Coal mining 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.

From the discussion it has been found that 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.

Among the coalfields in Assam, Margherita is the pioneer and primer coal industry of a large magnitude. 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

CHAPTER VII
CONCLUSION
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.

In the beginning the Fort William authorities in Calcutta gave little encouragement to the mining of coal in Assam. The meager demand, shortage of labour, transportation problem and the then insecure state of this frontier made them apprehensive of undertaking any large scale mining operation. But the establishment of Assam Company in 1838, and prosperity of the growing tea industry necessitated increasing supply of coal which made the government turn its attention to the coal of Assam. The Assam Company began to quarry its own requirement from the Jaipur mines in Upper Assam from 1840. A coal committee was set up by the administration in 1838 to report on the actual deposit and quality of coal in the region. By 1847 Major Hannay had started two quarries in Jaipur. The government started the steamer service in Brahmaputra River from 1847 which enhanced the demand for coal. By 1867 the coal mines were opened for private operation. However, not much progress in the exploitation of the coal deposits and recruitment of miners was made until the formation of the Assam Railways and Trading Company in 1881. Two years later the coalfields in Upper Assam were connected by railway lines. In 1882 the Makum (Ledo) field in Upper Assam was taken over by the company on lease. Work in the Tikak, upper Ledo and Ledo valley mines had also begun in the same year and on the Namdang and Tirap grants in 1897-98. In 1893 the stocks of the Assam Railways and Trading Company at Calcutta amounted to 60,000 tonnes. By the beginning of the twentieth century Assam had become self-sufficient in coal. In 1903 the total output was 293,000 tonnes.
There were 1200 labourers working under the supervision of European miners.¹

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 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 detrimented 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

¹ Bengal secret political Consultations, 24th August 1827, No. 13, 26th October, 1827, Nos. 13, 20,21, cited in ibid. p.88
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.

From the study it has been found that the coal field in Brahmaputra valley of Assam was labour oriented but 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.² They took to agricultural farming, dairy farming, professional grazing, small time trading and rubber tapping.³ 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,

² ibid
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 the 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 milieau. Miners preferred sarkari or official recruitment and
management under which they were directly employed by the company.\textsuperscript{4}

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 inane 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. Again, 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 shortage led to the migration of

\textsuperscript{4}BLEC.vol 1, pp. 188-9.
labour from outside 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.

It is mentioned that, 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 1935.5

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

5 Krishna Nanda Goswami,” Buridehing”, p-6-7
unmistakably shows that the cost of production and reproduction of labour power was largely subsidized by the migrant workers themselves.

The study has also tried to analyze the economic impact of coal mining industry on the economy of Assam. One of major economic consequences of coal mining industry in Assam was the consolidation of foreign capital. The coal mining sector in Assam did not involve 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 people from different places made Tinsukia a place for 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.

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.

Prior to the advent of the British, the migration of people from across the border to Assam was not a major countable factor. Of course, long before the establishment of the British rule the Ahom rulers encouraged men from other parts of India to settle in Assam, if they identified themselves with the local people of their introduction was of advantage to the province. Those people included artisans, draftsmen, scholars and saints, who accompanied the Mughal army during the Ahom-Mughal conflicts, made permanent establishment themselves here and became part and parcel of the population of Assam. But the establishment of the colonial rule encouraged the migration of population into Assam from other parts of India such as Bengal, Bihar, Andhra Pradesh, and Madhya Pradesh and Orissa and thereby altered the demographic picture of the province particularly of the Brahmputra valley of Assam.

With the ever increasing number demand of population economic activity need further widening and deepening. Industrialization becomes the logical outcomes of not only supplementing but also developing the economic activities of the primary sector. But industrialization was generally conceived as setting up of a few factories with technology and large imported capital. Such setting up of industries generally alienates the local inhabitants from their own land and very often they were put in different social and cultural environment following their eviction.

Economic development in the form of industrialization and
socio-cultural changes were generally both causes and effects of each other. The institution as well as socio-cultural attitudes of the people should be closely interacting with each other. Industrialization would necessitate specific development culture suitable for the area. Unless the people of the area were not treated as subject of development there would be serious sociological constraints of industrial progress.

Coal industry, directly or indirectly plays a prominent role to convert the rural society to urban society. It made historic contribution to create an industrial society. As a result of fast industrialization, the process of urbanization too, was growing fast and this had deep impact upon society. The industrialization was not only pushing up the urban population but is also affecting the social conditions in nearby villages.

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.

Socio-cultural condition or change of a given region has a direct bearing on the life of workers of that area. As such that importance of the study of these aspects of Assam in general and of the coal mining industry in Makum areas in particular.

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.

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-historic time of Makum down to that of modern Margherita.

The most important contribution of Margherita India 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 study has also 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.6

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

6 Nikhil Chandra Deb, Retd. Service man, Dept of Store and Purchase, Margherita, interview taken by Sanjay Sen, on 24.10.12 at 4 p.m. Margherita.
public roadway; injury and or suffocation at abandoned mine sites; and the inhalation of airborne fine dust particles off-site.\(^7\)

Mining is dangerous and had high injury and mortality rates. Potential health and safety hazards included respiratory illnesses such as emphysema, black lung disease and chronic bronchitis; exposure to toxic fumes and gases; noise-induced hearing loss; heatstroke and exhaustion.

Trucks, rail and barges used to transport coal all affect air and water quality. As well as the environmental and health impacts from blowing coal dust, there is also the air pollution from the vehicles themselves.

Mining from a gender perspective in India has to address a crucial area of women’s health. The health hazards and degeneration of the health conditions of women and children was one of the most serious impact of mining. Here, women’s health has to be understood from a larger perspective of direct and indirect impact - the exposure of women and children to mine disasters and mine pollution as well as to the reduction in quality of life due to denial of access to food security, natural resources and livelihoods. In India, this poses a much more dangerous situation as impacts of mining have been diverse depending on the nature of the minerals extracted and the extent of exploitation. Despite people suffering from several forms of ill health, physical and mental deformities, and constant exposure to toxic wastes and chronic diseases as a result of mining, there is a tragic gap in the availability of ‘scientific’ studies and data on the health hazards of mining in India and more so on women in mining affected communities. This has provided an ideal opportunity for mining industries to walk away from

\(^{7}\) ibid
any responsibility towards the health of communities and workers they affect.

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.

As an impact of coal mining in Makum Coal Mines of Margherita, metals like fluoride, manganese, nickel, and sulphate were high in concentration in drinking water. The study assessed that metals like arsenic, mercury, fluoride, nickel and chromium caused problems to the human beings even if they were present in trace amount in the drinking water.

Moreover, communities surrounding mine-sites were forced to consume the contaminated drinking water from sources like rivers, streams, wells and bore pumps due to ill-treated or non-treated chemical wastes and debris by the mining companies which seep into the ground water and soil. Women in particular were more susceptible to water pollution due to the role they played in the family, which involves contact with water sources for performing the household chores like collecting water, washing clothes, utensils and bathing children.\(^8\)

\(^8\) ibid
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.9

The loss of traditional rights over land and forests had contributed to the deterioration of women’s health status. The only access to health care for women- the forest rich in medicinal plants became inaccessible leaving them without this important natural source. Further the mining activities had introduced a number of previously unheard of diseases among the tribals, which made their traditional health remedies ineffective.10

It is interesting to find that folklore can play a vital role in more sensitive understanding of environment and ecology. In this context Sarit Chaudhuri, drawing from his field studies of NEFA which included the coal mining areas of Tinsukia District, indicates the link between ecology and folk belief systems which traditionally served the purpose of resource conservation in direct or indirect ways. Chaudhuri also tells how such tales can be textualised looking at the length and breadth of the regions which is considered as one of the biodiversity hotspots of India. This need not be romanticized. One need to look at the other side of the coin, Chaudhuri again reminds, as with the growing influence of money, market and other agents of change.

Most of the tribes of the Tinsukia district believe that the forest is the abode of their numerous gods and spirits, both benevolent and malevolent in nature. For example, Adis believe that the huge tree like Rotne found in their surrounding forest is the abode of the evil spirit called Epom for which they usually don’t fell such tree. In case it is inevitable then they perform rituals by sacrificing pig and fowls to appease the spirit whose habitat is destructed. Similarly, they never

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9 Forest B, December, 1930, File No. 657-662, Lekhapani
10 ibid
indiscriminately cut cane bamboo and leaves for thatching traditional houses. For instance, *Epoeng* (big bamboo with huge circumference) has been felled during the *Ruruk* – the dark fourth night just after the full moon night as it is commonly believed that during that period this bamboo remains free from a insect locally called *Takit* which can reduce its longevity. There are some specific plants, such as, *Tattong, Taapit, Tan* etc. having sacred value. According to their belief such trees have sprung from the bones of *Kari Bote* - the great mythical hunter who is considered to be repugnant for the evil spirits and for this they hardly cut these trees unless and otherwise it is inevitable.\textsuperscript{11}

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 19\textsuperscript{th} century. The study also reveals the emergence of pockets of dynamism amidst an otherwise stagnant economy. The benefits of industrialization that accrued as a spinoff 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.