

CHAPTER V

INDUSTRIES

INTRODUCTION

In ancient times, agriculture and protection of domestic animals were the two basic industries of the people, but they were familiar with many crafts and arts which were collectively called *shilp* or *kala*. In the *Vedas* there are unmistakable evidences to prove that the Aryans knew the use of iron, steel, copper, gold and silver. In the post *Vedic* period, also known as epic period, industries like cloth, arms, wares and ornaments were greatly developed. Another remarkable feature of economic life during this period was the organization of artisans into guilds. According to R.C.Majumdar, the noted historian, there were at least 27 kinds of guilds in the country. He also quotes that not only the carpenters, blacksmiths, weavers and potters were organized¹ but even robbers and moneylenders had their organizations.

There are so many evidences to show that industries such as textiles, metal works, stone works, sugar, indigo, and paper developed in areas adjoining Delhi during the Mughal period. There were no factories in large scale industrial enterprises in the modern sense of term. Generally, the producers of the commodities in the small towns made arrangements with dealers in big cities to supply them with finished goods for distribution inland or for export outside. In some places, enterprising businessmen engaged a number of craftsmen to manufacture articles under their own supervision. Among such factories, the most efficiently organized were those of Sultans of Delhi known as *karkhanas*. In the *Ain-i-Akbari*, Abul Fazal has enumerated, “His majesty pays much attention to various stuffs, hence Irani, European and Mangolian articles of wear are in abundance”².

During Medieval and British period, a small fraction of the population was engaged in few industries, on cottage scale, like woollen blanket weaving, brass and copper utensils and pottery, but the main occupation of the people in the district had still been agriculture. There are evidences that a certain amount of glass blowing and saltpetre refining was done at Panipat.

Since time immemorial Panipat has been an important blanket weaving centre. Wool spinning and rearing has been one of the major cottage industry of the district. The weavers used handspun yarn until 1942 when a

power-operated woollen yarn spinning unit was shed. The industry progressed as the defence requirement of barrack blankets increased. The wool was procured from Punjab, Rajasthan and southern States. Blankets of ordinary quality were exported to other districts in small quantities until the World War-II raised the demand for barrack blankets to the extent of 10,000 per day. This industry was dislocated by the emigration of the Muslims at the time of the partition, but was gradually revived by the displaced wool merchants from West Punjab (Pakistan) who settled at Panipat.

Panipat had for long been famous for the manufacture of copper and brass utensils. These were largely exported to Delhi market. Lockwood Kipling, Principal of Lahore School of Arts, described this Industry as follows:-

“Panipat has long been noted for small wares in metal of various kinds. A peculiar kind of bead like ornament known as motis or pearls, skilfully made in thin silver is one the specialties of the place. A necklace of six rows costs about Rs. 30, of three rows about Rs. 10. There is no chasing on ornament of any kind, but the silver is a good colour and the beads are perfectly round. Captain Roberts reported in 1882 that this small industry was declining. Betel nut cutters (sarotas) are here made in fanciful forms, the handles being of brass with quaint projections, in which small mirrors and pieces of coloured glass are fixed. A good one costs two or three rupees. Scissors are similarly ornamented; the handles being made of brass with bits of coloured glass rudely simulating Jewels set therein. A pair of scissors costs about 6 annas. These articles are made for export.”

Most of the industries decayed after the partition owing to the skilled Muslims artisans having migrated to Pakistan. In this way partition almost impaired the economy of the district. This loss was made good when people who rehabilitated here from Pakistan began to set up factories. Factory accommodation was provided to them in the industrial area at Panipat. Financial assistance was provided under the State Aid Industries Act, 1935 and for training of persons in technical and vocational trades.

Before independence, the district had no important industries. The industries were mainly confined to village and cottage sector. These included pottery, carpentry, leather tanning, utensil making, manufacturing of *khaddar*, *kheses* and traditional *durries*, gold and silver ornaments. Most of these have been decaying due to one reason or another.

The village pottery is as old as the country itself. In the past, the potters or *kumhar* community used to make the earthen wares of different sizes. The wares included *surahis*, *hookahs*, *pitchers* and coloured toys. Even today some workers are still engaged in the manufacturing of the above articles. Though, it is the age of refrigerators and coolers, yet in rural and urban areas, the thirst in summer season is quenched with water stored in *pitchers* and *surahis*.

Being primarily an agricultural district, artisans are engaged in preparation of many articles for agricultural operations and house hold use. Despite the introduction of mechanized farming people of the district still depend upon such artisans. Besides above, being professionals carpenters are also engaged in manufacturing doors, door-frames and windows. The main concentration of the industry is at Panipat, Samalkha, Bapoli, Israna and Madlauda.

Ample availability of raw material facilitated the development of leather tanning on cottage and small scale basis in many villages of the district. The method used here was, however, as crude and unscientific as in rural areas elsewhere. The *Khatiks* and *Ranghars* who undertook this work did rough tanning with lime and soda. The indigenous industry on a large scale died out before 1947.

The *thathera* used to go on his usual rounds in the villages and towns. There was famous *thathera* bazaar in Panipat. The utensils were made of copper and white brass. These articles made from these metals were *katoras*, *thals*, *thalies*, *toknies* etc.

Ornaments making was in the hands of *Sunars* who were mostly Hindus. They made ornaments as ordered by the customers. The general character of the work was somewhat massive and unsophisticated but the effect especially of the various arm ornaments worn by women was by no means inelegant. A study of the many forms of the ornaments was interesting and would often reveal the religion of the owner and in case of a woman her civil status; whether she was single or married; whether she has yet joined her husband in his house or not. This industry is now in full swing. Due to high cost of gold some women even use artificial jewellery.

INDUSTRIAL PROGRESS AFTER PARTITION

The partition shattered the entire economic structure of the Punjab. It resulted in an unequal and unfavourable division of sources and manpower.

The Panipat area as a part of Karnal district could not escape from the adverse effect of this calamity. The emigration of Muslim craftsmen somewhere shook the position of traditional industries. On the other hand, the inflow of displaced persons in large number posed an immediate problem of rehabilitation. The joint efforts of many enterprising persons migrating from Jhang, Muzaffargarh, Lyallpur and Multan to this area, coupled with Government assistance resulted in their own speedy re-settlement. The tempo of progress was accelerated for the rehabilitation of displaced persons.

After the formation of Haryana State in 1966, the Panipat region made a tremendous progress in the industrial field. Since then, it is on the national industrial map due to hundreds of handloom units, large and medium scale industries and also for its small scale industries. The city is one of the biggest centres in the country for producing 'Shoddy yarn'. Cotton *durries*, made-ups, throws and mats, bed-covers and other handloom products are exported to various countries besides woollen carpets and Pachranga *Achar*(pickle). The town Samalkha is an important trading and industrial centre having a well developed agricultural and industrial base and is well known for its *toka* (chaff cutter) machines, hand-pumps, tube-well fitting, nut-bolts etc. The proximity of Panipat to Delhi, which is a big market for consumer goods, gives the district an advantageous position and has greatly contributed to its industrial growth.

GOVERNMENT ASSURANCE TO INDUSTRIES

After Independence the Government has realized the importance of the development of the industrial sector so the provisions of the State Aid to Industries Act, 1935 have been liberalized. Loans were advanced to the industries and entrepreneurs for purposes like construction of factory, purchase of machinery and equipment, working capital, etc., who want to set up new industrial units or to expand or modernize through its various industrial policies. These industrial units set up in the State were also eligible for grant-in-aid and subsidy on the loans advanced under the Punjab State Aid to Industries Act, 1935 which was discontinued later on. State Government ensured that the industrial units set up in the State are given incentives on land, building and taxation, etc. under industrial policies applicable from time to time. The nationalized banks also advance loans to industries against the security of raw material, finished goods etc.

Supply of machinery on hire-purchase basis.— The National Small Industries Corporation, an agency founded and controlled by Government of

India, supplies machinery to small scale units on hire-purchase basis on easy terms on the recommendations of the State Government. After the initial payment of twenty to forty percent of the total cost of machinery and equipment by the loanee the remaining amount is paid by him in easy annual instalments.

Supply of raw material.— The supply of raw material like iron, steel, steam coke, hard coke, copper, zinc etc. is regularly made to quota holders and deserving industrialists. The quota is fixed after proper assessment. The requirements of imported raw material and equipment are assessed by the State Government and necessary recommendations are made to Government of India for import licenses.

Marketing assistance.— The Government have started a number of emporia where products of these industries are displayed for sale to provide marketing facilities to cottage and small scale industrial units. The State Government also organizes industrial exhibitions to promote the industry from time to time and to achieve higher standards of workmanship.

Land/Industrial Estates. — In order to organize or promote the industrial activity, the allotment of land and industrial plots in the industrial areas are made available to entrepreneurs on easy instalments.

The Government also helps them by establishing industrial estates. The object of such industrial estate is to assist small and large scale industrialist by providing them modern factory buildings of standard design, equipped with electric power supply and water supply. The immediate availability of readymade factory building, on rent or hire purchase basis, reduces the time lag between the planning and starting of industries. The establishment of industrial estates also checks the haphazard growth of industries in towns and avoids the creation of industrial slums.

As on March 31, 2011 the details of areas developed by Industries Department, Haryana State Industrial Development Corporation and Haryana Urban Development Authority are as under:-

Name of Area	Units
Industrial Area, Panipat	238
Sector 25, HUDA, P-I, Panipat	162
Sector 25, HUDA, P-II, Panipat	519
Sector 29, HUDA, P-I, Panipat	277
Sector 29, HUDA, P-II, Panipat	670
HSIDC, Samalkha	77

DISTRICT INDUSTRIES CENTRE

The General Manager, District Industrial Centre Panipat, under the overall control of Director of Industries, Haryana, Chandigarh, looks after the Industrial development in the Panipat district. The pace of development has gained momentum with the setting up of District Industries centre. The following centres have been set up in Panipat for providing facilities to the Industry:

Quality Marking Centre.— Quality Marking Scheme was introduced by the Government with a view to promoting the sale of standard goods. A quality marking centre for furnishing fabrics was set up at Panipat in 1957. It extends technical assistance and guidance to the textile industries in the selection of raw material, manufacture of yarn and finished goods. An up-to-date laboratory has been installed at the centre where tests are conducted in respect of raw material and finished goods. The quality marking centre maintains show room to display different types of finished fabrics produced by the mills registered under the quality marking scheme. The Quality Marking Centre is run by Industries Department, Haryana and is engaged in testing of yarn, fabrics and other products.

Northern India Textile Research Association (NITRA).— NITRA centre Panipat is one of the seven centres established across the country by Government of India. Northern India Textile Research Association (NITRA) is one of the prime textile research institutes in the country. The textile industry and Ministry of Textiles, Government of India jointly established NITRA in 1974 for conducting scientific research and providing support services to Indian textiles industry. NITRA's prime activities include research and development, technical consultancy, quality evaluation of materials, manpower training, technical publications and providing facilitating services to the decentralized power loom sector through its centres. It has a clientele of about 1200 textiles and allied sector units including overseas clients from U.K., Spain, Indonesia, Thailand, Ethiopia, Sudan, Bangladesh and Nepal. It undertakes research projects in textile product development, machine designing, instrument development and process development. It houses pilot scale spinning, weaving, knitting and chemical processing workshops for development of different types of yarns and fabrics. It has pre-sewing, sewing, embroidery and finishing workshops equipped with state-of-the-art technology for garment production. Its consultancy services include various technical audits, feasibility studies, system certification services, infrastructure set up,

asset valuation, third party inspection, energy conservation & energy audit, design and commissioning of Effluent Treatment Plants / Common Effluent Treatment Plants and product / process development.

The Panipat centre has a state-of-the-art testing and infrastructure facilities for physical and chemical testing of fibre, yarn and fabric. The centre provides ad-hoc consultancy in weaving related to productivity, quality up-gradation, waste management, fabric designs and analysis, training to weaving personnel and computer aided design development facilities. It also provides three month's training in the trade of power loom weaving and designing. The course includes shuttle less training, training of chemical testing and physical testing for one month each. The number of seats is 100 per annum. Till now, approximately 900 persons have been trained under this programme.

Weavers Service Centre.— This centre is providing four months training in handloom, weaving, designing, dyeing and printing. The number of sanctioned seats is 120. It also provides designing services to the exporters.

OTHER INCENTIVES

In order to attract domestic as well as foreign direct investment and for dispersal of industry to backward areas, the State has extended following incentives to new industrial units:-

Incentives for Mega Project in Backward Areas.— Mega project with investment of ₹100 crore and above or any project employing more than 500 persons irrespective of investment to be set up in the backward area would be extended the facility of financial assistance, to be quantified at 50 percent of the tax paid on the sale of goods produced by such industrial units under Haryana value Added Tax Act, 2003 for a period of 7 years from the date of start of commercial production, as Interest Free Loan (IFL) repayable after a period of 5 years from the date of grant of IFL. They are also granted exemption from Local Area Development Tax (LADT) for a period of 5 years. Special priority is given for release of electric connection to Mega Projects.

Incentives for Small Scale Industries (SSI) in Backward Areas.— The facility of financial assistance in the shape of interest free loan (IFL) has been extended to the new SSI units, in the backward areas, to be quantified at, 50 percent of the tax paid on the sale of goods produced in such industrial units, under the Haryana Value Added Tax Act, 2003 for a period of 5 years, from the date of start of commercial production, to be repayable after a period of 5 years.

Incentives for Exporting Units.— In order to boost the exports and enhance competitiveness of exporting units, subsidy up to 1 percent of the 'Freight on Board' value of exports subject to the maximum of ₹10.00 lakh per annum has been granted by the Government. Special priority is given for release of electric connection to 100 percent Export Oriented Units.

Incentives for Food Processing Industries.— Food Processing Industries, except wheat and rice, have been considered as seasonal industries and exempted from payment of minimum demand charges for electricity during closer period of more than 3 months. No market fee is levied on agriculture and horticulture produce used as raw material by food processing industries within the State except rice, mustard-oil, wheat and cotton. Interest free loan at the rate of 75 percent of the tax paid on the sale of goods produced in such industrial units is granted under the Haryana Value Added Tax Act, 2003 for a period of 5 years, repayable after a period of 5 years from the date of start of commercial production. Fifty percent of the charges for change of land use for Food Processing Units are levied @ 50 percent of normal rates in areas declared backward by the State. Wines/Liquors/Brandies etc. made from 100 percent fruits produce in the State have been exempted from the excise duty in such backward areas. Special priority is given for release of electric connection to Foreign Direct Investment Projects in food processing industries.

FINANCIAL ASSISTANCE

The Haryana Financial Corporation provides financial assistance to large and medium scale industry. It is engaged in extending financial assistance by way of lending term loans to micro, small and medium enterprises for setting up new units as well as expansion and modernization of existing units. The Corporation provides loans up to ₹10 crore in case of private limited / limited companies and ₹2 crore in case of sole-proprietorship / partnership concerns which are extendable at the discretion of the Corporation to the tune of ₹20 crore and ₹8 crore, respectively. The Corporation provides financial assistance for acquisition of capital assets in the form of land, building, plant and machinery. Loans are repayable within a period of 8 of 10 years including moratorium period of 18 to 24 months. Loans are also given in collaboration with other financial institutions.

With a view to help small entrepreneurs and to provide services at their doorsteps, the Corporation is operating nine branch offices including one at Panipat and has delegated powers to branch managers for sanction of loan up to ₹15.00 lakh and disbursement of loan up to ₹45.00 lakh.

The Corporation charges interest @12.5 percent per annum (13 percent p.a. in case of infrastructure projects) from its borrowers. However, rebate of 1 percent is given to the borrowers for timely repayments. Hence, the effective rate of interest is 11.5 percent p.a. (12 percent p.a. in case of infrastructure projects) for regular borrowers.

The Haryana Financial Corporation provides financial assistance under various special schemes such as equipment re-finance scheme, technology up-gradation fund scheme for textile industry, credit linked capital subsidy scheme, scheme for qualified professionals, scheme for financing hotel industry, scheme for financing of small hospitals/nursing homes, scheme for commercial complexes, show rooms and shopping malls, scheme for financing of projects for computer software development/e-commerce, SEMFEX, scheme for scheduled caste/scheduled tribe entrepreneurs, scheme for physically handicapped persons etc.

Loans sanctioned and disbursed by the Haryana Financial Corporation in Panipat District from the financial year 2001-02 to 2010-11 are as under :-

Financial Year	Sanctions		Disbursements	
	No. of units	Amount	No. of units	Amount
2001-2002	22	329.63	18	194.90
2002-2003	29	213.43	33	224.65
2003-2004	9	34.07	11	48.59
2004-2005	29	186.91	30	196.22
2005-2006	19	83.10	20	84.44
2006-2007	13	95.75	13	78.46
2007-2008	3	34.85	4	52.14
2008-2009	4	57.84	4	24.45
2009-2010	4	205.68	2	58.34
2010-2011	0 *	0.00	4	38.94

* The Corporation has stopped fresh sanctions w.e.f. 27.05.2010

LARGE AND MEDIUM SCALE INDUSTRIES

Panipat Oil Refinery.— Panipat Refinery was setup in 1998 near village Baholi in Panipat tehsil. It is seventh and most technically advanced public sector refinery complex of Indian Oil Corporation (IOC), India and is one of the largest integrated petrochemical refineries of south-east Asia. Panipat refinery meets the demand of petroleum products not only of Haryana but also of entire North-Western region including the States of Delhi, Uttarakhand,

Uttar Pradesh, Punjab, Jammu and Kashmir, Himachal Pradesh, and Union Territory of Chandigarh.

The original refinery with 6 MMTPA (million metric tons per annum) capacity was built and commissioned at a cost of ₹3868 crore inclusive of marketing and pipelines installation. Its refining capacity doubled (12 MMTPA) with the commissioning of its expansion project in 2006 at a cost of ₹4300 crore. In 2010, the refinery has been further augmented with an additional capacity of 3 MMTPA taking the total capacity to 15 MMTPA with the commissioning of a Naphtha Cracker Complex at a project cost of ₹14439 crore.

The major secondary processing units of the refinery includes Atmospheric & Vacuum Unit(AVU), Catalytic Reforming Unit, Hydro Cracker Unit, Reside Fluidized Catalytic Cracking Unit, Visbreaker Unit, Blowing Unit, Delayed Coker Unit, Coker LPG Merox, Diesel Hydrotreater Unit, Sulphur Recovery Unit with Tail Gas Treating unit, Amine Recovery Unit, Naphtha hydro-treating & Continuous Catalyst Reforming Unit, Xylene Fractionation Unit, Shell Sulfolane Extraction Unit, Benzene Toluene Fractionation Unit, Paraxylene Recovery Unit, Isomerisation Unit, Trans-Alkylation Disproportion Unit and associated auxiliary facilities. The details of processing units, licensors and with their capacity are given in Table - XII of Appendix.

In order to improve diesel quality, in July 1999, the refinery commissioned a Diesel Hydro Desulphurization Unit (DHDS) for production of extra low sulphur diesel with a sulphur content of less than 0.25 percent weight. With Euro-III/IV norms in place, this refinery is a large contributor of ultra low sulphur diesel for IOC. A standby Sulphur Recovery Unit and new high efficiency gas turbines for power and steam generation were also commissioned in 2001.

The refinery processes a wide range of both indigenous and imported grades of crude oil. It receives crude from Vadinar (Gujrat) through 1370 kilometres long Salaya-Mathura Pipeline (extended to Panipat). In the second phase in 2006, for supply of crude oil for the expansion units, the Kandla-Panipat product pipeline has been converted to crude oil service. The crude oil is received from Mundra port in Gujarat coast and supplied to the refinery through Kandla-Panipat pipeline.

The refinery is designed for processing both indigenous and imported crude oil. Petroleum products are transported through various modes

like rail, road and environment-friendly pipelines. The main products from the refinery are liquefied petroleum gas (LPG), petrol, naphtha, superior kerosene, aviation turbine fuel, mineral turpentine oil, diesel, bitumen, sulphur and coke. Panipat refinery has also developed sub-zero diesel for the Indian army. The LPG produced in the refinery is pumped for bottling through a 7 kilometre dedicated pipeline to bottling plant of IOC at Kohand village.

National Fertilizers Ltd.(NFL), Panipat Unit.— The Panipat unit of NFL is one of the two plants setup with the establishment of National Fertilizers Ltd in 1974, which is a Government of India undertaking and has been setup with the objective to manufacture and market chemical fertilizers and by products as well as to provide allied services. The other unit is in Bathinda (Punjab). The Panipat unit went in commercial production from September, 1979. The project cost was ₹221.33 crore. A description of major chemical fertilizer plants of the unit is as follows:

Ammonia Plant:- The existing ammonia plant at Panipat is designed to produce 900 MTPD (metric ton per day) ammonia and 1550 MTPD urea based on gasification technology of feed stock on LSHS (low sulphur heavy stock) / fuel oil with other necessary off-site and utility facilities. The highest production of ammonia in a single day was 1041 metric tons in January, 1998. The implementation of feedstock changeover project, based on ‘HTAS Steam Methane Reforming (SMR)’ technology from Denmark, started in January, 2010. The project is likely to be completed by March, 2013. It will not only minimize energy consumption but also reduce the emission of ‘Green House Gases’, while maintaining the production capacity of ammonia and urea plants at the same level.

Urea Plant:- This plant is designed to produce 1550 metric ton urea per day. The highest production of urea in a single day was 1918 metric ton in December 2000. The plant is based on ‘Mitsui Toatsu Total Recycle-C’ improved process. Ammonia and CO₂ are pressurized to about 250 Kg/Cm² pressure and synthesis takes place in ‘urea reactor’ at a temperature of 200°C to produce urea. The urea solution produced is crystallized in the ‘vacuum crystallizer’. Urea crystals are melted in ‘melter’ and the molten urea is sprayed through acoustic granulators from 68 metres high ‘prilling tower’. It is collected in the form of prills at the bottom of the prilling tower on computational fluid dynamic fluidized bed. It is then sent to bagging plant and bagged in 50 Kilogram bags. A dedicated power plant meets the total power requirement of the unit and has two turbo generators of 15 MW each,

generation power at 11 KV. The Research and Development wing of this unit has developed neem coated urea and the process for its manufacturing on large scale. The neem coated urea regulates the release of nitrogen to the plants over longer period and has better shelf life in respect of tendency to cake during storage. The two popular brands produced by this unit are *Kisan Urea* and *Kisan Khaad*.

Some other plants located in this unit and their capacities are as follows:-

Plant	Capacity
Sulphur Recovery Plant	26.5 MTPD
Steam generation Plant	3x150 MTPD
Captive Power Plant	2x15 MWH
Captive Power Plant Boiler	210 MT/Hr.
DM Water Plant	375/M3/Hr.
Coal Handling plant	150 and 250 MT/Hr.
Raw Water Plant	2400 M3/Hr.
Bagging Plant	4000 Mt/Day
Effluent treatment Plant	200 M3/Hr.

The NFL, Panipat has maintained a very high standard of production and productivity. The unit has been honoured with many awards and recognitions at national and international level.

Panipat Co-operative Sugar Mills Ltd., Panipat.— It was established on co-operative basis in 1957 with an investment of ₹7 lakh. The raw material used by the unit is sugarcane from the adjoining areas. The capacity of this sugar mill is 1800 tonnes (sugarcane) crushing per day. The main product of the mill is white crystalline sugar and by-products are molasses and press-mud. As on March 31, 2011, the capital investment of the sugar mill is ₹1175.41 lakh with 575 workers, and the annual production is 2.63 lakh quintals of sugar worth ₹3713.69 lakh.

A distillery was also set up for production of liquor by utilizing molasses a by-product of the industry in 1974-75. As on March 31, 2011 the capital investment in this distillery is ₹545.21 lakh with 226 workers and annual production of 18.05 lakh cases of liquor worth ₹2996.30 lakh.

Nestle India Limited, Samalkha.— Nestle India Ltd., Samalkha, a unit of Nestle India, a subsidiary of Nestle SA of Switzerland, was set up with only soya based products in 1992. Later, it has widened its range of products to various processed food categories like milk powders, infant winning cereals,

culinary products, beverages, chocolates, chilled dairy etc. Nestle manufactures and markets these products of international quality under various brands, namely Milkmaid, Everyday, Maggi, Nescafe, Nescafe Sunrise, Nestea, Milo, KitKat, Milky Bar, Munch, Polo, Nestle Milk, Nestle Dahi and Nestle Fruit 'N' Dahi. In 2011, production volume, in various categories in Thousand Tones (TT), has been Cereals 7.40 TT, Culinary 10.70TT, Dahi 2.40TT and Infant nutrition 16.00TT with 495 employees.

Aradhana Soft Drinks Company (subsidiary of Pepsico India Holding Pvt. Ltd.).— This soft drink company was established in 1991 and its first commercial production came out in May, 1992. The 10 acre (39452 sq mts.) plant was acquired by PepsiCo India in November, 2002 and started its commercial production as company owned bottling operations in March, 2003. This plant has a bottling capacity of one crore bottles and has 6 managers, 34 executives and 116 associates. In 2010-11 the plant has bottled 75 lakh bottles of beverage brands like Pepsi, Mirinda, Gatorade, Mountain dew, Tropicana Juices, Diet Pepsi, Aquafina etc.

TEXTILE INDUSTRY

Handloom Industry.— Panipat is famous for its handloom industry. There has been an astounding growth of handloom industry in the district during the last 15 years. In the year ending March 31, 2011, there are more than 38,970 handlooms working in the district providing employment to 42,500 persons. Majority of the weavers are migrants from Uttar Pradesh, Bihar and West Bengal. There are some local weavers who came from neighbouring villages to work in handloom units in the city. The weavers are employed on contractual wages/piece basis system and average earning per person is around ₹120 to ₹250 per day depending upon the width and variety of cloth.

Powerloom Industry.— There are approximately 14000 powerlooms in the district with capital investment of ₹90.00 crore and providing employment to 25000 person. During past few years the main products manufactured on powerlooms include shoddy and acrylic blankets, bed-sheets, bed-covers tapestry, up-holstry, table-mats and table-covers etc. The raw material used in this industry includes art-silk, polyster, acrylic, poly-propylene and shoddy yarn.

Shoddy and Woollen Spinning Industry.—Shoddy and woollen industry has shown a steep growth during the last two decades. Panipat town has got the distinction of having maximum number of shoddy spinning units at one particular place in the world. There are more than 450 shoddy spinning units in

the district with production of 4.50 lakh kilograms per day and a turnover of ₹650.00 crore providing employment to 7500 persons.

Cotton Yarn Spinning Industry.— There are 55 open end spinning industries of cotton yarn in the district having more than 300 open end machines with a total production of approximately 4 lakh kilograms per day of finished yarn with an estimated annual turnover of ₹350 crore.

Barrack Yarn/Blanket Industry.— In the year ending 31 March, 2011 there are about 20 spinning plants which are producing barrack yarn to the tune of 0.20 lakh kilograms per day with a turnover of ₹30 crore. Barrack yarn is used to manufacture barrack blankets with an average cost of ₹200/- per piece. There are about 750 handlooms engaged in production of barrack blankets. Panipat blanket industry is meeting out 75 percent demand of barrack blankets of Indian military.

Carpet Industry.— Woollen carpet industry is approximately 33 years old in Panipat. Nearly 6200 workers are employed in 160 units engaged in production of woollen carpets. After 1990s, export of carpet is increasing every year and the figure has touched the mark of ₹110 crore in 2011. Panipat has been awarded gold trophy for making highest export in woollen hand tufted carpets by Export Promotion Council³. There are about 60 carpet wool spinning units in the district manufacturing approximately 80 lakh kg per day carpet yarn with annual turnover of ₹300 Crore.

Dyeing and Printing Industry.— There are about 550 dyeing/printing units and 240 'Finishing Units' in the district to meet out the requirement of local textile industry, but good quality blankets cannot be finished in these units for which blankets manufacturers have to send their blankets to Punjab for finishing work.

Textile, Foundry and Agricultural Machinery Manufacturing Industry.— Panipat town is also famous for manufacturing of textile machinery such as Carding machine, Ring frame machine, Doubler machine, Winding/Reeling machine, Cabinet carrier machine, Drawing machine, Powerloom, Jacquard, etc. The first carding machine in India was manufactured in his unit by Ramesh Dutt Sharma, at Panipat. The agriculture implement manufacturing industry of the district is situated mainly in Samalkha; a smaller town famous for excellent quality of its agriculture implements i.e. toka, cane-crusher etc., and for its foundry work.

Food Processing Industry.— There are 25 food processing units in the district having investment of ₹35.00 crore with an annual turnover of

approximately ₹245.00 crore providing employment to 850 persons. Main products of these units are rice, pickles, milk-products, de-hydration of fruits, vegetables, biscuits, confectionery, hatchery, soft-drinks etc.

Export.— Panipat has also established its name in the international handlooms market. There are about 100 industrial units, which are exporting wide range of handloom products such as durries, mats, table-covers, bed-sheets, curtains, carpets etc. to various countries including U.S.A., U.K., Canada, Japan, Germany, Australia etc. The export figures which were only ₹680 crore during 1999-2000 have touched a remarkably high figure of ₹3000 crore in 2010-11.

The Government of India have setup an Inland Container Depot at Babarpur Mandi to facilitate the exporters in transporting their finished goods.

Gupta International.— It is a leading exporter and manufacturer of floor covering and Home Furnishing items such as bedspreads, duvet covers, comforters, throws, cushion covers and floor coverings etc, having its unit at Panipat. The company established in 1995, with modest exports to Europe and USA, has grown into a multi product venture in over 25 countries around the globe including USA, UK, Germany, Holland, Spain, Russia, Japan, France, South Africa, Australia, Italy, Israel, Singapore etc. with an annual turnover of ₹40 crore.

Concept Creations.— The company was established in 1989 with the manufacturing of carpets and expanded into various filed of floor coverings and home textiles products. It is amongst the largest exporters of floor coverings and home textiles products in India with an annual turnover of ₹960 lakh. It has provided employment to more than 1500 skilled workers and over 100 professionals so far.

The company produces and exports home textile, handloom, bath-mats, bed-linen, table-linen, cushions, throws, place-mats, cotton-durries, cushion-covers, hand-tufted shaggy carpets, rungs etc. The monthly production capacity is about 15000 square metres per month of handloom/hand tufted carpets and about 25000 square metres per month of machine made carpets.

Faze Three Limited.— This company was established in 1985. The company is engaged in production of entire range of home textile products including carpets, throws, window curtains, shower curtains, doormats, bath room furnishing etc. In 2010-11, the company has a turnover of ₹65 crore with 450 employees.

M/s Mahajan Overseas Private Limited, Panipat.— The company established in 1969 and registered in 1981 is engaged in export of home furnishing textiles goods, manufacturing of chenille yarn and processing of yarn, fabric and garment. In 1969, Mahajan Overseas was the first company to export the handloom items from Haryana. The company exports its products to clients in USA, UK, and Canada. Turnover of the company for the year ended 31 March, 2011 is ₹28.05 crore with 410 employees.

As on March 31, 2011 the district has 43 large and medium scale prestigious undertakings with the capital investment of ₹14512.93 crore employing 1,24,500 persons and generating a turnover of ₹37947.96 crore. A list of these units with their products has been given in Table-XIII of Appendix.

SMALL SCALE INDUSTRIES

As on March 31, 2011, there are 3085 small scale units with capital investment of ₹271.14 and an annual turnover of ₹962.16 crore with 51065 employees. These are engaged in production of various items like handloom / powerloom parts, shoddy/cotton yarn spinning, dyeing and processing units, agro based industries, foundries, textile machinery, nuts and bolts etc. Major small scale industries of the district are briefly described below:-

Agriculture Implements.— The industry exists on small scale as well as cottage basis. These units manufacture *toka* machines, hand-pumps, tube-well fitting, harrows, cultivators, chaf-cutters etc. The cottage units are located in villages all over the district and manufacture the articles of common use like *Kassie*, *Khurpe* and sickles for the agriculturists. In 2010-11, the turnover of this segment has been ₹78 crore.

Cycle Parts.— The first bicycle assembling unit was established in 1954 at Panipat with an investment of ₹1.5 lakh. Gradually, some more units were established in the district, which manufacture cycle parts such as pedals, cycle stands, chain-covers and mud guards. In 2010-11, the turnover of this segment measured in terms of amount has been ₹20 lakh.

Steel re-rolling.— There is only one unit at Panipat, which is engaged in the re-rolling of steel. The unit was started in 1950 with a capital investment of ₹2.5 lakh. In 1969-70, its total production was worth about ₹12.00 lakh. In 2010-11 its production is 998 M. Tons.

Scientific Instruments.— There is one unit engaged in the production of scientific instruments located at Panipat. It manufactures scientific goods and microscopes. In 2010-11 its production amounted to ₹18.45 lakh.

Steel furniture.— The steel industry came into existence in the district after the partition when the industrialists who were involved in the fabrication of steel in Gujranwala (Pakistan) came here. The manufactured items include steel cabinets, piped chairs, safes, racks, almirahs etc.

Cottage and Village Industries.— Handloom weaving is done both on cottage as well as on small scale. There is a huge concentration of handlooms at Panipat where export quality goods are produced in handlooms engaged in the manufacture of bed sheet, *khes*, tapestry, curtain-cloth and other furnishing fabrics. Some of the goods produced are extremely well designed and finished with the rising popularity of handloom products, Panipat has become well known all over the country for its exquisite designs of tapestry furnishing fabrics etc. These have a market all over the country and a good portion of its production is exported. In 2010-11 its production was 816 square metres.

Handicrafts.— There are nearly twenty five units of handicraft in district with a capital investment of ₹68 lakh and annual production amounting to ₹126 lakh.

Agro Based Industries.— There are 36 units of agro based industries in district with capital investment in ₹3.80 crore and annual production 86626.16 metric tonnes with 583 employees.

TOWN-WISE DISTRIBUTION OF INDUSTRIES

In 2011, the important industries were distributed in the two major towns of the Panipat as given in table below:

Town	Industries
Panipat	Sugar, Distillery, Dehydrated-vegetables, Handloom, Powerloom, Handloom products, Powerloom products, Shoddy yarn, Cotton yarn, Woollen yarn, Dyeing and processing, Agro-based Foundries, Textile-machinery, Steel furniture, Steel gates and grills, Bricks and tiles, Soap, Medicines and Saw mills.
Samalkha	Foundries, Nuts and Bolts, Gates and Grills, Steel Furniture, Wooden Furniture, Saw Mills, Agro-based and Medicines.

INDUSTRIAL LABOUR

Before partition, in 20th century, weaving of coarse cloth such as *khes*, *durries* etc. was carried on. After partition, migration of skilled muslim labourers to Pakistan, was a setback to small scale and cottage industries. This dearth to some extent was met by the displaced persons. The industrial labour is drawn mostly from villages and most labourers return to their village after work. They manufactured curtains, cloths, blankets, *durries* etc. at that time. The industrial labour now-a-days is engaged in manufacture of very fine cloth of curtains, blankets and other handloom items for export purposes. Generally, industrial labour is from nearby villages but a major portion of it consists of migrated labourers especially from West Bengal, Uttar Pradesh and Bihar.

A training institute run by Government of India is also working in the district to give training and enhance the skill of the labourers to meet the demand of skilled labour. Wages of the industrial workers employed in the industries have been fixed by the State Government under the Minimum Wages Act, 1948, as amended from time to time. The State Government classified the workers as unskilled labourers, semi-skilled-A, semi-skilled-B, skilled-A, skilled-B and highly skilled, and their minimum wages have been fixed @ ₹3,840, ₹3,970, ₹4,100, ₹4,360 and ₹4,490 per month, respectively. As such, unskilled labourers are paid between ₹3,840 to ₹3,970 and highly skilled labourers are getting ₹4,500 onwards per month.

The general living standard of the labourers is not satisfactory due to lack of proper housing, low salary, low level of education and unhygienic living conditions. Some of the industrial units made their own colonies to accommodate their labour. A labour colony was also constructed at Panipat long time ago but these houses were sold/allotted to the occupants on the construction price. One federation of small scale industries association and following eleven employer's associations are working in Panipat for the welfare of the labourers:-

- (i) Panipat Blanket Manufacturers Association, Panipat.
- (ii) Industrial Estate Association Plot No. 229/1, Sector-29, Panipat.
- (iii) Northern India Rotor Spinners Association, Panipat.
- (iv) Northern Shoddy Mills Association, G.T. Road, Panipat.
- (v) Haryana Chamber of Commerce and Industries, Panipat.
- (vi) The Panipat Exports Association, Panipat.
- (vii) Industrial Area Manufacturers Association, E-41, I A, Panipat.

- (viii) Industrial Estate Association, Sector-25, Panipat.
- (ix) All Woollen and Shoddy Mills Association, Panipat.
- (x) Panipat Shoddy Mills Association, Panipat.
- (xi) Panipat Dyers Association, Panipat.

There are 39 trade unions in district which are helping the labour to settle their complaints and demands as required from time to time. Most of the trade unions are affiliated to their central federation or trade unions i.e. I.N.T.U.C., B.M.S., A.I.T.U.C., C.I.T.U., I.F.T.U., A.I.U.T.U.C. etc. As for now, Panipat district is free from industrial unrest. A list of trade unions of industrial workers is given in the Table-XIV of Appendix.

The main objective of a welfare state is to bring about social regeneration by raising the status and standard of economically backward and socially depressed communities. It is a remedial type therapy. Prior to independence there was no regular government organization to look after the welfare of industrial workers and to settle industrial disputes and other labour connected problems. The Labour Department in the State (Punjab) was established in 1949. The Labour Officer, Rohtak and the Conciliation Officer, Bhiwani represented the Department for the then Karnal district of which Panipat district was a part. Two Labour Officer-cum-Conciliation Officer are presently working in the district and each one of these is assisted by three labour inspectors. As conciliation officers, they initiate conciliation proceedings for the settlement of industrial disputes as provided under the Industrial Disputes Act, 1947 as amended from time to time and try to settle them by mediation / joint discussion, failing which, they report to Government for further action as per law.

Labour Legislation.— Labour Legislation is necessary to tackle economic and social problems of the labour as civil laws in general do not particularly deal with these problems. Labour laws are motivated by a humanitarian approach as propounded by the International Labour organization and are based on the principle of social justice which is one of the basic features of the Constitution of India. Labour under the Constitution of India is a subject of ‘Concurrent List’ and as such both the Central and the State Legislators are empowered to make laws in this regard. Accordingly, the State Government has also enacted certain labour legislations to suit the local needs of the labour. However, the Factories Act, 1948 is the most important of all the labour legislations. In the district, it is administered by the Inspector of Factories under the authority of the Chief Inspector of Factories, Panipat. The Certifying

Surgeon, Industrial Safety and Health, is also functioning as an Additional Inspector of Factories for enforcing the health related provisions contained in the Factories Act.

Industrial Relations.— The relations between employees and employers are governed by the Industrial Dispute Act, 1947. The Labour Officer-cum-Conciliation Officer, Panipat is responsible for enforcing it. Their efforts are directed towards fostering good relations between managements and workers by removing, so far as possible the causes of friction and timely redressal of the grievances of the parties. Emphasis is laid on settlement of disputes through direct negotiations across the table or voluntary arbitration rather than by compulsory adjudication.

Though the functions of the conciliation officer are advisory and he has no direct power to make agreements or to pass awards, he has been successful link in bringing down the number of disputes considerably. During 2010-11, 121 disputes were handled by the conciliation officers in district out of these, 29 were settled, 80 were sent to adjudication, 10 were withdrawn by the workers/ unions.

Works Committee.— To promote measures for securing and preserving amity and good relations between the employers and the workmen there is a provision in Section 3 of the Industries Dispute Act, 1947, to setup 'Works Committee', in the industrial establishment having employment of 100 or more workmen. Such committees consist of representative of the employers and workmen.

Industrial Co-operatives.— The Assistant Registrar, Co-operative Societies, Panipat looks after development of co-operatives. He is assisted by seven Inspectors and twenty Sub-Inspectors. The development of industrial co-operatives is essential for healthy development of industries especially in the cottage and small scale sectors. Therefore, emphasis is laid on the development of industries through co-operatives. The industrial co-operative ensures that decentralization of industry is accompanied by proper investment of techniques of production, procurement of raw material and marketing of finished goods. The considerable progress has been made by co-operatives in the field of industry in the district. As on March 31, 2011 the number of co-operative societies is 351 with a membership of 4775, working capital of ₹1652.98 lakh, share capital of ₹0.18 lakh, and ₹393.05 lakh worth reserve and other funds.

Prime Minister Rozgar Yojana.— The Government of India on August 15, 1993 started the scheme Prime Minister Rozgar Yojana (PMRY) for providing employment to literate unemployed persons. Literate unemployed person with a minimum educational qualification of middle (8th) pass and aged between 18-35 years (45 years for SC/ST, Ex-servicemen, physically handicapped and women candidates) were eligible for benefits under the scheme. Preference was given to those who were trained in any trade through government recognized/approved institutions for duration of at least six months. Those who fulfilled these conditions were given loans of ₹2,00,000 for business and service sector and ₹5,00,000 for Industrial activities. The progress of the scheme in the district from 2002-03 to 2007-08 is given below:-

Year	Target	Sponsored	Sanctioned	Disbursed	Amount in lakh₹.
2002-03	550	1081	592	474	278.65
2003-04	500	931	558	435	227.80
2004-05	650	1072	670	511	281.06
2005-06	650	1153	695	563	318.35
2006-07	675	1225	796	691	396.70
2007-08	825	1393	879	827	529.35

The Government of India had withdrawn the PMRY in the year 2008-09 and started Prime Minister Employment Generation Programme.

Prime Minister Employment Generation Programme.— For generation of employment opportunities through establishment of micro enterprises in rural as well as urban areas, Government of India has introduced a new credit linked subsidy programme called Prime Minister's Employment Generation Programme (PMEGP) by merging the two schemes that were in operation upto March 31, 2008 namely Prime Minister's Rozgar Yojana (PMRY) and Rural Employment Generation Programme (REGP). PMEGP is a central scheme administered by the Ministry of Micro, Small and Medium Enterprises (MSME) aimed to generate employment opportunities in rural as well as urban areas, to contribute in increase of the growth rate of rural and urban employment through setting up of new self-employment projects/micro enterprises, to help arrest migration of rural youth to urban areas, to bring together widely dispersed traditional artisans and to provide them continuous and sustainable employment by providing them self-employment opportunities to the extent possible, at their respective places. The maximum cost of the project admissible under manufacturing sector is ₹25 lakh and for the project

admissible under business/service sector is ₹10 lakh. Any individual with age 18 years and above is eligible for assistance for setting up of their projects sanctioned specifically under this scheme. For setting up of project costing above ₹10 lakh in the manufacturing sector and above ₹5 lakh in the business /service sector, the beneficiaries should possess at least 8th standard pass educational qualification. Self-help groups (SHGs), production co-operative societies, charitable trusts and institutions registered under the Societies Registration Act, 1860 are also considered eligible. Generally, the quantum of funding under the scheme is 90 percent of the project cost with subsidy at the rate of 15 percent in urban and 25 percent in rural areas. The quantum of funding is 95 percent of the project cost for scheduled castes, backward classes, minorities, women, ex-servicemen and physically handicapped with subsidy at the rate of 25 percent and 35 percent in urban and rural areas, respectively. The achievement under PMEGP since its induction in the district is as follows:-

(₹in lakh)				
Year	Target of Margin Money	Number of Cases		Margin money
		Sanctioned	Amount Disbursed	
2008-09	26.40	19	15	29.19
2009-10	26.40	33	30	54.37
2010-11	33.64	15	12	20.10

Industrial training.— The department of Industrial Training and Vocational Education Haryana has established various types of institutes for imparting industrial training in the district. In 2010-11, the following industrial training institutes are functioning in the district:-

Name of Institute	No. of trade	Sanctioned seats
Industrial Training Institute, Panipat	17	424
Industrial Training Institute (W), Panipat	2	48
Industrial Training Institute, Samalkha	2	32
Vocational Education Institute, Atta	4	140
Vocational Education Institute, Bapoli	4	160
Vocational Education Institute, Nulatha	4	120
Vocational Education Institute, Seenk	4	120
Total	37	1044

Vocation education institutes provide training in courses of auto-technician, lineman, office secretary-ship, marketing and salesmanship. Industrial training institute for women at Panipat and Samalkha provide training in cutting and sewing, embroidery and needle works. The trained students from the above institutes are made available in industries for absorption as skilled/ semi-skilled workers in respective trades.

SOURCE OF POWER

Since the beginning of the twentieth century the power generated mostly from diesel oil was used in the installations for flour grinding, oilseed crushing, *dal* grinding, rice gawking, grain grinding and saw milling. In 1930s, electricity was made available through the establishment of some thermal and diesel operated power generating stations. These were privately owned and government gave them long-term contracts for generation and supply of electricity to various towns.

The Panipat Electric Supply Company licensed in 1934, established a power generating station in 1936 and installed two diesel engine sets with a capacity of 310 KW. The generating station was taken over by the government in 1954. It was energized with hydroelectric power in 1955. In 1968, supply of electricity to Panipat was that of the hydro-electric power from Bhakhra Nangal Project which was controlled by two electricity divisions in the district. The district grid substation which initially was of 132 KV was upgraded to 220 KV in 1962 in view of growing industrial needs. The need of the power of the district was exclusively met from the share of hydroelectric power received from Bhakra Nangal Project until the creation of a thermal power station in the district in 1979.

Panipat Thermal Power Station (PTPS).— Thermal Power Station Panipat, a bunching of eight individual units with total installed capacity of 1367.8 MW. Besides, 640 acres of saline waste land is earmarked for disposal of ash. The first unit was commissioned on 1st November, 1979. All the units are equipped with tangentially fired pendant type boilers, with a provision of pulverized coal as primary fuel and LSHS/HPS as secondary fuel. PTPS is producing approximately 320 lakh units of electricity daily and average requirement of coal per day is about 22000 metric tons. All the units are equipped with natural draft cooling towers. The generation and plant load factor during the year 2009-10 was 10206.827 MU and 85.19 percent

respectively which is the highest since commissioning of all the units. The unit-wise details of the power station are as follows:-

Unit No.	Capacity	Year/Date of commissioning
1	117.8MW	01-11-1979 & 07-04-2009(After R&M)
2	110 MW	27-03-1980
3	110 MW	01-11-1985
4	110 MW	11-01-1987
5	210 MW	28-03-1989
6	210 MW	04-07-2001
7	250 MW	28-09-2004
8	250 MW	28-01-2005

Generated units are fed to the Northern Grid through 220 KV transmission line to Sewah, Jind, Safidon, Narwana, Sonapat, Rohtak and Nissing. Year-wise performance of Thermal Power Station as a whole during the last thirteen years is given in Table XV of Appendix.

The electricity system in the district is controlled by three divisions of Uttar Haryana Vidyut Prasaran Nigam Limited, namely Panipat City Division, Sub-Urban Division Panipat and Sub-Urban Division Samalkha. The division-wise detail is as under:-

Panipat City Division.— This division is feeding electric supply to Panipat and some adjoining villages of District Panipat. The main source of electric supply is from 400 KVA substation situated at Sewah, one 132 KV substation situated at Gohana Road and five 33 KV s/stations situated at Jattal, Sector-29, Sector 13-17, Sanoli road, Kutani road. The total installed capacity of all the above mentioned substation at 11 KV level available with the City Division Panipat is 148.1 MV. The distribution network comprises of 311 kilometres of high tension (HT) and 685 kilometres of low tension (LT) lines. There are 1,987 distribution transformers which feed 73,011 consumers of various categories. The total sanctioned load of the consumer is 372 MVA against the installed capacity of 148 MVA in the year ending 31, March 2011.

Sub-Urban Division Panipat.— This division is feeding electric supply to the rural area in about 96 villages. The main source of electric supply is from four 132 KV substations at Israna, PTPS Panipat, Chandoli and Madlauda besides nine 33 KV substations at Naultha, Israna, Ahar, Urlana, Madlauda, Brahman Majra, Dhar, Sewah and Dharamgarh. The total installed capacity of all the

above mentioned substation at 11 KV level available with sub-urban division, Panipat is 194.9 MVA. The distribution network comprises of 1,497 KM of HT and 2,607 of LT lines. There are 4,105 distribution transformers which feed 65,683 consumers of various categories. The total sanctioned load of the consumer is 271 MVA against the installed capacity of 194.9 MVA in the year ending 31, March 2011. The average monthly electricity consumption of the Sub-Urban Division Panipat is 400 lakh units per month which shoots to about 500 lakh units during summer season.

Operations Division, Samalkha.— This division is feeding electric supply to Samalkha town and about 88 adjoining villages. The main source of electric supply is from 400 KVA substation situated at Sewah, two 132 KV substations at Samalkha and Chhajpur, and four 33 KV substations situated at Naraina, Beholi, Dikadla and Bapoli. The total installed capacity of all the above mentioned substations at 11 KV level available with the division is 149.7 MVA. The distribution network comprises of 1,125.8 kilometres of HT and 2,128.192 kilometres of LT lines. There are 3,644 distribution transformers which feed 60,584 consumers of various categories. The total sanctioned load of the consumer is 208.6 MVA against the presently installed capacity of 149.7 MVA. The average monthly consumption of Operations Division Samalkha is 325 lakh units per month which shoots to about 435 lakh units during the summer season.

To overcome the deficiency in demand supply positions in peak seasons, the presently installed MVA capacity is being increased by augmenting the already existing substations and constructing new electric substations under various electrical divisions. The department is erecting new lines and installing new distribution transformers to augment the existing distribution system for which an amount of ₹37.8 crore has been sanctioned for expenditure during 2007-12. In order to supply adequate and quality power, a network of power substations has been created all over the district. The details of existing substations, their respective capacities and feeding source are given in Table XVI of Appendix.

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Notes and References

¹ Dr. B.L. Sharma, *Economic ideas in Ancient India before Kautilya*, New Delhi, 1987, p.138

² M.P.Srivastava, *Socio Economic Culture in Medieval India*, Allahabad, 1993, pp.190-91

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