progress. The coverage, nature and sources of data used and the methodology followed are explained below:-

B) Agriculture:

8.03 Agriculture sector covers the activities of growing of crops, fruit & vegetables, harvesting & thrashing, growing of trees & logging, fishing, breeding and rearing of animals and poultry, production of milk, slaughtering, production of raw hides & skins, eggs, dung, raw-wool etc. For the purpose of computation of value added estimates the sector has been divided into four sub-sectors, namely (i) Crops (ii) Livestock (iii) Forestry and (iv) Fishing. The contribution of agriculture sector to the gross domestic product has been estimated by product approach which involves estimation of gross value of products and by-products, and the estimation of inputs like seed, fertilizer, pesticides, water and agricultural services viz. Ploughing & planting, sowing, harvesting and thrashing.

Crops:

a) Estimation of Gross Output:

8.04 The production estimates of major crops are obtained from the Provincial Departments of Agriculture which are coordinated in the Federal Bureau of Statistics and released by the Ministry of Food, Agriculture & Cooperatives. The estimated output of by-products of major crops is obtained as percentages of the characteristics products collected as subsidiary information through objective crop cutting surveys supplied by the Provincial Directorates of Crop Reporting. The corresponding harvest prices are obtained from the Provincial Departments of Agriculture.

8.05 For minor crops, the sources of information for production at provincial level are the same as of major crops. Due to non-availability of data on harvest prices for minor crops, harvest prices are taken at 80% of wholesale prices compiled and issued by the Department of Agriculture Marketing and Grading.

8.06 The gross value of crops and by-products of crops is based on province-wise production of crops multiplied by the corresponding harvest prices. In case of rice and wheat, procurement price is used for the part of production procured by the government.

b) Estimation of Inputs:

i) Seed:

8.07 The value of seed is worked out on the basis of area sown under each crop and per acre use of seed. The information on seed rates is supplied by the Provincial Departments of Agriculture. The data on seed rates are collected by the Provincial Departments of Agriculture/crop reporting through objective sample surveys and edited in accordance with the recommendation of the Research/Extension wing of the Provincial Departments of Agriculture. The quantity of seed by crop so derived has been multiplied by the corresponding prices.

ii) Fertilizer:

8.08 The value of fertilizer is estimated on the basis of data on variety-wise quantity and value of fertilizer sold to the farmers. The data is supplied by the Federal Directorate of Fertilizer Supplies, Lahore. Owing to in-adequate data on crop-wise use of fertilizer, it is not possible to estimate value added by crops. Total value of fertilizer is therefore distributed on major and minor crops in the ratio of their contribution to the total value of the crops. The valuation at constant prices has been made by projecting the bench-mark value of fertilizer with its annual increase in terms of nutrient tonnes.

iii) Pesticides & Insecticides:

8.09 The cost incurred on plant protection has been estimated on the basis of actual sale of various types of pesticides & insecticides to the farmers. The data on the quantity and value are supplied by the provincial Plant Protection Departments in respect of Balochistan province and by Pakistan Pesticides Association in respect of Punjab, Sindh and NWFP provinces. Due to non-availability of data on crop-wise use of pesticides and insecticides, it has not been possible to distribute it by crop. Therefore its total value is distributed on major and minor crops the same way as in case of fertilizer. To estimate the value at constant factor cost Wholesale Price Index of chemical is applied.

iv) Water:

8.10 The cost of water has been estimated both at current and base year prices separately for canal water and tube-well water. The data on canal water is obtained from provincial irrigation departments. The data on Quantity of tube-well water has been estimated by deducting the canal water from the total availability of water at farm-gate which is valued at base year prices of tube-well water. As the data on crop-wise use of water is not available, the total value of water is distributed on major and minor crops in the ratio of their respective contribution to total value of crops.

v) Cost of ploughing, planting and sowing:

8.11 The cost of ploughing, planting and sowing through tractors and draught power has been estimated on the basis of per acre cost by crop derived from the study on the cost of production of important crops for 1979-80 under irrigated and un-irrigated conditions. The value at current prices has been derived by using wholesale price index of Lubricant.

c) Gross Value Added:

8.12 The two components i.e. the gross value at producers value and the cost of inputs at purchasers value provide basis for estimation of Gross Value Added at constant factor cost. To convert the same into current values wholesale price index (WPI) by crops is applied.

D) Livestock:

8.13 The livestock sub-sector basically includes the value of livestock products and the value of draughts power. The livestock products have been divided into 6 broad categories:- i) milk ii) meat iii) hides and skins iv) eggs v) wool & hair, and vi) other products. With scanty direct information on output of various livestock products, annual production is generally estimated by applying intercensal growth rates to the bench-mark estimates. The data is supplied by the Livestock Division.

a) Valuation of livestock products:

8.14 The value of livestock products is derived by multiplying the quantity of each product with its respective prices which are based on the data collected by the Department of Agricultural Marketing and Grading and published in their monthly & yearly bulletins 'Market & Prices'. These prices are further reduced by 20% to arrive at producers prices.

8.15 The value of draught power has been estimated on the basis of number of work animals used in agriculture and their feed & maintenance cost. The number of work animals for the bench-mark year and there-after for each year have been taken from the publication Agricultural Statistics of Pakistan.

b) Inputs:

8.16 Most of the inputs in livestock come from other agricultural activities. Items of feed considered for livestock are roughage (green and dry), concentrates (grain, cotton sticks and oil cakes), salt, medicines and the miscellaneous feeds. 75% value of fodder including cane-trash, straw, 50% value of cotton sticks and total value of grass, grazing and gowar seed are assumed to go towards the feed of livestock population. Some inputs like poultry feed, oil cake, salt, medicines and waste of cotton seed are from the manufacturing sector. The input of dry and green fodder has been estimated separately. The output of green fodder is supplied by the Agricultural Department as part of minor crops, whereas the quantity of dry fodder and by-products of crops has been estimated as percentages of characteristic products. The value of poultry feed is based on data from CMI & SHMI and the value of Oil cake is estimated on the basis of availability of cotton seed, rape & mustard and a percentage of oil cake thereof in the process of milling. Deducting the value of inputs from the gross value of products the resultant figure so obtained is GVA of livestock products at constant factor cost of 1980-81. To convert the same into current, WPI of selected commodities of Livestock products is applied to the constant estimates.

E) Fishing:

8.17 The fishing activities cover commercial and subsistence fishing in ocean, coastal and off shore waters and inland waters. This includes catching, tackling and gathering of fish from rivers, canals, lakes, ponds and inundated tracts.

8.18 The data on quantity and value of commercial and subsistence fishing (Inland and Marine) is obtained from Marine Fisheries Department, Ministry of Food & Agriculture, and from the Provincial fisheries Departments. The value of marine fish catch is reduced by 6.5% for auction charges so as to arrive at the value at factor cost. The auction value of inland fish is doubled to cover the under reporting on inland fishing as recommended by Kazi Committee. The estimates are based on annual catch of inland and marine fishing and their respective base year prices. With the introduction of mechanized fishing through mechanized boats, gill-netters and trawlers in the marine fishing, the cost of inputs has been estimated taking care of these developments. This provides basis for estimation of GVA at current factor cost. The value at constant factor cost is derived by multiplying current year production with base year prices.

F) Forestry:

8.19 The Forestry sub-sector covers the activities of logging and gathering of uncultivated forest products which are classified into two large groups.

- i) Major products comprising industrial wood such as timber & firewood.
- ii) Minor products include a large number of heterogeneous items such as ephedra, grazing fodder, refined medicinal herbs etc.

8.20 The data on quantity and value of major & minor forest products in respect of state forest are obtained directly from the Chief conservators of Forests of the four provinces.

8.21 A World Bank study carried out in 1978 states that 65% timber & 95% firewood come from private forests. The result of the World Bank study were compared with Household Income & Expenditure Survey, 1984-85 and the industrial use of timber. FBS has worked out these ratios as 52% & 90% as against 65% & 95% of the World Bank study. The same have been used to estimate the contribution of private forests and non-forest areas.

8.22 As no significant inputs are revealed in this sector, the estimates of output are assumed to be of gross value added. Yearly estimates at constant factor cost are obtained by projecting the benchmark estimates with a weighted quantum index of timber, firewood and minor forest products. To convert the same into current values, WPI of timber and firewood is applied.

8.23 In the absence of any reliable information on depreciation, a flat rate of 5 percent of the gross value added is applied in all the sub-sectors of agriculture to arrive at net value added.

G) Mining and Quarrying:

8.24 The sector covers all mining & quarrying activities carried out in the country. The estimates of value added are based on the production data supplied by the Natural resources Division and the Provincial Mineral Departments. The corresponding pithead/wellhead prices were derived from the returns of the Census of Mining Industries, 1980-81 conducted by FBS.

8.25 The bench-mark estimates for the year 1980-81 are worked out by multiplying the annual output of each mineral by the respective base year pithead/wellhead price. The value added is derived by deducting the cost of inputs which is 20% of the value of gross output as indicated in the Mining Census, 1980-81. These estimates are at constant factor cost. Current estimates are obtained by applying WPI (Minerals). A deduction of 5 percent is made on account of depreciation.

H) Manufacturing:

8.26 This sector is divided into two sub-sectors viz. Large Scale Manufacturing and Small Scale Manufacturing. Large Scale Manufacturing covers the establishments registered under Section 2(j) and 5(i) of the Factories Act, 1934, whereas Small Scale Manufacturing includes all such manufacturing establishments not covered there-under. Section 2 (j) refers to factories which employ 20 or more workers on any day during the year and use power in their manufacturing operation. Section 5 (i) pertains to the factories wherein a manufacturing process is carried on or is ordinarily carried on whether with or without the use of power whenever ten or more workers are working therein or have worked there on any day of the 12 months immediately preceding.

i) Large Scale Manufacturing:

8.27 There are two source of data on large-scale manufacturing. one is the annual Census of Manufacturing Industries and the other is data on current output of industrial commodities. Census data is used to derive bench-mark estimates. Data on 106 important manufacturing items covering 81% weight of the organised industrial sector are collected on regular basis to compute quantum index of manufacturing (QIM) which is used to project the bench mark vale added in 1980-81 to derive constant value added in subsequent years. From 1988-89 and onward the QIM is based on production data of 96 items covering 74% weight . This is due to non availability of production data from CBR as a withdrawal of excise duty. The estimates at constant factor cost are converted into current cost by applying specially constructed WPI (manufacturing) which is different from the published as the former covers items of IPI and their respective weights not covered in WPI (Manufacturing) published. In the absence of any reliable data on depreciation, a flat rate of 10 percent of value added is applied to arrive at net value added .

ii) Small and House hold Industries:

8.28 The bench mark estimates of manufacturing of value added of small and household manufacturing industries (SHMI) have been derived on the basis of country-wide census/survey on SHMI 1983-84. The survey results of urban areas have been adopted as it is, whereas the survey results have been used indirectly which means the per worker value added derived from SHMI rural survey has been applied to the rural labour force employed in SHMI derived from the labour force survey, 1983-84 as the SHMI rural survey covers 40 percent of employed labour force (389993) as against 972000 covered in Labour Force Survey.

8.29 The aggregated urban-rural bench mark estimates are further projected on the basis of annual geometric growth between 1976-77 and 1983-84 to obtain year to year value added at constant factor cost. These are converted into current factor cost estimates by applying a special constructed WPI of manufacturing covering the items produced by small scale industries. A deduction of 5% is made on Account of depreciation.

I) Construction:

8.30 This sector covers all Construction, repairs, addition, alteration and demolishing activities carried out in economy by households, private bodies, public institutions and the general government. Value added in this sector has been derived by applying value added coefficient to the sectoral estimates of investment by capital assets.

8.31 Estimates of gross value of construction are derived from the sectoral investment by capital assets as under.

- 1: Land Improvement
- 2: Building Residential
- 3: Building- nonresidential
- 4: Other Construction
 - a) roads, streets and highways bridges and tunnels
 - b) Utility lines, transport tracks & runways (other than roads etc.)
 - i) Railways tracks
 - ii) Telephones telegraph and telecommunication Lines
 - iii) Power lines
 - iv) Gas, water ad sewerage lines
 - v) Canals
 - vi) Harbour facilities

c) Other Construction

8.32 Data on the coefficients of value added was collected from concerned agencies such as WAPDA, CAA, Railways, PWD, KPT, Irrigation Departments, Gammon Pakistan Ltd. and other construction agencies.

8.33 To convert these estimates into constant estimates, wage index of construction worker has been applied. Deduction of 5% for depreciation allowances is made to work out the value added.

J) Electricity and Gas Transmission and Distribution:

8.34 The Economic activities in this sector are:

- (i) Generation, transmission and distribution of electricity
- (ii) Transmission and distribution of natural gas

8.35 The Value added estimates of Electricity and gas are computed through product approach. The data on quantity and value of electricity generation, industrial cost and other charges are obtained from WAPDA and KSE. Data on gas transmission and gas distribution are collected from the companies viz Sui Gas Transmission Company, Southern Gas Company (former Karachi Gas Company and Indus Gas Company merged in 1986) and Sui Northern Gas Pipelines Ltd. The estimates so derived are at current factor cost. The estimates at current factor cost are derived by applying WPI of Electricity and Gas as deflator.

8.36 Depreciation is worked out on the basis of provisions thereof in the budgets of water and power development Authority and the profit & loss accounts of the gas and electricity companies.

K) Transport Storage and communication

8.37 The economic activities covered are transportation by railways, roads transport (mechanised and non-mechanised), water transport (coastal, ocean & inland), air transport storage and communication services rendered by Pakistan Post Office, Telegraph and Telephone. Pakistan Broad Casting and Pakistan Television Corporation.

8.38 The Estimates of value added are measured through income approach for which requisite data are collected from the source agencies. Initially the estimates are derived at the current factor cost. To convert the current estimates into constant, unit value indices of passenger and tonnage kilometres for railways, passengers & tonnage-kilometres for air, and cargo handled at sea for sea transport are prepared. Similarly unit value indices for post, telegraph & telephone services for communication and broadcasting & telecasting hours for radio and televisions are prepared and applied.

8.39 The estimates of mechanized and non-mechanized road transport are based on FBS surveys conducted in major cities, while the estimates of non-mechanized road transport are based on data collected from town committees. In mechanized road transport depreciation is estimated on the basis of life expectancies of buses, trucks, taxi cabs and auto rickshaws where as in the non-mechanized road transport sub sector, 10 per cent is deducted as depreciation. In order to get net value added in other sub sectors of transport, i.e storage and communication is calculated as reported by the data supplying agencies.

L) Whole-sale Retail Trade:

8.40 The activities considered in this are :i) Wholesale and retail trade including import and export of goods ii) Purchase and sale agents and brokers iii) auctioneers.

8.41 The estimates are prepared on commodity flow method. The flow of domestic products and imported goods provide information on marketed portion of various commodities domestically produced and imported. The trade mark-ups separately for agriculture commodities, manufactured items and imported goods have been derived from various studies. A deduction of 2 per cent is made for depreciation to arrive at the net value added.

M) Finance and Insurance:

8.41 This sector covers scheduled and non-scheduled banks Development Financial Institutions (DFIs), Cooperative activities and Insurance Companies. The estimates of value added/income generated are computed through income approach. The data on wage factor income and non wage factor income are obtained from State Bank of Pakistan in respect of banking sector. For institutions the data is collected from all Financial Institutions. Data on life insurance is collected from State Life Insurance Corporation of Pakistan, Pakistan Insurance Corporation and National Insurance Corporation and National Insurance Corporation whereas forty three other companies supply the requisite information on general insurance.

8.42 The data on wage and non-wage factor income provide basis for estimation in nominal values. In order to estimate constant estimates, the wage component has been deflated by the by wage index of the banks and insurance employees, specially computed for this purpose while GDP implicit deflator has been applied to non-wage component. Depreciation is deducted to arrive at the net Value added.

N) Ownership of Dwellings:

8.43 The estimates of value added in this sector are measured by the rent accruing from ownership of dwellings rented as well as self occupied. This requires cumulative increase of houses and their respective rent. To prepare estimates of value added the number of occupied houses is taken from the Housing Census, 1980. The estimated annual rental for the urban areas are derived from the latest rent survey of 45 urban towns conducted by FBS. As no survey has ben conducted in rural areas the rentals for rural areas have been taken from the Household Income and Expenditure Survey (HIES) 1984-85 which are deflated for bench mark years 1980-81. On the basis of change in Urban Rent Survey results a deduction of 37.5 % for rural and 22.5 % for urban, as per practice by Excise and Taxation Department was made from gross rentals to account for current repairs and maintenance. The aggregates for rural and Urban Provide the estimates of gross value added for the benchmark year 1980-81. A deduction of 23.4 % is made to account for depreciation to arrive at net Value added.

8.44 To compute the value added estimates for subsequent years, intercensal housing growth separately for urban and rural areas is applied to the number of dwellings on bench mark. Average monthly rent for urban areas separately for each year is taken from FBS rent survey. In case of rural areas, rent has been derived as percentage of urban areas. The Value added so derived for the years 1980-81 onward is at current prices which has been deflated by rent index to arrive at constant prices.

O) Public Administration and Defence:

8.45 This sector consists of wages and salaries of Government employees compiled from the budgets of Federal, Provincial and Local Governments. An imputation equal to 10 percent of wage component is made on account of rent of the Government owned and occupied buildings. An upward adjustment of 5 percent is made for depreciation to convert the net value added into gross value added.

8.46 The constant estimates have been derived by the bench mark estimates by an increase in wages and salaries after deducting the wage effect. Estimates of current value added have been derived independently .

P) Community Social And Personal Services:

8.47 Income arising in this sector consists of income of persons engaged in private education, medical, health and other household and community services. Establishment approach has been applied to estimate the contribution of services sector to the national economy which involves the collection of data on number of services establishments classified by type of services and data on components of value added (value of sales and services, cost incurred during the process of rendering specific services, wages payed to the employees, operating surplus, etc.).

8.48 Establishment approach has been applied to estimate the contribution of services sector to the national economy which involves collection of data on number of service establishments classified by type of services and data on components of value added (value of sales and service, cost incurred during the process of rendering specific services, wages paid to the employees, operating surplus, etc.).

8.49 FBS carried out a number of surveys of important service establishments for the years of 1980-81 namely education institutions, medical health, advertising, accounting, auditing and book keeping, and recreational services which provide valuable data on various components on per worker value added.

8.50 The number of personnel employed in the services sector by occupational groups have been derived from the tabulation of Population Census of 1980-81. The two components provide the basis for computation of value added estimates for the bench mark years. For subsequent years annual average compound growth rates of per worker wage is applied. An allowance of 15 percent for under reporting has been added in the gross value added.

8.51 CPI of commercial employees is used as deflators to derive estimates at current factor cost. An allowance of 5 Percent is made to account for depreciation.

Q) Rest of the World:

8.52 The inflow of income from the rest of the world sector consists of remittances, investment income and royalties and trade marks etc. data on current flows from the rest of world is compiled from the balance of payments figures of State Bank of Pakistan. To account for the non-cash remittances, an imputation based on special studies conducted by FBS during 1980-81 is added.

8.53 Estimates thus obtained are at current factor cost. These are converted into constant values by using unit value index of imports as the net factor income from abroad is regarded as a means of obtaining imports.

R) Expenditure on National Product:

8.54 The estimates of expenditure on national product at current and constant prices given at tables 8.5 and 8.6 are prepared in the light of recommendations of SNA. Old series at 1959-60 base was replaced in 1988 by new base at 1980-81. The sources of data and methodology of estimation of different flows are described in the succeeding paragraphs.

S) Private Consumption expenditure:

8.55 The flow comprises value of final consumption of goods and services of households and private non profit institutions serving households (NPIHS). It is made up of outlays on new durable and non durable goods & services reduced by net sales of second hand goods, scrapes and wastes and is estimated at purchase prices. The flow is measured either through commodity flow approach or on the basis of HIES data. An alternative is residual of the product account. Owing to insufficient data needed for commodity flow approach and time lag in the availability of HIES results it is derived as residual of GNP.

T) General Government Consumption Expenditure:

8.56 It measures the current expenditure on goods and services incurred by the Federal & Provincial Governments and Local Bodies. It comprises compensation of employees including pensions and purchases from enterprises and the Rest of the World. A deduction is made on account of sales of goods & services other than surplus stores to enterprises and households. Sales of surplus stores are treated as a decrease in government budgets. To bring the estimates at constant prices the amount of compensation of employees was deflated by deducting the wage effect index and the purchases by wholesale price index (general).

U) Gross Fixed Capital Formation (GFCF):

8.57 The estimates of GFCF in Pakistan are primarily constructed separately for private and public sectors by economic activity as well as by capital assets. It comprises expenditure incurred on the acquisition of fixed assets, replacement, additions and major improvements of fixed capital viz. land improvement, building, civil and engineering works, machinery, transport equipment and furniture and fixture in the private and public sectors. The methodology used to estimate GFCF in private and public sectors including general Government is given in succeeding paragraphs.

a) Private Sector:

8.58 Estimates of private sector are computed by a combination of approaches i.e commodity flow, expenditure (survey Method) and financial, Commodity flow approach which uses the net availability of capital goods in value terms from domestic production and imports and exports duly adjusted for various margins is applied to the three sectors of economy i.e.

- i) Agriculture
- ii) Construction
- iii) Transport

Expenditure approach (Survey Method) is applied to the sectors such as:-

- i) Mining & Quarrying
- ii) Large Scale Manufacturing (In production)
- iii) Small & Household Manufacturing Industries.
- iv) Wholesale & Retail Trade.
- v) Financial Institutions.
 - a) Ownership of Dwellings
 - b) Real Estate
 - c) Banking & Insurance
- vi) Services

8.59 Financial approach is used to estimate GFCF in under construction large scale manufacturing establishments, electricity, livestock farming, poultry farm and fishing supplemented by survey method. Sector wise detailed methodology is given below.

i) Agriculture:

8.60 Investment in agriculture is estimated on the basis of commodity flow approach i.e the availability of investment goods such as tractors, thrasher, combined harvester, tube-well etc. through imports and domestic production apart from other item such as land improvement, farm buildings, well & bandits etc.

ii) Mining & Quarrying: 395

8.61 The investment in Mining & Quarrying sector is based on the annual Census of Mining Industries conducted by FBS.

iii) Large Scale Manufacturing:

8.62 The investment in large scale manufacturing is estimated separately for in-production and under-production establishments. The estimates of in-production industries are based on data collected through survey of Expenditure on Fixed Capital Formation conducted by FBS and those of under-construction on the basis of disbursement of financial assistance for investment through DFIs and scheduled banks.

iv) Small & Household Manufacturing Industries:

8.63 The investment in SHMI is estimated on the basis of geometric growth rate calculated on the basis of SHMI Survey 1976-77 and 1983-84 conducted by FBS which is further adjusted with investment goods price index of this sector.

v) Construction:

8.64 The investment made in this sector is estimated through commodity flow approach i.e availability of capital goods, construction machinery and transport equipments domestically produced and imported for use in construction activity .

vi) Transport, Storage & Communication:

8.65 Commodity flow method is applied to estimate the investment in this sector as in case of construction sector.

vii) Wholesale & Retail Trade:

8.66 The estimates of investment in wholesale retail trade sector have been included first time in the revised series. the estimates are based on the survey results of distributive trade conducted by FBS.

viii) Finance, Insurance, Real Estate & Ownership of Dwellings:

8.67 This sector covers private sector's financial institutions such as banks, cooperative credit societies, general insurance, real estate (The later has been estimated for the first time in the revised series since 1980-81) and ownership of dwellings sector. The estimates of financial institutions are based on data supplied by source agencies while the estimates for real estate and ownership of dwellings sectors are based on survey results conducted by FBS. With regard to investment in ownership of dwellings, the estimates have been prepared by urban and rural areas taking into account the size and type of dwellings and cost of construction.

ix) Services:

8.68 Investment in private services sector is based on the surveys and case studies conducted by FBS on different activities of services such as private Educational Institutions, Medical & Health Advertising, Recreation, Accounting, Auditing & Book-keeping and reports of Annual Establishment Enquiries.

b) Public Sector:

8.69 Public sector investment comprises of investment made by public sector enterprises, autonomous and semi-autonomous bodies and General Government. Data in respect of public enterprises are collected from the respective agencies whereas the estimates of the General Government are derived from the classifications of Demands of Grants of the development and non-development budgets of the Federal and Provincial governments and Local Bodies. The sectoral deflators were developed and applied to convert current estimates into constant.

v) Change in stocks:

8.70 It refers to the value of physical change in raw material, work in progress and finished goods held by enterprises and government stock piles. The data on this flow is based on the estimates of Planning Division. The changes in stock in current prices are deflated by the general wholesale price index to bring the same at constant prices.

w) Exports and Imports of Goods and Non-factor Services:

8.71 It represents the value of goods and non-factor services sold to and purchased from the rest of the world. It includes gifts in cash or kind, excluding military equipment transferred between Governments. The figures of exports and imports of goods are sourced from the Federal Bureau of Statistics while those for non-factor services are derived from the balance of payments statistics compiled by the State Bank of Pakistan. The imports are deflated by the import price index & the exports by the export price index to bring the same at constant prices.

x) Net Factor Income from Abroad:

8.72 The method of estimation of this flow has been explained in para 8.52.

8.73 Indirect taxes are taxes assessed on producers in respect of production, sale, purchase or use of goods and services, which they charge to the expenses of production, and taxes, paid by the household on possession or use of goods and services, without regard to personal circumstances. Subsidies consist of current grants made by government to producers and are in fact negative indirect taxes since they contribute to factor income but do not enter into market prices. They may take the form of direct payment to producers or of a differential between the buying and selling prices of government trading organizations. The figures of indirect taxes and subsidies have been derived from budgets of the Federal and Provincial Government and Local Bodies. The estimates in current prices were deflated by the general Wholesale Price Index(WPI) to bring the same at constant prices.

9. AGRICULTURE

9.1 This section presents information about land utilization, number and area of farms by size, area and production of agricultural crops, vegetables and fruit, cropwise use of fertilizers, imports of fertilizers, acreage covered by plant protection operations, area irrigated, area underlain by '0-5 and 0-10' depth to watertable in Pakistan, out-put of forest and fishing.

9.2 The indices of acreage, quantum and value cover principal crops including food crops, fibre crops & other crops. These indices are based on Laspeyre's types formula.

$$\text{Quantum Index } I_{qn} = \frac{\sum p_o q_n}{\sum P_o q_o} \times 100$$

$$\text{Value Index } I_{vn} = \frac{\sum p_n q_n}{\sum p_o q_o} \times 100$$

$$\text{Acreage Index } I_{An} = \frac{\sum A_n}{\sum A_o} \times 100$$

Where P_n is the current year prices.
 P_o is the base year prices.
 q_n is the current year quantity.
 q_o is the base year quantity.
 A_n is the current year Area.
 A_o is the base year Area.

9.3 Acreage and production of crops, vegetables and fruit shown in Tables 9.5 to 9.8 relate to Agricultural year beginning 1st July and ending 30th June.

9.4 Estimates of acreage and production are compiled by the Federal Bureau of Statistics, Statistics Division on the basis of information received from the Provincial Departments of Agriculture. These estimates are issued in the form of Press Release, Gazette Notification and official publication by the Ministry of Food, Agriculture and Cooperatives, Food and Agriculture Division (Economic wing).

9.5 Three estimates are prepared for major crops, whereas, for minor crops only two imates are prepared. The first estimate gives preliminary information about area sown at the sowing time. The second estimate provides latest information about area sown, including late sowings, after the sowing has been completed and preliminary estimate of production before harvest. The final estimate provides latest information about area sown and production of crops after harvest. Only one estimate is compiled for minor crops, vegetables and fruits.

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9.6 In Punjab and NWFP, first and second acreage estimate of crops for which three estimates are prepared and first acreage estimate of crops for which two estimates are prepared are based on sample surveys. However, final acreage estimates in these provinces are based on the complete "Khasra Girdawari" undertaken by the officials of the Revenue Department. In Sindh all acreage estimates are based on sample survey technique. In Balochistan province acreage estimates are prepared on the basis of information supplied by the officials of Agriculture Department.

9.7 The traditional method of estimating production of minor crops consists of multiplying area sown with its estimated yield which is determined through subjective judgement of the reporting officer. The yield is estimated keeping in view the normal yield fixed on the basis of crop cutting experiments undertaken by the Revenue Department/Provincial Agriculture Department during specified period and condition of crop during its growth ascertained from the farmers or based on their own personal judgement. This method for major crops such as wheat, rice cotton, sugarcane and maize has been replaced in Punjab, Sindh and NWFP by objective technique known as crop cutting survey based on probability sampling technique.

9.8 Data on land utilization is collected from the provincial Revenue Department.

10. ENERGY & MINING

10.1 Table 10.1 contains data on commercial energy supplies of coal, crude oil, natural gas and electricity.

10.2 Table 10.2 contains data on installed capacity of electricity by source i.e. Hydel, Thermal and Nuclear.

10.3 Table 10.3 contains data on generation of electricity by source i.e. Hydel, Thermal and Nuclear.

10.4 Table 10.4 contains production data in respect of mining items.

11. DEVELOPMENT AND PLANNING

12. Manufacturing

12.1 Table No. 12.1 contains series of Quantum Index Numbers of Large-scale Manufacturing Industries for Pakistan with 1959-60, 1964-65, 1969-70, 1975-76 and 1980-81 as base years.

12.2 At present the quantum indices are being computed with 1980-81 as base. The index series with 1980-81 base covers 106 items contributing 81.427% of value added on the basis of 1980-81 Census of Manufacturing Industries (CMI) results. However, since 1988-89 the indices are being computed on the basis of 96 items.

12.3 A brief description about the scope, sources of data, weighting system, formula used for computation of the index series is given below.

(a) Scope:- The index is designed to measure changes in the physical out-put for the Large -scale Manufacturing Industries.

(b) Sources of data:- The production data used for the computation of indices are received from Ministry of Industries, Central Board of Revenue, Provincial Bureaus of Statistics and also collected from the factories.

(c) Weights: The weights have been derived on the basis of 1980-81 CMI value added at factor cost (gross value of production less industrial cost less indirect taxes plus subsidies) including the results of the non-response CMI survey. In deriving the Weights the total value added for Pakistan has been taken to the 100 and the weights at industry level have been taken as percentage of this total whereas weights at items level have been derived on the basis of their relative value of production in the industries to which these items belong. However, in case where only one item has been selected the whole weight of that industry has been assigned to that selected item only.

(d) Formula used:- Laspeyre's formula has been used for the computation of index numbers, which is given below:-

$$I_n = \frac{\sum q_n P_o}{\sum q_o P_o} \times 100 = \frac{\sum \frac{q_n}{q_o} P_o q_o}{\sum q_o P_o} \times 100 = \frac{\sum \frac{q_n}{q_o} W}{\sum W} \times 100$$

Where I_n = quantum index number for the current period q_n and p_o represent the quantity and prices respectively of the items in the base period, q_n is the quantity in the current period, w is the weight of an item and $\sum W = 100$.

12.4 Table 12.2 contains production data of selected manufacturing items. Production data is most of the cases are collected through voluntary co-operation of various government and non-government agencies. Production data of some items are also collected by Federal Bureau of Statistics direct from the factories. Since most data are collected from other sources which need considerable time for reconciliation of data, upto-date figures in respect of many items cannot be published although Federal Bureau of Statistics makes all possible efforts for timely publication. Further, the data received from other sources are some times revised by the sources concerned without the knowledge of Federal Bureau of Statistics. There is, therefore, possibility that in some cases, the data published by Federal Bureau of Statistics may vary from those published by original sources.

12.5 Table 12.3 cover data regarding Census of Manufacturing Industries for various years.

