2 Economic Growth, Savings and Investment

2.1 Overview

The overall performance of the economy during FY02 was quite encouraging under the circumstances; real gross domestic product (GDP) grew by 3.6 percent compared to 2.5 percent in FY01, and was not very far from the 4.0 percent growth target for the year, despite the impact of economic shocks emerging from September 11 events. It is noteworthy that all key sectors contributed to the growth, although the services sector was dominant.

Agriculture was again hit by acute water shortages for the third successive year and, as a result, the crop sub-sector recorded a 0.1 percent decline even on the low base of FY01. The weak performance of the major crops, in particular, is a matter of grave concern; it is worth noting that the growth figure could have been even worse, if not supported by the unexpectedly good sugarcane crop that mitigated much of the impact of declines in other key crops.

In fact, the negative growth of the crops sub-sector partially cannibalized the contribution of the livestock sub-sector, which recorded a 3.4 percent rise in FY02 (a deceleration from the 4.9 percent seen in FY01). As a result, the agriculture sector recorded a growth of 1.4 percent against the 2.6 percent negative growth in FY01. Thus, even this weak recovery of the agriculture in FY02 owes almost entirely to the livestock sub-sector.

The manufacturing sector fared better in FY02, recording a substantial 4.4 percent growth. While certainly lower than the 7.6 percent growth recorded in FY01, the resilience demonstrated by the sector in overcoming the impact of various prevalent economic and political uncertainties, is encouraging.

However, it was the services sector that overshadowed the overall GDP growth profile in FY02, rising 5.1 percent during the year vs. a target growth of 4.4 percent, and an increase of 4.8 percent in FY01. Interestingly, approximately half of the incremental value addition in FY02 is recorded by a single component, i.e. *defense and public services* (see **Table 2.1**).

Table 2.1: Sector-wise Growth Rates

at constant factor cost of 1980-81

	Growth rates		Sectoral shares	
	FY01[R]	FY02[P]	FY01[R]	FY02[P]
A) Commodity producing sector	**0.2**	**2.1**	**49.8**	**49.1**
Agriculture	-2.6	1.4	24.6	24.1
Crops	-7.1	-0.1	14.2	13.7
Major crops	-9.8	-0.5	10.1	9.7
Minor crops	0.1	1.0	4.1	4.0
Livestock	4.9	3.4	9.3	9.3
Fishing	-3.7	4.0	0.9	0.9
Forestry	9.9	1.1	0.3	0.3
Industry	3.1	2.8	25.2	25.0
Manufacturing	7.6	4.4	17.5	17.7
Large-scale	8.6	4.0	12.3	12.4
Small-scale	5.3	5.3	5.2	5.3
Mining and quarrying	4.3	3.8	0.5	0.5
Construction	-0.4	0.9	3.4	3.3
Elec. and gas distribution	-11.0	-2.7	3.8	3.6
B) Services sector	**4.8**	**5.1**	**50.2**	**50.9**
Wholesale & retail trade	5.2	2.2	15.3	15.1
Transport storage & comm.	5.0	0.1	10.5	10.1
Finance & insurance	2.7	3.8	2.3	2.3
Ownership of dwellings	5.3	5.3	6.1	6.2
Public admin. & defense	1.1	18.2	6.4	7.3
Other services	6.5	6.5	9.6	9.9
Gross domestic product	**2.5**	**3.6**	**100**	**100**

[R]: Revised; [P]: Provisional

Source: Federal Bureau of Statistics

Gross National Product (GNP) grew by 5.4 percent in FY02 compared to 2.5 percent last year. The increase in net factor income from abroad, mainly caused by the higher remittances, for the first time during the past eighteen years, brought GNP growth substantially ahead of growth in GDP.

National savings stood at 13.9 percent of GNP in FY02 compared to 15.3 percent of GNP last year; the lower ratio implies that there has been a decline in the marginal rate of savings during FY02.

Also, a 5.9 percent fall in gross fixed investment saw its ratio to GNP decline further to 12.2 percent in FY02 from 14.5 percent last year.

2.2 Agriculture

The performance of agriculture during FY02 was disappointing. The sector posted a weak recovery, growing only by 1.4 percent, even on the low base due to the 2.6 percent decline in FY01, owing almost entirely to a reasonable performance of the livestock sub-sector (see **Table 2.2**).

Table 2.2: Value Added Growth and Shares
at constant factor cost of 1980-81

	Growth rates		Shares in agriculture	
Sectors/Sub-sectors	**FY01[R]**	**FY02[P]**	**FY01[R]**	**FY02[P]**
Agriculture	-2.6	1.4	100.0	100.0
Crops	-7.1	-0.1	57.7	56.9
Major crops	-9.8	-0.5	40.9	40.1
Wheat	-14.3	-2.7	12.5	12.0
Cotton	-5.3	-1.1	12.4	12.1
Rice	-8.6	-6.7	6.8	6.3
Sugarcane	-7.0	10.3	5.6	6.1
Other crops	-14.3	4.0	3.7	3.8
Minor crops	0.1	1.0	16.8	16.7
Livestock	4.9	3.4	37.7	38.4
Fishing	-3.7	4.0	3.5	3.6
Forestry	9.9	1.1	1.1	1.1

[P]: Revised; [P] : Provisional
Source: Economic Survey 2001-02

The crops sub-sector, the key contributor to overall agricultural growth, saw a lower fall in FY02, but this is no cause for celebration; it simply reflects that a further decline in rice was offset by an improved sugarcane crop,[1] leaving the overall FY02 production of key crops stagnant around the poor FY01 levels. As in the previous year, water shortages proved to be the key culprit, with aggregate availability of surface water at canal heads declining further to 73.1 million acre feet against 81.1 million acre feet during FY01.

Fishing activities were higher during the year and made a good headway over the previous year's negative growth. Similarly, forestry also recorded positive growth. However, due to their small shares in value addition their overall contribution was insignificant.

Table 2.3: Present Agriculture Scenario

	FY00	FY01	FY02
Share in GDP (real)		Percent	
Agriculture	25.9	24.6	24.1
Crops	15.7	14.2	13.7
Livestock	9.1	9.3	9.3
Prices in wholesale markets		Percent change over last year	
General	1.8	6.2	2.4
Food items	0.5	3.0	0.1
Raw materials	-22.5	8.2	-2.5
Prices of important inputs			
Fertilizers (urea)	-5.5	11.0	7.2
Motor fuel	17.1	32.6	1.6
Electricity for tubewells (fixed charges)		- No change -	
Cash value per rural capita (real)			
Agriculture	4.1	-4.4	-0.4
Crops	5.6	-8.8	-1.8
Livestock	0.0	3.0	1.6

Source: Economic Survey 2001-02

Clearly, the agricultural sector has lost much of the momentum from the annual average growth of 4.3 percent during the 1990s. In real terms, the FY02 value addition of Rs 166.3 billion has fallen even below the Rs 168.5 billion contributed by agriculture in FY00, pulling down the sector's share to 24 percent in FY02 from almost 26 percent in FY00.

This decline in output, coupled with other negatives such as a declining trend in farm output prices, increasing input costs, and lack of protection from volatility in market prices eroded farm incomes, leaving the rural populace precariously placed. This is clearly visible in the falling rural per capita real cash

[1] The sharp improvement in the sugarcane crop amidst water shortages is simply because of the *timing* of the rains that proved beneficial for the FY02 crop. The overall quantum of the rains for FY02 was still lower than in the previous year.

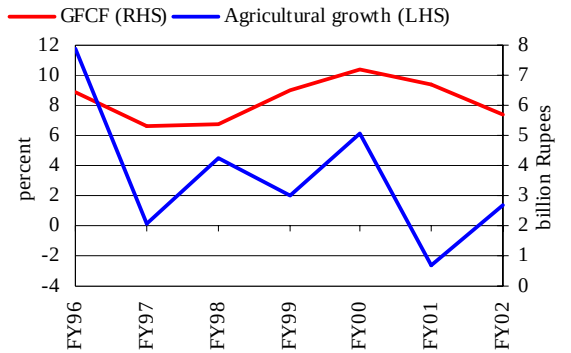
value[2] that, after showing an improvement in FY00, deteriorated by 4.4 percent and 0.4 percent in FY01 and FY02, respectively (see **Table 2.3**).

The timing of the decline in farm incomes is particularly unfortunate, since a coinciding surge in the prices of key farm inputs such as fertilizers and light diesel (fuel for tractors and tubewells) added to the cost of production. Faced with limited choices, farmers opted to cut down production expenses by curtailing the usage of fertilizer during FY02 (the urea off-take was 7.3 percent lower than in FY01).

Also, farmers seem to have deferred their expenses on development works such as purchase of tractors, installation of tubewells, development of land and watercourses, etc. In fact, they even showed less interest in undertaking developmental activities through bank borrowings. During FY02, farmers availed 13.9 percent less development credit compared to the previous year.

In years of better growth, capital formation in agriculture remains high, and vice versa. This is evident from the significant relationship that exists between the annual growth in agriculture and the real expenditures on capital formation by private sector in agriculture (see **Figure 2.1**). Except for FY99, when farmers were given incentives for purchasing tractors and installing tubewells, the relationship holds strongly. In FY02, farmers (particularly those depending only on crops) clearly could not make the necessary investment due to the shock of the large negative growth during FY01.

Figure 2.1: Agricultural Growth and GFCF



Contrary to private sector's trend, wide fluctuations have been observed in capital formation in agriculture by public sector; as a percent of total public sector investment, it ranged from a low of 0.7 in FY01 to a 3.7 percent figure for FY02[3]. This volatility reflects the changes in the annual development plans each year.

Table 2.4: Share of Agriculture in Public Sector Expenditure

billion Rupees

Five-Year Plans	Overall size	Allocation	Percent of overall size
First (1955-60)	4.9	0.46	9.5
Second (1960-65)	10.1	0.70	6.6
Third (1965-70)	13.2	0.82	6.2
Non-plan period	75.5	4.14	5.5
Fifth (1978-83)	153.2	6.06	4.0
Sixth (1983-88)	242.4	8.12	3.3
Seventh (1988-93)	350.0	12.31	3.5
Eighth (1993-98)	752.1	10.01	1.3
Ninth (proposed)	847.0	14.00	1.7

Source: FAO Report on Agriculture Strategies for the First Decade of New Millennium

In each effort to reduce the fiscal deficit, the immediate cut is placed on the size of the annual development plan, squeezing the already marginal allocation of funds for rural development and the agriculture sector. The existing situation is thus the continuation of a trend that started after the first five-year plan (see **Table 2.4**).

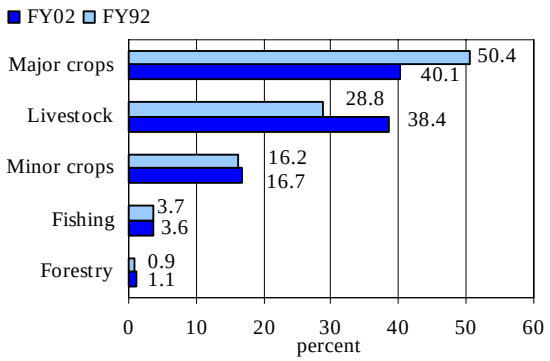
[2] This is the real agricultural GDP per rural capita. In addition to exhibiting the income volatility of the rural populace, this indicator is used for measuring income disparity between rural and urban incomes.

[3] Real capital formation in agriculture by public sector was at Rs 845 million during FY02 compared to Rs 196 million last year.

2.2.1 Major Crops[4]

Despite two years of negative growth major crops maintained their customary largest share in FY02, contributing more than 40 percent of the value addition (see **Figure 2.2**). However the decline in major crops not only overshadowed the progress of other sub-sectors of the agriculture, but also pushed down overall GDP growth.

Figure 2.2: Sectoral Shares in Agriculture



FY02 efforts to increase the production of major crops by ensuring the timely availability of fertilizers, pesticides and higher disbursement of credit fell prey to shortfall in canal-head water.[5] As a result both, the area under cultivation and yields declined for most major crops.

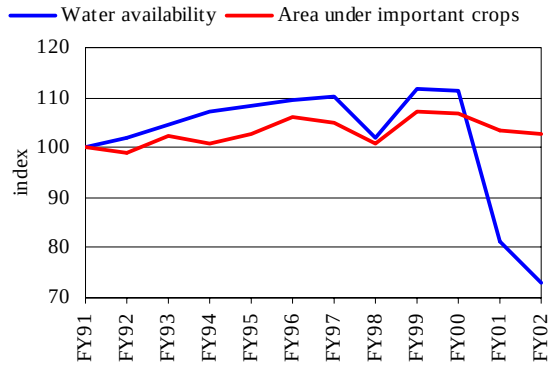
Table 2.5: Highlights of Important Major Crops - FY02

	Shares in major crops	Percent change over last year		
		Production	Area	Yield[1]
Kharif crops				
Rice	15.6	-19.2	-11.1	-9.2
Cotton	30.1	-1.1	6.4	-7.2
Sugarcane	15.1	10.2	4.1	5.9
Maize	3.4	1.3	-0.2	1.5
Rabi crops				
Wheat	29.9	-3.6	-1.5	-2.1
Gram	2.3	-9.6	2.7	-12.1

[1]: Per hectare
Source: Economic Survey, 2001-02

During the year under review, among the four most important crops (with a 90.7 percent share in major crops), declines were recorded in the production of rice, cotton and wheat. Production of sugarcane, on the other hand, increased by 10.2 percent, supported by an increase in the area under cultivation, and higher per hectare yield.

Figure 2.3: Water Availability & Cultivated Area



With a worsening of the water shortage in the later half of kharif and the entire season of rabi, the area under rice and wheat dropped, and this loss was compounded by yield declines (see **Table 2.5**). Another factor contributing towards a decline in the yield of rice was the substitution of high yield (but lower quality) rice with the low yield (higher quality) rice. For wheat, the decline in yield was mostly related to insufficient rains in the *barani* (rain fed) and hilly areas.

The decline in yield of cotton crop, despite a rise in area under cultivation, resulted in a smaller crop size. An attack of bollworm in some of the cotton growing districts of Punjab and late sowing in Sindh, due to water shortages, were among the main factors contributing to the fall in yields.

There has been a significant relationship between water availability and the area under cultivation of important crops except for the last two years when the area declined less proportionately than the

[4] Consist of 12 crops including: rice, cotton, wheat, sugarcane, maize, gram, barley, jowar, bajra, rapeseed and mustard, sesamum and tobacco.
[5] In fact, area irrigated by canals saw a 7.7 percent decline over the previous year.

shortage of irrigation water (see **Figure 2.3**). This happened on account of better water management by the authorities and greater resort to tubewell irrigation (see **Box 2.1** on *Role of Tubewells in Irrigation).*

Further, if taken by end-use classification, *area under food-grains* (wheat, rice, bajra, jowar, maize and barley) declined by 3.6 percent followed by a 5.5 percent decline in production. By contrast, the area under sugarcane and cotton increased by 4.1 percent and 6.5 percent respectively, mainly on account of timely rains in early kharif and substitution of area from rice to cotton at some places.

It is interesting to note that the share of major crops in agriculture has fallen from 50.4 percent in FY92 to 40.1 percent in FY02, but it still sets the overall trend in agri-sector growth (see **Figure 2.4**).

Figure 2.4: Major Crops and Agriculture

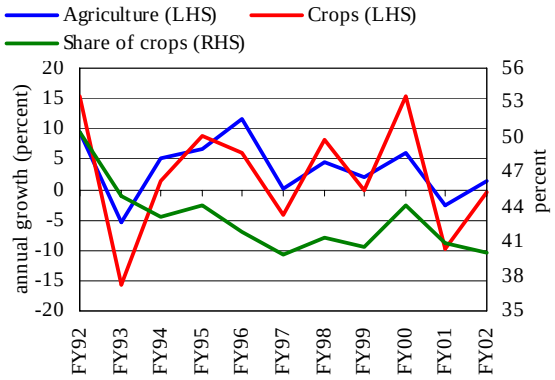
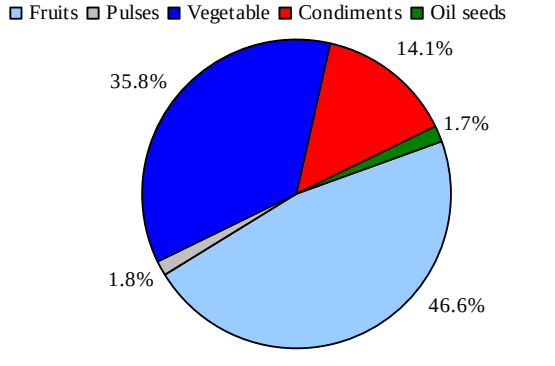


Figure 2.5: Crop Composition (Minor)



2.2.2 Minor Crops

The less thirsty minor crops, in contrast to the major crops, succeeded in posting a 1 percent growth in FY02, compared to a marginal increase of 0.1 percent in FY01. With a 17 percent share in value addition, minor crops, after major crops and livestock, occupy the third place, in terms of the contribution to agriculture. By composition, the classification contains items such as pulses, vegetables, fruits and oilseeds (see **Figure 2.5**).

With the highest share in minor crops, the fruits sub-sector is an important contributor to exports. During FY02, total fruit exports amounted to US$ 83.1 million compared to US$ 78.7 million in FY01 (see **Special Section 2.2** on *Fruits Production, Marketing and Export*).

Table 2.6: Highlights of Important Minor Crops - FY02

percent change over last year

	Area	Production	Yield[1]
Oil seeds	5.9	1.6	-4.1
Masoor	2.4	2.2	-0.2
Moong	9.0	10.5	1.4
Mash	20.6	7.4	-10.9
Potatoes	1.7	0.7	-0.9
Onion	-1.0	-11.3	-10.3
Chillies	-42.2	-46.6	-7.5

[1]: Per hectare

Source: Economic Survey, 2001-02

Among other key minor crops, the production of onion and chilies declined during FY02 (see **Table 2.6**). Marketing weaknesses and fall in prices were the main factors behind the respective declines. In particular, transport and marketing bottlenecks resulted in significant onion production losses during FY01 and FY02. This discouraged growers, particularly in Balochistan.[6] The setback to the production of chilies was on account of a sharp fall in prices during FY01 when the average retail price declined by 21.7 percent.

[6] After Punjab, Balochistan is the second highest producer of onion with around 30 percent share in the total production.

Box 2.1: Role of Tubewells in Irrigation

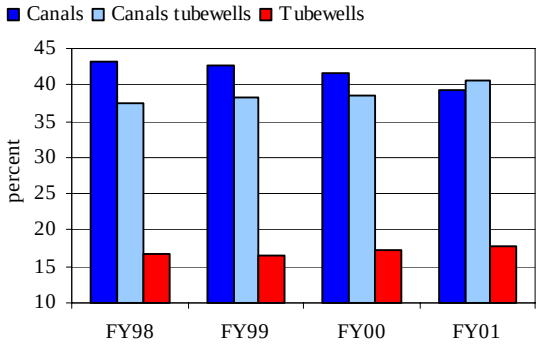
After signing the Indus Basin Treaty with India in 1960, Pakistan holds the right to use the water of three rivers, the Indus, Jhelum and Chenab. Their average annual flow was at 142 million acre feet (MAF) at the time the Treaty was signed.

However, the water flow has gradually declined. The canal head water supply, which was on average 105.6 million-acre feet (MAF) in 1990's, fell to 73.1 MAF in 2001-02, reducing water availability for Pakistani crops. Poor rains have compounded this problem in the last two years.

- In Rabi season FY02, water supply was 50.0 percent lower than the average availability (in FY01 the gap was 41.0 percent).
- The total flow in main rivers at 91.2 MAF in FY02 was significantly short of 131.7 MAF (the average annual flow during the past 24 years).
- Rainfall remained below normal levels with a decline of 8.8 percent during monsoon 2001 and a 43.2 percent fall during winter (January to March 2002).

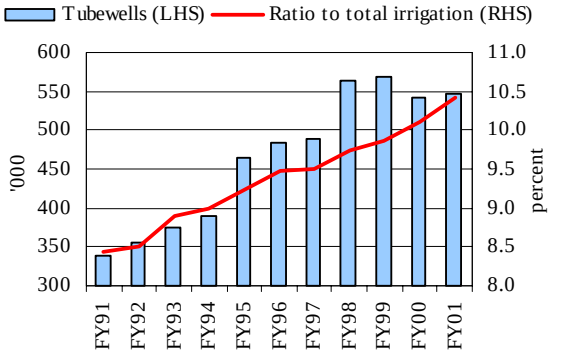
As a result, FY02 canal-head water availability was reduced by almost one-fourth compared to the average for the past ten years. The adverse affect of this grave water shortage was alleviated through (1) minimizing the water flow losses from canal-head to farm-gate, and (2) increasing water extraction through tubewells. Consequently, water channel losses were reduced to less than 5.0 percent in FY01 compared to 25.3 percent in FY99. Further, in FY01, for the first time in the past ten years, the area irrigated by canal-tubewells (installed in canal command areas) exceeded the area irrigated by canals (see **Figure 2.1.1**). The share of tubewells in total irrigation (other than canal-tubewells) is also rising; it increased from 15.3 percent in FY91 to 17.9 percent in FY01.

Figure 2.1.1: Modes of Irrigation



Installation of tubewells continued both in private and public sectors. During the past ten years, higher annual average growth at 6.2 percent has been observed in private tubewells compared to the 4.0 percent increase in public-sector tubewells. By the end of FY01, tubewells totaled 545.6 thousand, with private tubewells taking a 95.9 percent share. Consistent with number of tubewells, the ratio of tubewell irrigation to total irrigation is also rising (see **Figure 2.1.2**).

Figure 2.1.2: Tubewells vs. Irrigated Area



The high (and rising) ratio of tubewell irrigation suggests that tubewells may have helped significantly in avoiding a steep fall in the total area under cultivation, given that during the past two years this was the only alternate water source that significantly compensated for canal water shortages. In fact, the shortfall in canal-irrigated area at 11 thousand hectares in FY01 was more than offset by an increase of 24 thousand hectares by tubewells. In FY02 again, the area under tubewell irrigation increased by another 24 thousand hectare, but could not fully offset the decline of 58 thousand hectare in area under canal-irrigation.

Although, tubewell-irrigation proved helpful in easing water scarcity during past two years, its sustainability is again pegged to rainfalls and the flow of water in rivers and canals that recharge the underground water reservoirs. In fact, excessive drawing of water during periods of drought causes a rapid depletion in the underground reservoirs and limits the usage and sustainability of tubewell-irrigation.

The construction of small dams and water reservoirs by both, the private and public sectors, is essential to maintain underground water to the minimum levels necessary for the functioning of tubewells.

The increase in production of oilseeds by 1.6 percent during FY02 could not bring any improvement in the domestic share of total availability of edible oil. At present, the domestic production of oilseeds provides around 29 percent of the total domestic requirement.

2.2.3 Livestock

During FY02, livestock and poultry grew by 3.4 percent compared with 4.9 percent figure for FY01, with broad based growth in all sub-heads, their products and by-products. The highest growth was shown by the poultry sector both, in the number of birds and in the production of the poultry meat (see **Table 2.7**).

Table 2.7: Livestock Population and Products

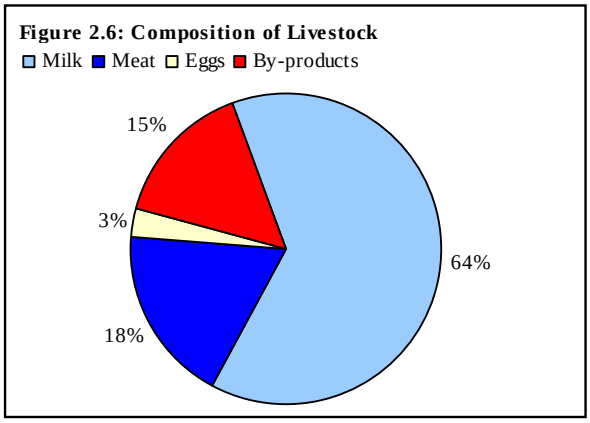
Selected Species	Million numbers FY01	Million numbers FY02	Percent change	Products	Thousand tonnes FY01	Thousand tonnes FY02	Percent change
Cattle	22.4	22.8	1.8	Milk	26.284	27.031	2.7
Buffalo	23.3	24.0	3.0	Beef	1,010	1,034	2.4
Sheep	24.2	24.4	0.8	Mutton	666	683	2.6
Goat	49.2	50.9	3.5	Poultry meat	339	355	4.7
Poultry[1]	315.6	330.0	4.6	Eggs[2]	7,505	7,679	2.3

[1]: Includes Layers, Broilers and Breeding stock

[2]: Million numbers

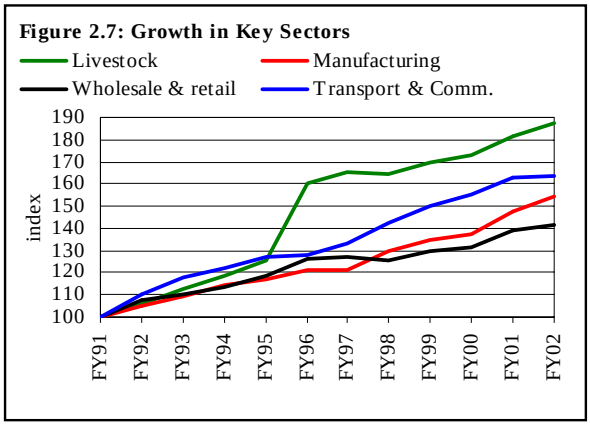
Source: Ministry of Food, Agriculture and Livestock

Milk, meat and eggs combined with by-products such as wool, skin, hides, bones, fat, etc., are all constituents of the livestock sector, with milk having the highest share (see **Figure 2.6**).



In addition, many other economic benefits like farmyard manure, draught power and to some extent, means of transport for carrying market surplus to urban centers, also accrue on account of this sector.

With the consistent growth spread over the past two decades, the livestock sub-sector seems set to capture the highest share in agriculture. This silent transformation is creeping forward through the concerted efforts of farmers coupled with the change in demand pattern for livestock products in Pakistan. At present, livestock is emerging as one of the fastest growing sector of the economy (see **Figure 2.7**).



By FY02, the share of livestock reached 38.4 percent in agriculture as against 28.8 percent in FY92. Similarly, value addition to real GDP also increased during the period by around 77 percent. The extraordinary growth in FY96 is on account of the revision made in the value addition

based on the livestock census held in that year. While the livestock value added income showed steady increase, the variability in the output of other sub-sectors led to a volatility in its relative share in agriculture income (see **Figure 2.8**).

A key reason for the robust growth in this sub-sector is the regular income livestock brings to farmers, providing critical financial support[7], during periods when farmers face cash flow problems e.g. the inter-crop period. Also, while big farmers adopt livestock farming to diversify their sources of income, small farmers or landless rural households are attracted by the support it provides to their meager income from crops. In some rural areas women have been observed undertaking livestock farming to generate an independent income stream. Also, among the farming community, livestock heads are important assets and are often used as collateral; they therefore prefer to keep as many cattle heads as they can.

Poultry is another fast growing activity. Commercial projects situated either in the outskirts of cities or towns account for most of poultry production. However, a meaningful share comes from rural poultry, which contributes around 10 percent of the production of day-old chicks. Interestingly, the number of layers produced by rural poultry substantially exceeds the production of commercially raised layers. During FY02, commercially produced layers were 18.4 million compared to 32.0 million raised through rural poultry.

Figure 2.8: Share of Livestock in Agriculture

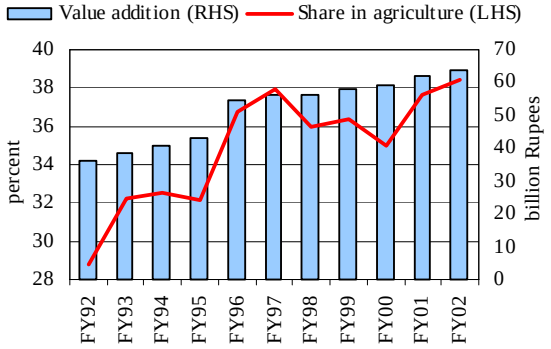


Figure 2.9: Milk vs. Important Crops (value added)

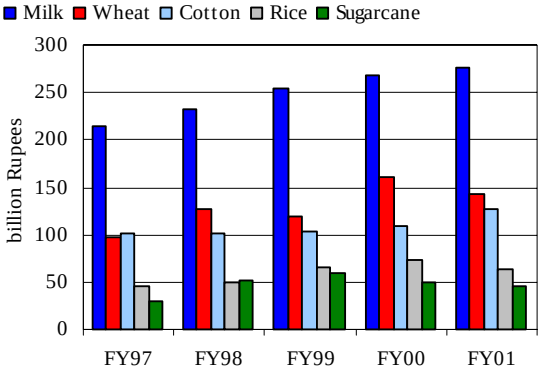


Table 2.8: Per Capita Annual Consumption

Item	Unit	Rural	Urban
Milk (fresh and boiled)	Liter	77.9	75.6
Milk (packed)	Liter	0.2	0.6
Milk (dry/condensed)	Gram	120	240
Biscuits	Gram	507.8	848.4
Mutton	Kilogram	1	2
Beef	Kilogram	3.1	4.8
Chicken	Kilogram	1.2	2.4
Eggs	Number	18	36

Source: Agricultural Statistics of Pakistan, 2000-01

Milk accounts for two-thirds of livestock products by value. Its share in value addition to GDP at current prices is higher than the contribution by any of the major crops. With the continuation of steady annual increase in production, its share is expected to grow further (see **Figure 2.9**).

Future Growth Prospects

In addition to increase in incomes, the impetus to demand for livestock comes from the growing urbanization, and resulting change in dietary habits. In cities, people use higher quantity of food such

[7] In an article published in FAO magazine 'Agriculture 21' the author says "In general, rural poultry provide scarce animal protein in the form of meat and eggs. But they are also a kind of 'credit card', instantly available for sale or barter in societies where cash is not abundant".

as, e.g. mutton, beef, chicken, milk preparations, eggs and bakery products, than their counterparts in villages (see **Table 2.8**). Another factor supporting livestock growth in Pakistan is the demand for sacrificial animals for Eid-ul-Azha.

With higher incomes in urban areas, the domestic and commercial use of livestock products and by-products, is on the rise. A comparison between outcomes of 'Household Integrated Economic Surveys' of 1990-91 and 1998-99 shows significant shift in the consumption pattern of meat and vegetables. Over the period, per capita consumption of mutton and chicken rose by 6.3 percent and 81.8 percent, respectively, while that of beef declined by 25.9 percent. Moreover, consumption of eggs registered an increase by 28.3 percent. On the other hand, per capita consumption of vegetables and pulses has declined by 22.9 percent and 26.3 percent. This, interestingly, shows strong evidence of changes in consumption pattern (more preference towards animal based foods) with changes in income and living standards. Despite a rise in domestic consumption, there is also a large potential for livestock exports to the Gulf and Middle Eastern region.

In low-income countries, about 11 percent of calories and 26 percent of protein are on average, derived from animal food, while these averages for developed countries are 27 and 56 percent, respectively. In Pakistan, the daily per capita availability of calories and proteins is slightly better than the South Asian region, but lower than that of low-income countries (see **Table 2.9**).

Table 2.9: Per Capita Availability of Calories and Protein

	1997		% Change over 1970	
Countries	**Calories**	**Protein[1]**	**Calories**	**Protein**
Pakistan	2476	61	12.4	10.6
India	2496	59	19.9	12.9
Bangladesh	2085	45	-5.1	-4.5
South Asia	2467	59	17.3	12.7
High income	3412	105	12.2	14.3
Medium income	2889	78	15.2	17.6
Low income	2596	65	25.9	30.7

[1]: In grams

Source: World Development Indicators, 2001

A comparison of per hectare yield of major crops and average production of milk per cow/buffalo in Pakistan with the world averages reveals that greater potential of growth lies in the production of milk, the largest element in the non-farm sector. It will be noted that during FY02 imports of milk and milk products amounted to Rs 435 million compared to Rs 633 million in FY01.

Recognizing the potential of livestock and poultry, government has announced a number of measures in the agricultural package, which are listed in the **Appendix** *on Policy Measures for Agriculture*.

2.2.4 Fishing

The fishing activities cover commercial and subsistence fishing in ocean, coastal, offshore waters as well as in inland waters. During FY02, with the contribution of 3.6 percent to the value addition in agriculture, the fishing sub-sector grew by 4.0 percent against 3.7 percent decline last year. Total fish production both from inland and marine sources during the year was 654.5 thousand tons compared to 629.0 thousand tons last year. Similarly, exports of fish and fish preparations also increased from 82.0 thousand tons last year to 84.5 thousand tones during FY02.

2.2.5 Forestry

Value addition through the forestry sub-sector, with a tiny share of 1.1 percent in agriculture sector, registered 1.1 percent growth in FY02 compared with 9.9 percent last year. As the value addition in forestry comes from the sale of timber, its growth in the present scenario is not encouraging because it leads to an increase in deforestation (for detail see **Box 2.2** on *Forests Development in Pakistan*).

Box 2.2: Forests Development in Pakistan

Forests protect the fragile mountain ecosystem; fight against pollution, protect the watersheds and help greatly in abating floods and drought. In addition to being the main source of timber, fuel wood and resin, forests also fulfill the increasing grazing requirement for the cattle. The total area of forests being lost each year might not be very large but the impact on the remaining forests, their biodiversity, and their continued ability to perform their environmental functions and provision of economic goods could be much greater.

Forests constitute around 4.8 percent (4.2 million hectares) of the total land in Pakistan, which is very low as compared to the benchmark of 26 percent for developing countries. Pakistan has only 0.03 hectare of forest per capita, against a recommended level of 0.5 hectare for developing countries.

Pakistan's forests are mostly located in the northern parts of the country (40 percent in the NWFP, 15.7 percent in the Northern Areas, and 6.5 percent in the AJK), largely privately owned. Survey results indicate that 52 percent of timber and 90 percent of firewood comes from these private forests.

The Forest Act, 1927 and the Environment Protection Ordinance, 1983 provide legal support for protecting and conserving forests. Environmental protection and ecology are also included in the concurrent legislative list of Pakistan's 1973 constitution. In spite of all these measures, deforestation is taking place at a very high rate.

As a result, Pakistan is the third highest loser of forests among countries experiencing very high rates of deforestation[8] (see **Table 2.2.1**). It must be remembered that Pakistan already has a large deficit in forest coverage compared to other countries of the region (see **Figure 2.2.1**).

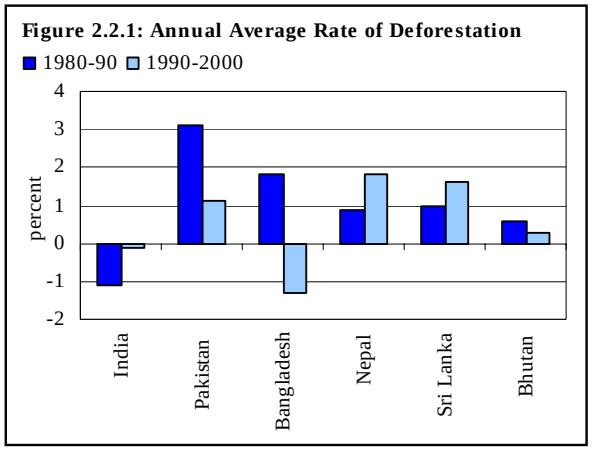
Although regeneration and afforestation, are the only tools to mend the loss done by the deforestation, there are some problems related to afforestation. Such forests have characteristics different from natural forests in their species, composition complexity, biological diversity, and in the benefits they bring to the society; thus they are less profitable as compared to natural forests. Utmost efforts should, therefore, be focused on conserving the natural forests. As the existing forests are widely scattered, it is very difficult to detect illegal cutting of trees. Local population could have proved helpful in arresting illegal deforestation, but the lack of awareness among the populace has not allowed the widespread promotion of Social Forestry in the country.

Table 2.2.1: Deforestation Rate

Country	Ranking	% Annual loss
Philippines	1	3.5
Sierra Leone	2	3.0
Pakistan	3	2.9
Thailand	4	2.6
Paraguay	5	2.6
Central America	6	2.1
Caribbean Island	7	1.7
Cambodia	8	1.6
Ecuador	9	1.6
Myanmar	10	1.6

Source: FAO Publication, 1997

Figure 2.2.1: Annual Average Rate of Deforestation



2.2.6 Credit to Agriculture Sector

Agriculture credit has traditionally been used for purchasing inputs, and to finance developmental activities such as purchase of tractors, installation of tubewells, development of land, etc. The ratio of agricultural credit to agricultural GDP (at current factor cost), which was at 4.9 percent during 1990s, has improved to 6.3 percent during FY02. With the recent improvements in credit delivery e.g. the policy of revolving credit, de-zoning of the commercial banks' territory, etc., it has become easier for the farmers to manage their loan portfolio more effectively.[9]

[8] FAO (1998) reported that Pakistan deforestation rate from 1990 to 1995 had been 55000 hectare annually

[9] With the provision of revolving credit, the farmer now can avail the loan and make the repayment throughout the year irrespective of the cropping season. Earlier, full settlement of the previous crop loan was required to get the loan for the next crop. Further, no fresh documentation is required at the time of each renewal of the credit line.

Simultaneously, with the removal of the cap on mark-up rates[10] and expansion in the scope of agricultural credit, it has become attractive for the commercial banks to lend to the agriculture sector, either directly or by using the branch network and expertise of Agricultural Development Bank of Pakistan.[11]

Disbursements

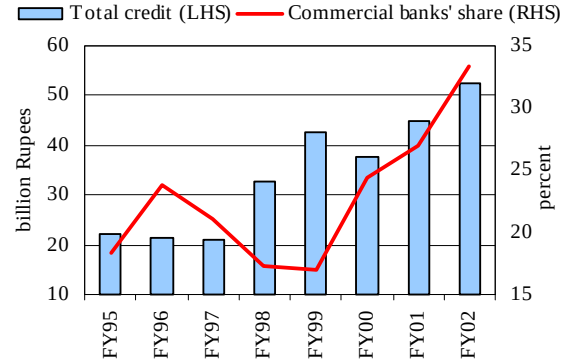
In line with expectations, and consistent with policy changes made by the SBP during past two years, a robust growth of 17.1 percent was witnessed in the disbursement of credit during FY02 with a record amount of Rs 52.4 billion (see **Table 2.10**). The encouraging feature was the rising share of commercial banks in the overall disbursement to agriculture. Since the implementation of the changes in credit policy introduced in FY01, the share of commercial banks has risen sharply (see **Figure 2.10**).

Table 2.10: Purpose-wise Disbursement of Credit

million Rupees	FY01	FY02	% Change
Production	34,310	43,426	26.6
Percent share in total	*76.6*	*82.8*	8.1
Development	10,480	9,021	-13.9
Percent share in total	*23.4*	*17.2*	-26.5
Total	**44,790**	**52,446**	**17.1**

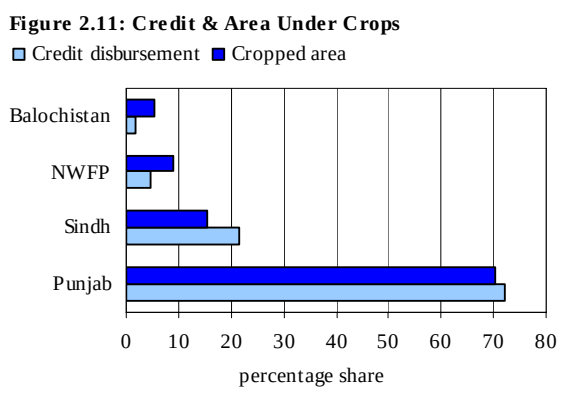
Source: Agriculture Credit Department, SBP

Figure 2.10: Disbursement of Agricultural Credit



Province-wise distribution of credit reflects that Punjab with the largest area under crops takes the highest amount of credit, followed by Sindh, NWFP and Balochistan (see **Figure 2.11**). The situation becomes different when per hectare availability of credit is taken into account. Interestingly, Sindh takes the lead with an average disbursement of Rs 3,978 per hectare; next comes Punjab with Rs 2,890, followed by NWFP (Rs 1458/hectare) and Balochistan (Rs 937/hectare). This wide variation is mainly attributable to: (1) the financial position of farmers in the respective province, (2) variation in land holdings, (3) repayment position and track record, (4) interest of farmers towards institutional credit, and (5) concentration of agricultural activities.

Figure 2.11: Credit & Area Under Crops



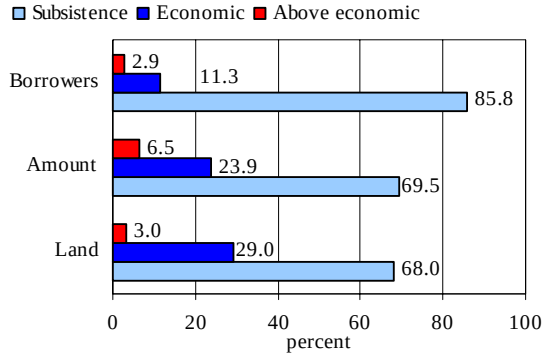
A comparison of provincial credit demand computed on the basis of a methodology developed by SBP and the information provided by each of the respective provincial departments, shows that the share of Sindh in total credit *demand* is higher relative to its share in total cropped area.

The functional distribution of credit showed that during FY02, around 83.0 percent of the total credit was disbursed for production purposes, while the remaining was given for development purposes (see **Table 2.10**). The lower off-take in development credit, as pointed out earlier, was the outcome of a decline in farm incomes during FY02, which compelled the farmers to defer their capital expenditures.

[10] SBP has not fixed any maximum or minimum mark-up for lending to agriculture sector by commercial banks. However, lending by ADBP and Provincial Cooperative Banks cannot exceed mark-up of 14 percent per annum.
[11] For detail see page 24 in the SBP *Annual Report* for FY02.

The credit distribution by size of holding shows that the subsistence farmers were the major beneficiaries of institutional credit, in proportion to their share in overall land holdings (see **Figure 2.12**).

Figure 2.12: Holding-wise Distribution of Credit



Recovery

Consistent with the concerted recovery drive launched by banks, the recovery of agri-loans saw an improvement of 11.7 percent during FY02. In fact, the amount recovered, at Rs 53.5 billion, was even higher than the overall disbursement made during the year. This was the second successive year that recoveries remained greater than disbursements.

During FY02, most of the loan recovery pertained to current dues, while the recovery of past due loans was weaker. Interestingly, this phenomenon is observable across all categories of banks (see **Table 2.11**). The above recovery pattern leads to the following conclusions:

Table 2.11: Recovery Performance[1]

percent

	Current dues			Past dues		
	FY01	FY02	Change	FY01	FY02	Change
ADBP	64	68	6.4	34	25	-26.6
Commercial banks[2]	78	86	10.7	44	42	-4.4
Cooperatives	52	54	5.4	38	26	-31.0
Total	66	71	8.4	36	28	-22.2

[1]: July-May

[2]: Includes: NBP, HBL, MCB, UBL, and ABL

Source: Agriculture Credit Department, SBP

- Recent loaning was prudent, enabling higher recoveries on current dues.
- Commercial banks have shown a substantial improvement during FY02 by achieving more than 85 percent recovery of the dues, while the ADBP is still unable to recover almost a third of its current dues.
- Overall decline in recovery of past-due loans during FY02 reflected that the probability of recovery from the stock of old loans appears remote.

Net agriculture credit (disbursements less recovery) declined by Rs 1.0 billion during FY02 (see **Table 2.12**), but the outstanding amount *increased* from Rs 93.4 billion at end-June FY01 to Rs 101.5 billion in FY02, on account of accrued interest on past-due loans. It must be noted that with less than

Table 2.12: Credit to Agriculture Sector

billion Rupees

	Disbursement			Recovery			Net credit[1]		Outstanding	
	July-June		Percent	July-June		Percent	July-June		by end June	
	FY01	FY02	Change	FY01	FY02	Change	FY01	FY02	2001	2002
ADBP	27.6	29.1	5.4	31.9	33.4	4.8	-4.3	-4.3	10.4	13.3
Commercial banks[2]	12.1	17.5	45.0	10.9	14.8	35.1	1.1	2.7	79.9	83.7
New private CBs[3]	--	0.6	--	--	0.5	--	--	0.1	--	0.7
Cooperatives	5.1	5.3	2.9	5.0	4.8	-4.5	0.1	0.5	3.1	3.7
Total	44.8	52.4	17.1	47.8	53.5	11.7	-3.0	-1.0	93.4	101.5

[1]: Net credit = disbursement minus recovery

[2]: Includes: NBP, HBL, MCB, UBL, and ABL

[3]: New private commercial banks started lending in FY02

Source: Agricultural Credit Department, SBP

100 percent recovery in current dues, and a deteriorating recovery ratio of past-due loans,[12] the outstanding stock of agricultural loans will continue to grow. This will ultimately restrict banks' capacity to meet the increasing demand from the sector.

2.3 Industry

During FY02, an uncertain political and economic environment in the region affected industrial activities adversely; the total value added by industry rose to Rs 172.3 billion, representing a 2.8 percent growth – lower than the previous year's 3.1 percent growth (**see Table 2.13**). This slowdown was mainly caused by the weak performance of the manufacturing sector during FY02.

Table 2.13: Sectoral Growth of Industrial Value Added

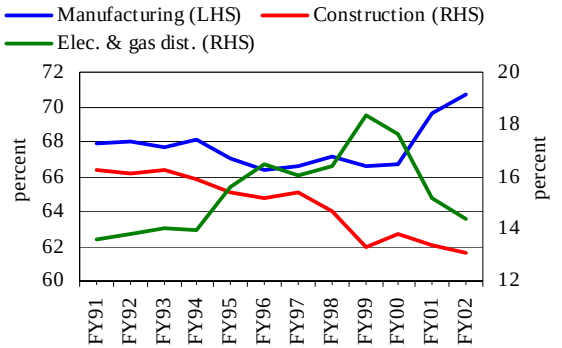
at constant factor cost of 1980-81

Description	Growth rates	
	FY01	FY02
Manufacturing	7.6	4.4
Large-scale	8.6	4.0
Small-scale	5.3	5.3
Mining & quarrying	4.3	3.8
Construction	-0.4	0.9
Electricity & gas dist.	-11.0	-2.7
Industry	**3.1**	**2.8**

Source: Economic Survey 2001-02

In fact, due to its large share in overall industrial value addition, the manufacturing sector typically accounts for most of variation in industrial growth.[13] This was particularly true in FY02, when growth in value added by large-scale manufacturing (LSM) decelerated to just 4.0 percent compared to a growth of 8.6 percent in the preceding year.

Figure 2.13: Sectoral Shares in Industrial Value Added



The uncertain situation that emerged during the first half of FY02, resulted in low investor confidence as reflected in a decline in investment in LSM during FY02, despite a considerable improvement in the macroeconomic environment. During FY02, gross fixed capital formation in LSM recorded a sharp decline of 44.0 percent, causing a 5.9 percent fall in gross fixed capital formation by the industrial sector as a whole, for the first time in the last 20 years. There was also a drop in foreign direct investment (FDI) into LSM industries, other than textiles, leather and electronics.

FY02 also saw a considerable increase in focus on the development of small and medium enterprises (SMEs). However, its contribution to overall industrial value addition cannot be ascertained until the next survey of Small and Household Manufacturing Industries (SHMI) is conducted.[14]
The share of manufacturing in overall industrial value added grew marginally to 70.7 percent in FY02, at the expense of the other components (see **Figure 2.13**).

[12] The recovery ratio for past-due agri loans was 28 percent in FY02 compared to 36 percent in the preceding year.
[13] More specifically, LSM contributes the most within manufacturing sector, as small-scale manufacturing is assumed to grow at a constant rate of 5.3 percent per annum.
[14] The last such survey was conducted in 1996-97.

2.3.1 Large-scale Manufacturing[15]

The overall growth in LSM was weak during FY02, mainly because (1) a strong growth of 9.5 percent during FY01 had already raised the bar for LSM growth through a "high-base" effect, and (2) FY01 had seen the impact of new capacities in petroleum, fertilizer and automobile industries, while FY02 witnessed a net loss of capacity.[16]

Given these developments, the growth in LSM remained low at 4.3 percent during FY02. The trimmed growth rate was also down (see **Table 2.14)**[17] suggesting that the growth during FY02 was not only weaker but also narrowly based. During FY01, only one of 14 sub-categories saw output declines, with most others witnessing acceleration in output. By contrast, during FY02, the growth decelerated for many of the sub-categories (see **Figure 2.14**) while one-third of the sub-categories posted declines. The slowdown was particularly visible in the fertilizer, basic metals, leather, automotive, construction, and engineering-related industries.

The business uncertainty following the September 11 events, and the border tensions with India badly hit LSM in FY02; textiles, in particular, was hurt by the cancellation of export orders. Fortunately, it later benefited from increased access to key markets, and as a result, the pace of manufactured exports, which had been slowing since Q4-FY01, recovered by Q4-FY02 (see **Figure 2.15**). Also, domestic demand for electronics and cars remained strong throughout the year, pushing up overall capacity utilization in these industries, reflecting the increased availability of consumer credit. Finally, the sugar industry showed an increase in output relative to FY01.

Figure 2.14: Growth in Selected Industrial Groups

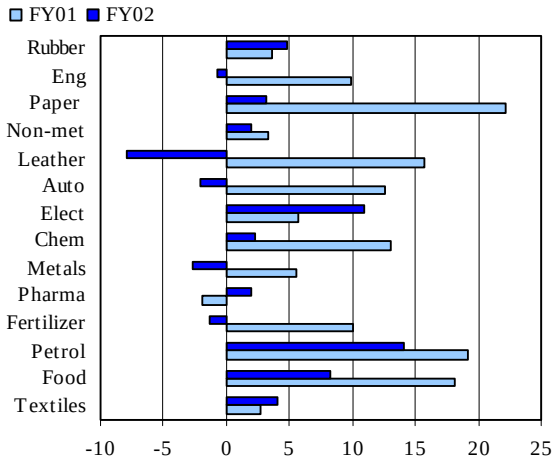


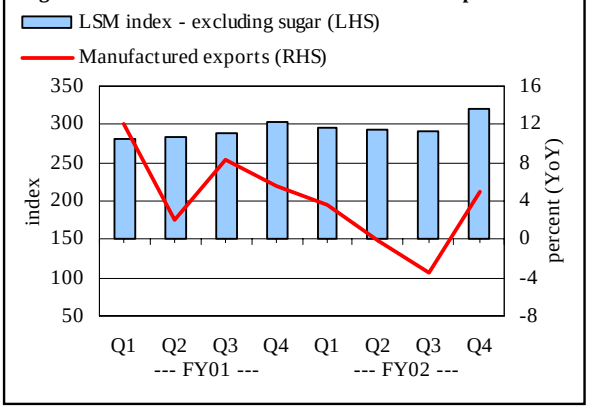
Table 2.14: Summary of LSM Growth Rates

percent

	FY01	FY02
Overall	9.5	4.3
Excluding sugar	7.7	3.5
Excluding petroleum products	8.9	3.7
Trimmed	7.9	3.5

Source: Federal Bureau of Statistics

Figure 2.15: Manufactured Production and Exports



[15] This section is based on the latest 12-months provisional data on the production of 96 LSM items. The growth rate of the LSM is calculated from the quantum index of manufacturing (QIM) constructed using production numbers. Therefore, it would differ from the growth rate quoted in **Table 2.1** and **Table 2.13,** which are based on the value added by LSM during the first nine months (i.e. July-March) of the FY02.

[16] During FY02, the DAP plant of the Fauji Jordan Fertilizer closed down operation in October 2001. Although, in the second half of FY02, a cement plant (Saadi cement) started trial operations, this did not have a significant impact on the performance of LSM.

[17] The trimmed growth rate is calculated after excluding 5 percent outliers each for the best and worst performing LSM sub-sectors. The objective is to come up with a robust measure of central tendency while minimizing the impact of volatile sectors that create biases in overall growth.

Table 2.15: Production of Selected Large-scale Manufacturing Items

Items	Weights	Percent change		Items	Weights	Percent change	
		FY01	FY02			FY01	FY02
Textile	**19.069**	**2.76**	**4.12**	**Chemicals**	**2.849**	**12.97**	**2.26**
Cotton yarn	8.850	3.06	4.24	Caustic soda	0.621	2.98	3.85
Cotton cloth	4.881	12.12	13.35	Soda ash	0.320	-11.32	-1.23
Cotton ginned	3.893	-4.50	-1.12	Other nine items	1.908	22.90	2.00
Other five items	1.445	2.14	-7.73	**Electronics & apparatus**	**2.681**	**5.65**	**11.00**
Food, beverages & tobacco	**17.336**	**18.16**	**8.18**	Electric transformers	0.577	-20.81	39.94
Sugar	8.630	21.67	9.83	Storage batteries	0.451	-0.14	10.31
Vegetable ghee	3.004	19.41	-7.24	TVs	0.363	-19.93	-20.24
Cigarettes	2.505	24.02	-5.05	Air conditioners	0.120	47.71	-47.89
Tea	1.785	-15.65	18.22	Refrigerators	0.015	28.76	15.21
Beverages	0.964	8.99	-1.96	Other five items	1.155	6.23	9.72
Cooking oil	0.448	15.72	27.06	**Automobile**	**2.348**	**12.53**	**-2.08**
Petroleum products	**7.824**	**19.17**	**14.06**	Trucks	0.698	-2.56	19.85
Fertilizer	**5.871**	**9.98**	**-1.32**	Tractors	0.593	-7.09	-25.26
Nitrogenous	5.441	5.42	4.55	LCVs	0.369	4.64	21.91
Phosphatic	0.430	75.46	-51.90	Cars & jeeps	0.309	21.90	2.85
Pharmaceuticals	**5.798**	**-1.95**	**1.95**	Motorcycles	0.249	24.22	13.13
Tablets	2.705	-3.83	5.20	Buses	0.130	-11.34	-17.80
Liquid / syrup	1.602	1.32	-4.12	**Non metallic minerals**	**1.915**	**3.36**	**1.95**
Injections	0.466	-2.14	7.01	Cement	1.846	3.87	2.70
Capsules	0.228	-2.16	-1.23	Glass sheets	0.069	-9.76	-20.50
Galenicals (Tincture)	0.179	4.17	-4.00	**Paper & board**	**1.359**	**22.21**	**3.13**
Ointment	0.104	-10.79	15.45	**Engineering items**	**0.865**	**9.83**	**-0.66**
Basic metal industries	**3.317**	**5.52**	**-2.72**	Bicycles	0.348	6.64	-4.07
Pig iron	1.477	-3.19	-2.65	Metal containers	0.153	11.67	0.08
Coke	1.319	8.25	-3.16	Diesel engines	0.109	2.04	-36.00
Billets	0.311	20.48	-0.64	Sewing machines	0.065	-2.83	-10.53
H.R/coils and plates	0.074	-9.81	-13.39	Power looms	0.051	-45.06	92.47
C.R coils / plates / sheets	0.013	-12.12	-14.59	Other six items	0.139	20.28	3.66
Leather products	**2.333**	**15.70**	**-7.90**	**Tyres & tubes**	**0.452**	**3.54**	**4.85**

Note: The items included in chemicals, automobile, pharmaceuticals and engineering sub-sectors were readjusted that resulted in change in number of items, as well as, the weights of these sub-categories. Therefore, chemicals moved up in the order with respect to its weight.

Source: Federal Bureau of Statistics

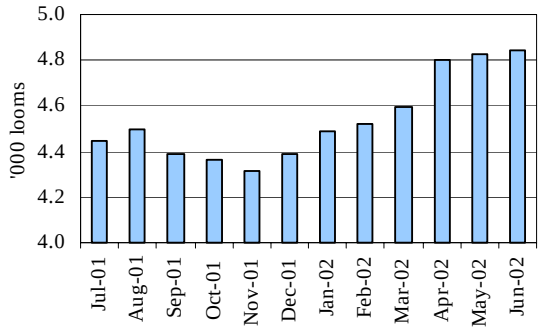
The recovery in textile, in particular, is very encouraging, given its substantial weight in LSM. Production of the *textile industry* recorded a growth of 4.1 percent during FY02 against 2.8 percent in the preceding year, as the impact of H1-FY02 policy adjustments was enhanced by increased access to the EU markets in H2-FY02. The government acted to accelerate payments of tax refunds, even as the SBP lowered key interest rates and re-instated its concessional export refinance facility for some major products.[18]

As a result, the working capacity of the industry, particularly in the weaving sector, started rising appreciably towards the end of CY01. This is mainly because concessions by the EU targeted value added textiles rather than grey cloth and cotton yarn. The working capacity of the *mills sector*, that

[18] In order to promote value addition in textile industry, SBP discontinued financing facility for low value added products like cotton yarn, bleached / unbleached fabrics etc. However, in view of the changing situation, the SBP included the low value added bleached cloth to avail the concessionary refinance facility on the condition that its export price would not be less than US$ 3 per square meter.

had fallen to as low as 4.3 million looms by November 2001, increased to 4.8 million looms by the end of FY02. As a result, the annual average working capacity of the mills sector during FY02, showed an 8.1 percent increase over the preceding year (see **Figure 2.16**).

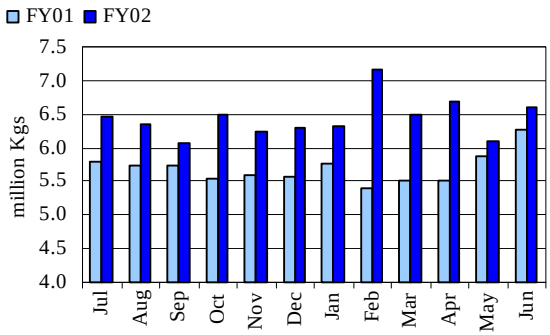
Figure 2.16: Working Capacity (Mill Sector)



Source: Textile Commissioner of Pakistan

As mentioned in the third SBP *Quarterly Report* for FY02, the rising domestic consumption of cotton yarn indicates increasing value addition in the textile industry (see **Figure 2.17**). It is also encouraging to note a similar shift within the weaving sector; the product mix is changing in favor of high value added dyed & printed cloth.

Figure 2.17: Yarn Consumption (Mill Sector)



Source: Textile Commissioner of Pakistan

During FY02, the share of dyed & printed cloth rose in overall production compared to lower value added grey cloth, although the latter continues to hold top position with respect to the quantity produced. The share of the dyed & printed cloth increased to 27.2 percent during FY02 from 25.5 percent last year, while the share of grey cloth declined from 56.7 percent to 56.0 percent in the same period.

In contrast to the performance of textiles, the production of the leather industry declined, but this was not reflected in weakening exports. During FY02, the exports of leather footwear increased by 22.2 percent while its production declined by 5.4 percent.[19] Therefore, it appears that the industry is mainly drawing down inventories. It should be noted that on the supply side there was no contraction in the availability of raw material as the import of raw hides and skins showed an increase of 41.2 percent during FY02.

In the consumer goods industries, output of the *food, beverage and tobacco* group increased by 8.2 percent during FY02, against a robust growth of 18.2 percent last year. The major item that recorded an output decline in this group was *vegetable ghee*, while growth in the production of sugar remained lower (at 9.8 percent) relative to the 21.7 percent growth in FY01. The increase in domestic sugarcane supplies during FY02 provided a boost to the output of sugar even over the high production in FY01.[20]

The *ghee* industry heavily depends on imported edible oil, as the domestic production hardly meets 28.8 percent of total requirements.[21] Palm oil prices rose in international market while its import quantum increased by 14.5 percent during FY02. Since traditionally the imported palm oil is mostly used to produce ghee, rising imports should have been reflected in higher production of ghee.

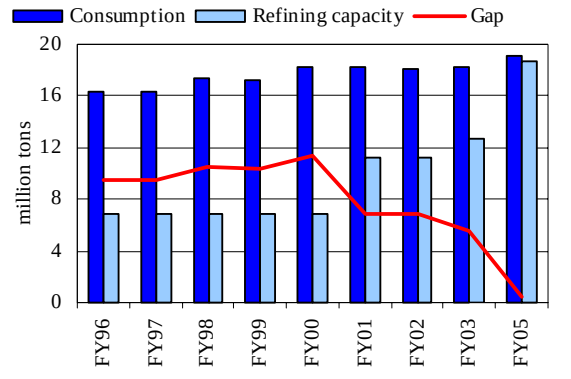
[19] Leather footwear is the major item included in LSM. Its share in total leather & leather product exports from Pakistan is approximately 4.0 percent.

[20] During FY01, sugar was also produced by processing imported raw sugar to offset the poor sugarcane crop.

[21] There are two broad categories of edible oil: hard and soft oil. The palm oil is considered as hard oil, and is mostly used to produce ghee only, while soyabean, safflower and sunflower oil are categorized as soft and these are mostly processed to produce cooking oil.

However, the production declined 7.2 percent YoY, due to a substitution between ghee and cooking oil, as could be gauged from the 27.1 percent increase in the production of cooking oil during FY02. Also, anecdotal evidence suggests that unregistered manufacturing units have eaten into the market share of the formal sector producers. [22]

Figure 2.18: Domestic Consumption & Production Capacity



The production of *petroleum products* has been showing significant increase over the last couple of years. During FY02, production rose by 14.1 percent, on top of a 19.2 percent growth last year. This improvement was mainly due to the Pak Arab Refinery (PARCO), which has been gradually expanding its capacity utilization since its establishment in Q1-FY01.[23] Although the consumption of petroleum products declined by 3.0 percent during FY02, the large gap between actual consumption and domestic refining capacity continue to drive up domestic production. The gap, which has already come down to around 6 million tons per annum with the establishment of PARCO, is expected to further contract by the mid-FY03, when another refinery (Bosicor Pakistan Refinery) with 1.4 million tons per annum capacity is to become operational. Yet a third refinery (Iran-Pak Refinery), with 6.0 million tons per annum capacity, is to become operational by 2005 (see **Figure 2.18**).

This growth in the petroleum industry is the result of a number of incentives provided under the Petroleum Policy of 1997. These incentives include zero duties/taxes for the import of machinery and equipment, construction of oil pipelines on competitive tariffs, and de-regulation in the lubricant industry.

The production of *fertilizer, chemicals and pharmaceuticals* remained depressed during FY02. Decline in the production of *fertilizer* by 1.3 percent during FY02 against 10.0 percent increase in the previous year, was mainly due to the closure of Di-Ammonium Phosphate (DAP) plant by the Fauji Jordan Fertilizer Company (FJFC) last year. The major reasons were the rising cost of production (mainly due to imported raw materials), and increasing competition from cheap imports.

Also, the margins of urea producers were also under pressure in FY02; natural gas (a key input) prices rose, even as lower farm incomes and water shortages held down demand.[24]

The production of *chemicals* increased by only 2.3 percent during FY02 against a strong growth of 13.0 percent last year (see **Table 2.16**). This was mainly due to a sharp decline in the production of *paints & varnishes* (liquid and solid), as against growths of 60.0 and 48.7 percent respectively during FY01. Paints & varnishes are mostly used in the automobile and construction industries, whose performance was not impressive during FY02. Since, *caustic soda* is

Table 2.16: Contributions in Growth of Chemicals

	Weights	FY01	FY02
Chemicals (overall)	2.849	13.0	2.3
Excluding paints & varnishes	2.295	6.0	6.4
Excluding soda ash	2.529	15.9	2.6

[22] These units supply their unbranded product to restaurants and other such consumers. This is resulting in closure of large registered units, and hence, the recorded production is declining.
[23] Since, PARCO started production in September 2000, its full year impact is reflected in FY02.
[24] Under the gradual subsidy reduction program announced in Fertilizer Policy 2001, the prices of feed gas were increased by 5.0 percent in July 2002. To eliminate the remaining 10 percent subsidy, the prices were to increase by 2.5 percent annually.

mostly consumed by the textile industry, its production usually follows similar trends. The FY02 decline in the production of soda ash, however, was mainly due to the closure of Sindh Alkalis Limited, a major producer.

Price rises of 3.0 and 4.0 percent, for controlled and decontrolled categories of medicines respectively, coupled with the appreciation of the Rupee (lowering costs of imported inputs) during FY02, resulted in a 2.0 percent increase in the production of *pharmaceuticals.*

The production of *consumer durables*, especially of cars & jeeps, motorcycles, LCVs, etc. has been showing improvement over the last couple of years.[25] This reflects rising availability of consumer finance; in fact, many manufacturers have entered into contracts with leasing companies and commercial banks to finance purchases of their products.

The increased availability of lease financing for the purchase of home appliances was also reflected in the higher production of air conditioners and refrigerators since FY00 (see **Table 2.17**). It is estimated that around 25 percent of all consumer durables (excluding vehicles) are purchased on installments.[26] In addition, due to increased vigilance on the Afghan border since the war on terrorism began, smuggling of electronics into Pakistan declined, expanding the market for domestic production.

Table 2.17: Sale of Domestically Manufactured Air conditioners and Refrigerators

'000' numbers

Year	Air conditioners	Refrigerators
FY99	38.4	186.5
FY00	40.3	202.0
FY01	43.0	223.0
FY02	46.0	250.0

In the *electronics and electric machinery* sub-sector, the manufacture of electric transformers, after showing persistent declines over the last few years, increased significantly during FY02.[27] This higher production was mainly driven by higher exports and tubewell installations. The exports of transformers more than trebled in FY02 over the previous year, rising to 2,514 transformers compared with only 700 earlier. Also, the persistent water shortage over the last couple of years resulted in greater reliance on tubewells, which use transformers

Although the production of motorcycles, cars, etc. increased during FY02, the overall growth of the automobile group declined by 2.1 percent due to a sharp fall in the production of tractors and buses. In fact, the production of cars, could not keep pace with growing demand, as production rose by only 2.9 percent. Interestingly, while the cost of production declined, mainly due to the appreciating Rupee and lower financing costs, prices of cars showed an upward trend.

The production of tyres & tube industry usually follows growth in automobile industry, but despite a decline in the production of automobile during FY02, this industry showed a stronger growth of 4.9 percent compared to 3.5 percent last year. Anecdotal evidence suggests that the discontinuation of smuggling of tyres and tubes from the Afghan border created an additional demand for the local production.

The impact of the slowdown in construction activities over the last few years was also reflected in slackness in related industries such as *basic metals, glass* and *cement.* However, the production of

[25] The production of air conditioners increased sharply during FY00 and FY01. The total manufacturing of air conditioners stood at 4,821 and 7,121 in these two years, respectively. Historically, the production of air conditioners has been showing erratic growth. This year too, it showed a sharp decline of 47.9 percent.

[26] This figure is provided by National Management Consultant (NMC) survey conducted in 1998.

[27] During FY02, the manufacturing of transformers increased by 39.9 percent against 20.8 and 12.5 percent declines in FY01 and FY00 respectively.

basic metals, mostly contributed by Pakistan Steel Mills, was also affected by reduction in tariffs on the import of various steel products in the FY02 budget. Although the consumption of steel increased by 4.7 percent during FY02, most of the requirements were met through imports and supplies from ship breakers, etc.

The supplies of steel from ship breakers increased by 25.8 percent during FY02, while import quantum of iron and steel increased by 37.2 percent. The lower sale of domestic steel products is also evident from the increase in stocks with Pakistan Steel that went up by 17.9 percent during FY02. These developments led to a reduction in its capacity utilization during FY02.

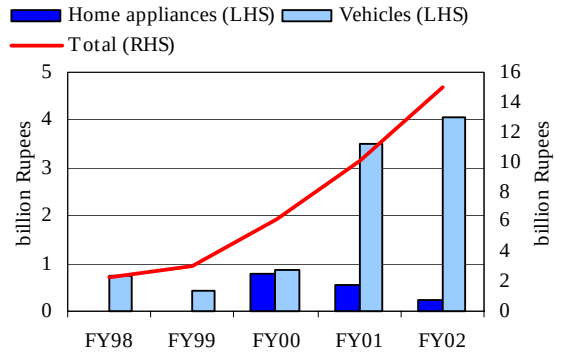
The second construction-related group of industries i.e., *non-metallic minerals* also remained under pressure, mainly due to weak demand. The production of cement showed a 2.7 percent increase during FY02, compared with a 3.9 percent growth in the previous year. During FY02, the cost of cement production declined, mainly because of lower furnace oil prices and substitution of furnace oil by coal.[28] The total installed capacity of the industry also increased by 0.6 million tons during FY02, when another plant, Saadi cement, started trial production in January 2002.

On the demand side, total dispatches remained at 9.8 million tons during FY02, showing a decline of 1.0 percent over last year's 9.9 million tons. Although, there was an increase in exports of cement during FY02, this was not significant, as over 43 percent of total capacity is lying idle in the industry.[29]

Growing Popularity of Consumer Financing and Industrial Growth

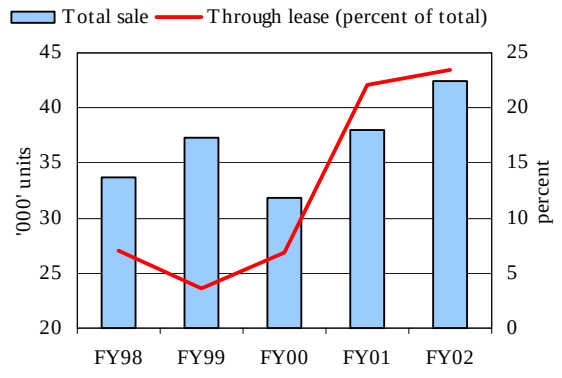
The last couple of years have witnessed tremendous growth in consumer financing. During FY02, overall consumer financing by the commercial banks jumped to Rs 10.7 billion, from Rs 6.1 billion in the previous year. The major proportion was utilized for the purchase of vehicles through lease financing (hire-purchase). The share of home appliances, however, has been declining since FY00 (see **Figure 2.19**).

Figure 2.19: Consumer Financing



The concept of leasing and hire purchase, however, is not new to Pakistan. Informal leasing existed even before the introduction of organized leasing in mid-eighties; initially, traders, carried out the hire-purchase business. Later, for quite some time, leasing companies were the key financial entities providing consumer financing in Pakistan, but even then the greater emphasis was on leasing vehicles. In fact, the share of financing for vehicles out of the total leasing business had increased from 27.2 percent in FY00 to 37.1 percent in FY01, as the total amount financed increased from Rs

Figure 2.20: Car Sale



[28] Till June 2002, four units completely shifted their production to coal, while the remaining units have converted 40 to 50 percent energy requirement to coal.

[29] During FY02, export of cement was 85,182 tons.

10.4 billion to Rs 14.6 billion during the same period.

However, the sale of consumer durables through hire purchase became more popular lately when commercial banks expanded their coverage to individuals and aggressively advertised their products. For example, out of 11 banks in this business, 8 banks started lease financing for the purchase of vehicles, either during FY01 or FY02. The entry of commercial banks has particularly boosted the sale of cars (see **Figure 2.20**), but credit sales of air conditioners and refrigerators also showed improvement in FY00.

As the interest rates are falling and competition is increasing, both leasing companies and commercial banks are expected to offer more attractive terms, and the number of customers is expected to increase. It is also hoped that the recent decision of the State Bank, allowing commercial banks to provide financing facility for the purchase of consumer durables, will help the home appliance industry.

2.3.2 Mining & Quarrying

During FY02, value added by mining & quarrying increased by 3.8 percent, lower than 4.3 percent increase recorded last year. However, the quantum index of mineral production, constructed on the basis of latest 12-month data, showed acceleration in growth; the quantum index stood at 332.7 during FY02 compared to 316.8 last year, mainly driven up by strong growth in the production of coal, crude oil and china clay (see **Table 2.18)**.

Table 2.18: Growth in the Production of Selected Minerals

Items	FY01	FY02
Coal	3.3	6.3
Crude oil	3.4	10.0
Natural gas	7.0	5.5
Lime stone	13.3	-9.8
Rock salt	2.7	-2.5
China clay	-26.6	14.9
Gypsum	2.5	-9.9
Silica sand	-7.2	1.3
Chromite	-35.9	-2.9
Quantum index	2.9	5.0

Source: Federal Bureau of Statistics

Although the most recent geological surveys of Pakistan have confirmed deposits of silver, gold, platinum, chromite, iron and zinc, exploration of these requires both expertise and resources. Presently, Pakistan is producing only 50 mineral items (performance of selected items is given in **Table 2.18**). Among these, the major contribution in value addition is by natural gas, crude oil, gypsum and sulphur.

The production of most minerals is directly linked with the performance of user industries. A decline in the production of limestone and gypsum reflects the weak growth in cement production. Additionally, limestone, along with rock salt, is an essential raw material for soda ash, the production of which has been declining for the last two years. During FY02, coal demand increased as some cement-manufacturing units shifted away from costly furnace oil.[30] This is reflected in higher production, which increased by 6.3 percent during FY02 compared with 3.3 percent last year. Coal imports also increased.[31] This is because the domestic coal is not of high quality; imported coal is required to blend with domestic coal to get higher heating value.

Since the petroleum refining industry mostly uses imported crude oil (around 80 percent), its performance does not have a strong relation with domestic exploration. The exploration of oil & gas, over the last decade, has received considerable policy attention and, as a result, the oil and gas sector, has experienced higher inflows of foreign investment (For details, see **Special Section 2.1** *on*

[30] During FY02, four cement manufacturing units completely shifted to coal, while most of the remaining units have substituted 40 to 50 percent use of furnace oil to coal.
[31] During FY02, 49,037 metric tons of coal was imported, while FY01 saw no coal import.

Commercial Energy).[32] The increasing inflow of FDI in mining & quarrying over the last several years has resulted in higher gross fixed capital formation in this sub-sector during FY01 and FY02. Recently, some companies have also shown interest in coal mining as well.

2.3.3 Construction

Construction activities remained stagnant in the wake of reduced development expenditures, slackening housing construction in the private sector, and the tax documentation drive. During FY02, there was an increase in the Federal Government development expenditure on construction-related projects, especially in the transportation, housing and irrigation sub-sectors.[33] A host of measures were undertaken to revive the construction and housing sector. These include Khushhal Pakistan Program, Ghar Aasan Scheme, enhancement of the house loan limit from Rs 0.5 million to Rs 5 million, restructuring of House Building Finance Corporation (HBFC), etc.

In housing construction, Pakistan Housing Authority (PHA) was assigned the task of constructing affordable houses under the Ghar Aasan Scheme, which began construction of 4,500 apartments to be completed in FY03. On the other hand, a lack of housing finance continues to stifle housing construction activities; of the three housing finance companies in Pakistan, Citibank House Finance Corporation has already ceased operations, while disbursements by the remaining two also show a declining trend. The major reason behind this decline was stoppage of financing by HBFC in FY01 ahead of its switch to Islamic modes of financing.

Table 2.19: Selected Performance Indicators of Construction Sector

Description	Five years Average (FY96 to FY00)	FY01	FY02
Value addition (million Rupees)	22,080.2	22,374.0	22,581.0
Gross fixed capital formation (million Rupees)	15,131.6	19,065.0	23,511.0
Cement dispatches (million tons)	9.5	9.9	9.8
Development expenditures (million Rupees)	93,967.2	102,079.3	130,000.0
Development expenditures to GDP ratio (percent)	3.6	3.0	3.5
Disbursement by housing finance companies (million Rupees)	--	858.7	460.2

During FY02, the banking system was encouraged by the SBP to expand mortgage loans to businesses. Commercial banks were allowed to float long-term bonds to mobilize funds for housing loans to match assets with liabilities. The upper limit for mortgage financing was raised ten times to Rs 5 million. A new recovery law, that allowed banks to take possession of mortgaged property without resort to courts, was promulgated. Also, the allowed deduction of mortgage interest from taxable income was raised to Rs 100,000. The response to these measures has been muted so far, but the value added by the construction sector nonetheless managed a slight growth of 0.9 percent during FY02, against a decline of 0.4 percent last year (see **Table 2.19** for performance indicators of the construction sector).

2.3.4 Electricity & Gas Distribution

Value addition by the electricity & gas distribution recorded negative growth for a third consecutive year. This is in sharp contrast to the expansion since the mid-1990s. In spite of an increase in village electrification and higher use of Compressed Natural Gas (CNG) in automobiles, the value added by

[32] During FY02, out of total foreign direct investment (FDI) of US$ 484.7 million, the mining & quarrying sector received US$ 274.8 million.

[33] Among the major projects, the construction work on Lahore Airport and Ghazi Brotha dam has almost been completed and work on projects like Gwadar Port (Phase I) and National Highway Projects is underway. Most of the roads and bridges under the National Highway Projects are expected to be completed by the end of this calendar year. In addition, projects like construction of Turbat-Mand Road, Miran Dam, flyovers and Ghar Aasan Scheme, that were started during H1-FY02, are expected to be completed in the next few years.

Table 2.20: Performance of Public Sector Industries
billion Rupees

Corporations	Production value		Net sales		Pre tax profit/loss		Employment (000)	
	FY01	FY02	FY01	FY02	FY01	FY02	FY01	FY02
National Fertilizer Corporation	2.3	2.5	8.4	8.9	0.2	0.6	3.3	3.3
Pakistan Automobile Corporation	0.3	0.2	0.9	0.7	0.0	0.0	0.6	0.4
State Cement Corporation	0.4	0.5	1.1	1.2	-0.3	0.1	1.4	1.3
State Engineering Corporation	1.2	1.1	2.1	2.0	-0.5	-0.4	5.4	3.9
Sub -total	**4.3**	**4.2**	**12.5**	**12.7**	**-0.6**	**0.2**	**10.8**	**8.9**
Pakistan Steel	7.6	7.0	16.6	14.3	0.5	-0.5	16.6	16.0
Gross total	**11.8**	**11.3**	**29.1**	**27.0**	**-0.1**	**-0.3**	**27.3**	**24.9**

Source: Expert Advisory Cell, Ministry of Industries and Production

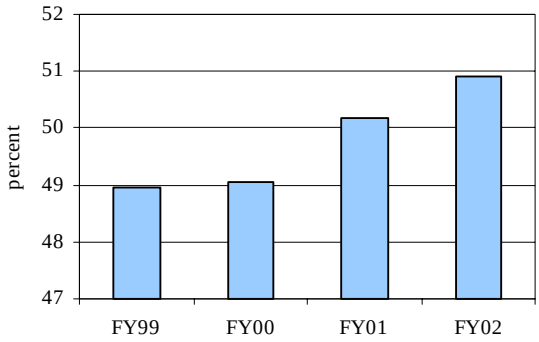
this sector declined by 2.7 percent during FY02 against much sharper decline of 11.0 percent last year.

2.3.5 Public Sector Industries

The total units under the administrative control of the Ministry of Industries & Production (MOIP) shrank from 40 in FY01 to 38 in FY02. The operating units also declined from 15 in FY01 to 13 in FY02. As in FY01, the production value and net sales of public sector industries (excluding Pakistan Steel), remained strong during FY02 and the pre-tax profit improved to Rs 0.2 million, against a loss of Rs 0.6 million last year (see **Table 2.20**). The major contribution in this improvement came from National Fertilizer Corporation (NFC).

As discussed in **Section 2.3.1**, the performance of Pakistan Steel was affected by lower import duties on various steel products that pressured sale volumes and prices. As competition from imports and ship breakers/melters increased, Pakistan Steel was forced to cut prices and capacity utilization, to curtail an inventory build-up.

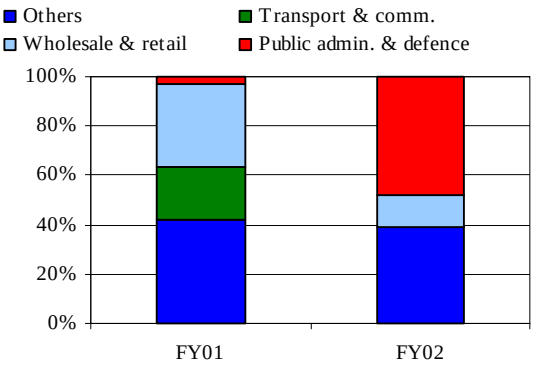
Figure 2.21: Share of Services Sector in GDP



2.4 Services

The services sector has been steadily gaining a larger share of the domestic economy over the past few years, lending support to overall growth during years of poor performance by the commodity-producing sectors. This has been especially true in the last two years (see **Figure 2.21**). In fact, during FY02 the 5.1 percent sectoral growth contributed 72 percent of the increase in the value-addition in the economy.

Figure 2.22: Shares in Services Growth



The structure of growth within the services sector reveals more interesting insights, especially when compared with the corresponding FY01 figures. About 60 percent of the services sector growth originated from a significant change in the performance of some sub-sectors from FY01 to FY02. Specifically, the share of *public administration and defense* was

negligible in FY01, but it contributed more than half of the sectoral growth in FY02. By contrast, the share of *wholesale and retail trade* shrank in FY02 compared with FY01, and *transport, storage and communication* recorded almost a negligible contribution to growth during FY02.

Figure 2.22 shows that more than 40 percent of the sectoral growth comes from a largely invariant components of the sector. This included *ownership and dwellings, other services (mostly community based services)* and *finance & insurance*. The first two of these sub-sectors have a combined share of about 32 percent in services sector, but their growth rates have held constant over the years. The third component has relatively less influence on overall growth.

In fact, there is a lack of well-organized data on services, particularly relating to the emerging new services. In particular, the data on *dwellings* and *other services* are mostly based on the findings of old surveys and therefore, may not be representative of current activities in these sub-sectors of the economy.

Table 2.21: Sectoral Growth and Shares
constant factor cost of 1980-81

Sectors/ Sub-sectors	Growth rates		Shares in services	
	FY01[R]	FY02[P]	FY01[R]	FY02[P]
Services	4.79	5.09	100	100
W & R trade	5.24	2.24	30.5	29.6
Transport, storage & comm.	5.01	0.13	20.87	19.9
Pakistan Railways	45.77	22.74	0.19	0.23
Water transport	-4.1	-1.23	0.46	0.43
Air transport	-12.06	6.54	1.01	1.02
Pipeline transport	-12.55	3.63	0.48	0.47
Road transport	6.04	0.35	14.49	13.83
Communication	1.88	-3.23	3.67	3.38
Storage	0.59	-4.64	0.57	0.52
Finance and insurance	2.75	3.77	4.5	4.5
Ownership of dwellings	5.28	5.28	12.2	12.2
Public admn. and defense	1.15	18.2	12.7	14.3
Other services	6.53	6.53	19.2	19.5

[R]: Revised, [P]: Provisional
Source: Federal Bureau of Statistics

As discussed above, the growth rate of value added in services during FY02 was largely driven by the rates of expansion in *public administration* & *defense* followed by *ownership of dwellings, finance* & *insurance*, and *transport, storage* and *communicatio*n (see **Table 2.21**).

2.4.1 Wholesale and Retail Trade

A sizeable portion of the domestic economy is linked to *trade* through its forward and backward linkages. This sub-sector has the largest share in the services sector and also accommodates the largest share of the labor force after agriculture. During FY02, wholesale and retail trade grew by 2.2 percent compared with 5.2 percent in the preceding year.

To elaborate, the value-added in *wholesale and retail trade* is measured by the trade margin, which is the difference between the prices for the first seller and the final buyer. The total value-added thus depend on the margins, as well as the quantum of the commodities traded in the markets. The slower growth of *wholesale* and *retail trade* appears to reflect the combined impact of the deceleration of activities in the commodity producing sector of the economy, as well as in external trade, during FY02.

2.4.2 Transport, Storage and Communication

During the FY02, the value addition in the *transport, storage* and *communication* sector recorded a negligible growth of 0.13 percent compared with 5.0 percent growth recorded in the preceding year. The main reason for this deceleration was the slowdown in the value addition of the *road transport,* which has a 69.6 percent weight in the sub-sector. During FY02, *road transport,* recorded a marginal growth of 0.35 percent compared to a robust 6.0 percent growth in the preceding year, largely due to the decline in the agriculture crops and relatively weak growth in industrial production. The negative growth registered by *storage, communication* and *water transport* are among the other contributory factors in the slowdown in *transport, storage & communication*.

In fact, it was only the positive developments in some key segments that averted negative growth in this sub-sector:

- Pakistan Railways, followed by air transport at 6.54 percent during FY02, registered a significant growth of 22.74 percent. During FY02, Pakistan Railways not only minimized the operational losses but also improved service standards, thereby increasing gross receipts, that are estimated at Rs.18.8 billion during FY02. Pakistan International Airline (PIA) too depicted a similar story, recording a higher operating surplus in the FY02. This is attributable to improved utilization of its fleet, emphasis on cost reduction, declining prices of aviation fuels.

- Karachi Port Trust (KPT) recorded a 10.1 percent jump in operating revenues. This was mainly due to high berthing activity at the wharves in the period under review. The volume of cargo handled by Karachi Port during FY02, recorded an increase of 2.7 percent to 26.7 million tones compared with 26.0 million tones in last year. Container movement surged strongly by 8.9 percent to a record high of 1.0 million TEUS and Moves.

- The rapid technological change and enhanced business frontiers accelerated the tempo of the communications sector. There has been a marked expansion in the infrastructure of telecommunication, information and education. The expansion in cellular segment, Internet facilities and software houses also continued to rise. However, in FY02, communications sub-sector recorded a decline as compared to the previous year, mainly due to a high-base effect and a relatively slower growth in telephone subscriptions compared with the earlier year (when U-fone service was launched).

- Pakistan Post Office is also a part of the communications sub-sector. It continued to grow during the year, with estimated profit of Rs 298 million, 25 percent higher than in the preceding year. The visible improvement in earnings reflects the diversification of services, cost controls, and the introduction of franchise operations.

Finally, value added by the storage segment fell 4.64 percent in the FY02 as against a marginal increase of 0.59 percent last year. This too, is attributed to the weak performance of the commodity-producing sector.

2.4.3 Finance and Insurance

The *finance & insurance* sector includes the State Bank, scheduled banks, development finance institutions, leasing and insurance companies, etc. During FY02, this sub-sector demonstrated considerable resilience despite a number of shocks to the economy.

There was a marked improvement in the gross earnings of SBP, resulting in approximate net profit of Rs 26 billion during FY02. The better performance on the part of SBP was mainly on account of net exchange gains against losses in the preceding year. The growth in value added of finance and insurance was also due, in part, to improved performance of the banking and insurance industries.

Insurance sector experienced rapid development in recent years with a high increase in premium. During the FY02, despite weak economic activity, the insurance sector demonstrated good performance by increasing premium income.

2.4.4 Public Administration and Defense

The sub-sector recorded a massive growth of 18.20 percent compared with 1.15 percent last year. It will be noted that the value addition in this sub-sector is largely based on wages and salaries of government employees, i.e. federal, provincial and local government.

The higher FY02 growth of *public* a*dministration* and *defense* is associated with a number of factors, including: (1) an increase recorded in pay and pension of government employees during FY02 – the first since the 1994 revision; (2) unusual troop and related activities due to tensions at the Kashmir border and search operation at Northwestern borders of the country; and (3) increased activities under the head of *public administration* due to city government elections and the April 2002 referendum.

2.5 Savings

When we compare the growth of national savings in FY02 with the preceding year, two striking facts emerge: (1) The growth in FY02 is significantly lower; and (2) The source of the FY02 increase is entirely different. While the growth in national savings in FY01 was entirely indigenous, coming from the households and public sector (other than general government), the growth in FY02 was the outcome of increased net factor income from abroad through higher remittances. Public savings, which contributed substantially in FY01, decelerated in FY02.

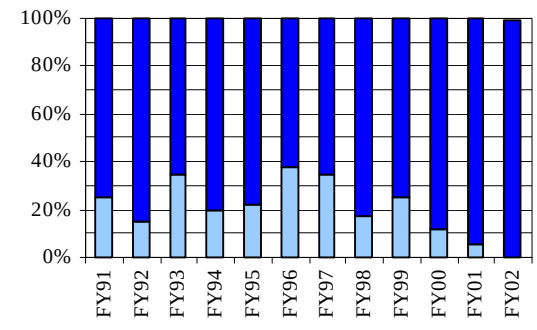
Table 2.22 shows that national savings, as a percentage of GNP, decreased from 15.3 percent in FY01 to 13.9 percent in FY02. This was because national savings grew at a lower pace relative to GNP. It is interesting that despite a decline in the savings ratio, national savings were still able to meet the gross investment requirements of the country. By contrast, in FY01, national savings financed only 94.5 percent of the total investments and foreign savings, i.e. net external resource inflows, funded the remaining investments. As a result, the saving-investment gap turned into a *positive* 0.1 percent of GNP in FY02 from a *negative* 0.9 percent in FY01, showing an overall improvement of about 1.0 percent of GNP.

Table 2.22: Savings

Billion Rupees

			Absolute change	
	FY01	**FY02**	**FY01**	**FY02**
National savings	**514.6**	**519.9**	**69.8**	**5.2**
Public	32.6	47.9	24.8	15.3
Gen government	*-28.4*	*-15.4*	*7.2*	*13.0*
Others	*61.0*	*63.3*	*17.6*	*2.3*
Private	482.0	471.9	45.1	-10.1
Household	*425.2*	*416.3*	*39.7*	*-8.9*
Corporate	*56.9*	*55.7*	*5.3*	*-1.2*
Net factor income	**-62.8**	**4.9**	**-9.2**	**67.7**
Domestic savings	**577.4**	**515.0**	**79.0**	**-62.4**

Figure 2.23: Financing Investment



The declining role of foreign savings in financing domestic investments over the past few years (see **Figure 2.23**) was generally a positive development as gross fixed capital formation had been on an up trend, *and* this was increasingly financed by national savings rather than foreign savings. However, this is not true for FY02, as the higher ratio this year is due to a *fall* in gross fixed investment rather than to an increased availability of national savings - such a savings-investment surplus is not a positive for a developing economy such as Pakistan's.

Table 2.23: Investment and Savings
at current prices

	Growth rates				
	FY98	**FY99**	**FY00**	**FY01**[R]	**FY02**[P]
1. Gross total investment	8.99	-3.56	10.19	8.02	-4.95
2. Gross fixed investment	1.51	1.62	10.49	7.94	-5.88
Public sector	-14.85	25.77	5.50	14.48	-17.67
Private sector	13.28	-11.44	14.31	3.30	3.37
3. Net external resource inflow	-44.33	36.97	-47.93	-49.73	-108.08
4. National savings	36.77	-12.16	29.42	15.70	1.01
Public savings	-59.53	192.27	-72.58	316.44	47.00
General government	77.18	96.51	-2,402.67	20.17	-45.73
Others	7.19	-40.69	44.92	404.8	3.80
Private savings	45.65	-17.39	38.66	10.31	-2.09
House-hold	45.64	-17.39	38.66	10.31	-2.09
Corporate	45.64	-17.39	38.65	10.31	-2.09
5. Net factor income from abroad	-22.76	3.54	-53.10	-17.13	107.81
6. Domestic savings	35.46	-11.43	31.60	15.85	-10.81
	As percent of GNP				
1. Gross total investment	17.87	15.70	16.25	16.18	13.79
2. Gross fixed investment	15.18	14.05	14.58	14.51	12.24
Public sector	5.33	6.10	6.05	6.38	4.71
Private sector	9.85	7.95	8.53	8.12	7.53
3. Net external resource inflow [1]	3.13	3.90	1.91	0.88	-0.06
4. National savings	14.75	11.80	14.34	15.29	13.85
Public savings	0.37	0.98	0.25	0.97	1.28
General government	-1.54	-0.05	-1.15	-0.84	-0.41
Others	1.90	1.03	1.40	1.81	1.69
Private savings	14.38	10.82	14.09	14.32	12.58
House-hold	12.68	9.54	12.42	12.63	11.09
Corporate	1.70	1.28	1.66	1.69	1.48
5. Net factor income from abroad	-1.37	-1.20	-1.73	-1.86	0.13
	As percent of GDP				
1. Domestic savings	15.97	12.89	15.84	16.90	13.82
	As percent of gross total investment				
1. Net external resource inflow	17.50	24.85	11.74	5.46	-0.46
2. National savings	82.50	75.15	88.26	94.54	100.46

[1]: The current account number may not be comparable because of different treatment

[R]: Revised; [P]: Provisional

Source Federal Bureau of Statistics, Planning and Development Division, Government of Pakistan

2.5.1 Public Savings

In absolute terms, public savings in FY02 were substantially higher than FY01 (see **Table 2.23**) and, as a result, its ratio to GNP rose to 1.3 percent in FY02 compared with 1.0 percent last year. However, in terms of growth, the momentum achieved in FY01 did not carry on to FY02.

While the rise in public sector savings during FY01 was concentrated in the 'others' sub-group (which includes PSEs), it was a higher 'general government' surplus which helped improve the corresponding FY02 figure - the savings in the 'others' category were almost unchanged (see **Table 2.23**).

The relative improvement in public savings appears to reflect prudent fiscal management, and an improved performance of public institutions, corporations, etc. Also, the strong growth in public savings over the last two years has substantially increased its *share* in national savings from 1.8 percent in FY00 to 9.2 percent during FY02. It can be argued that the increase in public savings would have been more pronounced in FY02 had it not been for higher defense spending.

2.5.2 Private Savings

Private savings, defined as the corporate and household savings, recorded a decline of 2.1 percent during FY02 against an increase of 10.3 percent in FY01 and an average growth of 19.4 percent during the last five years.[34] An increase in overall consumption expenditures (10.3 percent) and a slowdown of economic activities partially explain this decline (see **Table 2.23**).

2.6 Investment

The provisional estimates for FY02 show that gross fixed investment, in nominal terms, declined by 5.9 percent to Rs 459.4 billion, against an increase of 7.9 percent last year. As a result, the investment to GDP ratio declined for the second successive year, from 15.9 percent in FY01 to 13.9 percent in FY02, well below the 15.2 percent annual target. However, despite the adverse geo-political environment, foreign direct investment witnessed a significant increase, rising by 50 percent (US$ 162.3 million) to US$ 484.7 million during FY02.

The investment to GDP ratio had been hovering around the 16 percent mark since FY99, and the FY02 decline probably reflects the impact of the uncertain business environment during the year, as well as the fall in agricultural investment following poor crops (see **Table 2.24**).

Table 2.24: Investment

	FY99	FY00	FY01	FY02
As percent of GDP				
Total investment	15.6	16.0	15.9	13.9
Fixed investment	13.9	14.4	14.3	12.3
Public	6.1	6.0	6.3	4.7
Private	7.9	8.4	8.0	7.6
As percent of total investment				
Public	43.4	41.5	44.0	38.5
Private	56.6	58.5	56.0	61.5

If so, the FY02 decline, while unwelcome, is not a structural problem. Nonetheless, even without this decline, the 15.8 percent of GDP average for the preceding three years is not impressive when compared to that of some regional countries, and even with Pakistan's achievement in the early 1990s.

Another point to note is that the investment ratios of both, the public and the private sector, as a percent of GDP have declined over the 1990s, but the fall was more pronounced for the public sector. While the fall in the investment ratio reflects the weakness of the economy relative to earlier decades, the rise in the share of the private sector reflects the policy shift towards a market-based economy as well as the government's fiscal constraints.[35]

The trend continued in FY02 as well, with the public sector contributing more to the fall in the overall *investment to GDP* ratio. The public sector investment to GDP ratio fell from 6.3 percent in FY01 to 4.7 percent in FY02, while the corresponding private sector ratio dropped from 14.3 percent to 12.3 percent respectively (see **Table 2.23**).

The overall distribution of investments reveals that public investment was largely directed towards the creation and strengthening of the economic infrastructure, i.e., communication facilities, public utilities, social services, etc.

[34] It is difficult to obtain a reliable estimate of private savings when direct information on aggregate consumption is lacking. Under the current methodology, private savings is worked out as a residual-difference between the national savings and public savings. Public savings are mostly derived from the budgetary and non-budgetary accounts of the government including public sector enterprises.

[35] The share of private investment in total investment has increased over the period, reaching 61.5 percent during FY02.

2.6.1 Real Fixed Investment

In real terms, gross fixed investment declined by 3.1 percent during FY02 compared with a growth of 0.9 percent recorded in the preceding year (see **Table 2.25**). A key point to note is that the FY02 fall

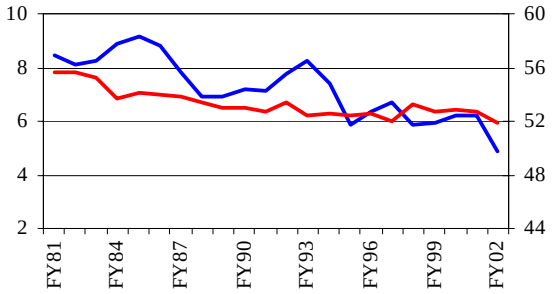
Table 2.25: Growth of Real Fixed Investment
at constant prices of 1980-81

	Total fixed investment		Public fixed investment		Private fixed investment	
Sector	**FY01[R]**	**FY02[P]**	**FY01[R]**	**FY02[P]**	**FY01[R]**	**FY02[P]**
Agriculture	12.0	-5.4	-71.1	331.1	-6.4	-15.2
Mining and quarrying	13.6	4.0	28.2	8.4	6.9	1.6
Manufacturing	21.4	-31.4	96.8	-89.2	2.1	-2.8
Large-scale	27.7	-45.9	96.8	-89.2	-1.2	-9.9
Small-scale	7.3	7.5	-	-	7.3	7.5
Construction	17.4	17.5	35.1	-2.6	13.3	23.1
Electricity and gas distrib.	-13.0	5.4	-9.7	-11.2	-22.2	58.6
Transport, storage & comm.	-7.5	-10.2	-9.7	-3.2	-3.7	-21.4
Wholesale and retail trade	13.2	19.1	-	-	13.2	19.1
Finance & insurance	-2.1	8.7	25.1	-0.9	-3.0	9.1
Services	15.9	16.0	47.8	106.0	12.3	2.6
General government	0.5	4.5	0.5	4.5	-	-
Total	**0.9**	**-3.1**	**3.1**	**-9.3**	**-0.8**	**1.9**

[R]: Revised; [P]: Provisional
Source: Federal Bureau of Statistics

was a continuation of a trend decline in key sectors such as agriculture, manufacturing and transport & communication, which collectively contribute approximately 45 percent of real GDP (see **Figure 2.24**).

Figure 2.24: Investment in Agriculture, Manufacturing & Transport



Agriculture

Real investment in agriculture declined for the third consecutive year in FY02, largely due to a 15.2 percent drop in private investment. Consequently, agricultural investment fell with respect to both, GDP and gross fixed investment.

Historically, the private sector accounted for approximately 80 percent of the total agricultural investment. However, water shortages, low product prices and an increase in input costs, all conspired to lower demand for agri-credit in FY02, pulling down the investment figure.[36]

Given its low share in the total, even the unprecedented 331.1 percent increase in public sector investment could not offset the decline in private agricultural investment. This FY02 increase in public investment reflects the government's medium-term plan to radically augment water resources, incorporating projects for storage water (such as Gomal Zam and Meerani Dam), new irrigation channels, and renovation of watercourses.

Manufacturing

Real investment in the manufacturing sector, which accounted for 13.1 percent of the real gross investment, declined sharply by 31.4 percent against a robust growth of 21.4 percent last year.

[36] The overall credit to agriculture sector for developmental purposes has declined by 17.2 percent in FY02.

However, unlike agriculture, it is public investment that saw the greater fall in FY02; the Rs 5.9 billion investment in FY02 is 89 percent lower than the Rs 53.5 billion seen in FY01. Within the public sector investment, the larger share was spent on the Development Scheme for People's Steel Mills, while the remainder was mainly invested in balancing & modernization of workshop facilities at PITAC, and other small projects.

The private sector investment in manufacturing declined by 2.8 percent in FY02 compared with an increase of 2.1 percent an year earlier, probably reflecting the uncertain business environment during the year.

Transport and Communication

Real investment in the transport and communication sector under both public and private sectors continued to decline for the second consecutive year. However, during FY02, the intensity of the decline was more pronounced in private sector investment.

Also, despite the fall in overall public investment in the sector, there were some notable exceptions:

- In particular, the real investment on railway infrastructure almost doubled in FY02. This was part of a phased program for the revival of Pakistan Railways; the focus of this program is mainly on the procurement of locomotives, renewal of tracks and sleepers, rehabilitation of the old and acquisition of new coaches.

- Another focus area for the government has been information technology (IT). The government has launched an integrated program to develop the IT sector, and has provided various incentives to the private sector as well.[37] A number of new institutions have been established (including a Virtual University), and others upgraded. The Pakistan Software Exports Board was also revamped to provide marketing support to the local IT companies.

- PTCL has embarked upon a joint venture program of bringing further expansion of NWD transit, local exchanges, improvement of universal Internet access, mobile coverage and international gateway exchanges. It continued the expansion program by enhancing investment in its subsidiaries namely PTML (U-fone) and Paknet. Other companies viz.; World Call Communications continued expanding the network and user base of payphones, and diversifying into other ventures in the telecommunications sector.

Construction

Investment in construction is estimated through the commodity flow approach taking mainly into account the availability of construction related machinery, land improvements, building maintenance, construction of roads, highways and public utility lines both in public and private sectors.

During the FY02, in real terms, investment in construction sector increased by 17.5 percent, slightly above the FY01 level; this was largely due to private sector participation. The government also stepped up its spending on infrastructure; a marked increase in spending on public works programs, such as Khushal Pakistan Program, was visible in FY02.

Mining and Quarrying

The growth rate of real investment in mining and quarrying decelerated from 13.6 percent in FY01 to 4.0 percent in FY02. The mineral sector is one of the important sectors having the potential for both, import substitution and boosting export earnings. In particular, the development of the petroleum

[37] These included tax holiday for fifteen years, 100 percent foreign equity ownership, income tax holiday on software exports and custom duty exemption on the import of IT-related equipments.

sector has been identified as one of the priority areas. Though mining and quarrying is emerging as an attractive area for investors, the unsettled questions of ownership of mines are still a hurdle and needs to be tackled. On the one hand, the respective provincial Governments issue licensing and charge taxes, while on the other, strong communities, *baradaries*, and tribes claim their right of ownership. Moreover, the virtual non-existence of infrastructure is another hindrance to investment in the mineral sector.

Table 2.26: Foreign Direct Investment (Net) – FY02
million US Dollar

	USA	UK	UAE	Germany	Others	Total
Food Group	3.5	0.7	2.0	0.0	-11.34	-5.1
Textiles	6.7	1.1	3.8	0.4	6.44	18.4
Chemicals	5.7	0.3	0.2	0.5	3.92	10.6
Petroleum refining & petro chemicals	3.7	0.7	0.0	0.0	0.6	5.0
Oil-gas & mining & quarrying	249.8	14.9	0.1	0.0	10	274.8
Pharmaceutical group	3.7	0.3	0.1	1.5	1.6	7.2
Machinery	0.6	0.0	0.0	0.0	9.9	10.5
Electronics	3.5	0.0	9.1	0.0	3.3	15.9
Transport & storage facilities	0.8	0.0	0.4	0.0	21.3	22.5
Communications	8.0	0.8	0.4	0.1	3.5	12.8
Construction	1.9	3.3	1.4	0.0	6.2	12.8
Trade	14.9	1.0	1.4	0.1	16.8	34.2
Power	11.5	2.5	0.0	5.4	17.0	36.4
Financial business	1.6	0.4	1.8	0.1	-0.3	3.6
Others	10.6	4.4	0.9	3.1	6.4	25.0
Total	**326.4**	**30.3**	**21.5**	**11.2**	**95.3**	**484.7**

Note: Totals may not tally due to separate rounding off

Table 2.27: Foreign Private Direct Investment (Net)
million US Dollar

					Absolute Change	
Sectors	**FY99**	**FY00**	**FY01**	**FY02**	**FY01**	**FY02**
Food, beverages & tobacco	7.4	49.9	45.1	-5.1	-4.8	-50.2
Textiles	1.7	4.4	4.6	18.4	0.2	13.8
Chemicals, pharmaceuticals & fertilizers	54.1	119.9	26.3	17.8	-93.6	-8.5
Petro chemicals & petroleum refining	38.8	12.0	8.7	5.0	-3.3	-3.7
Cement	2.0	0.1	15.2	0.4	15.1	-14.8
Machinery	14.6	4.6	2.5	10.5	-2.1	8.0
Electronics	1.2	2.3	2.8	15.9	0.5	13.1
Power	131.4	67.4	40.3	36.4	-27.1	-3.9
Construction	13.9	21.1	12.5	12.8	-8.6	0.3
Trade, transport, storage & communication	38.8	38.6	94.7	68.3	56.1	-26.4
Financial business	24.4	29.6	-34.9	3.6	-64.5	38.5
Mining & quarrying-oil & gas explorations	112.8	79.7	84.7	274.8	5.0	190.1
Others	31.2	40.3	20.0	25.9	-20.3	5.9
Total	**472.3**	**469.9**	**322.5**	**484.7**	**-147.4**	162.2

Note: Totals may not tally due to separate rounding off.

2.6.2 Foreign Direct Investment

Despite a sluggish global economic environment and the risk perceptions regarding Pakistan's economy, foreign direct investment (FDI) in the country increased; the FY02 inflows totaled US$ 484.7 million. Although lower than the initial target of US$ 600 million, this was nonetheless 50 percent higher than in FY01 (see **Table 2.26**). The foreign investment inflows are expected to grow during 2003, as regional risk perceptions ease, and following the substantial improvement in Pakistan's external sector.

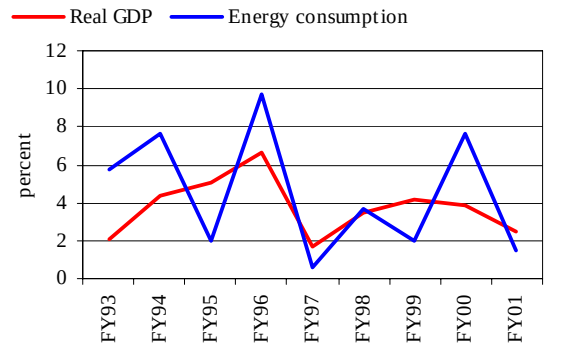
During FY02, the major beneficiary was the oil and gas sector, followed by power, trade, and transport (see **Table 2.27**). The country-wise position of foreign investment reveals that USA takes the lead, contributing about 67.3 percent of the total foreign investment during FY02. The major three areas for US investors in Pakistan were oil & gas exploration, trade and power (see **Table 2.26**).

Special Section 2.1: Commercial Energy[38]

Backdrop

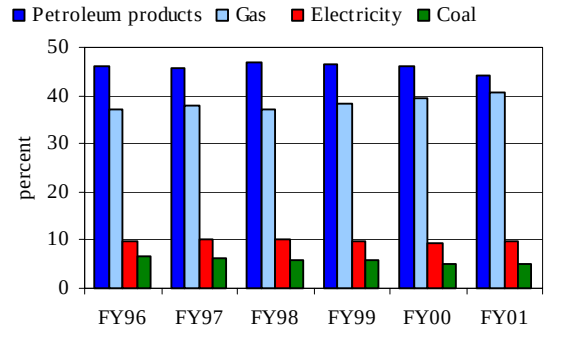
Typically, energy consumption is closely related to economic development, with consumption rising in congruence with economic growth. A cursory look at **Figure 1** indicates the existence of a loose correlation for Pakistan as well.[39] Thus, as economic growth experienced a deceleration for the second consecutive year in FY01, growth in commercial energy consumption plunged to 1.5 percent in FY01 from 7.6 percent during FY00.

Figure 1: GDP and Energy Consumption (Growth)



Although the annual growth in energy consumption has been rather erratic, its broad composition has shown little variation since the mid-1990s. The petroleum sector still dominates the commercial energy consumption with a share of 44 percent in FY01, followed by gas (41 percent), electricity (10 percent) and coal (5 percent). However, a gradual increase in the share of gas in total energy consumption is visible over the last few years, largely at the expense of petroleum products (see **Figure 2**). The latter is partially explained by the growing use of CNG in automobiles and increased conversion of industrial units to alternate fuels.

Figure 2: Energy Consumption (Shares)



Petroleum and Petroleum Products

The petroleum sector has witnessed significant changes during the last few years. Despite a marked increase in the availability of petroleum and petroleum products in FY01 and FY02, consumption has actually declined. Provisional estimates for FY02 show that the consumption of petroleum products fell marginally to 17.1 million tonnes, compared to 17.6 million tonnes in FY01.

In a remarkable development, since FY01, almost half of the country's demand for petroleum products is now met through local production: this is a sharp improvement from FY00 when local production of petroleum products was able to meet only 34 percent of the country's demand. The increased domestic production of petroleum products reflects the commissioning of the 4.5 million tonnes Pak-Arab Refinery (PARCO) in September 2000.

As refining capacity increased, imports of petroleum products declined 8.9 percent to 9.2 million tonnes during FY02, generating gross savings of US$ 424 million. Low domestic demand and increased domestic production allowed exports to rise by 194.2 thousand tonnes, to approximately 600 million tonnes; in fact, the FY02 export *increase* is more than total exports of petroleum products two years ago. These gains are expected to further consolidate with the commissioning of Bosicor

[38] Due to data constraints, much of the discussion in this section excludes FY02 developments.
[39] The weakness of this correlation may be explained by: (1) energy consumption by the large undocumented economy and, (2) use of non-commercial fuels, consisting of wood fuels, dung, crop residue and charcoal.

Pakistan Refinery in FY03 and Pak-Iran Refinery by 2005 with refining capacities of 1.4, and 6.0 million tonnes per year, respectively.[40]

Table 1: Petroleum and Petroleum Products Supplies

000 tonnes

	Crude oil		Petroleum products	
	Total	Import as % of Total	Total	Import as % of Total
FY00	7,147	61.8	17,993	66.0
FY01	9,672	70.8	18,892	53.6
FY02	10,332*	69.5	18,578	49.7

* Estimated

Source: Economic Survey 2001-02, OCAC

Consumption

The consumption of petroleum products had decelerated since FY97, turning into a net decline in FY01.[41] Provisional estimates indicate a 3.0 percent decline in FY02, vs. a 0.7 percent fall in FY01.

Looking at the user-shares in consumption of POL products since FY91, a general downtrend is clearly visible for every major sector of the economy, except power (see **Table 2**). The rise in the share of the latter is apparently due to the increase in thermal electricity generation after substantial investments by IPPs, which increased its share from 24 percent in FY91 to 37 percent in FY01. The usage of petroleum products by the power sector registered a growth of 3.2 percent during July-March FY02; this upsurge came largely from WAPDA, which reported an increase of almost 36 percent in thermal electricity generation through fuel oils.

Table 2: Consumption of Petroleum Energy Products

	Total	Share (percent)					
	000 tonnes	Domestic	Industry	Agriculture	Transport	Power	Others
FY91	9,961.3	9.5	11.5	2.7	48.6	24.4	3.3
FY99	16,647.8	3.0	12.9	1.5	47.2	33.2	2.3
FY00	17,767.8	2.7	11.9	1.6	46.8	35.0	1.9
FY01	17,647.9	2.6	10.9	1.4	46.2	36.8	2.1
FY01[1]	12,947.1	2.8	11.5	1.5	46.1	36.0	2.1
FY02[1]	12,711.2	2.2	9.8	1.4	45.1	37.8	3.7

[1]: Jul-Mar

Source: Hydrocarbon Development Institute of Pakistan (HDIP), Economic Survey 2001-02

On the other hand, the lower demand by the non-power sectors reflects subdued economic activity as well as the government's efforts to substitute fuel oils with other cheap sources of energy, so as to reduce the large oil import bill.

Electricity

Since the introduction of the Power Policy of 1994, the electricity sector has undergone substantial structural changes. The Policy envisaged the participation of private sector in power generation through new projects as well as privatization of state-owned units. It succeeded in drawing substantial foreign investment in new power generation projects, largely addressing the power shortages in the economy.[42]

[40] For related discussion on import and export of petroleum and petroleum products, see ***section 9.6*** on ***Trade Account*** in **Chapter 9** of this report.

[41] The compound annual growth of 9.2 percent recorded by the consumption of petroleum products during FY92-96, fell to 3.1 percent during FY97-01.

[42] However, in later years, as power consumption fell below projected demand due to a slowdown in economic growth, line losses mounted, and planned tariff hikes could not be implemented, WAPDA soon ran into financial problems. This instigated allegations of inflated tariffs of IPPs. The disputes between WAPDA and IPPs over tariff adjustment were gradually settled. The largest IPP, HUBCO, finally reached a settlement with WAPDA in December 2000.

Electricity Generation

As new power generation units were set up in both the public as well as private sector, the installed capacity of electricity generation increased from 13.0 Giga Watt (GW) in FY96 to 17.4 GW in FY00 and subsequently to 18.0 GW in FY02. The increase in the installed capacity of the country during the last two years was brought about by the addition of Chashma Nuclear Power Plant (325 MW), Chashma Hydropower Project (184 MW) and Liberty Power (235 MW). The addition in hydel and nuclear capacity is encouraging, as this would bring some financial relief to WAPDA and KESC through a fall in the overall cost of electricity generation.

WAPDA is expected to get additional relief from two sources: (1) the average cost of electricity generation will decline as the Ghazi Brotha hydel power station becomes operational in FY03, and (2) the capacity charges paid to IPPs will go down in coming years with a consequent decline in tariffs of IPPs.[43]

The increase in installed capacity during FY02 was accompanied by a 7.8 percent rise in electricity generation compared to a 3.7 percent increase in FY01. As expected, the rise has come from a surge in electricity generation by all the three sources (see **Table 3**). Moreover, as Ghazi Brotha Hydropower Project with installed capacity of 1,450 MW comes into commercial operation during FY03, hydel generation is expected to witness a substantial increase.

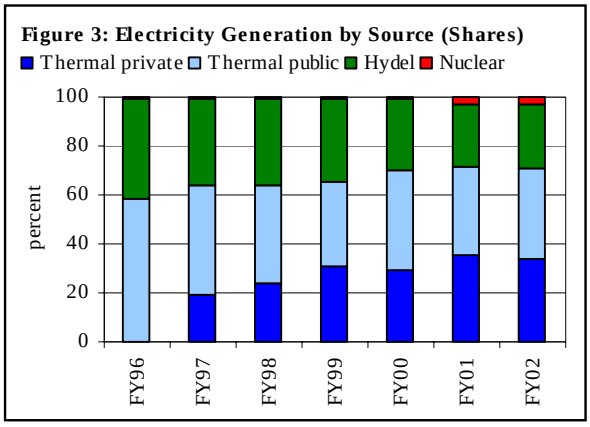
Table 3: Installed Capacity and Electricity Generation

	Installed capacity MW			Electricity generation GWh		
	Hydel	Thermal	Nuclear	Hydel	Thermal	Nuclear
FY00	4,827	12,436	137	19,288	46,064	399
FY01	5,008	12,302	462	17,258	49,187	1,997
FY02	5,039	12,537	462	19,062	50,509	2,313*

* Estimated

Source: WAPDA, KESC, Ministry of Water and Power

Figure 3: Electricity Generation by Source (Shares)



Composition of Electricity Generation

The composition of electricity generation has undergone substantial changes since 1997, when IPPs entered the Pakistani market. Since then, IPPs have been able to snatch a greater share of electricity generation by virtue of purchase clauses in their Power Purchase Agreements. As all of the private power companies had invested in thermal power stations, the share of thermal electricity in total power generation increased from 58 percent in FY96 to 72 percent in FY01.

However, hydel regained a 2-percentage point share in FY02, and its share is expected to increase further during FY03, with improved water availability and the commissioning of Ghazi Brotha hydel station. Furthermore, the share of nuclear energy has remained at 3 percent in FY02, after reaching this level in FY01 due to the commissioning of Pakistan's second nuclear power station viz., Chashma Nuclear Power Plant (CHASHNUPP).

Since commencing operations in 1997, the share of IPPs in total thermal electricity generation has risen from nil in FY96 to 50 percent in FY01 before declining to 46 percent in FY02 (see **Figure 3**).

[43] IPPs tariff consisted of a capacity price and energy price. Energy price component covered fuel costs and other variable expenses of electricity generation. On the other hand, capacity charges were to enable the private investor to repay debt portion of the investment, cover insurance and other fixed expenses besides earning a return on equity. Therefore, as debt liability of IPPs declines with its repayment, capacity charges would eventually drop, lowering IPPs tariff rates.

It is, however, interesting to note that this gain in share by IPPs came partly from a decline in thermal generation by WAPDA. The drop in electricity generation by WAPDA occurred on account of; (1) privatization of Kot Addu power station in FY96 with an installed capacity of 1466 MW; and (2) mandatory purchase of electricity from IPPs in accordance with Power Purchase Agreements, despite below-projected growth in power demand in later half of 1990s.

Auxiliary Consumption and Power Losses

In recent years the government has taken a number of steps to address operational and administrative inefficiencies in WAPDA and KESC. Pakistan Army personnel were inducted into WAPDA, and vigorous efforts were made to reduce line losses and curb power theft. Consequently, WAPDA was able to gradually cut its system losses from 27.5 percent in FY99 to 25.8 percent in FY01.[44] Unfortunately, after initial success, efforts to cut system losses now seem to have stalled, as no significant declines were registered during FY02. As a result, efficiency parameters registered by these power utilities are still below international norms, suggesting the need for further structural reforms.

Table 4 summarizes some efficiency parameters for the power sector. Auxiliary consumption has declined for both WAPDA and KESC in FY02. Yet the existing levels of auxiliary consumption are quite high as compared to the 4.6 percent for IPPs. On the other hand, the average fuel cost has marginally declined for KESC in contrast to WAPDA, which showed an increase in its average fuel cost. The fuel-wise generation of electricity reveals that KESC was able to reduce its average fuel cost through substitution of fuel oil with natural gas, while the rise in WAPDA's fuel cost is explained by its inability to switch from furnace oil to relatively cheaper fuels.

Table 4: Efficiency Parameters
percent of gross generation

	FY01	FY02
Auxiliary consumption (thermal)		
WAPDA	6.73	6.72
KESC	6.68	6.52
Transmission & distribution losses		
WAPDA	23.80	23.60
KESC	35.13	39.17
Average fuel cost (thermal)		
WAPDA	1.77	2.03
KESC	2.22	2.21
Average tariff (KESC only) (Rs/kWh)		4.30

Source: WAPDA, KESC

The average fuel cost of thermal generation provides important insights about the true basis of tariff increases sought by the power utilities. Even if the impact of very low-cost hydel generation is ignored, the overall cost of thermal generation to WAPDA & KESC range from Rs 3.18 - 3.32 per kWh. The average tariff for WAPDA was unavailable, but assuming that it is not too different from that of KESC, it becomes clear that the recent increases in power tariffs were probably because of the financial losses arising from: (1) the huge transmission and distribution losses, and (2) a sizeable amount of receivables outstanding against power consumers, especially the government sector. At end-June FY02, transmission and distribution losses stood at 23.6 and 39.2 percent for WAPDA and KESC respectively, far exceeding the average 15 percent mark for other countries.

Electricity Consumption

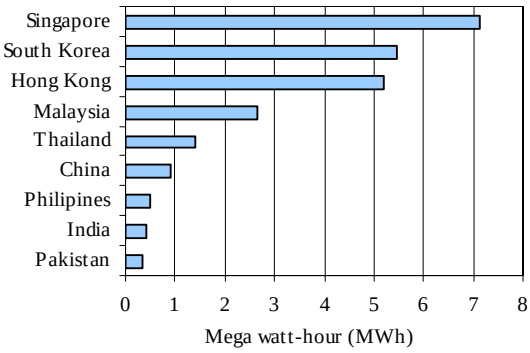
Despite frequent increases in tariffs since the early 1990s, electricity consumption has managed to hold to a share of approximately 10 percent in total commercial energy consumption, with an annual compound growth rate of 4.8 percent for the period.

[44] System losses include transmission and distribution losses as well as auxiliary consumption, which represents electricity used in power generation process.

After registering a small increase since FY97 and a decline in FY99, electricity consumption has shown strong positive growth thereafter. More specifically, consumption of electricity registered a compound growth rate of 5.3 percent during FY00-02 against 0.2 percent for FY97-99. The high growth in electricity demand over the last few years can be attributed mainly to a rise in the number of consumers as a result of village electrification programs, and sustained efforts by WAPDA to put power theft under check. By end-FY02, the number of electricity consumers was 12.7 million as against 11.6 in FY00. Meanwhile, the number of villages electrified increased to 70.8 thousand by February 2002, as compared to 68.3 thousand in FY00.

However, it needs to be emphasized that the above efforts have largely focused on growth in electricity consumption through increasing the number of consumers. Compared to the leading emerging economies of the world, per capita electricity consumption of Pakistan remains markedly low (see **Figure 4**). Any attempt to increase per capita electricity consumption would require linking more areas to the national power grid, as well as lowering prices. The latter, in turn, calls for concerted efforts to: (1) reduce huge system losses, (2) collect the large receivables, and (3) lower the average cost of electricity generation by switching to low-cost generation.

Figure 4: Per Capita Electricity Consumption (1999)



Source: International Energy Agency

Sectoral consumption of electricity over the last seven years is depicted in **Figure 5**. The domestic sector (households) clearly dominates electricity consumption, accounting for 46 percent of the total at end-FY02, as power consumption by households has been continually increasing over the years.

Table 5: Electricity Consumption

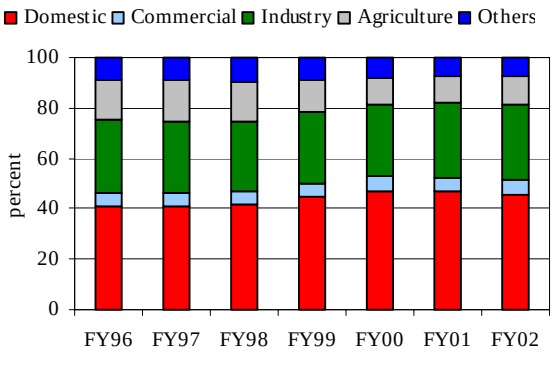
giga watt-hour

	FY90	FY00	FY01	FY02
Domestic	9,360	21,455	22,701	23,171
Commercial	1,963	2,544	2,774	2,950
Industry	10,324	13,202	14,349	15,141
Agriculture	5,027	4,540	4,924	5,607
Others	2,095	3,845	3,748	3,724
Total	**28,769**	**45,586**	**48,497**	**50,593**

Source: WAPDA, KESC

The rise in household consumption also reflects two key factors: (1) rapid urbanization, leading to a switch away from traditional non-commercial sources and, (2) an apparently price inelastic demand.

Figure 5: Electricity Consumption by Sector (Shares)



The most worrying aspect of electricity consumption during 1990s has been the declining share of industry in total demand. Consumption of electricity by industry sector grew only by an annual compound rate of 1.7 percent during 1991-99. That resulted in its share coming down to 28 percent in FY99 from 36 percent in FY91. It was only after FY00 that industrial consumption of electricity really picked up. However, during FY02 industrial consumption of electricity grew by 5.5 percent against 8.7 percent in FY01, reflecting either a reduced growth of industrial production during the outgoing fiscal year, or else increased reliance on internal generation.

Another important user of electricity is the agriculture sector. Electricity consumption by agriculture increased by a handsome 13.9 percent during FY02 compared with 8.5 percent in FY01. This high growth in electricity consumption by agriculture sector has been mainly due to the increased use of tubewells during FY02 (see *section on **Agriculture** in **Chapter 2***). As a result, the agriculture sector registered a 1 percent gain in its share of electricity consumption during FY02.

Natural Gas

The recoverable reserves of natural gas as on end-March FY02 stood at 26.4 trillion cubic feet against 24.1 trillion cubic feet at end-June FY01. During July-March FY02 the average production of natural gas increased to 2,521 million cubic feet (CFT) per day as compared to 2,375 million CFT per day during the same period in FY01. As it is economical and environment-friendly, the government has formulated the strategy of encouraging natural gas use in the power and transport sectors. Also, since this entails development of existing wells, as well as exploration of new gas reserves, various incentives have been offered to draw in private investment in oil and gas exploration.

Important among these are the reduction of tax from 52.5 percent to 40 percent, linking wellhead gas prices with crude oil, separate tariff of pipeline from field gas and removal of carrying interest of government holdings. The events following September 11, however, forced many expatriates working for foreign exploration and production companies to leave Pakistan, decreasing the number of wells drilled by the private sector during July-March FY02 to 26 as against 32 in the same period during FY01. However, private investment in oil and gas exploration has substantially picked up during FY02, and the number of wells to be drilled is therefore expected to rise in coming months.

Consumption of Gas

Significant developments were witnessed in the consumption of gas during FY02. Despite efforts to encourage substitution to natural gas from other expensive sources of energy, its consumption decelerated to 5.4 percent in FY02 against 7.0 percent in FY01. The sectoral consumption of gas is reported in **Table 6**. Surprisingly, gas consumption by the power sector declined during FY02 by almost 1 percent, reflecting the poor infrastructure of gas provision to thermal power stations.

Table 6: Gas Consumption
million CFT

	FY91	FY00	FY01	FY02
Domestic	66,797	139,973	154,031	156,647
Commercial	12,317	21,712	23,725	25,738
Industry	101,861	143,474	139,795	170,331
Fertilizer	107,954	177,152	185,691	194,095
Power	176,409	230,040	258,909	256,696
Total	**465,338**	**712,351**	**762,151**	**803,507**

Source: HDIP, Ministry of Petroleum and Natural Resources website

After showing a decline in FY01, industrial consumption of natural gas has registered 21.8 percent growth. Anecdotal evidence suggests that the conversion of industrial plants to natural gas is primarily responsible this rise.

Furthermore as domestic prices of natural gas are being rationalized, consumption by the domestic sector has recorded a deceleration in its growth from 10.0 percent in FY01 to 1.7 percent in FY02. This is indeed a positive development as it reflects a decline in uneconomical use of natural gas by the household sector and implies its increased availability for more productive uses in power generation and industry.

Coal

Before natural gas discoveries in the mid-1950s, coal accounted for almost 60 percent of total commercial energy consumption in Pakistan. However, with increased availability of relatively inexpensive gas and, in later years, of petroleum products, its share had continuously declined. Currently coal consumption represent only 5 percent of total commercial energy consumption of

Pakistan. During the first nine months of FY02, coal production in the country stood at 2.3 million tonnes as against 2.1 million tonnes for the same period in FY01. Vast unexplored reserves of coal in the country have gained focus in the new energy policy with the objective of reducing reliance on expensive fuel oils in power generation and industry. However, due to the inferior quality of domestic coal, imports have increased substantially during FY02 to meet the growing demand. Import of coal during FY02 increased to 1,102 thousand tonnes from 901 thousand tonnes in FY01, signifying an increase of US$13.4 million in country's import bill. The total coal resources in the country are estimated to be around 184.6 billion tonnes, which includes 175.5 billion tonnes of coal deposits in Thar. However, it is important to realize that more than 90 percent of estimated Thar deposits are only inferred or hypothetical, indicating a low degree of geological assurance.[45]

Consumption of Coal

Looking at consumption of coal since the mid-1990s, a substantial increase can be noticed in power sector, from 40.7 thousand tonnes in FY95 to 398.9 thousand tonnes in FY96. This huge increase is indicative of the shift in power generation from hydel to thermal generation. Though share of domestic sector in coal consumption was already very low, since 1990s it has declined further, indicating: (1) movement of people from rural to urban centers and, (2) increased access of the rural population to other sources of energy with a high heating value, especially LPG. Consumption of LPG has recorded a compound annual growth rate of 9.3 percent between FY95 to FY01.

Table 7: Consumption of Coal

000 tonnes

	Domestic	Power	Brick kilns	Coke use
FY95	3.2	40.7	2,998.9	1,095.9
FY96	3.1	398.9	3,235.8	1,080.0
FY00	1.0	348.1	2,818.8	956.7
FY01	1.0	205.8	2,887.9	950.0
FY01[1]	0.8	187.4	1,962.6	718.0
FY02[1]	1.0	190.1	2,131.2	713.0

[1]: Jul-Mar

Source: HDIP, Economic Survey 2001-02

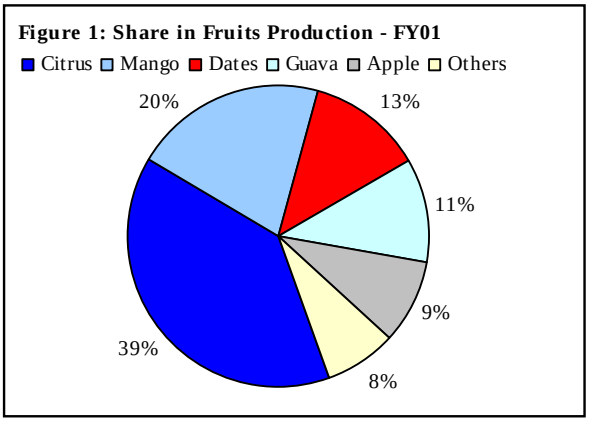
Brick-kilns and its use as coke in steel manufacturing accounted for almost 95 percent of total coal consumption in FY01. During July-March FY02 total consumption of coal increased marginally to 3.0 million tonnes from 2.9 million tonnes during the same period in FY01. However, there are strong indications of increased coal consumption in cement plants and, to a lesser degree, in thermal power stations. As a matter of fact, industry sources point out continuing conversion of cement plants from natural gas and furnace oil to coal. The recent hike in coal prices is also reflective of its increased demand in the country. Since available data excludes its consumption in cement, figures reported in **Table 7** are underestimates of coal consumption in the country. Meanwhile use of coal in brick-kilns registered a rise during July-March FY02, indicating increased activity in construction industry during FY02.

[45] Based on United States Geological Survey (USGS) coal resources are categorized into: measured, indicated, inferred and hypothetical with degree of geological assurance reducing at each level.

Special Section 2.2: Fruits Production, Marketing and Export

Pakistan's climate ranges from tropical to temperate, allowing the country to grow a variety of fruits. Judicious development of orchards helps to diversify farm incomes and reduce the intensity of crop and market failures. Hence, orchards have a good potential not only to contribute significantly to the incomes of the individual farmer but also to collectively enhance national income. Furthermore, the installation of fruit processing units, close to the orchards, generates employment opportunities in rural areas, besides discouraging migration to urban centers.

Figure 1: Share in Fruits Production - FY01



The major fruits grown in Pakistan include citrus, dates, mangoes, guavas, and apples. Others include apricots, bananas, grapes, almonds, peaches, plums and pomegranates. Citrus farming witnessed phenomenal growth over the past two decades, particularly in the upper belt of Punjab and in the NWFP. Since 1980, the area under citrus fruits more than doubled from 94 thousand hectares to 199 thousand hectares.

The total number of orchards in Pakistan is about 328,400.[46] The area under fruit cultivation is 3.4 percent of the total cropped area with a total production of 5.9 million tonnes.

Past growth trends show that the rise in production of fruits can be attributed mostly to the increase in area, because no improvement is visible in yields (see **Table 1**). Growers, in general, follow the traditional methods of horticulture. High investment cost, long gestation periods, lack of fruit processing units and inadequate infrastructure are the major constraints towards improvement in the productivity of fruits.

Table 1: Area, Yield and Production of All Fruits

Year	Area	Production	Yield
FY92	464	3989	8.6
FY93	476	4112	8.6
FY94	540	4850	9.0
FY95	566	5154	9.1
FY96	622	6091	9.8
FY97	629	6187	9.8
FY98	640	6295	9.8
FY99	646	6344	9.8
FY00	658	5846	8.9
FY01	672	5892	8.8

Source: Agricultural Statistics of Pakistan, 2000-01

Area: thousand hectares; Production: thousand tonnes

Yield: tonnes per hectare

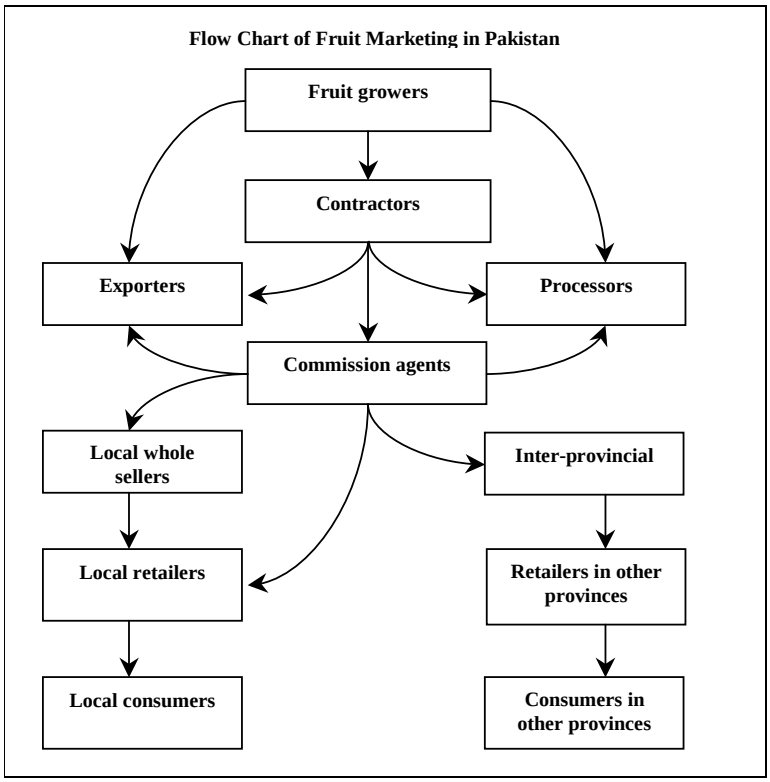
Marketing of Fruits

Pakistan has approximately 650 markets of fruit, vegetable and grain, of which only 203 are regulated under the Punjab Agricultural Produce (Markets) Act, 1939. In fact, there are two statutory acts, regulating the domestic and international trade of agriculture produce, including fruits. Internal marketing is regulated through the Agriculture Produce (*Markets*) Act, while Export marketing is regulated through another act called the Agriculture Produce (*Grading and Marking*) Act, 1937. Compulsory grading for export is applied to citrus fruits, mangoes, limes and lemons, guavas, dates

[46] Source: Pakistan and Gulf Economists, April 22-28, 2002 'Pakistan Profile and its Horticultural Scenario' by *Dr. S.M. Alam and S.M. Mujt*aba

and bananas. Efforts are underway to also include other fruits such a apples, pears, plums and peaches, etc., in the compulsory grading scheme.

The prevailing market mechanism of fruits ensures a minimum return to farmers even before reaching harvest, but it is not capable of transmitting any fraction of the extraordinary profits sometimes earned by the other operators in the marketing chain (that involves contractors, commission agents, wholesaler and retailers).



The commission agent or *arthi* has a fixed place of business in the fruit market in cities and towns generally known as *mandi*, and charges commissions ranging from 3 percent to 10 percent. However, the actual burden on the farmer is thought to be much higher due to under-weighing and additional unrecorded charges.

Exporters can have access to the fruit either directly from the grower, or from the contractors and commission agents. Direct sales to exporters help increase the margins of growers, due to lower marketing costs; exporters too, benefit by lower costs. Unfortunately, this is not feasible in most cases, and farmers and exporters are generally forced to rely on contractors and commission agents.

In the existing mechanism, contractors have emerged as the key players in the marketing of fruits. Although growers appear at the top of the marketing chain, they have a little functional downstream role; contractors purchase the entire produce of orchards even before its maturity; commission agents also deal with contractors to ensure a regular supply of quality fruits throughout the season. Since contractors effectively purchase future crops (assuming the risk of crops failure), they generally hedge their unsecured position by placing low bids. In such a situation, only the growers who enjoy better quality orchards and abreast with the latest market information, benefit substantially.

The lack of substantial infrastructure for refrigeration, transportation, storage, as well as weak dissemination of up-to-date information to farmers are the major constraints towards the steady growth of the fruit sub-sector.

Exports of Fruits

Exports of fruits in Pakistan mostly comprise of citrus, mangoes and dates, which constitute around 91 percent of total fruit export in FY01 (see **Table 2**). The trends for these three major fruits show a continuous rise in quantity and value

The marketable surplus in the case of fruits is 80 percent of the total production. The total losses from farm to the consumer ranges between 25-35 percent.[47] Around 15 to 25 percent loss is on account of wastage caused by perishing for the want of adequate cold storage and transport facilities. Inappropriate harvesting time and methods also contribute to total loss. The post harvest losses in fruits were approximately of Rs 30 billion[48] in 1997-98, this high rate of post harvest wastage results in narrowing the profit margins for growers and traders with end product of limited national export and high prices for domestic consumers. If this wastage can be eliminated, the export earnings could safely increase six to seven times the present level from the current 5.0 percent (FY02) of total production. Pre- and post- harvest management technologies, standardized market practices, accompanied by infrastructure and institutional support, are essential for promoting profitable fruit production.

Pakistani fruit exports are mainly confined to countries such as Middle East including Saudi Arabia, U.A.E., Oman, Kuwait, Bahrain and Qatar. Europe is also an important export market for our fruits. It is only recently that new markets have been tapped in the Far East, including Malaysia and Singapore.

Table 2: Share of Citrus, Mangoes and Dates in Fruit Exports

percent

FY96	FY97	FY98	FY99	FY00	FY01
69	79	75	76	81	91

Figure 2: Fruit Exports

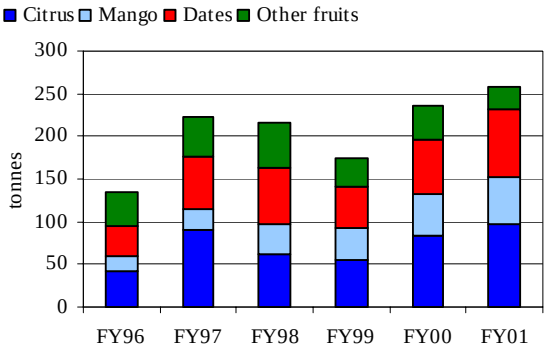
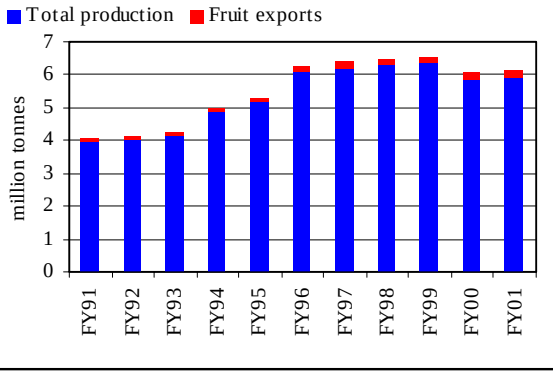


Figure 3: Fruit Exports



Export earnings through processed fruit can also be raised. According to the federal marketing department, there are about 55 large and modernized processing units in the organized sector with 29 in Punjab, 12 in Sindh, 11 in Balochistan and 3 in the NWFP. Majority of these units operate irregularly (and some open during particular seasons). This is because of an absence of well-organized storage facilities that are essential for maintaining continuous supply of fruits throughout the year, especially to medium and small scale processing units.

[47] Source: country paper by *Saifullah Khan Khattak*, in "Marketing of Vegetables and Fruits in Asia and the Pacific", Asian Productivity Organization, Tokyo, 2001.
[48] 'Pakistan Profile and its Horticultural Scenario' by *Dr. S.M. Alam and S.M. Mujt*aba.