ABSTRACT

COAL MINING INDUSTRY IN ASSAM: A STUDY OF TINSUKIA DISTRICT, 1865-1940

A THESIS SUBMITTED TO ASSAM UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN THE DEPARTMENT OF HISTORY

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The title of the Ph.D thesis is “COAL MINING INDUSTRY IN ASSAM: A STUDY OF TINSUKIA DISTRICT, 1865-1940”. It is a micro study of coal mining in Assam to investigate historically the various phases of development and its impact. In this regard, from the theoretical aspects of the study it has been tried to analyze the British economic and Industrial policy in India. The study has also tried to focus the migration and management of labour. The study has also tried to analyze the correlation between the coal mining industry and the changing economy of Assam during the period under study. The study has also tried to focus on socio-cultural change due to industrialization in coal sector. The study has also tried to analyze the Impact of coal mining industry on environment.

STATEMENT OF THE PROBLEM

The British occupation of Assam in early 19th century brought transformation in its economy. An era of modern industrialization began with the introduction of tea industry and investment of capital in the sector. The industry began to be developed in increasing rapidity throughout the entire belt of Upper Assam, bringing large tracts of land under tea plantations.

By 1842, **the whole of the Brahmaputra valley came under the British rule. Assam possesses multiple resources like land, rivers, forests and minerals. These prospective resources tempted the British rulers to exploit them one after another. The initial point of colonial exploitation of Assam started with the introduction of tea industry. The investment of capital in tea plantation needed machineries for the

**By the treaty of Yandaboo in 1826 Lower Assam came under the possession of the British rule. In 1842, Upper Assam was brought under the purview of the British administration through its annexation.
factories which could be run by coal. Again, steam navigation companies required coal to run their ships. Thus, the introduction of tea and steam navigation in Assam opened a new avenue for exploitation of the region. Such exploitation was reflected in exploiting mineral resources of Assam. Petroleum showed the way and coal gave colonial exploitation a final shape.

**OBJECTIVE OF THE STUDY**

The study has the following main objectives-

1. To relate the introduction of Coal Mining Industry to the exploitation thesis advocated by the Nationalist and Marxist Historians.
2. To delineate the process of migration of labor in coal industry of Tinsukia district.
3. To highlight the socio-economic transformation with the impact of coal mining industry.
4. To explore the impact of coal mining industry on society of Tinsukia.
5. To show the impact of industrialization on environment.

**DATA AND METHODOLOGY**

The study is based on descriptive and analytical one. It has highlighted the theoretical aspects of British Industrial Policy and on the basis of those theoretical aspects it was tried to find out the relation between the coal mining industry and changing economy of Assam. The Socio-cultural changes in the coal mining areas are also analysed in a historical perspective.

Hence, both primary and secondary sources have been made of relevant topics. A large number of data like official records, correspondences of officials and papers are available from Assam State...
Archive, Dispur, Guwahati, National Library, Kolkata, Coal India Office Record Room of North East Region, North Bengal University Library and Margherita India club. Necessary information has been collected through field work in collieries like interviewing a few old persons to collect information from their memories.

For secondary data, materials from secondary sources like books, journals, reports, articles, newspapers, periodicals, and local periodicals, Souvenir of Golden Jublee, Margherita India club, Souvenir Golden Jublee of A.R. & T.Co’s High School, Margherita are collected. Also sources are collected from Coal India Library and Information Centre, Tinsukia District Library, Assam University Central library, Dibrugarh University Central Library, A.R. & T. Co H.S. School, Margherita, Margherita India Club, Margherita.

However, the major sources of journals and articles are National Library and Information Services Infrastructure for Scholarly Content, Digital Library of Delhi University, Digital Library of West Bengal Government and UGC-infonet e-journals consortium of Assam University, Silchar.

**REVIEW OF LITERATURE**

Coal is the prime source of energy and also a great exchequer of revenue to the Government. In Assam coal played a very significant role in transforming the economy during the colonial rule. Since there is very few studies have been made on the coal mining, none of historical. The works on coal cover the colonial period. Some related works on this topic of India as well as Assam are available in the form of books, magazines, newspapers and articles etc. there are some to name of few such as …

Surita Pearson in her book *History of Assam Railway & Trading Company 1881-1940* gives a historical background of Assam in
particular and North East in general. The author explained broadly in this book, how Assam railway & Trading Company formed and how this company took various steps in order to produce coal and oil. The original historical reports of various collieries viz., Tipong, Tikak, Ledo, Baragolai and Tirap have been briefly discussed in this book.

Prakash Rimal in his report *Grievance Handling Procedure in North Eastern Coalfield-A case study.* (2005). It is a research report in which researcher made a keen study on coal mining area. This study provides a brief study on production and performance of North Eastern Coalfields and the grievances of the workers with the management.

Homswar Kalita in his thesis *A study of the contribution of petroleum based Industries to the Economy of Assam* thoroughly discussed the contribution of petroleum industry to the economy of Assam. But, this study is relevant to our study in the sense that in order to explain the role of Petroleum Resources he has done a comparative study between Coal and Petroleum.

S.K. Sharma’s *Origin and Growth of the Tea Industry in Assam* paper published in Contributions to Indian economic History (ed) Tapan Ray Choudhury. From his writing, it is known how the tea industry changed the economy of Assam as well as India.

P.C. Goswami in his book *Economic Development of Assam*, explained how industries both heavy and small-scale industries contribute to develop the economy of Assam.

H.K. Barpujari’s *The Comprehensive History of Assam* (vol-v) published by Assam Publication Board, also informs us the origin and development of coal industry and also knows how it changed the society.

From the writing of Sabyasachee Bhattacharjee’s ‘*Upanibeshik Bharater Arthaniti 1850-1947*”, we came to know how the colonial
Amalendu Guha’s *Planter Raj to Swaraj Freedom Struggle and Electoral Politics in Assam-1826-1947*, in his book Guha explained how colonial economy contributed to the rise of nationalism among Indian. He also explained how they exploited people of Assam.

Dharma Kumar(ed), in his famous book ‘*The Cambridge Economic History Of India. Vol-II (1757-1970)*’ explained that how the industrialization took place in India and also explained the impact and changes on society. He also explained how colonial power exploited the indigenous economy.

Sudeshna Purkayastha’s *Indigenous Industries of Assam (1870-1925)*, published by K.P. Bagchi & Company, Kolkata(2005), in her book Dr. Purkayastha explained how the indigenous industries grown up during the colonial and also explained its impact on local economy of Assam.

As Sir C.S. Fox pointed out in his *The Economic Mineral Recourses of Assam* published in 1947, “Some of the Nazira coalfields situating at about 12 miles S.E. of Nazira Station up the Dikhu River, was regarded as amongst the best in India.” Important collieries in this region are Barjan, Kangan etc. that have long been worked by M/s Shaw Wallace & Company”. The work described the profitable business of the Company and the relation of the labour force with the management.

Bipan Chandra in his book *Essays on Colonialism* explained the role and character of the colonial state.

Priyam Goswami in her book *Assam in the Nineteenth Century: Industrialization and Colonial Penetration*, focus on the tea, coal and oil sectors, three most important industries, that augmented the From Assam Land Revenue Administration-(1875-76) report, we know that
tea industries required coal to run their factories and had to import coal from Bengal at a high cost Strengthening of British rule in the region.

Singh (1987) made an extensive study on the mine water quality deterioration due to acid mine drainage in North Eastern Coalfields of India. The study revealed that the water in this area is severely polluted due to the effluents emanated from various collieries which are highly acidic in character and contains high hardness, sulphate and total dissolved solids and irons coupled with low pH values--further resulting in contamination of trace (heavy) metals at significant levels which are highly toxic and injurious to health. On the basis of the analysis of mine water samples collected from various sumps of Ledo, Borgoloi, Jeypore and Tipong collieries the study concluded that the water of the region is severely polluted.

Finkelman et al. (2002) made an attempt to discuss the environmental problems associated with coal, before mining, during mining, in storage, during combustion and post combustion waste products and its severe impact on the human health. On the basis of their findings, they maintained that as groundwater passes through lignite it leaches toxic organic compounds. These organics are then ingested by local inhabitants contributing to serious health problems. The study reveals that human disease associated with coalmining mainly results from inhalation of particulate matters generated during the mining process.

Tiwary (2001) made an analysis of the environmental impact of coalmining on water regime and its management. The study attempted to illustrate the quality of acidic and non-acidic mine water and leachate characteristics of opencast coalmining overburden dumps. The study revealed that the pollutants such as Total Suspended Solids (TSS), Total Dissolved Solids (TDS), oil, grease and heavy metals
found in the coal mining waste effluents leaches with the groundwater and thereby results in acid mine drainage. This, in turn, leads to water quality deterioration. The study emphasized the need for proper management of the liquid wastes at both primary and secondary level in order to control the pollution at the source.

Besides these, a large number of books, reports, magazines, journal etc related to these areas are published by various publishers, organizations, like C.A.Meyers, ”Industrial Relations in India, published by Asia Publishing House,”; Report on the History of Industrial Development of North Eastern India, North Eastern Coal fields, At a Glance, Journal of Historical Research, vol-ii,March-1977, published by Department of History, Dibrugarh University (ed) Dr. S.L. Baruah,”; Dehing Patkai Annual and Quarterly magazines published by D.P. Festival Committee.


All these sources have contained study materials on coal mining in Upper Assam during the colonial era.
ORGANISATION OF CHAPTERS

The dissertation divided into the following seven chapters.

The first chapter is an introduction about the origin of coal mining industry of Assam. Coal industry is one of the most significant legacies of the British rule in Assam. The coal mining industry in Assam was a logical conclusion of the investment in plantation and oil sectors. The introduction of coal mining industry in Assam marked a landmark in the economic history of Assam. With the extension of tea cultivation and the introduction of commercial navigation on the Brahmaputra in the late 19th century there evinced a growing demand for coal.

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The migration of labour is one of the most important chapters of history of colonial Assam. It had wider social, economic, political, demographic and ecological implications. With the establishment of British rule, Assam had entered into a new chapter of history. The colonial Government encouraged people of other parts of India to migrate into Assam for its own economic benefit. Like the plantation sector, a large of migrant labours was employed in non-plantation sector. The coal mining in Upper Assam invited labour force from places like Nepal, Punjab and Uttar Pradesh. This created a major demographic change. Moreover, it opened new dimension in economy
of the region.

In Assam Coal fields comprised of the four mining areas, viz Baragolai-Tikak, Ledo-Tirap, Tipong colliery in Makum and Joypore-Dilli coal field near Namrup. The entire area is situated in the north-eastern corner of Assam. Among the coalfields in Assam, Margherita is the pioneer and primer coal industry of a large magnitude in the eastern part of the country.

The British were in search of a local source of coal as fuel from the very beginning of their advent in Assam. This was because the administration had to carry coal from Raniganj in Bengal by railway up to Calcutta from where it depends on river transport. It raised the cost of transportation tremendously. Only a local supply could make it cost effective. The first recorded notice of the existence of local in Assam was by Lieutenant Wilcox, the Revenue Surveyor posted at Sadiya, who accompanied a party of the 46th Regiment up the Disang River to Borhat in April 1825 discovered coal beds in the Dissang Valley region in Upper Assam. Subsequently he found such belts in the bed of Buridihing River at Supkong. The discovery by Wilcox inspired the first Agent to the Governor General, North East frontier, David Scott, as mining coal locally would make the introduction of stream navigation on the Brahmaputra easier and cheaper.

In the region like Assam, where railways were unknown and roads hardly worth the name, waterways formed the main arteries of communication. One of the most important steps towards opening up the province, therefore, lay in improving the means of navigating the mighty Brahmaputra. One of the major impediments for economical steam navigation was the necessity of carrying Bengal coal upstream, not only for the entire upward voyage but for the return journey as well. It is noted that in 1880, the Doom Dooma factory imported three
thousand mounds of coal from Raniganj, which, arriving at Dibrugarh by river steamer, had to be transshipped and brought in small boats at least fifty miles up the Dibru River, and landed, after a total journey of a thousand miles, within twenty-five miles of the Makum coal field. According to F.R. Mallet, Geological Survey of India, the freight from Raniganj to Upper Assam raised the cost of the coal to more than ten times its value at the pit-head.

Therefore, the introduction of steamers on the Brahmaputra would not have been economically viable unless coal was available locally. Initially, the authorities at Calcutta were hesitant about the exploration of coal resources in the region. Shortage of labour, difficult terrain, inhospitable climate, transportation difficulties and insecure political conditions, dissuaded private as well as state enterprise from undertaking coal operations. But the establishment of the tea industry changed the entire scenario and as the availability of coal at reasonable rates became an urgent necessity, the government undertook an active search for prospective coalfields.

It is mentioned that the railway required coal not only to use as fuel for locomotives and its workshops but as traffic also. The tea gardens and timber plants required coal to generate power. The traffic to and from the gardens on the Sadiya Road had been insufficient to attract capital for the railway without the collieries; whilst the collieries could not be operated without adequate rail and river transport. To meet the growing demand and to avoid the wood fuel and to increase the production of coal different collieries were set up such as Namdang in 1895-96, Ledo New West in 1903-04, Baragolai in 1909, Tipongpani in 1924 and Namdang Dip in 1904. All these mines were operated under the administrative control of Assam Railway and Trading Company (A.R. & T.CO’s).
The second chapter is a Theoretical analysis of the British Industrial policy in India. In this chapter, the present study has tried to analyze the nationalist and Marxists approach of colonial exploitation and link it a way the coal mining industry. The nationalists writers like Dadabhai Naoroji and Justice M.G. Ranade, G.V. Joshi, G. Subramaniya Iyer, R.C. Dutt and numerous others had articulated that the British industrial policy in India was detrimental to the growth of Indian industries. According to them the industrial Revolution in England had negative impact on Indian economy. The Marxist authors like Tapan Roy Chaudhury, Amiya Kumar Bagchi, Bipan Chandra pointed out that the contradiction between the need for economic and industrial development “Making India a reproductive colony and the objective of consequences of colonialism which produced the opposite results. They have shown how the foreign capitals control the entire mining industries. Coal mining in Assam was no exception. The study seeks to apply these theories on coal mining industries in Tinsukia District. Moreover, historians like Hamza Aliva and Samir Amin have shown the domination of foreign Capital in industrial sectors like mining and as a consequence, it generated unequal development.

The third chapter is a brief survey of migration and management of labour. The migration of labour is one of the most important chapters of history of colonial Assam. Generally, the labours in mining industry were recruited through contractors who visited the rural areas where the villagers were poverty ridden. These poor villagers were picked up and their labour was squeezed in lieu of low wages. The coal mining in Upper Assam invited labour force from places like Nepal, Punjab and Chota Nagpur area of Uttar Pradesh. This created a major demographic change. Moreover, it opened new dimension in economy
of the region. The relation of the migrant labour with the owner opened another dimension of socio-economic history.

The coal field in Brahmaputra valley of Assam was labour oriented industry. Since labour was not available locally the coal industry had to depend on migrant labour. But most of the migrant labour, which was mainly indentured from the tribal areas of Bengal Presidency, was absorbed in the tea industry. Plainsmen like the Assamese could be recruited for the jobs in coalfields for they refused to work as labourers as they were self-sufficient. The Nepalese were then already on the migratory route to Darjeeling tea estates and army recruitment centers in various parts of India like Shillong, Darjeeling, and Dehradun. They also arrived in the coalfields of Assam to do the jobs that no one else was willing or available to do. Besides them, there were other forms of migration too – as porters, herdsmen and marginal farmers. They took to agricultural farming, dairy farming, professional grazing, small time trading and rubber tapping. However one wave of migration of Nepalese is to the coal fields of Upper Assam primarily as labourers. This migration too was induced by the colonial state. From the nineteenth century, under colonial intervention, private enterprises in the mining industries had begun in Assam, notable among them being oil and coal.

The coal industry confronted major problems in its development. Most important problem was that of transportation. To combat this bottleneck railway lines were sought to be constructed, which happened only by the end of the nineteenth century. In 1882 the first railway line was opened from Dibrugarh Steamer Ghat to Jaipur Road. Two years later the coalfields of Upper Assam were connected by railway lines. The other major problem was that of labour. Initially the local labourers and Naga tribes were sought to be engaged as labourers
but both were not interested in working as mining labour force. The Nagas were particularly afraid of tunneling or mining. Hence mine workers from the Bengal field were imported.

According to Royal Commission Report on Labour in 1931, in most of the coal mines, the recruitment and management of the workforce was facilitated by the extensive use of raising contractors or thikadars to organize gangs of labour. The thikadars in turn hired other intermediaries as foremen to supervise the work and clerks to record output. Therefore, a mine manager had ordinarily no responsibility for the selection of the workers, the distribution of their work, the payment of their wages or even the numbered employed.

Under the contract system, the entire production process ranging from recruitment to the cutting and loading of the coal on to rail wagons was leased for a contracted rate on the tonnage. The contractors’ imported labour included paying train fares and dadans, or advances. Workers were bound to work under them until these were recovered. Actual recruitment was done by gang-sardars in the villages, which were linked to the contractors or to companies through a nexus which included village headmen, or pradhans. The latter might be paid salaries or commissions for influencing their fellow villagers to work at a particular colliery and attend it regularly. This method was the most flexible means of controlling a proletariat emerging from a rural milieu. Miners preferred sarkari or official recruitment and management under which they were directly employed by the company.

There was growing demand from the army and police officials that recruitment of Gorkhas in non-military pursuits should be stopped forthwith. Here of caste distinction was made between the fighting castes of the Gorkhas and the non-fighting castes. The
concerned camps had no objection to the recruitment of Gorkhas of non-marital castes into any other pursuits but had strong reservations about absorption of the marital ones for non–military purposes. The Government of Nepal also wanted that recruitment of Gorkhas of the fighting castes should be absolutely prohibited for the future. As regards the prohibition of the future recruitment of Nepal subjects of the fighting classes it was pointed out that, ‘so far as recruiting at regular Recruiting depots such as that at Gorakhpur is concerned the prevention of the recruitment of Gurkhas of the fighting classes could be effected by arrangement with the tea District Labour Association and the Assam labour board. This would indeed be no innovation since all Gurkhas recruited at Gorakhpur are already passed by the Gorkha Recruiting Officer. As far as employment in the coal mines was concerned the agent and General Manager were made to issue orders that Gorkhas of marital castes were not to be recruited either locally or through agencies outside the province. But this was done under the condition that non-marital castes of the Gorkhas would be continued to be recruited for the coal mines by private companies like the Assam railways and trading Company.

However the Government of Assam expressed its difficulty in preventing the recruitment of marital Gorkhas by private companies as it was not under its direct jurisdiction. But it promised to use its influence to pressurize the parties to refrain from such wasteful recruitment and cutting into the man power supply of the colonial army.

It is interesting to note the appropriation of racial discourse by the colonial states and European private entrepreneurs in the labour recruitment process of Gorkhas in the coal fields of Assam. The Gorkhas were recruited through negotiated agreement with the
government of Nepal because they were found to be members of ‘martial’ race were tough, industrious, loyal and hence suitable for the hard work required in the mining of coal. But the same attributes were applied for their withdrawal. It was felt that the Gorkhas because of their above qualities were an important human resource which could not be ‘wasted’ in jobs like mining but be reserved for Empire building in which they served as military men. The same argument was used in importing indentured labour force from the tribal regions in Eastern and Central India for the tea plantations in Assam. Initially they tried to employ the local Assamese plainsmen as well as tribals into the growing tea industry. But the indigenous population could not be lured into it despite measures like high remuneration as well as high land revenue demand imposed by the colonial state to coerce them into joining as tea garden labour. Disgusted, the British rejected the Assamese as ‘lazy’ and turned their attention to the tribal of mainland India. The tribal were found to be tough enough to bear the hardship that the job involved. A gain biological attributes were constructed to structure the tribal as ‘tough’ people.

During the third quarter of the 19th century immigrants were coming from other parts of India to work in the new tea gardens as well as coal mines of Assam.

"Labour had to be attracted to this desolate area, houses built, medical services and sanitation provided, foodstuffs and other necessaries supplied, and training made available to the majority in their new occupations.

These were many and diverse. Among them would have to be coalminers, permanent way labourers, engine drivers and firemen, carpenters, fitters, machinists, blacksmiths, boilermakers, station
masters, clerks, printers, brick makers, building workers, pile drivers, sawyers, shipwrights, marine engineers and pilots. 

The leisurely villagers in other parts of Assam, already in a position to satisfy their simple wants, were not then looking for permanent employment. The Company was therefore obliged to recruit workers from the more distant parts of India. The nearest point on the main railway system being six hundred miles distant, the only existing route for immigrants was by steamer up the Brahmaputra, a month’s voyage from Calcutta. Their service, like that of the senior officials, became voluntary exile. It is not surprising that sharing the vicissitudes of a new life in a strange country there grew up between them a bond of sympathy and understanding. According to the historical facts as well as the inhabitants, during the rule of East India Company in India the growth and declination of the social life of the people was exquisitely exempted out the thirties of 19th century.

Tea labourers were brought as a bonded labour. So, they did not have any kind of liberty of their own. The condition of mines labours was also same. In order to check the labourers so that they would not fled away after being tortured; police check gates were established at places like on the bank of the river Dehing, in side the market and by the side of the bridge. After being tortured, the bonded labour tried fled for release, but they did reach their destination. Most of them, were died or killed –“drowned by the river, cut by the rail” it is noted that these labours were basically Nepali, Pathan, Makrani, etc. and this system was continued till 1935.

It was estimated that the company or the Thikadars did not establish schools for the children of labour. From Eye witness and other sources It was noted that a numbers of ‘Khowar” system were there at that time for the children of miners and labour. This system
was popular in Assam. The thikadars introduced this system only the children of labours, miners kept around the system, if they did not harm the work or services provided by their parents. Thus the thikadar introduced this system.

It was found when the Workmen’s Compensation Act 1923 was passed that the scale of compensation laid down by Government was on the whole less than the scale which had been introduced voluntarily by the Company several years previously. Again, payment of maternity benefits to employees was made compulsory by Government several decades after the Company first started to pay similar benefits.

When the war affected commodity prices, the Directors sanctioned payment of a “dearness allowance” to employees. This was in May 1940, once more several months before such allowances became the general practice in India as well as in Assam.

Thus, the conditions of work and living in the mining sector were such that most of the peasant-miners could not contemplate a permanent shift to wage employment in the mines. In contrast, the rural areas and community ties provided a kind of cushion, a measure of social security. Not only that, the evidence presented above unmistakably shows that the cost of production and reproduction of labour power was largely subsidized by the migrant workers themselves.

The fourth chapter is the Correlation between the Coal Mining Industry and the Changing Economy of Assam. In this chapter, the present study has tried to analyze the economic impact of coal mining industry of Assam. One of major economic consequences of coal mining industry in Assam was the consolidation of foreign capital. In coal mining sector there was no involvement of indigenous capital at any stage. All the owners and managing agents were British.
Therefore, coal extracted from the mines in Upper Assam was absolutely used to run the British owned industries. In the early 20th century, indigenous entrepreneurs who started investing capital in small industrial concerns including tea had faced hardships in buying fuel (coal) for its high prices. Again, a share of the indigenous capital went to foreign pockets. Secondly, the influx of people from different places appeared up Tinsukia as new business establishments were set up. Shops were established and buying and selling commodities became established practices. Moreover, with the introduction of coal mining industry, Tinsukia became a centre of business mainly in cheaper imported British goods. As a result, local products in local markets could not survive in face of unequal competition. Thus, opening up of Tinsukia centered round the process of developing the colonial export/import market.

Due to increasing the production of coal, certain changes were evident in economic sphere. Development of technology, transport and communication has influenced the economic structure. Besides the self-sufficient village economy has been disintegrated.

It is mentioned that in 1884, 18 February, the first time coal was carried by Railway from Ledo to Dibrugarh. To excavate coal from mining of Assam, the mining engineer, South Estraford of England invested trade and welfare activities. It is noted that at that time the demand of coal was very high but due to lack of transportation, the coal was not produced according to need.

In 1891-92, the construction of Assam-Bengal Railways started. In 1904, for the first time railway line was connected between Chitagang and Dibrugarh (undivided). As consequently, the demand of coal from abroad was met to some extent. Before this coal mining industry of Makum only met the demand of coal to tea gardens and
ship industry (company) of Assam.

With the development of transportation and communication, to increase the production of coal, construction of many collieries like Namdang (1896), Ledo New East (1903), Tirap & Ledo New East (1904), Borgolai (1909), Tipongpani (1924) and Namdang Deep were started. After this, the mining industry was developing continuously.

With the introduction of coal mining industry, Tinsukia has come to be known as an important industrial –cum-trading town and a hub of commercial activity. Due to coal mining industry, the British brought with them their Indian collaborators like Marwari businessman and users and the English educated Bengalis as clerks. Besides these, a number of shops of variety items were established in this area. They were basically local people who did not want to work as labour in mines. People from Nepal arrived in this area and developed the dairy farm and the also worked as miners basically they engaged in security class.

With the expansion of tea gardens and mining, there was a need for workshops, offices, bungalows, quarter etc., for this construction the most important goods was bricks. So the demand for bricks was increasing. First time the bricks were imported from outside. But the cost of transportation was very high due to lack of transportation, and the supply of bricks was less than that of demand. The tea gardeners were trying to established brick field but could not succeed. Under the patronage of Assam Railways And Trading Company, the brick field was established in 1890 in Ledo. After this, the brick field was converted to Manchester field in 1926. The main objectives of this field were to meet the demand of coal mines, construction of bridges, houses, railways lines etc.
Under the patronage of Assam Railways and Trading Company, the Plywood Industry was established here (Makum) in 1882 to provide sleeper for the construction of rail lines, to provide woods for coal mining industry, to construct the bridge over the river Buri Dehing and Doom Dooma river and also to construct the houses, bungalows as well as quarters. With the passage of time this ply wood industry was one of the most important industries which provide different types of plywood for various purposes. Under the leading of A.R.&.T.CO’s, the process of industrialization of Margherita started. This company established a wood preservation plan for wood conservation.

The steady growth of the railway transport service provided by the minor railways and the Assam-Bengal State Railway remarkably strengthened the economic infrastructure of Assam. It helped growth of the tea industry and development of other industries like coal, mineral oil etc and postal communication system. This development resulted in the easy flow of goods and movements of people within Assam and between Assam, Bengal and other parts of India. Also it opened up Assam to the immigrant peasants, workers, professionals and others. Flow of capital into Assam from outside for investments in different sectors by both government and private entrepreneurs was also facilitated.

The coal mines of Margherita and Makum, and the tea gardens of Upper Assam with the port of Chittagong. For this he felt it was necessary for the entire railway line to be under one administration.

This was one of the significant results of the colonial model of Assam’s economic growth. Population ratio of non-indigenous ethnic, linguistic and religious groups’ visa-a-vis the total population of Assam increased substantially. As a result the socio-political tension
affecting Assam’s economic growth assumed critical proportions towards the end of the colonial rule.

The fifth chapter is the Socio-Cultural Change due to Industrialization in coal sector. This chapter deals with the Socio-Cultural impact on society. The coal belts in Upper Assam witnessed major socio-cultural shift after introduction of coal mining industry. The demographic change led to cultural change of the region. In particular, Tinsukia district saw a major cultural and social change with the influx of Bengali employees of the mining Companies. Bengali culture became dominant which had further socio-cultural consequences. Again, schools were started in the district to impart education among the employees. Consequently, the indigenous inhabitants started sending their children to these schools. The coal mining industry also had to a new class of people who made contracts with the Company for shifting coal for export. This new class belonged to the migrant group who managed to earn huge sum by coordinating with the white skinned mine owners, on the one hand, and colonial bureaucratic circle, on the other.

The coal belts in Upper Assam witnessed major socio-cultural shift after introduction of coal mining industry. The demographic change led to cultural change of the region. In particular, Tinsukia district saw a major cultural and social change with the influx of Bengali employees of the mining Companies. Bengali culture became dominant which had further socio-cultural consequences. Again, schools were started in the district to impart education among the employees. Consequently, the indigenous inhabitants started sending their children to these schools. The coal mining industry also had to a new class of people who made contracts with the Company for shifting coal for export. This new class belonged to the migrant group who
managed to earn huge sum by coordinating with the white skinned mine owners, on the one hand, and colonial bureaucratic circle, on the other.

As a consequence of coal mining industry in Assam the population in the cities has gone up. The process of industrialization increases the population. It is on account of industrialization that there is progressive rise in the population of cities in India. Whatever social impact is due to the urbanization is indirectly due to industrialization. Therefore the impact of industrialization and the impact of urbanization are in fact the facets of the same underlying process, namely, industrialization.

Migration process has been an important factor in the area of development and changes in the present day society. It is actually a complex process and is symptomatic of basic social and economic changes. It has been the experience of most of the developed countries that rapid economic and social changes are accompanied by population redistribution between rural and urban areas. It is a major consideration in economic development and man power planning. It has acquired special significance in the context of commercialization of agriculture, urbanization, slums and social changes. Migration has immense importance in the context of Assam. In the context of population growth and economic development in Assam, the importance of migration could never be over stated. The existence of a large number of tea gardens (plantation), mining industry, oil industry and Railway system etc. have contributed to a continuous flow of migrants from different places.

With the implementation of compulsory Primary Education Act (1930), the emphasized was given to vernacular language. To introduce
the vernacular language, the drastic changes took place in this region in general and literate/educated middle class people.

As a result of Compulsory Primary Education Act, the Company started to establish schools and for this purpose a Committee was constructed with the members of employment and Thikadar or Contractors, since then thikadar contract the education and constructed the schools. According to Law, the Company indirectly interferes and the Committee, consist of Employees and thikadar, like a puppet at the hands of Company managed the schools. It is said that “Subsidy to Assam’s Schools situated at Colliery Areas”. The teachers were appointed and patronized by the company. The teachers were getting Free Ration, Medical Facilities, and house etc.

It is noted that, Margherita Recreation Hall later known as Margherita India Club has been playing a spectacularly useful role in the comity of socio-cultural Institutions in this region. It is a name to conjure up. It evokes memories all compact. Its achievements have been no means order even from those obscure days of the twenties. Margherita is aptly called the eastern sentinel of our country. The name of MARGHERITA is derived from the celebrated British doctor John Berry Whites’ lovely and lovable daughter Margaret who died in most tragic circumstances in the wilds of this area in the late seventies of the nineteenth century. One T. Kinny’s theory that Margherita was named after Margaret, the queen of Italy, is hardly accepted.

Margherita is sometimes described as a miniature India in as much as its permanent and semi-permanent inhabitants as also its floating population hail from most of the states of our country and also beyond. The cross sections of the people of Margherita take pride in that, they have been living in this remote corner of our land in peace,
amity, and harmony with their respective avocations even from the pre-
prehistoric time of Makum down to that of modern Margherita.

The most important contribution of this club was providing
entertainment to the workers and employees of coal mining industry. In
1936, touring cinema shows could also be arranged through the club
for enjoyment of the people of Margherita. During and at the fag end
of the World War II the members of the Arm forces stationed here who
included Indian, British, Chinese and American nationals including
Negros were also greatly interested in witnessing cinema shows
regularly in the club which was then the only centre for having such
amusement.

Transformation of the economy from agriculture to industrial
activities attracted people from other parts of the country and large
scale migration of workers to Tinsukia District in general and
Margherita in particular occurred which resulted in a remarkable
change in population pattern. As agriculture still continued to be an
important occupation, it provided work to a large segment of the
population which includes a significant portion of the urban people. A
small number of fisherman and hundreds of forestry workers added to
the arena of mixed multitude of Tinsukians and Margheritans.

The tea and coal mining industry, therefore, ever since its
establishment in Assam had to import labourer from other parts of
India. Shortage of population and unwholesome behavior of the
Management towards the labourers in general explained partly why
local people were not available for tea as well as coalmining industry.

The sixth chapter is the Impact of Coal Mining Industry on
Environment. The study has tried to analyze the impact of coal mining
industry on environment. At the period of our study coal is generally
mined in rat hole mining or under ground mining. There was not seen
open caste mining which is prevailing now a day. But during that time there was quarry method prevailed. Quarry method is a method where in dense area after digging the land the worker mined the coal. This process is to some extent regarded small scale open caste mining. The study reveals that due to lack of awareness and negligence of the causes and the impact of environmental pollution the local inhabitants residing near the collieries made them susceptible to severe health hazards.

Coal was the dirtiest of all fuels. From mining to coal cleaning, from transportation to electricity generation to disposal, coal releases numerous toxic pollutants into the air, water and land. These disrupt ecosystems and endanger human health. Some cause cancer, others damage the nervous and immune systems, and some impede reproduction and development. The environmental effects of coal use range from the poisoning of local rivers by acid mine drainage to the global problem of climate change caused by CO2 (carbon dioxide) emissions.

Coal dust generated from mining in Tinsukia district (Makum coal field) affected the health of the local workers and inhabitants. Health hazards included inhalation of dust containing crystalline silica during high wall drilling and mining which could lead to black lung disease; exposure to mercury through inhalation of vapors or mercury-containing dust; inhalation of toxic fumes and gases and exposure to ultraviolet and infrared radiation at welding operations; noise-induced hearing loss as a result of prolonged exposure to processing and mining equipment; as well as heat stroke and exhaustion.

In Makum coal fields, Mineworkers and their families often reside in the localities where coal was being mined. Some of the
additional health risks and dangers to residents of coal mining communities included injuries and fatalities related to the collapse of high walls, roads and homes adjacent to or above coal seams being mined; the blasting of fly rock offsite onto a homeowner’s land or public roadway; injury and or suffocation at abandoned mine sites; and the inhalation of airborne fine dust particles off-site.

In Upper Assam coal mine areas, the apathy, lack of understanding and political will and gross corruption of the government enhances the scope of the industry to continue with impunity. As health issues are considered ‘technical’ and ‘scientific’, the complaints and evidence from communities and workers of the relationship between mining operations and their ill health are brushed under the carpet by the law implementing, monitoring and judicial authorities. Pitted against these forces are the women in these mining regions whose health issues in general also, were marginally addressed.

In Makum coal field, it is noted that women were employed in secondary activities such as cutting, sorting, quarrying and loading and unloading. Constant contact with dust and pollution and indirectly through contamination of water, air, etc. caused severe health hazards to the women mineworkers. As majority of the women workers were contract labourers, and paid on a daily wage basis there was no economic security or compensation paid due to loss of workdays on account of health problems. Meager or no compensation was given during pregnancy period that puts a strain on incomes and health. Even during pregnancy women have to work in hazardous conditions amidst noise, air pollution that have adverse effects on their offspring. The work conditions, work timings, leave facilities, etc. had significant impact on women’s health. Children were also unsafe and indirectly affected right from conception and birth as women were forced to take
their children to the mining areas and expose them to high levels of dust, pollution, mine explosives and accidents. The women suffer from several occupational illnesses such as respiratory problems, silicosis, tuberculosis, leukemia, asbestosis, etc. Infant mortality rates have increased and the reproductive health of women has reduced which has given rise to related social problems. Lack of proper illumination, safety nets and equipment causes severe strain to women workers’ health. Loss of eyesight is common, as women are not given any protective gear in any of the mine-sites while loading and transporting coal manually. In some places they are given iron and mineral supplements injected into them in order to increase their work output and to build up resistance for the hard labour. Apart from terminal illnesses, a more concurrent and chronic problem of women working in mines was the development of muscular and back pains, wearing out of joints, fatigue and lack of stamina, breathlessness, constant coughs, irritation in the eyes and a general physical incapacity.

The seventh chapter dealt with the conclusion. The study has concluded that the remote part of Assam could not be isolated from the clutches of economic imperialism inaugurated by the west since the 19th century. The study also reveals the emergence of pockets of dynamism amidst an otherwise stagnant economy. The benefits of industrialization that accrued as a spin-off were limited in nature and failed to have any perceptible impact on the local population.

In summing up, Migration of labour led to a cosmopolitan workforce in coal area of Tinsukia. The process of recruitment of labour in coal sector reflected the British colonial policy of strengthening the mighty British Indian Army. Racial discriminates which forms a major part of the colonial discourse has also its implications in labour recruitment policy of the British coal mines.
Though production of coal was quite good, there is no sign of investment of indigenous capital in coal sector. The British capital dominated the sector absolutely and the benefits of industrialization were limited to a handful of people. The coal mining industry led to a major demographic change in Tinsukia District which brought a cosmopolitan culture there.