The cotton industry

Figure 15.1: The interior of a cotton mill—yarn being produced

Pakistan is the fourth-largest producer of cotton in the world, the third-largest consumer of cotton, the third-largest exporter of raw cotton, and the second-largest exporter of cotton yarn. Cotton and cotton products contribute about 10 per cent to GDP and 55 per cent to the foreign exchange earnings of the country. Pakistan exported textiles and clothing worth US$11.8 million and 13.7 million in 2010 and 2011, respectively. The industry employs 40 per cent of the country's labour force.

The process of cotton production—from field to products

The cotton industry is the largest in Pakistan's industrial sector, with close to 500 textile units, (including about 450 spinning mills), 11.42 million spindles, 27,000 looms in the mill sector (including 15,000 shuttle-less looms), over 250,000 looms in the non-mill sector, 700 knitwear units with 12,000 knitting machines, 4000 garment units, 650 dyeing and finishing units (with finishing capacity of 1,150 million square metres per year).

From 1990 to 2010, the number of cotton textile mills has increased from 247 to 439. The total yarn produced during this period increased from 1041.2 million kg to 2881 million kg

and the cloth production went up from 292.9 million sq metres to 1004.6 million sq metres. *(Source: Economic Survey of Pakistan, 2010–11; Pakistan Yearbook 2012)*

The three stages of the cotton industry, after harvest, are ginning, spinning and weaving.

i) The crop is harvested.
ii) Ginning i.e. separation of seed from cotton, production of cotton lint and fibre.
iii) Spinning, i.e. fibre is spun into yarn.
iv) Yarn is woven into fabric/textiles.
v) Fabrics/textiles converted to products such as apparel (textiles), linen, hosiery, towels, canvas, rope, string, thread, etc.

Pakistan is the third-largest producer of cotton seed from which oil is extracted and used for cooking and in industry. After extraction of oil, cotton seed cake is used as fodder for farm animals.

Ginning

This is the process of separating cotton from the seeds. There are more than 1200 ginning factories in Pakistan, located in the cotton-producing areas of the country, about 85 per cent of which are in Punjab and 15 per cent in Sindh, while ginning is also carried out by some of the cotton mills. The ginning mills have a capacity of producing 20 million bales per year but the output is usually less than full capacity.

Spinning

Spinning factories produce yarn from raw cotton and are a very important sector of the cotton textile industry. At present, there are 457 spinning units in operation with over 90 per cent capacity. From just over 6 million kg of yarn in 1948, the recent production figures are 1721 million kg in 2001, 2809.4 million kg in 2008, and 2959.9 million kg in 2011. Today Pakistan produces more yarn than it can utilize and a very large quantity of the surplus yarn is exported; Pakistan's share in the world market is 30 per cent.

FACTS AND FIGURES

KARACHI: The Cotton Crop Assessment Committee (CCAC) revised the estimated cotton production to 12.33 million bales (of 170 kg each) in Pakistan in the ongoing fiscal year 2013–14, the Karachi Cotton Association (KCA) reported on Saturday. The country has so far produced 10.06 million bales in the ongoing fiscal year, which is 15 per cent higher than 8.73 million bales produced in the same period last year, Pakistan Cotton Ginners Association (PCGA) reported earlier.

Weaving

Cotton cloth is produced in the weaving units. There are three different sectors in weaving: integrated units, independent weaving units, and power loom units. The power loom sector has seen enormous growth and modernization in the last 20 years mainly due to favourable government policies and market demand. From just over 490 million sq metres in 2000–01, the total amount of cloth production rose to 6746 and 6830 million sq metres in 2011–12 and 2012–13, respectively.

Pakistan produces quality cotton textiles, fabric for the readymade garments industry, hosiery and knitwear, towelling, denim, and canvas.

Power looms (Non-mill weaving)

Power looms, which are non-mill looms that run on electricity, were introduced in 1985 and have made remarkable progress. Over 225,000 are operating in the non-mill sector; power looms, their accessories, and spare parts are locally made. Several thousand sizing and finishing units in operation employ around 250,000 workers. Power looms are particularly valuable to yarn producers as they consume more yarn than mill looms, but there has been a steady increase in the consumption of yarn by the non-mill sector too. The production of cotton cloth and blended cloth has also risen. The figures for mill and non-mill cloth production in 2011–12 and 2012–13 are given below.

Table 44: Mill and non-mill production of cotton cloth

	2011–12	2012--13
	(million sq metres)	
Mill sector	770.509	771.270
Non-mill sector	5975.850	6059.450
Total	**6746.359**	**6830.720**
Gilgit–Baltistan	9	26.2
AJK	26	76.8
Total	**1383**	**4014.4**

Source: Economic Survey of Pakistan, 2010–11; Pakistan Statistical Yearbook 2012

Towels, hosiery, and canvas

Towels are an important product of the power looms. Presently, there are about 7500 looms in the country and the factories have been upgraded to improve production quality. The export of towels to the United States (the largest consumer), other Muslim nations, Western Europe, and China has registered a substantial increase in value (and quantity) from US $495 million in 2009–10 to US$580 million in 2010–11, and US$578 million in 2012–13.

Hosiery is another industry based on cotton yarn and has high export value. A number of items including vests, underwear, T-shirts, jerseys, sweaters, socks, gloves, etc. are manufactured. There are about 12,000 knitting machines in the country, located mostly in Sindh and Punjab. This sector has huge export potential in a highly competitive field. Pakistan also has several thousand looms producing canvas and tarpaulins. The industry is export-

oriented; about 40 per cent of the products are utilized locally and 60 per cent are exported. The export value (and production), at US$84.9 million in 2012–13, increased by 31 per cent against US$64.9 million in 2011–12.

Location of the cotton textile industry

From 72 cotton mills working in Pakistan in 1948, the number increased to 274 in 1990–91, 363 in 2002–03, 437 in 2010–11, and to 506 in 2012–13. Karachi is the largest cotton textile centre in Pakistan, having an excellent infrastructure as the main industrial city; its location as a port is another advantage as machinery can be easily imported with minimum transportation costs, and cotton goods can be exported. However, Karachi has two disadvantages: it is not near the cotton-producing regions and its electricity costs are substantially higher than elsewhere in the country. To support the growth of this industry, the government has encouraged setting up of mills in cotton-producing areas and other locations, but Karachi still dominates the cotton industry.

Figure 15.3: Cotton towels for local marke and export

The second-largest cotton centre is Faisalabad, close to the cotton belt of Pakistan. An infrastructure has been developed over time to support the cotton industry. As this is the

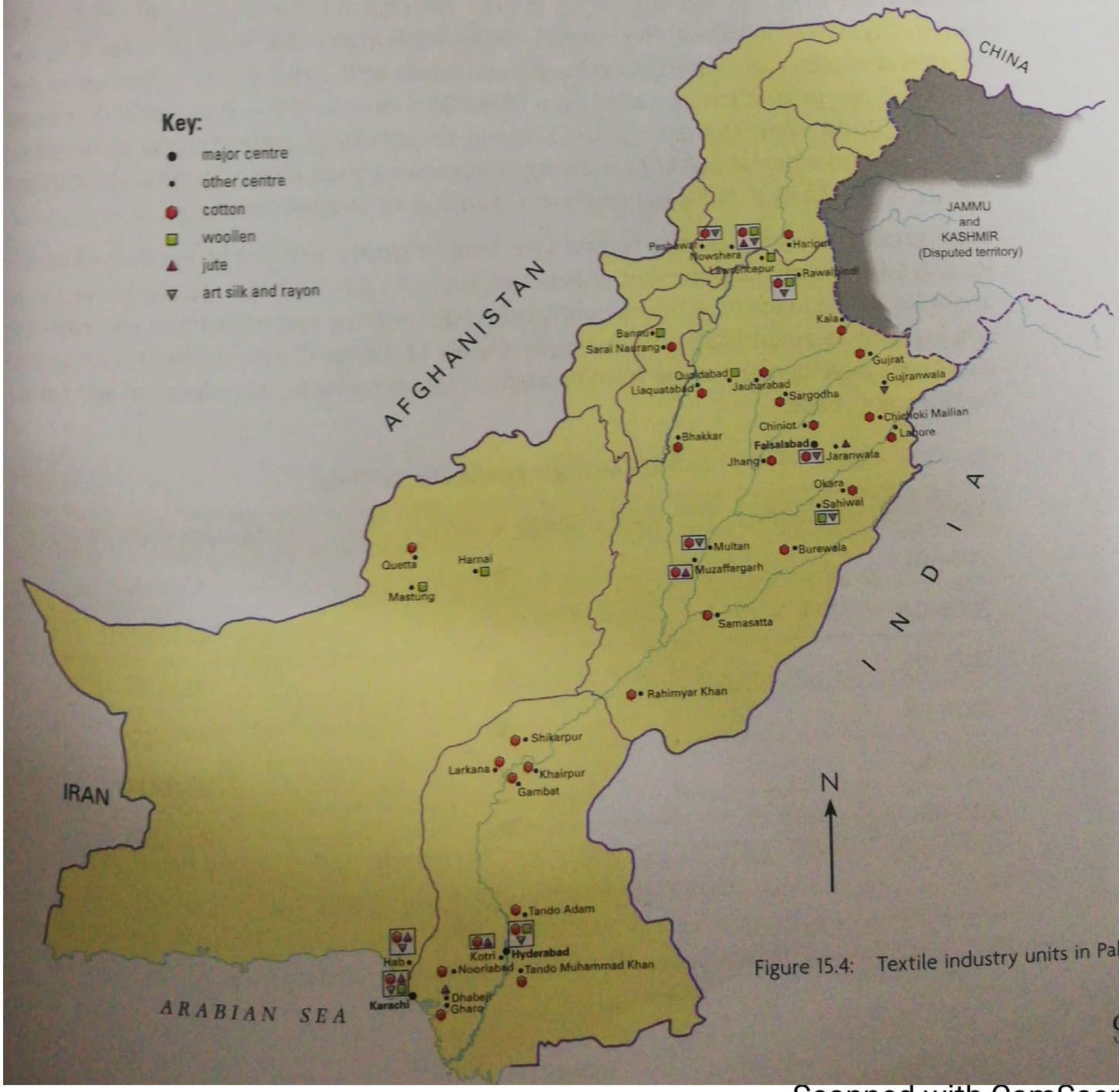

Figure 15.4: Textile industry units in Pakistan

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most thickly populated region of the country, there is a large labour force and an equally large market. Hyderabad is the third-largest cotton centre, located near cotton-growing areas, and supplies cloth to the local and international markets (through Karachi). An important industrial city, Hyderabad also has a well-developed infrastructure and a large labour force.

Apart from these major textile centres, cotton mills have been established in cotton-growing areas in Sindh (Tando Adam, Khairpur, etc.) and Punjab (Rahimyar Khan, Multan, Sargodha, etc.) to tap the local raw material and to serve local markets. Some cotton mills have also been established in non-cotton-growing areas, which are far from the port of Karachi, to serve small local markets and to avail of the tax exemptions offered by the government to encourage industrial growth. These are located mainly in northern Punjab and Khyber Pakhtunkhwa. There are also a few small centres in Balochistan, especially in Quetta.

Sugar cane

Sugar cane is another important industrial raw material not only for sugar but other by-products too. Pakistan is the fifth-largest sugar producer in the world; its 86 sugar mills have an annual production capacity of 7.0 million tonnes.

In 1948, there were only two sugar mills in West Pakistan at Rahwali in Punjab and Takht-e-Bahi in Khyber Pakhtunkhwa; the number today in Pakistan is 86. Most of these mills are located along the sugar cane belt in Punjab and Sindh with some in the north-west of the country. Sugar production increased from 1,934,000 tonnes in 1990–91 to 3,892,000 tonnes in 2010–11 and 4, 621,873 tonnes in 2012–13. Increase in population and per capita consumption always raises the demand. Pakistan's average per capita annual consumption is about 23 kg, compared to 17.5 kg in India, but much less than that of Western countries.

Sugar production is the second-biggest agro-based industry, bringing revenue worth about Rs 22.0 billion to the Government of Pakistan, about Rs 110–135 billion to the growers, and about Rs 20 billion to the vendors, contractors, transporters, and suppliers; it also provides employment to around 1.20 million people, mainly in the rural areas. Industry such as this also brings development in the form of roads, transport, electricity, education and health facilities, and trade.

Stages of sugar manufacture

The stages of sugar production are:

i) Harvesting—this is done manually in developing countries and mechanically in developed ones.

ii) Crushing—sugar cane is crushed to extract juice; as sugar cane starts losing 'weight' as soon as it is cut, it should be processed or crushed without delay, hence sugar mills should be located close to sugar cane-growing areas.

iii) Refining—this is also called filtration; any scum that collects on the top is removed and the juice is passed through a fine mesh to remove impurities; it is then boiled and treated chemically, and strained to refine the syrup.

iv) The syrup is boiled again till crystallization is achieved.

v) Granular (crystallized) sugar is obtained through open pan and vacuum pan processes, and by the centrifuge method.

vi) The crystals are dried and packaged for distribution and sale.

vii) The molasses are separated after the sugar is removed from the centrifuge. Sometimes molasses are reprocessed to make second grade sugar.

Figure 15.5: Sugar cane being processed in a mill

The sugar cane crushing season lasts only 160 days, so it is a seasonal industry providing temporary employment. The products of sugar cane are *gur,* brown sugar, and white sugar; and the byproducts are bagasse, molasses, and press cake. Molasses (also called treacle) constitutes about 4 per cent of the crushed sugar cane and is used to produce power alcohol, industrial alcohol, portable spirits, and also for various types of acid and ethylene, which can be turned into packaging plastics.

Bagasse, the residue of crushed sugar cane, is a source of energy for the sugar industry, used as fuel to fire the boilers. It is also used for making Medium Density Fibre Board (MDFB), a wood substitute. Press cake is used as manure and also burnt as fuel. Proper and economic use of sugar by-products as in other sugar-producing countries can help reduce the cost of sugar production to some extent.

Despite the growth of the industry, Pakistan is still not self-sufficient in sugar (although there is sometimes a surplus in good years). Some of the reasons are given below.

- Rapid increase in population
- Increase in per capita consumption of sugar from 3 kg in 1947 to 21. 2 kg in 2009
- Fluctuation in yield from year to year because of weather, pests and diseases
- Low recovery of sugar from cane
- About 40 per cent of the sugar cane is crushed for making sugar, while the rest is used to make *gur* and other products.

Edible oil industry

Fats and oils are important ingredients of our food. In Pakistan, more than a dozen oilseed crops are grown to extract oil. Rapeseed or mustard, cotton seed, sesame, groundnut, linseed, and castor are traditional oilseed crops whereas sunflower, soybean, and safflower are non-traditional crops introduced in Pakistan from other countries. Linseed oil and castor oil are used for medicinal purposes, while oil from the other crops is used for human