CHAPTER-III

An Overview of Industrial Profile in Assam

3.1. Introduction:

Assam is situated in the North-Eastern region of India with a common boundary with seven states – Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Tripura and West Bengal. The state is bounded by neighbouring countries like Bangladesh on the west and south, Myanmar on the east and Bhutan on the north. The geographical area of Assam is 78,438 square Km. Assam ranks 14th in terms of area among all the states in India. As per Census of India, 2011 the population of Assam stands at 312.05 lakh of which 159.39 lakh are male and 152.66 lakh are female (Economic Survey of Assam, 2017-18). In spite of having huge natural resources and development potential, the economy of Assam is underdeveloped owing to poverty, unemployment, under-utilised man power and improper exploitation of natural resources. The economy of the state still depends too much on the agricultural sector.

The process of industrialisation in Assam began during the pre-independence period when the state found its place in the industrial map of the world. India’s first commercially viable oil well was drilled here and the third oil refinery in the world which was also the first one in Assam was established in Digboi, Assam. The first organised petroleum marketing was commenced successfully in 1902 and the first coal field was also explored. During this period, tea was introduced in Assam for cultivation for the first time which led gradually to export of tea to the global market from Assam.

Although Assam found its place in the industrially developed map of the world during the pre-independence period, at present Assam is amongst the industrially
backward states in the country. In spite of having high potential for development of resource-based as well as demand-based industries in the state, the pace of industrialisation in Assam has not been satisfactory. Industrial scenario in Assam is centralised around some particular industries like tea, petroleum, coal, jute, forest based products.

Industries in Assam can be broadly classified into four categories.

a) Agro-based industry  
b) Mineral-based industry

c) Forest-based industry, and  
d) other industries.

Agro-based industries of the state are: Tea industry, Sugar industry, Grain mill industries (Rice, Flour mill, Oil), Textile industry and Food processing industry. Mineral-based industries of Assam broadly include Petroleum, Cement, Coal, Fertilizer, Natural gas, etc. Forest-based industries of Assam include- Plywood industry, Saw mill, Paper and Paper-pulp industry, Match industry, Leather industry, Hard board industry, etc.

Other industries of Assam include- Power industry, Printing Press, Brick industry, Tiles industry, Ice industry, Chemical industry, Railway workshop, Engineering industry, Rerolling mill, Steel Work, Motor Vehicle Workshop, Galvanized wire units, Cycle factory, Aluminium utensils industry, Cycle spare parts, Steel trunk, Tube-well pipe, Steel wire net, Handloom industry, bell metal industry, etc.

Vulnerability of the region, lack of economic and basic infrastructural facilities, lack of technical personnel, paucity of capital, lack of entrepreneurial motivation on the part of local people, low level of investment, frequent natural calamities etc. are mainly
responsible for the slow pace of industrial development in Assam. Over decade of planning, the industrial sector in the state has remained almost stagnant. In Assam, it was in the Third Five Year Plan that the industrial development programmes were accelerated along with the development of infrastructural facilities. Over the last few years, it has been noticed that the Government of Assam has been taking various steps for the development of infrastructural facilities in order to help sustainable industrial development in the state. To create a favourable climate for industrial investment in Assam, the state Government has been trying to provide technical training, undertaking different surveys, developing industrial sites and participating in the share capital of private enterprises (Economic Survey of Assam, 2016-17). Recently, in the first half of 2018, programmes like ‘Advantage Assam’ has been organised in the state for attracting foreign investors to invest in the manufacturing sectors in Assam and to get it connected with the South-East Asian Nations.

It is to be noted that although Assam is considered as an industrially backward state in the country, industrial scenario in Assam is better than other states of North-Eastern Region of India both in terms of industrial production and industrial concentration over the last few decades (Majumdar, 2012). In spite of the existence of constraints, a favourable industrial climate has been gradually created in Assam. Over the last few years, it has been noticed that the interest of the investors, from within the state and from outside the state, has been increasing in Assam (Dhar, 2016). In Assam, the industrial sector has been playing a very significant role in the state’s economy in terms of contribution to the State Domestic Product (SDP) as well as employment generation.
To ensure regionally balanced, socially equitable as well as economically inclusive growth in the state, the government of Assam has been trying to provide adequate infrastructural facilities for industrial development over the last few decades. Accordingly, the Industries and Commerce Department of the state along with other agencies like Assam Industrial Development Corporation (AIDC) has been trying for proper implementation of different developmental as well as promotional schemes for sustainable industrial development in the state. In spite of these efforts, the industrial scenario in Assam is not at all satisfactory as the developmental pace has been very slow.

3.2. Growth of Industrial Sector in Assam:

The base for industrial development in Assam began more than a century ago (i.e., during the 19th century). Despite having such a rich historical background, the state has hardly achieved the desired level of industrial development during the subsequent years (Dhar, 2016).

During the last four years 2012-2016, the industrial sector in Assam has grown at an Annual Average Growth (AAG) of 4.39 percent as per the new base 2011-12. During the period (2012-13), a negative growth of 5.22 percent was noticed (Economic Survey, 2016-17). But it was followed by a high growth of 8.06 percent during 2013-2014. In this period, the industrial growth rate in Assam was high only due to higher contribution made by the manufacturing as well as the construction sector. During 2013-14, growth rate of the manufacturing sector was 17.32 percent and the growth rate of the construction sector was 14.20 percent. It is to be noted that the industrial growth in the state declined to an annual average growth of 5.33 percent during 2014-15. Again, the annual average growth of the industrial sector in Assam during 2015-16 was
9.14 percent where the annual growth of the electricity, gas and water supply was 17.23 percent, followed by 12.75 percent growth in the construction sector and 10.78 percent growth in the manufacturing sector. On the other hand, the mining and quarrying sector showed an average annual growth of (-) 2.94 percent during 2012-16. This sub-sector began with a negative growth of 7.92 percent during 2012-13 at constant prices which turned to a positive growth during 2014-15 and it was 2.08 percent during 2015-16. In the case of the Index of Industrial Production (Base: 2004-05=100), manufacturing sector was 174.27 indicating a negative growth of 2.30 percent during 2015-16 over the previous year. Index of Industrial Production of Assam as a whole was 134.09 during 2015-16 where it was decreased by 0.89 percent over 135.30 percent during 2014-15 (Economic Survey of Assam, 2016-17).

3.3. Trends of Industrial Production in Assam:

In Assam, industrial production has been growing at slow rate (P.K Dhar, 2016). Major industrial productions include Tea, Coal, Matches, Plywood, Sugar, Fertilizer, Jute Textiles, Petroleum Crude, Refinery Products, Wheat Flour, Paper, Cement etc. As per Economic Survey of Assam, 2016-17, the trend of industrial production of some important industries in the state is found to be increasing. The production of Tea was 655 thousand MT (Million Tonnes) in 2005-06 and it gradually increased to 531 thousand MT in 2006-07 and it has increased to 653 thousand MT in 2015-16 (Appendix Table-3.1). Production of wheat was 220 thousand MT in 2005-06 and it gradually increased to 1198 thousand MT in 2010-11 but it has decreased to 1041 thousand MT in 2015-16. Total production of coal in Assam maintained an increasing trend from 956 thousand MT in 2004-05 to 1203 thousand MT in 2009-10, but it has declined to 397 thousand MT during 2015-16. Production of jute textiles in Assam
shows a continuous increasing trend from 5910 thousand MT in 2005-06 to 27237 thousand MT in 2015-16. In the case of crude oil production, total production gradually increased from 4429 thousand MT in 2005-06 to 5023 thousand MT in 2011-12 and then it declined to 4513 thousand MT in 2015-16. Production of cement was 251 thousand MT in 2005-06 and declined to 175 thousand MT in 2006-07 but it has increased to 1181 thousand MT in 2015-16. Similarly, fertilizer production in Assam was 222 thousand MT in 2005-06 and increased to 515 thousand MT in 2013-14 but declined to 488 thousand MT in 2014-15 and finally increased to 506 thousand MT in 2015-16 (Appendix Table-3.1).

Over the last few years, industrial production in the state has shown an upward trend. This positive trend of industrial production varies with respect to industry divisions. There are some groups of industries where the production is found to be high in comparison to other groups of industries.

In Assam, during the last four year (2012-16), the industrial sector grew at an annual average growth of 4.39 percent calculated as per the new series 2011-12. Although there was a negative growth of 5.22 percent in 2012-13, again it is recovered by high growth of 8.06 percent in 2013-14 due to higher growth of the manufacturing sector in the state.

3.4. Contribution of the Manufacturing Sector to State Income:

The manufacturing sector in Assam is comparatively poor in terms of its size. The contribution of the manufacturing sector to the state economy is poor as the economy of Assam is still dominated by the agricultural sector (Dhar, 2016). Despite
some industrial constraints, the size of the manufacturing sector in the state has been gradually increasing at a slow rate.

As far as the contribution of the manufacturing sector to the state economy is concerned, it has been noticed that the contribution of the sector (at 2004-05 prices) was 9.5 percent in 2005-06 and it decreased to 8.9 percent during 2006-07 (Table-3.2). The annual growth over previous year was not positive; it was negative growth of 1.8 percent.

Similarly, the contribution of the manufacturing sector to the state economy declined to 7.9 during 2007-08, while the annual growth over previous year was found to be negative of 6.5 percent. During 2008-09, the contribution of the manufacturing to the state economy was found to be as low as 7.2 percent, but the annual growth over the previous year was negative growth of 4.3 percent. However, the contribution increased to 8.1 percent during 2009-10, where the annual growth over previous year was found to be significantly high (22.1 percent).

Surprisingly, the contribution of the manufacturing sector slightly decreased to 7.9 percent, whereas the annual growth rate over previous year was 5.74 percent during the same year. During 2011-12, the contribution of the manufacturing sector to the state economy was found to increase at 10.8 percent, but the annual growth over previous year decreased to 4.05 percent. In the new series (at 2011-12 prices), the contribution of the sector was 9.7 percent, while the annual growth rate over the previous year was negative growth at 7.38 percent.

Thus, it is seen that although the contribution of the manufacturing sector to the state income had initially a negative direction, the contribution of this sector to the state
income has been gradually increasing on positive direction over the last few years in Assam.

Table-3.1: Contribution and Growth of Manufacturing Sector (GSDP at constant 2004-05 prices and 2011-12 prices)-%:

<table>
<thead>
<tr>
<th>Year</th>
<th>Contribution to GSDP</th>
<th>Annual Growth over previous year</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005-06</td>
<td>9.5 (at 2004-05 constant prices)</td>
<td>(-)6.8</td>
</tr>
<tr>
<td>2006-07</td>
<td>8.9</td>
<td>(-)1.8</td>
</tr>
<tr>
<td>2007-08</td>
<td>7.9</td>
<td>(-)6.5</td>
</tr>
<tr>
<td>2008-09</td>
<td>7.2</td>
<td>(-)4.3</td>
</tr>
<tr>
<td>2009-10</td>
<td>8.1</td>
<td>22.1</td>
</tr>
<tr>
<td>2010-11</td>
<td>7.9</td>
<td>5.74</td>
</tr>
<tr>
<td>2011-12</td>
<td>10.8</td>
<td>4.05</td>
</tr>
<tr>
<td>2011-12 Prices</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012-13</td>
<td>9.7</td>
<td>(-)7.38</td>
</tr>
<tr>
<td>2013-14</td>
<td>10.8</td>
<td>17.32</td>
</tr>
<tr>
<td>2014-15(P)</td>
<td>10.4</td>
<td>3.12</td>
</tr>
<tr>
<td>2015-16(Q)</td>
<td>10.7</td>
<td>10.78</td>
</tr>
</tbody>
</table>


During 2013-14, the contribution of the manufacturing sector to the state economy was found to increase to 10.8 percent, while the annual growth of this sector over the previous year was found to be significantly high (17.32 percent). Again, the contribution of the manufacturing sector to the state economy was found to be slightly decreasing to 10.4 percent against the annual growth over the previous year of 3.12 percent. In 2015-16, the contribution of manufacturing sector to the state economy was almost constant at 10.4 percent, while the annual growth of this sector over the previous
year was arrived at 10.78 percent. Thus, from the above Table-3.2, it is clear that the contribution of the manufacturing sector to the Goss State Domestic Product (GSDP) has almost remained constant from 2005-06 to 2015-16. But so far as the growth of the manufacturing sector is concerned, it is also evident from the Table-2.3 that the growth is not satisfactory during the periods from 2004-05 to 2015-06.

The main reason for slow rate of industrial growth is that the manufacturing sector in the State could not expand at desired rate. The agricultural sector is still playing the dominant role by accounting for almost 18.3 percent of the total income of the state of Assam. So, the industrial sector of the state has to expand on the basis of available natural endowments (Economic Survey of Assam, 2016-17 & Dhar, 2016).

3.5. Index of Industrial Production in Assam:

The Directorate of Economics and Statistics, Government of Assam has been preparing the index of industrial production with base 2004-05 at 3 digit level of National Industrial Classification (2008). The industrial production in Assam has witnessed a continuous upward trend since 2010-11. Of course, some variation of the increase in the industrial production has been noticed during 2010-11 to 2015-16 in Assam (Appendix Table-3.3). The indices of industrial production of some groups such as manufacturing of food products, beverages, textiles as well as non-metallic products are found to have been maintained marginal increase during 2010-11 to 2015-16. On the other hand, the indices of industrial production of the industrial groups like publishing, printing and reproduction of recorded media, manufacturing of chemicals and chemical products, rubber as well as plastic products, basic metals and fabricated metal products except machinery and equipments etc have been found to have significantly increased during 2010-11 to 2015-16. However, the index of total registered manufacturing units
increased from 148.17 in 2010-11 to 178.37 in 2014-15 and recorded a marginal change to 174.27 in 2015-16. Similarly, the indices of production of mining and quarrying also recorded a marginal increase from 103.08 in 2010-11 to 108.35 in 2011-12 and declined to 105.15 in 2012-13 and finally declined to 98.96 in 2015-16 respectively. In the case of electricity, it was 126.83 in 2010-11 and increased to 133.42 in 2011-12, decreased to 123.09 in 2012-13 and increased to 128.25 in 2015-16 (Economic Survey of Assam, 2016-17). In the case of general index of industrial production, it increased marginally from 124.58 in 2010-11 to 137.69 in 2013-14 but declined to 134.09 in 2015-16 (Appendix Table-3.3). In spite of various constraints, a considerable industrial climate has been created over the last few years in the state of Assam. To supplement North East Industrial and Investment Promotion Policy (NEIIPP, 2007), the Government of Assam has already announced the state industrial policy with a view to providing more support to the entrepreneurs in the state.

3.6. Annual Survey of Industries (ASI) Report in Assam:

The Annual Survey of Industries (ASI) has provided some basic characteristics of the industries under the manufacturing sector in Assam. The report on Annual Survey of Industries (summary Results) is carried out by the Central Statistical Organisation (CSO) from year to year. According to the ASI reports the total number of registered factories in Assam has increased from 2,795 in 2010-11 to 3,518 in 2013-14. Total fixed capital increased from Rs. 10,74,713 lakh in 2010-11 to Rs. 14,44,632 lakh in 2013-14, while working capital in registered manufacturing sector increased from Rs. 10,74,713 lakh in 2010-11 to Rs. 7,13,478 lakh in 2013-14 (Table-3.2). Total invested capital has also increased from Rs. 17,39,244 lakh in 2010-11 to Rs. 21,35,656 lakh in 2013-14. Total number of workers employed in registered factories in Assam was 1,
41,274 in 2010-11 and then increased to 1, 57,687 in 2013-14. As for value of output, it has increased from Rs 42, 36,700 lakh in 2010-11 to Rs. 52, 92, 766 lakh in 2011-12, and has been found to decline to Rs. 49, 85, 210 lakh in 2012-13 and then increased to Rs. 57, 61, 714 lakh in 2013-14. Again, the net value added and net income of the registered factories in Assam have increased considerably from Rs. 6, 67,349 and Rs. 6,08,348 lakhs in 2010-11 to Rs. 801755  and 7,19,383 lakhs during 2013-14 (Table-3.2)

**Table-3.2. Characteristics of Annual Survey of Industries (ASI) report in Assam, 2014-15:**

<table>
<thead>
<tr>
<th>Characters</th>
<th>Unit</th>
<th>2010-11</th>
<th>2011-12</th>
<th>2012-13</th>
<th>2013-14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factories</td>
<td>Number</td>
<td>2795</td>
<td>3019</td>
<td>3303</td>
<td>3518</td>
</tr>
<tr>
<td>Fixed Capital</td>
<td>Rs. in Lakh</td>
<td>1074713</td>
<td>1515746</td>
<td>1310951</td>
<td>1444632</td>
</tr>
<tr>
<td>Working Capital</td>
<td>Do</td>
<td>716304</td>
<td>474331</td>
<td>588926</td>
<td>713478</td>
</tr>
<tr>
<td>Invested Capital</td>
<td>Do</td>
<td>1739924</td>
<td>2185871</td>
<td>1927084</td>
<td>2135656</td>
</tr>
<tr>
<td>Total Workers</td>
<td>Number</td>
<td>141274</td>
<td>150065</td>
<td>140896</td>
<td>157687</td>
</tr>
<tr>
<td>Value of Output</td>
<td>In Lakh</td>
<td>4236700</td>
<td>5292766</td>
<td>4985210</td>
<td>5761714</td>
</tr>
<tr>
<td>Net Value Added</td>
<td>Do</td>
<td>667349</td>
<td>654789</td>
<td>629229</td>
<td>801755</td>
</tr>
<tr>
<td>Net income</td>
<td>Do</td>
<td>608348</td>
<td>566700</td>
<td>544538</td>
<td>719383</td>
</tr>
</tbody>
</table>

**Source:** CSO, ASI Report, 2014-15

3.7. A Brief Outline of Important Industries in Assam:

In Assam, the industries (both large and Small Scale industries) which are playing an important role in the state economy and employment generation in the state are Tea industry, Petroleum industry, Fertiliser industry, Cement industry, Coal industry, Leather industry, Rubber industry, Plywood industry, Bamboo industry, Paper industry, Khadi and Village industries, Sericulture, Handloom industry, Bell Metal Industry, Food processing Industries, Jute industry, Sugar industry, Match industry, etc.
Tea Industry:

Tea industry is the largest single industrial sector in terms of contribution to the share in the state income, employment generation and foreign exchange earnings. Assam alone produces more than 50 percent of the country’s tea production (Economic Survey, 2016-17). Assam is now the second largest tea producing area in the world and produces about 20 percent of the world’s tea production and 53 percent of India’s total tea production. The average daily employment in tea industry in Assam is more than 6.86 lakh persons, which is almost 50 percent of the total number of average daily labours employed in the country.

Assam has witnessed a spurt in the growth of small holdings during the last three decades. Most of the Small Tea Growers (STG’s) are first generation young and educated entrepreneurs who have started contributing immensely towards transformation of socio-economic life of rural Assam. According to the Tea Board of India, there are about 68.5 thousand registered small tea growers in Assam and they have been producing about 106881 thousand KG in 88674 hectares of Land in Assam. During 2016, the estimated production of tea in Assam was 642.0 thousand tonnes, which is produced in 304,000 hectares of land.

Petroleum Industry:

Assam is rich in mineral resources especially in crude oil. There are four big refineries in Assam. These are Digboi Refinery, Noonmati Refinery, Bongaigaon Refinery and Numaligarh Refinery. Digboi refinery was commissioned in 1901 and it is considered as the first modern refinery in Asia. At present, Digboi refinery is one of the six refineries operated by the Indian Oil Corporation (IOC). In this refinery, items
produced from crude oil include motor spirit (23.2 percent), Diesel oil (17.4 percent), Kerosene (16.9 percent), Furnace fuel (16.8 percent), Wax (7.9 percent), Lubricant (3.8 percent), Bitumen (2.2 percent), Coke (1.7 percent), Gas (2.4 percent), others (4.4 percent) and unutilised part (3.2 percent) respectively.

Noonmati (Guwahati) is another big refinery established with agreement between the Rumanin Government and the Government of India. This refinery has total refining capacity of 0.85 million tonnes; it is also under the control of Oil India Corporation (OIL) Ltd. This refinery is producing various types of petroleum products like motor spirit, HSD, lubricant, Kerosene, Wax, etc.

Bongaigaon refinery was established with an increase in the demand for petroleum products in the North-Eastern region and increase in the production of crude in the oil fields of Assam. The Bongaigaon Refinery and Petrochemicals Limited (BRPL) were formed as a public sector company. The refinery units include- Crude Distillation unit (CDU), Kerosene Treating Unit (KTU), Delayed Coker Unit (DCU) and Coke Calcination Unit (CCU). The main refinery products of BRPL include SR Naptha, Motor spirit (Petrol), MR Naphta, Aviation Turbo Fuel (ATF), HSD, LDO, Calcined Petroleum Coke (CPC), kerosene (SKO), RPC (Net), Reformer Naptha, BRPSOL-100. The petrochemical units include xylene, Deimethyl Terephthalate (DMT) and Polyester Staple Fibre (PSF) plants.

Numaligarh Refinery Limited (NRL) is the fourth oil refinery of Assam; it was established in April, 1993. This refinery has been set up in the joint sector. This refinery is promoted by Bharat Petro Chemicals Ltd. (BPCL), Indo-Burma Petroleum (IBP) and the Government of Assam with equity participation of 32 percent, 19 percent and 10 percent respectively.
percent respectively. The remaining 39 percent of the equity is offered to public and other financial institutions. The products spectrum of NRL are like LPG-83,600 TPA, Naptha-2,50,000 TPA, SKO-11,02,000, TPA, ATF-85,000 TPA, Diesel-10,95000 TPA, CPC-70,660 TPA and Sulphur-4,000 TPA. This refinery has made tremendous achievement in its overall progress.

Assam Petrochemical Complex, Namrup:

To utilise the petroleum waste available from the refineries in the state, Assam Petrochemical Complex was established at Namrup in 1972 with a total investment of Rs. 5 crores. This complex based on the natural gas available from Lakwa and Moran Oil Fields in Sibsagar district of Assam, was set up with the help of Japanese Company. At present, the APL (Assam Petrochemical Limited) has been sustaining profit on an average of Rs. 5.00 crore per year.

Assam Gas Cracker Project-BCPL:

The Assam Gas Cracker Project is a joint sector project of The Government of India and the Reliance Industries Ltd, Bombay. Although initially it was to be set up at Tengakhat, the Indian Air Force objected and finally it was established in Lepetkata located in Dibrugarh district of Assam. The downstream units of the project include mainly polymer processing units in the MSME’s in the areas like Packaging, Household, Industrial, Agricultural, Building construction, wires and cables. At present, the Gas Authority of India Limited (GAIL) has shown keen interest for setting up same mega project subject to fulfilment of some conditions.
**Fertiliser Industry:**

On the basis of natural gas available at Naharkatia oil field of Assam, Namrup Fertiliser Plant was established in Assam under the control of Hindustan Fertiliser Corporation Limited (HFCL). Although the plant was initially expected to produce 50,000 tonnes of Urea and 50,000 tonnes of Ammonium sulphate, at present it produces nearly three times more than earlier targets. It was established under the banner of Hindustan Fertiliser Corporation; at present the Namrup Fertiliser plan has been bifurcated from HFC and named as Brahmaputra Valley Fertiliser Corporation Limited (BVFCL). Now, it is a public sector undertaking (PSU) under the administrative control of the Department of Fertilizers (DOF), Government of India.

**Cement Industry:**

For the development of cement industry, the Assam Cement Company was established and set up the first cement factory in Cherrapunji (Now in Meghalaya) with the capacity of 68,000 tonnes of cement per annum.

The Cement Corporation of India (CCI) has established the cement factory at Bokajan in Karbi Anglong district of Assam. Total production of cement in Assam was 129 thousand metric tonnes (MT) in 1980 and it has come down to 156 thousand MT in 1988. With the inclusion of a few mini cement plants (Vinay Cement Ltd-Umrgangshu, Prag Shiv Cements-Sonapur, VSK and TPA-Lanka-Nagaon), total production of cement in Assam, began to increase to 178.8 thousand MT in 1991 and it has increased to 1107 thousand MT in 2014-15 (Economic Survey, 2015-16). Considering the huge potential for the development of cement industry in the state along with growing demand, the government agencies have been trying to set up more mini cement plant in Assam.
Coal Industry:

Coal as one of the major mineral resources was first discovered in Assam in 1925. Assam coal has a good demand in railway, water transport, tea gardens, and cement plant and even among domestic uses. Thermal electricity can also be generated from coal. Coal is available in Assam especially in the places—Makum, Magherita, leodo, Naxira, Lanka Daman, Jaipur and Namdam areas of Assam. Total coal production in Assam was 5.75 lakh tonnes in 1980 and it has increased to 6.65 lakh tonnes in 2014-15. The coal fields of Assam are under the control of Coal India Ltd.

Rubber Industry:

In Assam, the rubber cultivation has gained its popularity owing to congenial agro-climatic condition and eco-friendly environment. The area under rubber cultivation has grown from 16.5 thousand hectares in 2006-07 to 55.99 thousand hectares in 2015-16. Realising the potential of rubber plantation, the Rubber Board has planned to increase rubber plantation area to 2 lakh hectares at the end of 12th Five Year plan from 28102 hectare at present to cope with the growing demand of rubber in the country which is expected to touch 1.78 lakh MT at the end of 2025.

Leather Industry:

A good amount of raw leather is available in Assam. In spite of the availability of raw leather, leather industry has not developed to the desired level. At present (2016), there are only 2 leather and leather product factories in Assam. In recent years, the state government has taken initiative to encourage entrepreneurs in setting up leather factories in Barpeta and N.C. Hills in Assam. Recently, the East India Tannery Cooperative Society Ltd. has undertaken a project of multi-million rupees worth of tannery
units in Barpeta and N.C. Hills of Assam with a view to supplementing the growth of a viable leather industry in Assam especially packing and utility consumer materials (Dhar, 2016).

**Plywood Industry of Assam:**

Plywood industry is a popular forest-based industry of Assam. After tea, plywood industry is the second largest industry in the private sector in Assam. The manufacture of plywood originated in the state in 1917, and now it has been transformed into a major industry with the gradual development and growth of private enterprises as a result of assistance and encouragement from the government. The plywood industry of Assam meets almost 60 percent of the country’s total need for plywood. At present, the annual turnover of the industry is Rs. 200 crores (Assam Plywood Manufactures Association, Guwahati). This industry has been playing an important role in employment generation for the people of Assam. This industry is suffering from various problems over the last few years. Realising the importance of plywood industry in Assam and accepting the problems related to this industry, the Government of India has already decided to import soft wood from neighbouring country Myanmar for revival of plywood industry in Assam.

**Bamboo Industry:**

Bamboo and cane industry is an important traditional industry of Assam. Availability of bamboo and cane has facilitated the development of Bamboo and Cane industry in the state. The products produced by the bamboo industry are paper, handicrafts, bamboo furniture, while cane industry include cane furniture and furnishing items, handicrafts, etc. Assam has the highest concentration of bamboo having high
potential for commercialisation. The Ministry of Agriculture, Government of India has already launched the National Bamboo Mission (NBM) especially in the North-Eastern Region of India. As a result of which, a Bamboo Technology Park is under implementation; it is located at Chaygaon in Kamrup district and is being developed by AIDC. This project is approved by the Department of Industrial Policy and promotion (DIPP) under the Industrial Infrastructure Up-gradation Scheme (IIUS) of the Government of India.

A Bamboo Park (BP) has also been set up in Kamrup district of Assam. This park has been developed in PPP model with the assistance from the Ministry of Commerce and Industry, Government of India, State Government and Private entrepreneurs (Economic Survey, 2016-17, Assam). The main objective of this park is to create an integrated infrastructure for promotion of bamboo based industries in Assam.

**Paper Industry:**

On the basis of availability of forest products like bamboo and soft wood, the Ashok Paper Mill Ltd. was established at Jogighopa during the Fourth Five year Plan with a total investment of Rs. 15 crores (Directorate of Economic and Statistics, Govt. of Assam). But owing to different problems, this mill was closed. Considering the great potentiality for the growth of paper industry in Assam, two more paper mills were set up, one in the Brahmaputra Valley at Jagiroad under the patronage of Hindustan Paper Corporation Ltd and the other in Barak Valley of Assam as Panchgram Cachar Paper mill. Of course, these mills have suffered from crisis over the last few decades. During 2005, the Hindustan Paper Corporation (HPC) Ltd. initiated the ambitious project of modernisation and technological up gradation and capacity expansion plans for paper mills in Assam. Accordingly, HPC launched its Rs. 285 crore project in two phases for
Nagaon Paper Mill (NPM) and Cachar Paper Mill (CPM). Recently, the Government of Assam has given the intimation to the Central Government for revival of such paper mills. The Government of Assam has signed a memorandum of understanding (MOU) with the Sanghi Group of Industries, Hyderabad for the revival of Ashok Paper Mill at Jogighopa, Assam.

**Jute Industry:**

Assam is also famous in for Jute production in India. Every year a good quantity of raw jute is produced in Nagaon, Goalpara, Barpeta and Darrang districts of Assam. Realising the sufficient demand for various jute products like gunny bag, rope, etc., Cooperative Jute mill was established at Silghat of Nagaon district and started its commercial production in 1970. Later on the state government initiated to set up two jute mills in Mangaldai and Barpeta districts of Assam. During 1971-72, jute mills produced 729 tonnes of jute products and it increased to 5,951 tonnes in 1981. Although it declined to 5.0 thousand tonnes in 1999, it has increased again to 25.6 thousand tonnes in 2014-15 (Directorate of Economic and Statistics, Govt. of Assam). However, it is to be noted that although Assam is considered as the second largest jute producing state in India, yet this industry has not achieved its goal of development and diversification of jute products. Small jute producers have not received the remunerative prices for their products.

**Sugar Industry:**

Among the different districts of Assam, a good amount of sugarcane farming is done in Kamrup and Sibsagar district. At present, there is only one sugar industry located at Barua Bamunagaon of Golaghat district in Assam. The commercial production
of the industry started in 1958. This mill has the capacity of crushing 320 quintals of sugarcane daily. This mill has generated employment opportunities to nearly 1000 persons. Considering the prospect of the growth of sugar industry, the state government has also established another sugar mill in Cachar district with a capacity of crushing 1,250 tonnes sugarcane per day (Assam Statistical Hand Book). During 1986, another new co-operative sugar mill was set up in Nagaon district. The government of Assam established 6 more sugar mills in Assam during the Fifth Five Year Plan. However, sugar industry in the state has been suffering from industrial sickness over the last few decades. At present, the Central Government has given some suggestions for solving the problems of the sugar industry in Assam.

**Match Industry:**

1925, one Swedish industrialist established one popular match factory located at Dhubri district as Assam Match Company. Later on, the name of the company changed to m ‘WIMCO’. It is to be noted that this match factory contributes about 7 percent of the total match production in India. At present the company has been modernised. Considering the availability of forest based natural resources, two more match factories were established in Cachar and Bongaigaon districts of Assam.

**Bell Metal Industry:**

Bell metal industry is one of the popular small scale industries in Assam. Basically, this industry is a household industry where most of the workers are unpaid family members including women. The industry produces various types of utensils made of brass and bell metal and other decorative pieces with the help of simple traditional tools and equipments. One “Common facility Service Centre” has already
been established at Sarthebari (The New Industrial Policy of Assam, 2014 has given special emphasis to help those skilled workers engaged in bell metal industry of Assam.

**Khadi and Village Industries:**

Khadi and Village industries have been playing an important role in the economy of Assam. Such industries are being promoted in the state by the Assam Khadi and Village Industries Board. The main aim of this board is to promote basic infrastructure in rural areas where such industries have provided employment opportunities for women and men (Dhar, 2016). As per the information received from the Khadi and Village industries Board of Assam, a total of 200 bee-keeping industry, 521 oil extraction centres, 202 pottery centres, 308 handpounding (rice processing) centres, 1,283 gur and khandsari centres, 7 khadi production centres, 14 soap making centres, 2 match factories, 10 footwear unit, 3 handmade paper unit, 508 cane and bamboo centres, 585 carpentry and blacksmiths, 10 agarbati industries, 124 village leader industry, 68 lime industry, 25 fibre industry, 6 medicinal plant industry, 37 fruit preservation units and 1 dyeing and printing units are functioning in Assam (Khadi and Village Industries Board, 2015-16).

**Sericulture:**

Sericulture is a major cottage industry of Assam. This industry provides gainful occupation to around 2.50 lakh person living in rural and urban areas in Assam. A sizable number of men and women workers engage in this sector due to its relatively low requirement of fixed capital and higher return on investment. The state accounts for higher production of non-mulberry silk, muga and eri in the country. Assam even has the distinction of getting monopoly in the world in terms of production of ‘muga’, the
'Golden Silk’, of which more than 97 percent is produced in Assam. This industry has undergone a number of changes with the changes in loom, fabric, design, technology etc. Non-mulberry silk in general and muga silk in particular has been closely associated with the rituals and traditions of Assam. The production of silk in Assam was 2713 MT during 2015-16 which is 8.62 percent higher than the previous year.

**Handloom Industry:**

Handloom industry which provides maximum number of employment opportunities especially women in the state is related with Assamese Culture, Traditions and heritage. Handloom is considered even as a part of generational legacy and has been kept alive by the skilled and semi-skilled weavers. Despite the use of modern technology and tools in the textile sector in present days, the handloom sector continues to play a very important role in terms of employment generation and socio-economic development of Assam. During 2015-16, there were 19.49 lakh weavers in the state, out of which 15.30 lakh were part-time weavers and 4.19 lakh were full-time weavers (*Economic Survey, 2016-17*).

**Food Processing Industries:**

Food processing industry is one of the promising industries of Assam. After the initiation of New Industrial Policy, 1991, this industry has been able to attract the attention of the investors for investment in development of food processing industry in the North-Eastern part of India. In recent years, production of horticulture products in Assam has increased at satisfactory rate. Different types of horticultural crops like orange, pineapple, banana, fruits, vegetables, etc have been produced in Assam in sufficient quantity. The growers of such horticultural crops in Assam have got benefits
for their quality products. The north Eastern Development Finance Corporation (NEDFI) Ltd, has also launched the new investment scheme like ‘North East Equity Fund’ to provide financial help to food processing industry in the entire North Eastern region of India. The NEDFI has already financed Rs. 150 lakh to North East pure Drinks for bottling of traditional soft drinks at Rani near Guwahati, Assam.

Realising the prospect of food processing industry in Assam, the Ministry of Food Processing Industries, and Government of India has already initiated process for establishment of a Food Processing Industrial Park (FPIP) at Chaygaon in Kamrup District of Assam. The Central Government of India has already released its share of Rs. 262.50 lakh; the state Government has released the share of Rs.146.00 lakh up to 2015-16 (Economic Survey, 2016-17). The project has been completed by ASIDC, where the plots have been allotted to 13 units, out of which 10 units are in various stages of construction and 3 units have already started their commercial production.

To provide proper industrial infrastructure for food processing industries in the North-Eastern Region (NER) of the country, a Mega Food Park (MFP) has been established in Nalbari district of Assam. This park is developed in PPP model (Public Private Partnership model) with assistance from the Ministry of Food Processing Industries, GOI in an area of 50 acres, where the park is planning to accommodate 27 numbers of food processing manufacturing units (Directorate of Economics and Statistics, Govt. of Assam, 2015-16).
3.8. Small Scale Industries (SSI)/Micro, Small and Medium Enterprises (MSME):

The Small Scale Industries (SSI) has been playing an important role in the process of industrialisation, employment generation and fulfilment of socio-economic objectives of Assam. At present, the small scale industries have been classified into Micro, Small and Medium Enterprises (MSME). The categorisation of such enterprises is based on their investment in plant and machineries in the case of manufacturing sector (Dhar, 2016). For rapid growth of the sector, the Government of Assam has simplified some of its procedures for registration and has declared some special incentives in its Industrial Policies in 2008 and 2011.

Till the end of March, 2016, there were 43332 MSME’s (or Small Scale Industrial units) which have provided employment to 2.49 lakh people in Assam (Economic Survey, 2016-17). As per the data available in the Office of the Commissioner of Industries and Commerce of the Government of Assam, 2005 and 2016, the average employment per unit of manufacturing enterprises in Assam was 4.6 in 2005 and it has increased to 7.3 during 2015-16 (Appendix Table-3.5)

To encourage the Micro and Small entrepreneurs of Assam, the state Government has already taken various schemes and steps like Biponi, Sarothi, Boneez, etc. Biponi is an innovative marketing scheme for MSM entrepreneurs of Assam. The main objective of this scheme is to support (including financial help, food, lodging, etc) the entrepreneurs in participating in trade fairs organised within the state, the country as well as abroad. Boneez is one of the special schemes announced by the Hon’ble Finance Minister on 26th July 2016 in his budget speech to provide special grant to the rural manufacturing units dealing with traditional and micro sector. This scheme has proposed to provide Rs. 25 thousand per grant to the units located in rural areas whose
annual turnover is less than Rs. 5 lakh. Sarothi is a Chief Minister’s Start up Fund launched for encouraging the young talented entrepreneurs facing financial crisis to start new ventures in the state. Under the scheme, budgetary provision for an amount of Rs. 10 crore has been made in the state budget, 2016-17.

3.9. Registered Manufacturing Factories in Assam:

The total number of registered factories in Assam is an important indicator of industrialisation in the state (Dhar, 2017). Over the last few years, there has been a steady increase in the number of registered factories in Assam. During 2001, the total number of registered factories in Assam was 1,545 and it increased to 1,671 in 2004, then to 1,876 in 2005 (Table-3.3). Since then the total number of registered factories has increased to 3048 in 2010 and 5,799 at the end of the year 2015. As per the data collected from the Office of the Chief Inspector of Factories, Government of Assam, the average daily employment of workers in registered factories in 2001 was 98595 with 97147 men and 1448 women. The total number of workers employed in these factories has increased to 105.2 thousand in 2005, where employment of men increased to 103.3 thousand, while for women it was only 1.964 thousand. Similarly, total employment of workers in registered manufacturing factories increased to 291.9 thousand in 2015, where average daily employment for men was 214.3 thousand, while for women it was only 5.607 thousand. Thus, it is noticed that the average daily employment of women is significantly low in comparison to men in all the periods (2001 to 2015), which indicates a huge gender gap in employment of workers in the registered manufacturing sector in Assam.
Table 3.3. Average Daily Employment of Workers in Registered Factories by Gender:

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Factories</th>
<th>Average Daily Employment Total Workers</th>
<th>Men</th>
<th>Women</th>
</tr>
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<tbody>
<tr>
<td>2001</td>
<td>1545</td>
<td>98595</td>
<td>97147</td>
<td>1448</td>
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<tr>
<td>2002</td>
<td>1554</td>
<td>95896</td>
<td>94061</td>
<td>1835</td>
</tr>
<tr>
<td>2003</td>
<td>1526</td>
<td>94143</td>
<td>92159</td>
<td>1984</td>
</tr>
<tr>
<td>2004</td>
<td>1671</td>
<td>98896</td>
<td>96932</td>
<td>1964</td>
</tr>
<tr>
<td>2005</td>
<td>1876</td>
<td>105230</td>
<td>103301</td>
<td>1929</td>
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<tr>
<td>2006</td>
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<td>113525</td>
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<td>2299</td>
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<td>117865</td>
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<td>2759</td>
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<td>149948</td>
<td>146249</td>
<td>3699</td>
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<td>2012</td>
<td>3730</td>
<td>174744</td>
<td>170760</td>
<td>3984</td>
</tr>
<tr>
<td>2013</td>
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<td>196520</td>
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<td>4636</td>
</tr>
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<td>2014</td>
<td>5537</td>
<td>210119</td>
<td>205662</td>
<td>4457</td>
</tr>
<tr>
<td>2015</td>
<td>5799</td>
<td>219903</td>
<td>214296</td>
<td>5607</td>
</tr>
</tbody>
</table>

Source: Annual Reports, Office of the Chief Inspector of Factories, Govt. of Assam, 2016

According to the Office of the Chief Inspector of Factories, the number of registered factories and the average daily employment of workers in Assam has been increasing since 2001. In the above table, it is seen that the number of registered manufacturing factories was 1545 during 2001 and it has increased to 5799. Similarly, the average daily employment of workers has also increased from 99316 to 219903 during 2001 to 2015. But, it is interesting to note that the rate of increase of employment of women workers in the registered factories in Assam is lower than the employment of men during 2001-2015, which indicates the Gender Gap in employment in registered manufacturing sector in the state.

As per the available data regarding District-wise distribution of registered factories from the Office of the Chief Inspector of Factories of Assam, 2016, the undivided Kamrup district has recorded the highest number (1505) of registered manufacturing units (1505) and factory workers (50673). On the other hand, Dhemaji
district recorded the lowest number of factories (8 no.) with 124 workers during 2015 (Appendix Table-3.7).

3.10. Industrial Infrastructure Facilities in Assam:

To create a congenial environment for industrialisation with the help of setting up industrial infrastructure is the primary objective of the state Government. To fulfil the primary objective, the Government of Assam has been trying to create a good numbers of infrastructural facilities and up gradation of the existing units in different districts of Assam. Infrastructural facilities in the form of Export Promotion Industrial Park (EPIP), Industrial Infrastructure Development centre (IIDC), Industrial Growth Centres (IGC), Food Processing Industrial Park (FPIP), Industrial Estates, Industrial Areas as well as the Commercial States are spreading throughout the state (Economic Survey of Assam, 2016-17).

In Assam, now there are 20 Industrial Estates, 8 Mini Industrial Estates, 17 industrial areas and 12 Industrial Growth Centres (IGC). At present, 722 industrial units are functioning. With world class infrastructure, one Export Promotion Industrial Park (EPIP) has been established at Amingaon in Kamrup district where almost 47 industrial units have been producing quality of export products (Economic Survey, 2016-17). Again, the numbers of Industrial Infrastructure Growth Centres (IIGC) in the state are 3, and one Food Processing Industrial Park (FPIP) in Kamrup district and one North East Mega Food Park at Nalbari district have been established. Over the last few years, the Government has established 3 industrial growth centres – Balipara (Chariduar), Matia and Chaygaon (Economic Survey of Assam, 2016-17).
3.11. Conclusion:

Thus, it is noticed that although industrialisation in Assam had its origin during the British period, the present status of industrial development in Assam is not up to the mark. Industrial development of Assam has been reflected in its small share i.e., the share of the manufacturing sector to the state income. The state could not attain the required diversification in its industrial base in spite of having a rich potential for development of various resource-based industries in Assam. The industrial scenario of Assam is found to be centralised around some particular industries like tea, petroleum, coal, jute, forest-based products and the growth of employment oriented Small Scale Industries (SSI) and the growth of registered factories in the state. Geographical isolation, lack of capital formation, lack of industrial infrastructure facilities, lack of entrepreneurial motivation, etc., are the main factors responsible for slow rate of industrialisation in the state, where the Central Government has to play a greater role in providing adequate industrial infrastructure facilities for promoting rapid industrialisation in Assam and the North-Eastern region.
References:


