DEVELOPMENT OF INDUSTRIES AND ITS IMPACT ON THE SOUTHERN PERIPHERY OF GUWAHATI

35

A

REPORT

ON THE PROJECT CARRIED OUT UNDER THE JUNIOR SHORT TERM FELLOWSHIP SCHEME OF THE INSTITUTE OF SOCIAL CHANGE AND DEVELOPMENT : GUWAHATI

1993-94

OKDISCD

SUPERVISOR

Dr. (Mrs.) Dharitri Deka
Reader of Geography Dept.
Gauhati University

SUBMITTED BY

Sri Gopal Chandra Boro
Rajiv Gandhi Scholar
JSTF Programme

(SOUZ)

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GAUHATI UNIVERSITY
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Dr.(Mrs) D.Deka,
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Guwahati - 14
Date -25-4-94

This is to certify that Sri Gopal Chandra Boro has carried out his research work for his Project Report entitled "Development of Industries and its Impact on the Southern periphery of Guwahati." under my guidance and Supervision. He has fulfilled all the requirements laid down in the project proposal. The report is the result of his own investigation carried out during his tenure as a junior fellowship under JRF programme.

I wish him success in life.

Dr.(Mrs.) D. Deka.

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At the very outset, I express my deep gratitude to the Director, ISCD for selecting me as one of the research scholars under JSTF programme. ~~It is my proud privilege to~~ I also express my indebtedness to Dr. (Mrs.) D. Deka, Reader in Geography, G.U. for her advice, encouragement and able guidance in bringing the Project Report into its present shape. I am aware of the debt ~~of~~ gratitude which I owe to other respectable ~~Sirs and Madam for their help and suggestions~~ teachers of Geography Department of Gauhati University, for their help and suggestions.

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Boro
25.4.94

(Gopal Chandra Boro)
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CHAPTER - 1

INTRODUCTION TO THE PROPOSED STUDY

1.1. Statement of the Problem :-

The growth of industries in association with the development of other ancillary activities, contributes a lot to the expansion of a town. Availability of open space, raw materials, local labour, transport accessibility, market are the main attractions for establishing an industry in a town. The town having such attractions expands rapidly covering vast agricultural fields, with houses and other industrial establishments ~~are~~ destroying the scenic ~~amenities~~ beauty.

Owing to the availability of the aforesaid advantages, a large number of medium and small scale industries have been growing up in the southern periphery of Guwahati along the National Highway-37. The development of the industries has added a new dimension to its physical and socio-economic environment. Thus the city has been expanding rapidly towards this southern periphery.

The proposed study area is mainly confined to the southern periphery of Guwahati (Particularly ward No.10 and 11) under Beltola and Jalukbari mauza especially along the N.H.No.-37 (from Jalukbari to Basistha Chariali). This area is occupied by both tribal and non-tribal villages although the tribal villages are more in number.

The impact of industrialization on the neighbouring rural areas is well marked in various spheres of socio-economic life of its inhabitants.

The National Highway No.-37 runs through the southern periphery of Guwahati in east west direction from Jalukbari to Khanapara Chariali which makes easy accessibility to Guwahati. After the shifting of Assam's capital from Shillong to Guwahati in 1972, the administrative importance of Guwahati has been increasing along with the growth of population at an alarming rate. Concomitantly the commercial and industrial activities of Guwahati also have been increasing at a faster rate. The horizontal expansion of the industries and various ancillary activities has been taking place in the Southern periphery of Guwahati at the cost of the villages along with large agricultural area. The growth of the industries has brought a marked change in physical landscape of the rural areas of this part of Guwahati. The growth of industries and commercial activities in these areas has encouraged the influx of population from different parts of the country.

The growth of various non-agricultural activities has caused pollution and other socio-economic problems resulting in insecurity of its inhabitants. The establishment of industries has brought a change in occupational behaviour of the people therein. Under such a situation diverse groups of people both in terms of religion and castes, having different

socio-cultural traditions and different degrees of cultural adaptations have brought a change in the economic and socio-cultural set up in the region.

This study is an attempt to know the extent of industrialization and how it affects the environment of the surrounding areas. It is also attempted to trace the impact on Socio-economic characteristics of the people in the region.

1.2. Objectives of the Study :-

The main objectives of the study may briefly be stated as follows :-

(1) To explore the spatio-temporal growth of various industries in the area under study.

(2) To trace the impact of industrialization on the physical environment of the area.

(3) To find out the impact of industrialization on Socio-economic character of the people of the concerned area.

1.3. Research questions to be enquired :-

In order to achieve the objectives mentioned above, the following research questions have to be enquired in the study area.

(1) What type of industries are developed in Guwahati particularly along the National Highway No.-37 ?

(2) Why the industries are concentrated in that area ?

(3) How the development of industries influence the local and outside peoples ?

(4) How the growth of industries has enchanced the development of various ancillary activities like trade & commerce, carrier services, banking, insurance etc. ?

(5) To what extent the rural character of the area changes ?

(6) In what way the socio-economic character of the people changes ?

(7) To what extent the environment is polluted ?

1.4. Methodology :-

Two fairly comprehensive questionnaries were disigned for the collection of relevant data of industries and house holds in the study area. As the area under study embraces a large number of small and medium size industries, it was an arduous task to cover all the industries for study. Hence a few important industries like manufacturing of iron & steel goods, Saw mills, biscuit factories, etc. are selectedfor a comprehensive investigation in the proposed study. A stratified random sample survey of industries has been carriedout through a prepared questionnaire for detailed collection of data. The

stratified random sampling method has also been adopted for household survey in the area under study.

The primary data from the sample has been collected through a suitable questionnaire. The secondary data relevant to the study has been collected from different offices of census, Municipal Corporations, other commercial establishments etc. The relevant literature has been collected from various books of different libraries.

The collected data has been summarised and presented with statistics, cartographic representation and necessary description and interpretation.

1.5. Significance of the Study :-

The significance of the study lies in the fact that it will help to know the extent of industrial development in Guwahati and its socio-economic impact on the people therein. It will also ~~facilitate~~ help to know the degree of urbanization in that area under study. From this point of view, the present study ~~is thought~~ can be said to have both academic and utilitarian values.

1.6. Review of relevant literature :-

A number of published literature at national and local levels ~~having a great~~ relevant to the present study is discussed below :-

At National level -

Chand and Puri[1] deal with the problems created by industrial development and trend of urban growth in India. In dealing with the process of urbanization in India, they referred to the factors of migration and urbanization. The problems of urban areas like economic problems, social problems, physical problems have been analysed, which have relevance to the present study. Yadav[2], in his book concentrated on some of the most significant problems that can distort an ideal rural-urban balance. Ramachandran[3] in his book defines the rural-urban fringe. Here, the author incorporates a number of important features of rural-urban fringe in India. He also compares India's rural-urban fringe with that of the Western. In case of Indian cities the civic facilities in rural-urban fringe are lagging behind in comparision to the cities of the Western. Tyagi[4] has given the definition of urban villages which takes there

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1. Chand, M. and puri, V.K., 1983, 'Regional planning in India', Allied publishers Ltd., New Delhi-64.
2. Yadva, C.S., 'Rural-urban Fringe' vol-9, Kalyani publishers, New Delhi.
3. Ramachandran, R., 1991, 'Urbanization and urban systems in India', Delhi Oxford University press, charter 10, pp. 296.
4. Tyagi, V.K., 'Urban Growth and Urban villages, Kalyani publishers, New Delhi.

have been incorporated into urban limits of Delhi and their land has either been notified for acquistion or acquired for various urban needs.

At Local level -

Borah[5], in her study examined the urban influence in the neighbouring areas of Gauhati city. She has described how the rural areas surrounding the Guwahati city has been changing as a result of the increasing relationship and interaction with the city. She also attempted to explore the extent and degree of the spread of Guwahati's influence on its surroundings[6] A report (1991) along with a land-use map, prepared and published by the Assam Remote Sensing Application Centre (ARSAC) has elaborated a changing pattern of urban land-use in Guwahati city during a span of twenty two years (1967-68 to 1990). It also says that although the city has grown on all sides, but the growth is more pronounced on the southern side.

Sarmah[7] in his article pointed out how ~~does~~ industries

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5. Borah, J., 1985, 'Spatial structure of urban Influence in the Neighbouring Areas of Gauhati City', Inter-India publication Ltd., New Delhi-15.
6. A.R.S.A.C., 'Satellite-Data Based Map of Guwahati City ~~A daily~~ The Assam Tribune, 24th July, 1991.
7. Sarmah, R., 'Environmental pollution : A threat from Industries of Assam', Geographical Horizon, Vol.2, 1990-91.

make pollution in Assam. Das[8] has clearly described the social and cultural status in pre-independence and early post-independence time of the people living in the southern side of Guwahati. Swargiary[9] (1994) in one of his articles has described about the life style of tribal peoples in the Southern part of Guwahati City. Here the author tried to deal with economic conditions, education, language-culture, of the tribe. He also pointed out the effect of alcohol addiction of tribes. He described the historical importance of hills & earth alignment (Garh) particularly on the Southern part of Guwahati. Neog[10] in one of his articles elaborated the problems that are increasing day by day resulting civic problems in Guwahati City. Borah[11] describes the problems of Guwahati created by the population growth and unplanned growth of the city. The author also pointed out some implementation measures in solving the problems.

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8. Das, F.Ch., 'Dakhin pachim Guwahati Anchalar Samajik Jibanat Abhumuki', Souvenir, Dakhin pachim Sahitya Sabha, 1993.
9. Swargiary, M.Ch., 'Bathoupuri : Janajati Manch Aru Chario falor parbat pahar' Souvenir, 33rd Bodo Sahitya Sabha, Assam, 1994.
10. Neog, C.Kr., 'Guwahati- Mritta Mahanagari?' A daily, Dainik Azir Batori', 1st Nov., 1993.
11. Borah, J; 'Kramabardhaman Guwahati Mahanagari: Samachya Aru parikalpana', Fortnightly magazine 'Prantik', Vol. XII, No.17, 1-15 August, 1993.

Boro[12] in one of his articles describes the present socio-cultural environment resulted from the expansion of the city with the growth of industrial activities particularly on the southern periphery of Guwahati.

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12. Boro, G.Ch., 'Socio-cultural Environment of Southern periphery of Guwahati. : A Spatial Review', Souvenir, 33rd Bodo Sahitya Sahba, Assam, 1994

CHAPTER - 2

Historical and Geographical background of the study area

2.1. Historical Background :

The area under study has a rich historical background. The history of the area and its environ dates back to the ancient times.

The present city has grown on the ruins of the ancient city of Pragjyotishpur, the capital of the Kamrup Kingdom ruled by the kings Narakashura and Bhagadatta. Upto the medieval period, Guwahati was ~~identified by the name~~ known as 'Pragjyotishpur' which meaning the city having the centre of astrological Science in the east. During the rule of Narakasura, the city perhaps had its southern boundary upto the present Narakasuragaon, while the Kalapahar Hill and Dispur areas seemed to demarcate the South-eastern boundary. For the protection of the capital, along artificial rampart (earthen rampart or garh) was constructed in a number of pieces joined with hillocks, a part of which connecting the Fatashil hill and Garbhanga reserve forest of Khasia-Jayantiya hill (Western part of the study area) is still visible in the area understudy. This long rampart is known as 'Akhor' (Demon's) 'Garh'. From the historical evidences, it is found that the 'Garh' is continued from Nilachal hill (Kamakhya temple) through Fatashil hill, the villages of 'Gorchuk' pamahi-Mainakharong, Dhalbama by taking an arch shape at Garo-ghuli (Gog) village to Khanapara -Dispur hill via Sandhiyachal hill where the Vasistha temple is located.

During the Ahom rule, the city constituted the sub-capital of the Ahom Kingdom. It ultimately became the capital of entire lower Assam. The main reason for the selection of this place as the capital of ancient as well as medieval royal dynastic was that it was well protected on all sides by the hills and rivers with a few small gaps which were closed by artificial rampart (earthen rampart or garh).

In the early 19th century with the access of the Britishers to the Ahom kingdom, Guwahati gained importance as an administravive centre and virtually it became the headquarters of the State with the residence of the Commissioner and Agents to the Governor General. Although Shillong was made the capital of the then Assam, Guwahati occupied the controlling position in political and economic fields. In 1836, the British established a town improvement committee here and actually from this period of growth of modern Guwahati did started. In 1878, the town was brought under the Municipality Board which covered an area of 6.74 square kilometers. The Municipal area of the town was increased to 7.5 kilometres with 8 wards and population of the town was 29,598 in 1940.

But when it grew both in area and population.

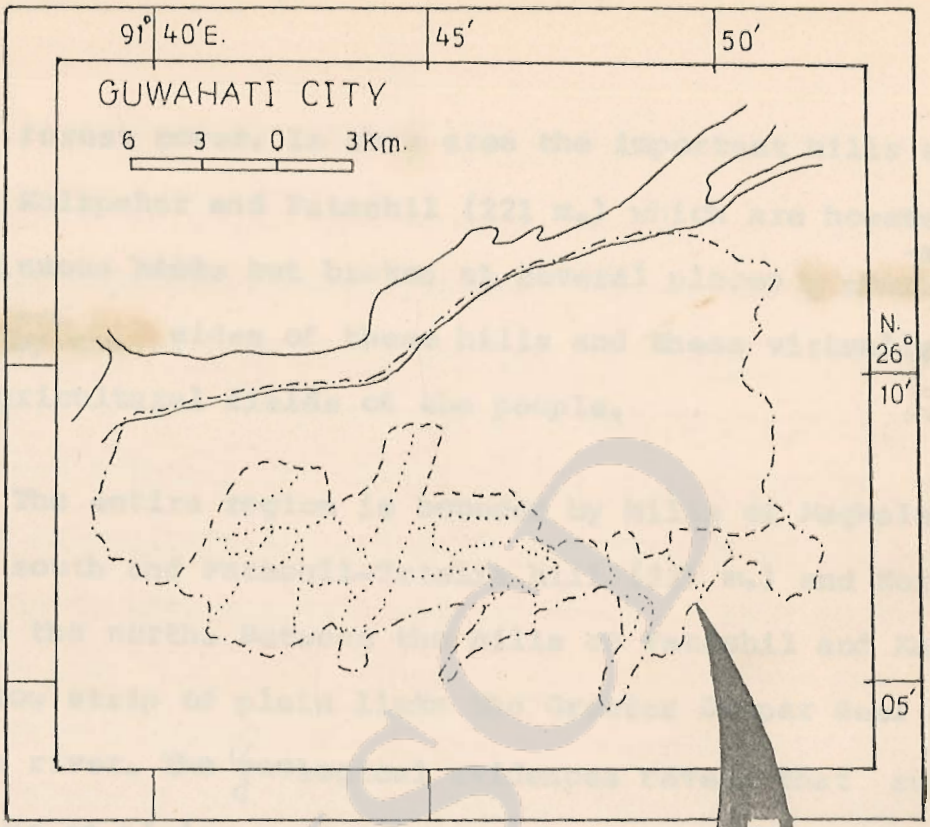
Following the shifting of State capital from Shillong to Guwahati in 1972, the city grew so tremendously that its Municipality

Board was converted to a Corporation in 1974, which covered an area of 257.09 sq.km. With 34 wards, and the population in the city raised to 2,00,377 in 1971. At present (1991), the population has increased to 5,77,591 with the area of 261.77 square kilometres. This expansion of Guwahati ultimately affected the Southern periphery where the industrial development have been growing at a faster rate.

2.2. Geographical Background :-

Location - The Southern periphery of Guwahati stretches from Jalukbari to Khanapara along the National Highway-37. This area is an outskirt of Guwahati city with new-urban landscape characteristics. In the south of this area, the Garbhanga Reserve forest is lying in east-west direction when on the western side, the Deepar Beel is located. The area of study is at an average distance of 9.5 km. from the core of the city. It lies at the intersection of 26°7'N latitude and 91°45'E longitude. Structurally this area is situated on the 50 metres thick alluvial deposits of the middle Brahmaputra valley. The hills of the Meghalaya plateau rise abruptly from here which acts as the barrier to further extension of city towards South.

Physiography - So far the physiography is concerned, neither the city nor its surrounding area presents a smooth terrain. The southern periphery of the city is bounded by hills

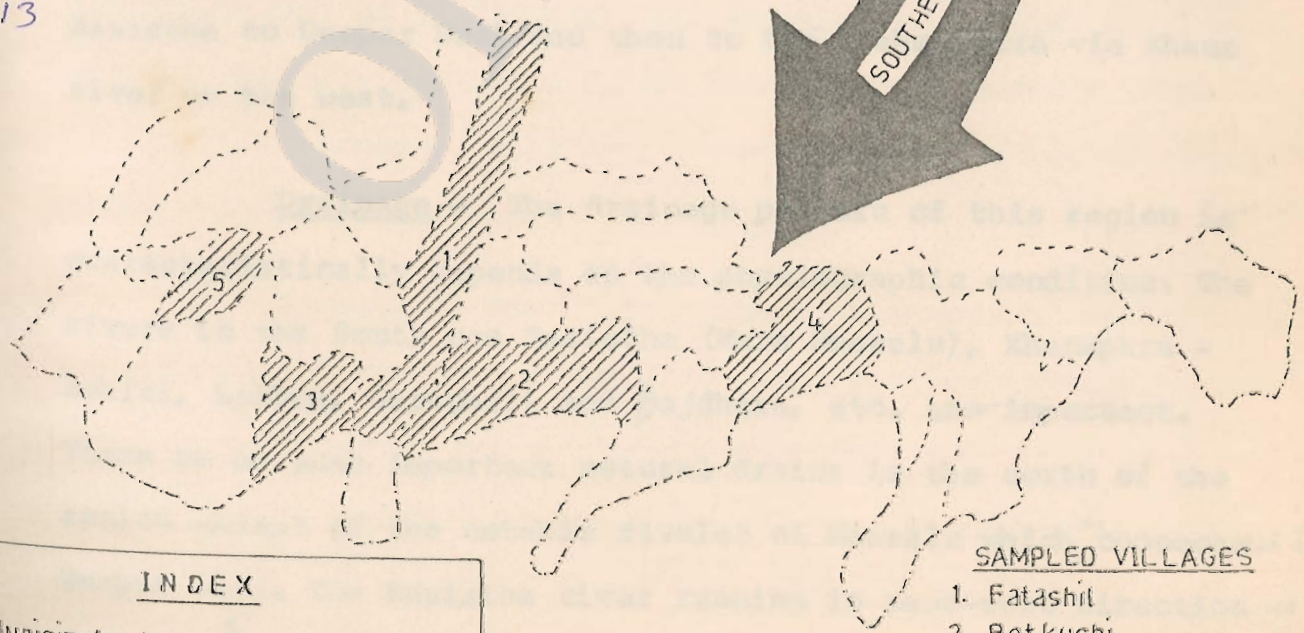


LOCATIONAL MAP OF SOUTHERN PERIPHERY OF GUWAHATI

SOUTHERN PERIPHERY OF GUWAHATI SHOWING SAMPLED VILLAGE

6 4.5 3 1.5 0 1.5 3Km.

13



INDEX

Municipal boundary

Village boundry

Sampled village

SAMPLED VILLAGES

1. Fatashil
2. Betkuchi
3. Pub-Baragaon
4. Borsajai
5. Pachim-Baragaon N.C.

with thick forest cover. In this area the important hills are Narakasur, Kalapahar and Fatashil (221 m.) which are however, not continuous hills but broken at several places by rivers and plains are located on the sides of these hills and these virtually make the agricultural fields of the people.

The entire region is bounded by hills of Meghalaya plateau on south and Fatashil-Tetelia hills (221 m.) and Narakasur hills on the north. Between the hills of Fatashil and Kalapahar, a narrow strip of plain links the Greater Deepar Beel and Brahmaputra river. The geological evidences reveal that such narrow strips of plains were submerged by the mighty Brahmaputra during the Tertiary period. So, it is believed that the Deepar Beel and Brahmaputra were linked together in that period. It is thus worth mentioning that the natural topography of Guwahati is such that main water of all the areas south of the Brahmaputra river is flowing through the rivulet, Bharalu and Basistha to Deepar Beel and then to the Brahmaputra via Khana river on the west.

Drainage - The drainage pattern of this region is characteristically depends on the physiographic condition. The rivers in the South are Basistha (Mara Bharalu), Khanapara - Bahini, Lokhra, Garughuli and Bajdhara, etc. are important. There is no such important natural drains in the north of the region except of the notable rivulet of Bharalu which is connected to Deepar Beel. The Basistha river running in east-west direction is connected to the Deepar Beel in the west. The rivers of Southern

region originate from Meghalaya hills particularly Garbhanga and Rani Reserve forests.

In this region the soil have characteristically low permeability and hence there is greater run-off of water during the peak hours of the monsoon rainfall[1]. During the peak periods of the monsoon rainfall, the rivers of the region overflow with fresh water innundating the surrounding areas. It would be worth mentioning that National Highway No.37 is running through the midst of this region and dissects the region into two parts - north and south. The natural streams which are running in the both sides of the National Highway meet the National Highway at several points and causes water logging during the summer season providing fishing grounds to the villagers of the region.

In the recent past, owing to the increase of built-up area particularly in the eastern part (Borsajai, Maidamgaon and Khanapara) of the region, the existing capacities of the natural channels are not able to carry surface run-off. This has resulted in frequent flooding of the low lying areas of the study area.

Climate - The characteristic features of weather and climate of Guwahati is more or less similar to that of the

1. Gopalakrishnan K. and Sarma S., 1989, 'An appraisal of the Hourly Rainfall Distribution in Guwahati, Assam', North-Eastern Geographer, Vol.21, No.1 and 2 p.67.

Brahmaputra valley as a whole. However, Guwahati has its own distinct ~~micro-~~ micro-climate that has been influenced by its unique physiographic conditions and location. The city and its environs is dominated by scattered hillocks and hill ranges, extensive shallow water bodies, vegetation, etc. These significantly affect the micfo-climatic conditions. Yet, the overall pattern of weather and climatic conditions of the region (and the city) shows the character of sub-tropical climate.

The monsoon season receives the heaviest rainfall in the year with July ~~being~~ having the maximum amount of rainfall ~~the rainest month with average rainfall~~ at an average of 300 mm. Rainfall is moderate to heavy, the average being 162 cm. a year.

The above climatic conditions bears a significant role on the landuse pattern of the region. ~~The~~ A agriculture here is highly dependent on rainfall pattern. The rainfall and other climatic factors influence the types and patterns of crops.

Vegetation & Forest - The vegetation growth of the region has been influenced by monsoon climate. The plain low-lying areas covered by water hyacinth and other natural vegetation are cleared off and prepared for cultivation and settlement, while the hilly parts especially the southern margin is covered by deciduous forest. The hills of Fatashil - Tetelia and Kalapahar-Narakasur stand as a barren topography without natural vegetation. New human settlement has been growing at a faster rate

in these barren hills expanding the horizontal growth of the city particularly towards the south. Besides the teak plantation on the slopes of south margin of the hilly regions, other natural valuable trees like Sal, Sisso, Khair, Simulu, Gomari etc. are ~~important to~~ can be mentioned. The groves of bamboo, betelnut and banana in most of the households present a characteristic feature of the rural landscape in the area.

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CHAPTER - 3

GROWTH OF INDUSTRIES IN THE SOUTHERN PERIPHERY OF GUWAHATI.

3.1. Locational factor of Industrial growth :

Many of the primary products of the farms, forests and mines are not ready for consumption until they have undergone a more or less complicated process of manufacturing. In its broadest meaning, manufacturing includes all those activities by which human beings change raw materials provided by nature into more useful products.

Since the latter part of the 18th Century, manufacturing as a human occupation got an unprecedented momentum with the advent of mechanical energy and the use of machine .

The term industry signifies the business activity which aims at the production, processing and fabrication of products. "An entrepreneur has to take decision of the location of his plant by considering various factors. There may have questions, 'why are industries localized in a few limited areas ? why is there so much of crowding on a few particular spots ? The promoter's reply is - 'for economy of production'[1].

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1. Guha J.L. and Chattoraj P.R., 1989, 'A new approach to Economic Geography (a study of Resources)'. The world press Pvt.Ltd., 37A, College Street, Calcutta-700073, pp.437.

A plant for its location requires careful analysis of several factors. These factors are of two types.

(i) Fundamental or primary factors, and

(ii) Secondary factors. ~~ordinarily~~ Usually primary factors exercise greater influence than the Secondary factors.

The fundamental or primary factors of industrial location and its growth are generally supply of raw materials, fuel & power, transport, market and labour. The secondary factors are climate & soil, gavernmental concessions, interest of the entrepreneur, industrial atmosphere, personal factors etc.

The Master plan of Guwahati has earmarked this area for industrial use and accordingly the entrepreneurs have established their industries by taking due permission from the Municipality Corporation. The industries of this region are mostly concentrated along ~~the 37 No.~~ No 37 National Highway and its connecting link roads which provide ~~a~~ good transport facilities. A number of industries ranging from tiny and small to medium type has been growing in this region. It is evident from the sample survey that most of the industries are of regional importance as the operational activities and the administrative management are all confined to North-Eastern region of India. A ~~few number~~ Few of industries ~~are of~~ has national importance like Coffee processing factory, North-East dye house etc.

Broadly speaking, following factors are responsible for the location of a group of industries in the region.

(1) Industrial belt of Guwahati.

(2) Far away from the city core.

(3) Transport accessiblity.

(4) Availability of open space with scattered population.

(5) Market accessiblity of Guwahati.

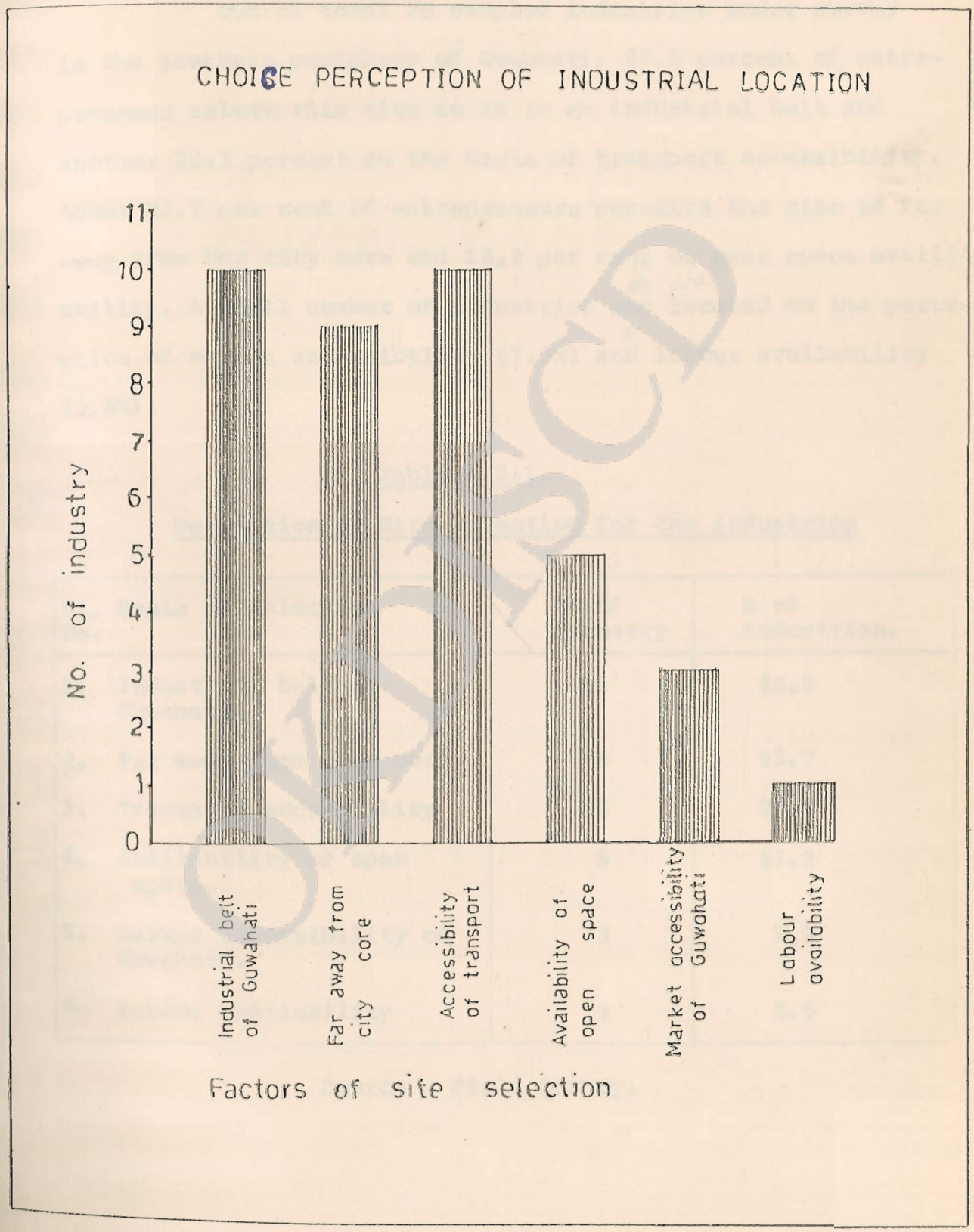
and (6) Labour Availability.

A large number of entrepreneurs have been attracted by the above factors. Those enterpreneurs are mostly from outside Assam (Andhra Pradesh, West Bengal, Rajasthan, etc.) which constitute about 60 per cent of the total entrepreneurs of the sampled industries. The rest of the entrepreneurs belongs mainly to Assam.

Perception of the site selection for industries :

The following Fig. 3.1 indicates a clear picture about the perception of site selection for the sample industries.

Figure no. 3.1


CHOICE PERCEPTION OF INDUSTRIAL LOCATION
No. of industry
0
1
2
3
4
5
6
7
8
9
10
11
Industrial belt of Guwahati
Far away from city core
Accessibility of transport
Availability of open space
Market accessibility of Guwahati
Labour availability
Factors of site selection

Out of total 20 sampled industries under survey in the southern periphery of Guwahati, 26.3 percent of entrepreneurs select this site as it is an industrial belt and another 26.3 percent on the basis of transport accessibility. About 23.7 per cent of entrepreneurs perceive the site as far away from the city core and 13.2 per cent on open space availiability. A small number of industries are located on the perception of market accessibility (7.9%) and labour availability (2,6%).

Table - 3.1.

Perception of Site selection for the industries

Sl. No.	Basis of Selection	No.of Industry	% of Industries.
1.	Industrial belt of Guwahati.	10	26.3
2.	Far away from city core	9	23.7
3.	Transport accessiblity	10	26.3
4.	Availability of open space.	5	13.2
5.	Market accessibility of Guwahati.	3	7.9
6.	Labour availability	1	2.6

Source : Field Survey.

About 75 percent entrepreneurs have established their industries in the area under study as the area is demarkated as the industrial belt which is away from the city core and have good transport accessibility. The table-3.1. also reveals that the entrepreneurs in the region give little importance to labour availability.

Moreover, the secondary factors of industrial growth like government concession, industrial atmosphere, subsidy to the industries has given impetus to the development of industries in this region.

3.2. Spatio-temporal growth of Industries :

Facts concerning the spatio-temporal growth of industries in the study area reveal that most of the industries has been growing since last twenty years in this area particularly along the National Highway and its link roads.

From the survey of 42 per cent of different types of industries it is found that the industries came into existence in the region in the mid-1970s. Since then, the industries have been growing at a faster rate. The main factors for such industrial development in that area may be (i) Shifting of state capital from Shillong to Dispur (ii) tremendous increase of population, (iii) expansion of Guwahati city, (iv) transport facility and (v) availability of agricultural lands with scattered population. Since 1970 onwards the city is

expanding towards the southern periphery with new settlements and growth of industries and its various ancillary activities. It is observed that though heavy and medium industries show a marginal increase in Greater Guwahati, but light industries have also been increased considerably and most of these have been growing up along the N.H.-37 between Basistha Chariali and Tetelia[2] and two link roads - Fatashil - Gorchuk and Lakhra - Kalapahar.

The following table 3.2 shows a temporal growth of industries in the area under study. It is revealed from the table - 3.2, that the growth of industries has been increasing since 1975 and during the period of 1985-90 about 55 per cent of industries have been grown.

Table - 3.2

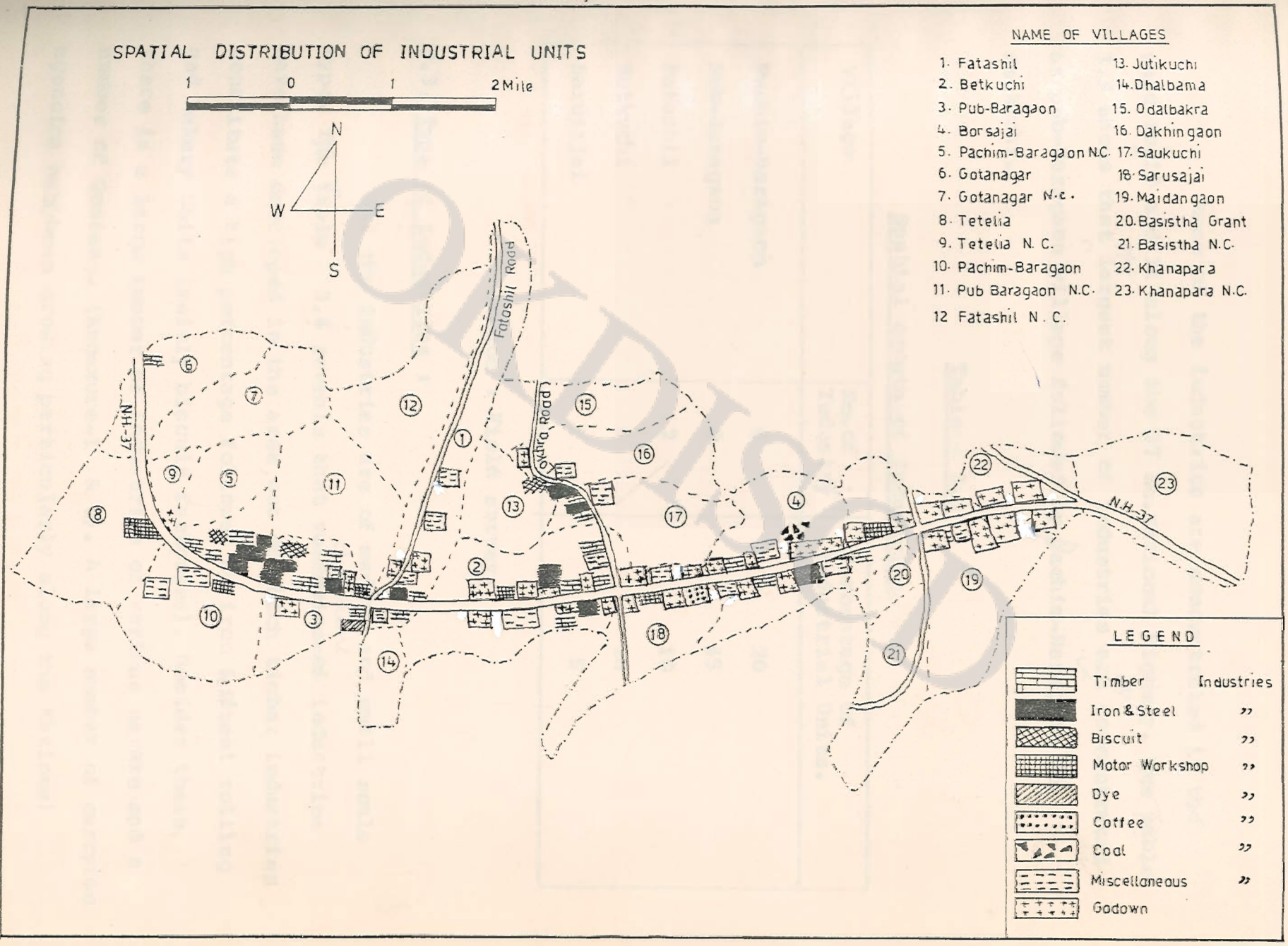
Temporal Growth of Industries

Period of establishment	No. of Industry	Percentage of Industrial Unit.
1975 - 1980	2	10
1980 - 1985	5	25
1985 - 1990	11	55
1990 - 1993.	2	10

Source : Field Survey.

2. ARSAC, 'Satellite -data based map of Guwahati City' - news topic, english daily 'The Assam Tribune', 24th July, 1991.

Figure no. 3.2



GYAN DISCOVERY

Most of the industries are concentrated in the ward No.10 and 11 along the 37 No.National Highway. The table 3.3 shows that largest number of industries are concentrated at pub-Baragaon village followed by Pachim-Baragaon and Betkuchi.

Table - 3.3

Spatial growth of Industries.

Village	No.of Industry	Percentage of Industrial Units.
Pachim-Baragaon	4	20
Pub-Baragaon	9	45
Fatashil	2	10
Betkuchi	4	20
Saruṣajai	1	5

Source : Field survey.

3.3. Type of Industries :

All the industries are of medium and small scale type. The table - 3.4 reveals that ~~varieties of~~ different industries have ~~been~~ developed in the area, out of which timber industries constitute a high percentage followed by iron & steel rolling and bakery units (mainly biscuit factories). Besides these, there is a large number of industries of various nature and a number of Godowns. (Annexure-1 & 2). A large number of carrying agencies have been growing particularly along the National

Highway resulting the growth of a large number of auto engineering works to provide the services to the carriers of different agencies. The godowns keep stock of various waste products of the city including the waste plastics, broken iron pieces, tins etc. to reutilise in various ways through proper processing.

On the basis of nature of goods produced by the industries, or in other words, the products of industry can be classified on the basis of their consumption. If they are used by the final consumers, they are called consummer's goods. Where the goods are used for further production they are

Table 3.4

Type wise Industrial units.

Sl. No.	Type	Number	Percentage of industrial units
1.	Timber manufacturing	16	27.59.
2.	Iron & Steel Rolling Mill	7	12-07
3.	Iron & steel tube manufacturing.	2	3.44
4.	Auto Engineering works	15	25.86.
5.	Motor coach factory	2	3.44
6.	Bakery industry (Biscuit factory)	3	5.17.
7.	Electrical factory	3	5.17
8.	Dye house	1	1.72
9.	Tyre Factory	2	3.44
10.	Soap silicate	1	1.72
11.	Plastic factory	2	3.44
12.	Coal coking factory	1	1.72.
13.	Cylinder factory	1	1.72.
14.	Cotton weaving	1	1.72.
15.	Coffee processing Factory	1	1.72.

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called producers' goods or capital goods. Machines, machine tools, etc. which help in further production are producers' goods. A third classification is the intermediate goods which are produced and serve as the raw-materials for other industries.

On the basis of this classification, the industries under sample survey can be divided into two types, one is the consumers' goods industries and the other is intermediate goods industries. Plastic goods, iron products, biscuits, cloths, etc. are examples of consumers' goods. Intermediate industries produces goods like, dying yarn, silicate which serve as the raw material for other consumers' goods industries.

Out of 20 sampled industries, 18 industries are found to be in the category of consumers' goods industries and other 2 industries namely North-East Dye house and Janata Silicate industry fall under the category of Intermediate goods' industries.

3.4. Size of Industries :

The relative size of small and medium scale industries can be determined by the size of its investments, employment and area covered. On the basis of these criteria, it is seen that there are different sizes of industries from a small saw mill to a big iron & steel tube industry.

A. On the basis of Investment -

The main inputs of the industries are raw-materials, power and labour which are major investments for a industry (Annexure-V). The table 3.5 gives a picture of relative size of the industries on the basis of investment criteria. About 40 per cent of industrial units have been invested from

Table - 3.5

Investment of Sampled Industries.

Capital investment per year (Rs. 00,000)	No. of industrial units.	Percentage of industrial units.
Below - 5	1	5
5 - 15	4	20
15 - 30	4	20
30 - 50	1	5
50 -100	2	10
100 -200	2	10
200 -500	5	20
Above -500	2	10

Source : Field Survey.

5 lakhs to 30 lakhs and another 40 per cent above one crore in a year. There are 15 percent units having a capital investment of 30 lakhs to 1 crore and the rest 5 per cent below 5 lakhs.

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B. On the basis of Employees' Size -

In terms of employment size, the industrial units are grouped in the table No. 3.6 . The table reveals that a large number of industries (about 47.37 per cent) employ the workers from 10 to 50 workers, and 31 per cent from 50 to 100 workers and 5 percent employ more than 100 workers. There are only 15 percent industrial units which employ less than 10 workers (Annexure-VI).

Table. 3.6

Employee's size of Sampled industries

No.of workers	No.of industrial units.	P.C.of industrial Unit.
Below - 10	3	15.79.
10 - 20	6	31-57
21 - 50	3	15.79
51 - 100	6	31.57
Above - 100	1	5.00

Source : Field Survey.

The table 3.7 shows the employees' structure of sampled industries. It reveals that 76.27 per cent workers are engaged in the industries as labourers and rest are engaged in managerial, administrative, technical, supervising clerical, and other fourth grade workers.

Table - 3.7

Employees' Structure

Employees' Structure	No.of workers	Percentage of workers.
Managerial	30	3.41
Officer	25	2.84
Technician	50	5.67
Supervisor	67	7.60
Clerk/Peon	37	4.20
Labour	672	76.28
TOTAL	881	100.00

Source : Field Survey.

C. On the basis of Area occupied by Industries :

The industries of this region have occupied different sizes of areas ranging from 200 square meteres to 29,500 sq. metres (Annexure-VI). In table 3.8, the industries are grouped according to different ranges of space area covered by these industries.

Table - 3.8

Space area of Induatrial units.

Space area (sq.mt.)	No.of industrial units.	Percentage of industrial units.
Upto - 1000	2	10.5.
1001 - 3000	5	26.3
3001 - 6000	4	21.1
6001 -10000	3	15.8
10001 -20000	2	10.5
Above -20000	3	15.8
TOTAL	19	100.0

Source : Field Suvery.

From the table. 3.8, it appears that out of 19 industrial units, 12 units (63 per cent of sampled industrial units) occupy the space area ranging from 1,000 to 10,000 square metres and 5 units (26.3 per cent of sampled industrial units) cover the space area more than 10,000 square metres (1 hectare). There are only 2 industrial units which occupy the space area below 1,000 sq.metres. The average size of the space area occupied by the industries is 8727.8 sq. metres.

Thus it appears that large space areas are occupied by a large number of industrial units. The size of the space area depends upon the needs of the industries. It also determines the size of industries. The industries occupying more than 2 hectares of space area are one Biscuit factory and the other two iron tube building industries which are relatively bigger in size. These industries are comparatively larger in terms of the sizes of its employees, space area and investment. (Annexure V & VI).

3.5. Infrastructural facilities of the Factories :

The infrastructural facilities for smooth functioning of an industry are very important. These facilities generally include water supply, lighting, car parking , sanitation, canteen facilities etc. Most of the industries have good car parking facilities and easy transport accessibility to the premises of industrial unit. The canteen facilities are

are provided to the industries where large number of workers are employed. The storage spaces for keeping raw materials as well as outputs of the industries are quite satisfactory.

Regarding water supply the industrial units have their own deep tube well facilities. No Govt. water supply is provided to the site of the industries under study.

3.6. Character of Industrial raw materials :

Raw material is the first important fundamental need to a factory. Availability and easy accessibility of raw-materials enable an industry to survive. Every manufacturing industry requires raw materials. All manufacturing starts with processing of some basic raw material which is thereby changed into a more useful form. Raw materials can be of three kinds : (i) raw materials which are not heavy and can be preserved for a long period, for example, raw cotton, chemical etc. (ii) raw materials which are weight losing and cannot be preserved for a long period, for example, fruits for juice-making, sugarcane, etc. and (iii) raw materials which are heavy, cheap and weight losing like iron ore.

The study of industrial raw-materials used by different types of manufacturing industries in the study area is mainly concerned with the type of raw materials, its source, cost, mode of carrying etc.

(1) Type of raw materials :

As mentioned earlier, there are different types of manufacturing industries in the study area. So various kinds of raw materials are used by the industries. All three types of raw materials are found in the industries viz. (i) raw materials which are not heavy and can be preserved for a long period, for example, yarn of cotton, wool & silk, plastic, chemicals, inks, dry coffee seeds, (ii) raw materials which are weight losing and can not be preserved for a long time, for example, sugar, vanaspati, milk, etc. and (iii) raw materials which are heavy, cheap and weight - losing like scrap iron, zonc, lead, wood & log, etc.

Table - 3.9

Type of raw materials for the industries

Type of raw-materials	No. of industry	P.C. of industrial units.
Material not heavy and preserved for a long period.	5	25
Material not heavy but cannot be preserved for a long time	2	10
Material heavy, cheap and weight-losing	13	65
TOTAL	20	100

Source : Field survey.

The first category (as shown in the table.3.9) of raw materials are used by the dying industry, coffee processing industry and plastic & polethene industries. The yarns of cotton, wool and silk are collected for dying by the dying industry. The various raw materials are dry coffee seeds for coffee processing industry, petro-chemicals, ink and high density polythene, etc. for the plastic items production industry and lamination products & flexible polythene bags industries. The second category of raw material is largely used by a number of Biscuit factories developed in the area. Those raw materials are weight losing and cannot be preserved for a long time. The Biscuit factories used such raw materials which include sugar, milk, vanaspati, fats, etc. From the table 3.9 it appears that most of the sampled industries (about 65 per cent) use third category of raw materials i.e., raw materials which are heavy, cheap and weight-losing. The raw materials used in the timber industries, Iron & Steel rolling, tubes manufacturing industries, electrical equipment manufacturing etc. fall under this category.

(2) Source of raw materials :

As all the raw materials are not locally available so some of these are to be procured from different parts of the country. Generally it is found that Meghalaya is the main supplier of wooden logs to a large number of Timber industries developed in the study area. The following table 3.10

depicts a clear picture about the source of raw materials used by different manufacturing industries in the Southern periphery of Guwahati.

Table 3.10

Source of Raw-material for industries

Source of raw-material	No. of industrial Units.	Percentage of industrial unit.
1. Meghalaya	5	25
2. Within Assam	3	15
3. Within Assam and outside Assam.	7	35
4. Outside Assam.	5	25

Source : Field Survey.

From the table 3.10, it appears that the industries which are growing in the area depend on the raw materials collected from local (Assam) source as well as outside Assam. About 50 per cent of sample industries are dependent on the raw materials procured from outside Assam and another 50 per cent on raw materials collected from local market Guwahati and other parts of Assam. The sources of raw materials outside Assam include its neighbouring states specially Meghalaya, ~~SAIL (Steel Authority of India Ltd.) TISCO~~, Bokaro and Gujarat, West Bengal, U.P. etc. and on companies like SAIL (Steel Authority of India Ltd.), TISCO (Tata Iron and Steel Company).

(3) Mode of carrying raw materials :

Transport is the life-line of modern industry. Transport facilities are ~~needed~~ required for bringing raw materials and distributing finished goods.

To assemble the raw materials, ~~there is a need of transport~~ proper transport facilities are required. Different kinds of transport~~s~~ation are used to carry the raw materials to the manufacturing industry located in the area under study.

The main mode of transport~~s~~ation of the industries in the area is ~~the~~ use truck~~s~~ies or lorry ~~on the surface roads~~. The 37 No. National Highway which runs through this area is the main life-line to carry raw materials as well as to distribute the out-put to different destintations. This N.H.-37 connected with other important National and States Highways provides a good transport facility. Therefore, trucks (lorries) or other surface vehicles are the main transport~~s~~ modes of ~~to~~ for carry~~ing~~ the raw materials from inside Assam as well as outside Assam. Moreover ~~the mode of rail transport is~~ railways are also used in carrying ~~the~~ raw materials for some of the industries in the region. Raw materials brought from outside Assam are generally carried by trains to 'Chansari' railway station (at a distance of 15 km. from Guwahati) of north Kamrup. Later from Chansari Rly. Station , the raw material namely H.R. Coil, Iron sheet etc. are brought to the manufacturing centre by trucks. Out of 20 sampled industries 17 industries used trucks as the main carrier of raw materials

to the factory site, while 3 sampled factories used both truck and rail for carrying raw materials to the factory site. But basically ~~above all~~, the main mode of carrying raw materials to the factory site is by trucks ~~by roads~~.

(4) Cost of raw materials :

The cost of raw materials include the value of raw materials and the cost of transport. The nature of raw materials influences the cost of transport. The cost of raw materials (Annexure-V) borne by 20 different sampled manufacturing industries approximately ranges from Rs. 1 lakh to 15 crores in a year (1992-93) . The table 3.11 shows the distribution of sampled industries by different ranges of cost of raw materials.

Table 3.11

Industry by cost of raw materials

Cost of raw material (in Rs. lakh)	No.of industrial units.	% of industrial units.
Below - 5	1	5
5 - 15	4	20
15 - 50	7	35
50 -100	0	0
100 -200	2	10
200 -500	4	20
Above -500	2	10

Source : Field survey.

The table 3.11 reveals that the cost of raw materials for 60 per cent industries is below Rs.50 lakhs and for the rest is above one crore.

3.7. Nature of Industrial output :

Output is the ultimate product of a particular industry. All manufacturing activities start with the processing of some basic raw materials which is thereby changed into a more useful form as a final products. Every industrial output has a distinguished character. Different manufacturing units produce different kinds of output. As for example, the timber industry produces wood for furnitures, house building and others purposes.

(1) Types of Output -

Different types of manufacturing industries produce different kinds of output for the individual as well as for the nation. The following table 3.12 depicts the nature of output of various industries. Under sampled industrial units,

Table 3.12

Nature of out put of sampled Industries

Name of out put products.	No. of industrial units.	P.C. of industrial units.
Timber wood	5	25
Dying yarn	1	5
Iron rods	3	15
Electrical goods (Tower, Transformer)	2	10
Biscuit	2	10
Plastic & Polythene goods	2	10
G.I.Pipes	2	10
Silicate for soap	1	5
Motor coach	1	5
Uncured coffee	1	5
TOTAL	20	100.

Source : Field Survey.

about 25 per cent of industries produces timber wood for various purposes and another 25 per cent produces iron rods, pipes etc. The rest of the industrial outputs constitutes biscuits, plastic & polythene products, Silicate for soap factories, motor coaches, Coffee, electrical equipments etc.

(2) Marketing of output -

The manufactured goods find their markets through a marketing process. The nearness of a market influences the location of an industry. Here a large number of industries have captured the regional market. A large bulk of output is locally consumed. Table - 3.13 shows that 90 per cent of output of the sampled industries are marketed within the country. Out of this, 65 per cent is confined to North East India and the rest to West Bengal, U.P., Orissa, Bihar, A.P. and Sikkim. It is important to note that 2 sampled manufacturing units send their products to foreign countries as for example the G.I. pipes mainly to Nepal and Coffee to Germany, Russia, Brazil and other European countries. Thus it reveals that the market of industrial output of this area is of regional, national and international importance.

Table 3.13

Marketing of output.

Marketing	No. of industrial units.	% of industrial units.
Within Assam	5	25
N.E.States	8	40
Outside of N.E.India	5	25
Foreign States	2	10
Total	20	100

Source : Field Survey.

(3) Mode of transport for marketing of output -

Transport is required to send the output products to the market. Different modes of transports are used to send the output products to the market by the industrial units. About 70 per cent of industries use trucks to transit good to different destinations within and outside Assam. The rest use auto cars, hand carts to local markets.

CHAPTER - 4

SOCIO-ECONOMIC PROFILE OF THE AREA

The Socio-economic profile of a region is characterised by the social and economic aspects of its inhabitants. The Social and Economic aspects of the people of a region is greatly determined by its physical and cultural environments. The influence of urbanization also gives the shape of socio-economic profile in a region. The rapid growth of industries and expansion of urban area are responsible for determining the present socio-economic profile of the region under study.

4.1. Social Profile :-

Man's social character is the product of its surrounding environ in a particular region. A social profile in a region is characterised by its population structure composed of man's caste & community, sex, literacy, population pattern, religion, language, etc and their social values.

The Southern periphery of Guwahati has a distinct social character although it has changed to a greater extent owing to increasing intersection with the city core. Though Guwahati has been an important administrative centre since the British period, the study area was far remote away from the urban social life till 1970 and the entire area was a pure agrarian society. It was dominated by the tribals and the people of backward classes. But after 1970, mainly after shifting of the State capital from

Shillong to Guwahati, the population of Guwahati has been increasing so rapidly that many new settlements have come up in these areas. The inflow of population from different parts of Assam with different social out look has brought a change in the social character of this region.

It is evident from the sample survey conducted during the field study (as shown in table 4.1), that out of 119 surveyed households, 36.95 per cent belong to the people coming from different parts of Assam and outside while 63.05 per cent are found purely indigenous. Out of 119 households, 22.7 per cent people comes from the neighbouring districts particularly from Nalbari, Barpeta, Nowgaon and Goalpara. It is also revealed by

Table 4.1

Origin of the people in Southern periphery of Guwahati

Sampled Vill.	Indigenous	Intradistrict	Interdistrict	Interstate	Total Surveyed households.
Fatashil	21	6	20	2	49
Betkuchi	20	-	1	-	21
Pub-Baragaon	17	1	2	-	20
Borsajai	13	2	3	1	19
Pachim-Baragaon N.C.	4	5	1	-	10
TOTAL	75	14	27	3	119
Percentage	63.05	11.76	22.69	2.5	100

Source : Field Survey.

table 4.1 also reveals that 2.5 per cent of surveyed households belongs to the people from outside Assam.

As for the population structure of the ared under study, it is evident from table 4.2, that the average sex ratio of the sample households is i.e. 928 females as against 1000 males, which is much higher than the corresponding figure of Guwahati city(783 females per 1000 males). The

Table - 4.2

Population structure by Sex ratio

Name of Mauza	Sampled Village	Family member			No. of females per 1000 males.
		Male	Female	Total	
Beltola	Fatashil	147	134	281	911
	Betkuchi	83	69	152	831
	Borsajai	73	67	140	917.
Jalukbari	Pub-Baragaon	57	62	119	1087
	Pachim-Baragaon N.C.	32	32	64	1000

Source : Field Survey.

Table - 4.2 also reveals that the sex ratio in the Beltola Mouza is comparatively lower than that of Jalukbari Mouza.

Age structure is another demographic character to determine the social profile of population in a region. The following table 4.3 has revealed the age structure of the study

area. About 61 per cent of total population is in age group of 15-59 years, while the rest 38.36 per cent is in the age groups of 0-14 years and above 59 years. It is revealed that in terms of age, 63 per cent of the people are able to work.

Table - 4.3

Age structure, 1993 (in percentage)

Sampled Village	Age group (in years)				Total
	0-4	5-14	15-59	> 59	
Fatashil	33(11.74)	67(23.84)	174(61.92)	7(2.49)	281.
Betkuchi	15(9.87)	38(25.0)	92(60.53)	7(4.61)	152
Pub-Baragaon	14(10.0)	31(22.14)	86(61.43)	9(6.43)	140
Borsajai	13(10.92)	29(24.37)	71(59.66)	6(5.04)	119
Pachim-Baragaon N.C.	4(6.25)	11(17.19)	43(67.19)	6(9.37)	64.
Total	79	176	466	35	756
Percentage.	10.45	23.28	61.64	4.63	100.00

N.B.:- Percentage shown in Brackets.

Source : Field Survey.

Caste & Community is another basic feature to know about the social profile in a region. As for caste & community, the following table - 4.4 has shown the structure of the 5 sampled villages. The Scheduled tribe, the largest group of people in the region includes Boro, Karbi, Lalong, Rava and

Table - 4.4

Caste & Community Structure

Sampled Village	S.T.		S.C.		Others		Total No. of households.
	No.	%	No.	%	No.	%	
Fatashil	20	40.82	12	24.49	17	34.69	49
Betkuchi	14	66.67	6	28.57	1	4.76	21
Pub-Baragaon	13	65.00	2	10.00	5	25.00	20
Borsajai	14	73.68	2	10.53	3	15.78	19
Pachim-Baragaon N.C.	1	10.00	5	50.00	4	40.00	10.
Total	62	52.10	27	22.69	30	25.21	119

Source : Field Survey

and Garo. As revealed from the table 4.4 this scheduled tribe people has constituted 52 per cent in the sample villages, while 22.7 per cent of scheduled caste and the rest of general category includes both Hindu and Muslim people.

To speak about the language of the people, although the region has largest group of scheduled tribe people, most of them (90 per cent of Scheduled tribe people) do not speak their own language and speak Assamese. It is the result of aculturation between Assamese and other Scheduled tribe groups of people. Among the S.T. groups of people the Karbis speak in their own dialect. It is seen from the table 4.5 that 81.5 per cent people speak Assamese in the region. Except the

Table - 4.5

Language Structure of the people in the Area

Sample Village	Assamese	Boro	Karbi	Bengali.	Bihari	Others.	Total No. of Households.
Fatsshil	42	2	-	5	-	-	49
Betkuchi	15	-	6	-	-	-	21
Pub-Baragaon	18	1	-	-	-	1	20
Borsajai	16	1	1	-	1	-	19
Pachim-Baragaon N.C.	6	-	-	-	-	4	10
Total	97	4	7	5	1	6	119
Percentage	81.5	3.36	5.89	4.2	0.84	5.0	100.00

Source : Field Survey.

Assamese language a few people of other languages are found in the area as depicted in the table 4.5

~~It is revealed from the~~ Table 4.6 reveals that the area under study is a Hindu dominated area where 95.8 per cent people of the sample villages are Hindus and the rest ~~is~~ are Muslim and others.

Table - 4.6

Population by Religion, 1993.

Sample Village	Hindu	Muslim	Others	Total No. of Households.
Fatashil	46	3	-	49.
Betkuchi	21	-	-	21.
Pub-Baragaon	20	-	-	20
Borsajai	19	-	-	19
Pachim-Baragaon N.C.	8	1	1	10
Total	114	4	1	119
Percentage	95.8	3.36	0.84	100.00

Source : Field Survey.

Literacy ~~is one of the basic elements of social~~ plays an important role in the development geography of an area. Educational facilities play an important role ~~on~~ in raising the standard of social life of the people in an area. The Southern periphery of Guwahati has comparatively poor educational facilities as depicted in ~~the~~ table - 4.7. It is seen from the table that Fatashil village has a ~~comparatively~~ higher number of educational institutions including a College. This village has ~~been~~ rapidly urbanized owing to ~~having~~ good transport accessibility by Fatashil-Ambari road connected to N.H. -37. In Betkuchi village a

Table - 4.7

Educational Institutions in the sample villages, 1993.

Sample Village	Primary	M.E.	High	College.
Fatashil	8	-	3	1
Betkuchi	4	-	1	1
Pub-Baragaon	1	-	1	-
Borsajai	4	-	1	-
Pachim-Baragaon N.C.	1	-	-	-

Source : Field Survey.

College has been recently established in the year 1993.

The literacy level of the sample villages are shown in the table - 4.8. The total population strength of the

Table - 4.8

Literacy structure of sample villages.

Sample village	Male		Female		Total		Total No. of popn.		
	No.	%	No.	%	No.	%	M	F	P
Fatashil	99	67.35	86	64.18	185	65.84	147	139	281
Betkuchi	51	61.45	31	44.93	82	53.95	83	69	152
Pub-Baragaon.	33	57.89	33	53.22	66	47.14	57	62	140
Borsaijai	46	63.01	38	56.72	84	70.59	73	67	119
Pachim-Baragaon N.C.	22	68.75	22	68.75	44	68.75	32	32	64
Total	251	64.03	210	57.69	461	60.98	392	364	756

Source : Field Survey.

119 sample households in the five sample villages is 756 and out of which 461 population (60.98 per cent) are found to be literates (above primary level). This overall literacy level is higher than the corresponding figures of Assam (53.42%) and all India (52.11%) respectively. The male literacy for the sample villages is 64.03 per cent which is more than the corresponding figures of Assam (62.34%) and all India (63.86%) The female literacy (57.69%) in the sample villages of the area is also higher than the corresponding figure of Assam (43.7%) and all India (39.42%). It is evident from the table 4.8 that there is a significant difference between the male literacy and female literacy. The table further reveals that the highest percentage of male literacy (68.75%) is found in Pachim-Baragaon N.C.

From a comparative analysis of literacy between 1971 (table 4.9) and 1993 (Table 4.8), it is found that the rate of literacy has been increasing to a greater extent in the sampled villages of the study area. The average literacy of 5 sample villages have been increased from 38.22 per cent (1971) to 60.98 per cent (1993).

As for the literacy of the five villages, it is observed that there is a variation of literacy rate in different villages. It is found that Borsajai village has the highest percentage of literacy out of the total surveyed villages

Table - 4.9

Literacy structure in census, 1971.

Sample Village	Male Literates		Female literates		Total		Total No.of Population		
	No.	%	No.	%	No.	%	M.	F.	P
Fatashil	1113	46.03	563	29.77	1676	38.89	2418	1891	4309.
Betkuchi	262	31.70	153	30.00	395	38.69	511	510	1021
Pub-Baragaon	141	44.06	62	22.96	203	34.41	320	270	590
Borsajai	231	58.84	115	33.33	328	46.39	362	345	707.
Pachim-Baragaon N.C.	44	24.58	14	9.15	58	17.47	179	153	332.
Total	1773	46.78	907	28.62	2660	38.22	3790	3169	6959

Source : Census 1971, Kamrup District.

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Table - 4.10

Social Amenities in the Sample villages, 1993-94.

Sample Villages	Medical/ H.C.	Power supply	Drinking water	Communication/ Transport.	Postal/ Telegraph	Market	Bank/ Insurance	Educational Institutions	Other public amenities
Fatashil	-	E	W, TW	PR, KR	PO(2)	D(3), W (1)	-	P(8), H(3), C(1)	V(1), PG(4) WP(10) PS(1), C(8), OD(1)
Betkuchi	-	E	W, F, TW, WS	PR, KR	PO(1)	D(2), W (1)	B(1)	P(4), H(1) C(1)	PG(2), WP(4), C(4), OD(2)
Pub-Baragaon	-	E	W, TW	KR, PR	PO(1)	D(1)	-	P(1), H(1)	PG(1), C(2), OD(1) PS(1), WP(5)
Borsagai	P.H.C.(1)	E	W, TW	KR	-	D(2)	-	P(4), H(1)	WP(5), C(4), OD(1), PG(1).
Pachim-Baragaon N.C.	-	E	W.F.	KR	-	-	-	P(1)	WP(1), C(2)

Source : Field Study.

Abbreviation :

Medical

P.H.C.-Primary health centre

Power supply

E-Electrified

Drinking water

W - Well
F- Fountain.
TW- Tube well.
WS- Water supply.

Communication/ Transport

PR-Pucca Road
KR-Kutcha Road

Postal/ Telegraph

PO-Post Office

Market

D - Daily market
W - Weekly market

Bank/ Insurance.

B - Bank.

Educational Institution

P - Primary school
H - High School
C - College.

Other public amenities

V - Veterinary Centre
PG - Play-ground.
WP - Worship place.
PS - Police Station.
C - Club.
OD - Oil Depo.

The govt. medical facilities are almost nil in the area udder study. There is only one public health centre (PHC) in the entire area which is located in the Borsajai village This centre caters to the need of the people of the villages within a radius of 3.7 km. (table 4.11). The villagers approach the private pharmacies for medical treatment. But generally, people prefer to go to the pharmacies of the city core area and medical hospital which are at an average distance of 10 km.

Table - 4.11

Average distance to the Hospital/Health Centre (in km.).

Sample village	Hospital	Health Centre
Fatashil	9.5	6
Betkuchi	12	2
Pub-Baragaon	11	3
Borsajai	8	2.5
Pachim-Baragaon N.C.	8	5
Total Average	9.7	3.7

Source : Field Survey.

As for drinking water, the table 4.12 reveals that well is the main source of supply of drinking water in the area where 44.09 per cent of households use pucca wells and 16.54 per cent use kutcha wells. The second important source is tube well (14.17 p.c.). The Government liberally provided the facilities of water supply under DRDA, but ultimately it

failed to serve properly. In the area, people still partially depend on natural streams for drinking as well as other purposes. Generally Karbi people of Betkuchi, Borsajai and Sarusajai

Table - 4.12.

Drinking water Facilities

Sample Village	Well		Tube well	Natural stream (Fountain)	Others (Public well, water supply, etc.
	Pucca	Kutcha.			
Fatashil	32	6	9	-	3
Betkuchi	6	6	5	6	3
Pub-Baragaon	6	5	1	4	5
Borsajai	8	3	3	3	3
Pachim-Baragaon N.C.	4	1	-	4	1
Total	56	21	18	17	15
Percentage	44.09	16.54	14.17	13.39	11.81

Source : Field survey.

and the Nepali and Garo people of Pachim-Baragaon N.C. and Pub-Baragaon N.C. villages use such streams. This total population constitutes 13.39 per cent of the sample households.

As regards transport facilities in the area, private buses are plying regularly along the N.Highway and its link roads, the frequency of which has been increasing. From the table 4.13, it appears that about 35.1 per cent students of the sample villages use buses for going to their respective educational institutes although a good percentage (40.47%)

Table - 4.13

Mode of transports used by Students

Sample village	Walking	Bicycle	Bus	Others
Fatashil	90	35	92	10
Betkuchi	38	25	43	6
Pub-Baragaon	54	20	20	1
Borsajai	35	21	35	10
Pachim-Baragaon N.C.	18	15	15	2
Total	234	116	205	29
Percentage	40.07	19.86	35.10	4.97.

Source : Field Survey

come on foot, 20 per cent by bicycle and the rest (5%) by other vehicles.

The average distance to a primary school for the students in the sample villages of the area is 1.14 km.

Table - 4.14

Average distance to Educational Centres
(in km.)

Sample village	Primary	Secondary (High/H.S.)	College	Others.
Fatashil	0.75	3.0	5.50	-
Betkuchi	1.50	3.0	10.00	-
Pub-Bagagaon	1.25	3.2	7.15	-
Borsajai	1.20	3.0	6.25	-
Pachim-Baragaon N.C.	1.00	6.5	8.00	-
Total	5.70	18.70	36.90	-
Av.Distance	1.14	3.74	7.38	-

Source : Field Survey.

The students attend a secondary School at an average distance of 3.74km. and a College at 7.38 km.

All the sample villages are electrified as revealed by the table 4.15.

The electrification to the village households was very slow till 1985. It appears from the table 4.15 that prior to 1985 only 9 households out of 90 surveyed households in three

Table - 4.15

Time of electrification to the sample villages

Sample Village	Time connection			Total electrified	Total No. of households.
	Before 1985	1985-90	After 1990		
Fatashil	6	24	9	39	49
Betkuchi	1	6	6	13	21
Pub-Baragaon	2	4	3	9	20
Borsajai	-	13	2	15	19
Pachim-Baragaon N.C.	-	7	3	10	10
Total	9	54	23	86	119

Source : Field survey.

villages viz. Fatashil, Betkuchi and Pub-Baragaon have been using electricity. From 1985 onwards a large number of village households have been using electricity. Further the table 4.15 reveals that during the period of the study, an average of 72.27 per cent households in

sample villages have been using electricity.

4.2. Economic Profile :-

The economic characteristics of the people of a region are mainly determined by their physical and cultural environment. With the change of this environment the socio-economic character also changes. The physical setting of a region gives a basic shape of economic life of its inhabitants.

The physical landscape of the southern periphery of Guwahati being composed of alluvial deposits of Brahmaputra river gives a shape of agricultural economy in the area. At present the people have diverted their interest from agrarian economy to many of the non-agricultural works created by rapid industrialization and urbanization. Moreover, many of the local people are still engaged in agriculture even after development of the area.

Table - 4.16.

No. of Households by Occupations

Sample village	Total No. of households	Agricultural	Govt. service	Daily Works.	Business	Agriculture & Misc.
Fatashil	49	8	29	3	5	4
Betkuchi	21	7	4	-	2	8
Pub-Baragaon	20	8	4	5	-	3
Borsajai	19	2	3	5	4	5
Pachim-Baragaon NC.	10	1	4	2	1	2
Total	119	26	44	15	12	22
Percentage	100.00	21.86	36.97	12.61	10.08	18.49

Source : Field survey.

As regards economic characteristics of the people of the sample villages, it is found that out of the total households 21.86 per cent are primarily engaged in agriculture and 18.49 per cent in agriculture alongwith other economic activities (Table 4.16). The table also reveals that about 12.61 per cent work as daily labours. The non agricultural activities mainly include govt. service, trade & commerce, daily wage earner, etc. The table 4.16 further reveals that 37 per cent are govt. service holders, 13 per cent are daily wage earners and 10 per cent are engaged in business and commerce.

Table - 4.17

Sex-wise workers and non-workers

Sample Village	Workers			Non-workers			Total population
	M	F	Total	M	F	Total	
Fatashil	54	2	56	93	132	225	281
Betkuchi	39	4	43	44	65	109	152
Pub-Baragaon	29	4	33	28	58	86	119
Borsajai	38	3	41	35	64	99	140
Pachim-Baragaon N.C.	13	1	14	19	31	50	64
Total	173	14	187	219	350	569	756
Percentage	92.4	7.5	24.7	38.5	61.5	75.3	

Source : Field survey.

About 24.7 per cent out of total population in the sample villages are engaged in different works as shown in the table 4.18, while 75.3 per cent are non-workers. Thus the dependancy ratio is 300 non-workers per 100 workers. The table 4.17 also reveals that amongst the workers in the villages the

Table - 4.18

Persons in terms of occupational categories

Occupational category	Sample village					Total workers in P.C.
	Fatashil	Betkuchi	Pub-Baragaon	Borsa-jai	Pachim Baragaon N.C.	
Pure cultivator	8	12	8	8	2	20.3
Pure Govt. service	29	9	4	14	8	34.2
Pure daily worker	4	6	10	3	-	12.3
Pure Business & commerce	9	6	2	7	2	13.9
Cultivator & others	2	5	6	6	1	11.2
Govt. service + others	2	2	3	2	1	5.4
Daily workers + Others	1	1	-	-	-	1.1
Business & Commerce + others.	1	1	-	1	-	1.6

Total worker population = 187.

Source : Field Survey.

female workers are found insignificant which accounts only 7.5 per cent. The workers are engaged in different occupations as shown in the table 4.18. It reveals that 20.3 per cent working population are engaged purely in agriculture, 34.2 per cent purely in Govt. service, 12.3 per cent solely as labourer, and 13.9 per cent solely in business & commerce. There are 11.2 per cent workers who are basically occupied as cultivators with some subsidiary works like Govt. service, daily labour or business and commerce. A small percent of population(5.4%) are basically occupied in Govt. service but they do cultivation and labour work as subsidiary occupation. A very little percentage of population who are engaged basically in business & commerce and daily labour works have subsidiary works like cultivation.

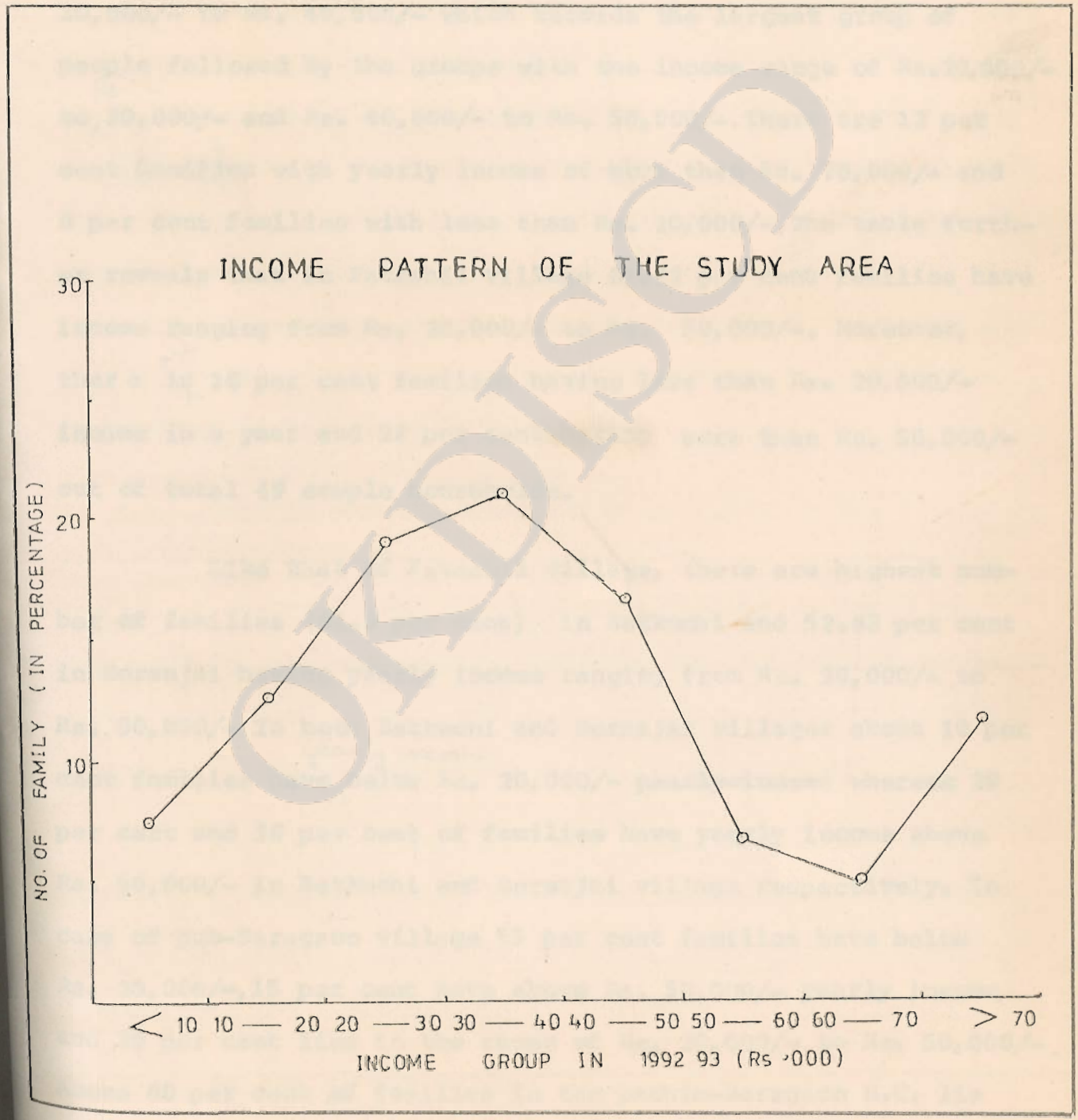
Table - 4.19

Income pattern of Surveyed Households, 1992-93

Sample village	No. of Sample family	Income Group (Rs. ,.000)/year)							
		< 10	10-20	20-30	30-40	40-50	50-60	60-70	70 >
Fatashil	49	3	5	8	12	10	1	6	4
Betkuchi	21	1	1	4	4	5	2	-	4
Pub-Baragaon	20	5	6	4	2	-	2	-	1
Borsajai	19	-	2	4	2	4	3	-	4
Pachim-Baragaon N.C.	10	-	1	3	5	-	-	-	1
Total	119	9	15	23	25	19	8	6	14
Percentage	100.00	7.56	12.61	19.33	21.01	15.97	6.72	5.04	11.76

Source : Field survey.

Figure no. 4.1



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The table 4.19 reveals that the 21.01 per cent of families of the sample villages have a yearly income of Rs. 30,000/- to Rs. 40,000/- which records the largest group of people followed by the groups with the income range of Rs.20,000/- to 30,000/- and Rs. 40,000/- to Rs. 50,000/-.There are 12 per cent families with yearly income of more than Rs. 70,000/- and 8 per cent families with less than Rs. 10,000/-.The table further reveals that in Fatashil village 61.22 per cent families have income ranging from Rs. 20,000/- to Rs. 50,000/-. Moreover, there is 16 per cent families having less than Rs. 20,000/- income in a year and 22 per cent having more than Rs. 50,000/- out of total 49 sample households.

Like that of Fatashil village, there are highest number of families (61.9 per cent) in Betkuchi and 52.63 per cent in Borsajai having yearly income ranging from Rs. 20,000/- to Rs. 50,000/-.In both Betkuchi and Borsajai villages about 10 per cent families have below Rs. 20,000/- yearly income whereas 29 per cent and 36 per cent of families have yearly income above Rs. 50,000/- in Betkuchi and Borsajai village respectively. In case of pub-Baragaon village 55 per cent families have below Rs. 20,000/-,15 per cent have above Rs. 50,000/- yearly income and 30 per cent lies in the range of Rs. 20,000/- to Rs. 50,000/-. Above 80 per cent of families in the pachim-Baragaon N.C. lie in the income range of Rs. 20,000/- to Rs. 40,000/- and about 10 per cent both in the income below Rs.20,000/- and above Rs. 50,000/-.

From the above income level of the peopleof sample villages, it is found that there is highest percentage of people having income above Rs. 50,000/- in Borsajai village (36 per cent of families) followed by Betkuchi (29% of families) village. It may be due to the fact that in both the villages the people are engaged in various commercial and business activities apart from agriculture. In Pachim-Baragaon N.C. has lowest percentage of having yearly income above Rs. 50,000/- because the people of this village have no agricultural land and due to lack of transport accessibility the village have little scope for commercial or other allied activities.

Land is the basic reasource for human being. Its utilization shows a neciprocal relationsship between the prevailing ecological conditions of a region and man. Land is found in various uses like cultivation, pasture, barren, orchard fallow, waste, cultivable waste, settlment , forests, water bodies, etc. depending on the varied conditions of terrain and soil types.

The study of landuse is of prime importance for the knowledge of socio-economic development and level of cultural advancement of the people. The economic development of a region depends upon the intensive use of the land.

As for landuse pattern of this study area, unlike the city core this peripherial area has agricultural land although this has been gradually converted to other non-agricultural

activities and built-up areas. The cultivated land may be grouped into three important categories viz. (a) own, (b) Leased in and (c) leased out. The land owned and leased in makes the total operational holding under agricultural use. A large part of land are cultivated by borrowing the land in lease either from landowners (living in the city) or local villagers. Since independence of the country the land belonging to a large number urbandwellers give their land in lease to the village cultivators. A large number of villagers also give their land in lease to some of the village cultivators, as their interest have been diverted to some of the profitable and easy non-agricultural activities.

Table - 4.20

Land use pattern of sample villages
(in hectare)

Sample village	Built-up	Cultivated	Industrial
Fatashil	7.41	17.93	.4688
Betkuchi	5.58	21.47	2.79216
Pub-Baragaon	5.19	13.24	9.30162
Borsajai	6.86	13.51	-
Pachim-Baragaon N.C.	2.09	0.40	-
Total	27.13	65.55	12.56

Source : Field Survey.

~~The~~ Table 4.20 gives a clear picture of land under major uses. From ~~the~~ table 4.20, it is revealed that the land under cultivation in sample villages is 62.2 per cent. Again the land under buil-up area and industrial development are 25.78 per cent and 11.93 per cent respectively.

All the above socio-economic character of the area and its inhabitants indicate a ~~sur~~-rural character of the socio-economic profile.

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CHAPTER - V

IMPACT OF INDUSTRIALIZATION ON THE AREA

Environment denotes the sum total of conditions that surround man. This environment is both physical (natural) and socio-cultural (man-made). Physical environment implies geographical location, topography, inland water bodies, coast-line, climate, soil, animals, vegetation, minerals, etc. Socio-cultural environment is the product of man's actions on nature.

The growth of industries plays a vital role in the socio-economic development of a region. Industry, an integral part of our social order, is expected to be responsive to environment where it appears. This implies a fairly high degree of sensitivity to events and happenings, many of which are out of the control of the managements.

Industrial growth and social well-being are not synonymous. Indiscriminate and unplanned growth of industries may have adverse impact on the quality of life.

5.1. Impact on physical Environment :

Indiscriminate unplanned growth of industries may have adverse impact on its surrounding physical environment. It may create ecological imbalance in a particular area. Some of the industries release smoke & smell and some creates noise and some disposes waste materials from its premises (Table-5.1) All these things pollute not only the physical environment

but also the socio-cultural and economic environment.

Presently, the growth of industries in the southern periphery of Guwahati has been posing poses a threat and challenge to the physical environment, the agricultural fields, dwelling sites and wetlands.

The industries developed in the study area are based on forest, scrap iron, coal and so on. Most of these industries are unplanned so far pollution is concerned. The effluent gaseous particles discharged from some of the industries affect the atmosphere directly and to the open agricultural fields around the industries.

The industries like iron & steel goods manufacturing units through boiling of coal, iron ignots and scrap iron and coke industries through ignition of methene gas during the burning of coal for purification and silicate producing industries release gaseous particles to the atmosphere in the area around it, while liquid and solid waste materials are dispersed to the land and water nearby. Some times it is observed that the gaseous particles released from industries have spread over the villages for a long time, which greatly affects the village dwellers as these industries are closely located near with the human settlements in the villages. This type of air pollution adversely affects the green fields of agriculture as well as the human health.

During the rainy season when the area is inundated with flood water the disposed waste materials of some of the industries find their way to the rivers which cause sufficient harm to man, animals and fishes of the rivers and beel (Deepar Beel).

Most of the industries have no scientific arrangement for the disposal of waste materials. All these waste materials are deposited in the nearby low-laying areas. These deposits are washed away during rainy season and damage the agricultural fields.

The manufacturing industries of iron & steel goods like tube, rods and others have created the noise pollution in and around the factory. A number of saw milling industries developed in the area have also created noise pollution. The wooden powder released from the saw mills and dust particles created by the stone crushing industries pollute the atmosphere to a greater extent. The table - 5.1 indicates that 75 per cent of total sample industries produce pollution in different forms like smoke, noise, water borne effluent and smell. About 53.3 per cent out of 15 sample industries produce pollution in a single form like noise or smell, or smoke or water borne effluent and 46.7 per cent create pollution in two or three forms. Thus the industrial growth of the region has been creating a pollution impact on the physical environment and directly or

Table - 5.1

Pollution Effect of Industries

Pollution	No. of industrial units.	% of industrial units.
Noise	4	26.67
Smoke	2	13.33
Smell	1	6.67
Water borne	1	6.67
Smell + Smoke	1	6.67
Water borne + Smoke + noise.	1	6.67
Smell + Noise	1	6.67
Smoke + Noise	2	13.33
Water borne + Smoke	1	6.67
Water borne + Noise	1	6.67
TOTAL	15	100.00

Source : Field Survey

indirectly on the quality of human health.

The growth of industries in the southern periphery of Guwahati have affected the landscape of hills and low-laying areas. Because most of the industries have been growing at the cost of low laying agricultural land. Each of the industries occupies an area ranging from .02 hectare to 2.95 hectares. For the preparation of industrial site, the low-laying areas have been filled by earth cutting from the nearby hills. Earth cutting

and filling of low lying areas has been done not only for the preparation of industrial site but also to fill up the land for rapidly growing other commercial establishments and new settlements. Therefore, the earth cutting on the hill slopes is a common feature in the area under study. Thus the green forests have been damaged and lead a barren topography resulting high degree of run-off and mud flow in the area. The stone quarrying, vegetation destruction for fuel wood or fencing of the house compounds, haphazard growth of settlements on the hills have greatly damaged the hills of the area. These are the direct impact of the rapid growth of industries and its ancillary activities on its physical environment.

During rainy season, water borne industrial waste effluent alongwith large volume of waste and polluted water of city released through Bharalu rivulet ~~have been~~ spreaded over the entire area affecting adversely the agricultural lands in the region and sometimes causing damages to the crops and reducing productivity of soil. Thus a major impact falls on the physical environment of the area.

5.2. Impact on Socio-Economic life of the People :-

The southern periphery of Guwahati was largely dominated by tribal and other backward classes of people till 1970. Since then the importance of the area has been increasing commercially and industrially resulting an influx of population from

various parts of Assam and outside for settlement. All these growths are responsible for transforming the character of purely agrarian society to a rur-urban society. The people of different communities coming from different places having different social out looks and life styles have influenced the local people. Consequently the local tribal people have been losing their own identity and culture.

Table - 5.2

No.of households migrated to the sample villages for permanent settlement

Time category	Fatashil	Betkuchi	Pub-Baragaon	Borsajai	Pachim-Baragaon N.C.
1965 - 70	4	-	-	-	-
1971-75	2	1	-	-	-
1976 - 80	3	-	-	2	-
1981-85	5	-	1	3	1
1986 - 90	9	-	2	-	4
1990	5	-	1	-	-

Source : Field Survey.

The table - 5.2 shows the population which have migrated to the sample villages from various parts of Assam and settled permanently. It is evident from the table that since 1970 onwards the people started to come to this area for permanent settlement and such permanent settlements are mostly found in the Fatashil Village.

The table 5.3 shows the religion and community structure of the employees of the factories. It reveals that 76.62 per cent of Assamese Hindu including Scheduled Tribe employees are found in the 19 sample industries. From outside Assam 19.18 per cent of Hindu employees are also found in the factories

Table - 5.3
Religon & Community structure of employee

Religion & Community	No.of Employee	% of employee
Assamese Hindu (including S.T.	675	76.62
Other Hindus	169	19.18
Others	37	4.20
Total	881	100.00

Source : Field Survey.

which includes Bengali, Bihari, Marwari, Sikh, etc.

The changing pattern of cooking fuel used by the villagers is one of the indicators to findout the impact of urbanization on the daily life of people in the area. The table 5.4 have shown the changing pattern of cooking fuel material used by the villagers. It is revealed from the table that 10 years back the entire population of the sample villages used fired wood for cooking purposes, and in 1994, 71.4 per cent people are still using fire wood resulting in the damages of

Table - 5.4

Changing pattern of cooking fuel used in the Area.

Fuel Material	Fatashil		Betkuchi		Pub-Baragaon		Borsajai		Pachim-Baragaon.	
	1984	1994	1984	1994	1984	1994	1984	1994	1984	1994
Fire wood	47	24	21	20	20	19	18	15	8	7
L.P.G.	1	24	-	22	-	2	-	3	2	3
Kerosene	7	4	-	-	-	1	1	2	-	2
Others	-	-	-	-	-	-	-	-	-	-

Source : Field Survey.

natural forest area nearby. This use pattern of cooking fuel also indicates the poverty level of the local people and slow urbanization in the area.

Industrialization in the area under study has greatly influenced the economic life of the people therein. The pattern of economic activities of people living in the region has been gradually changing with the rapid growth of industries. It has changed the traditional way of livelihood from agriculture to a new economic life.

The people who have been living there since a very long period are generally of agrarian society. Inspite of rapid urbanization in Guwahati and industrial growth in that area under study, a small section of indigeneous people still practise agriculture for their livelihood. Prior to 1970 nearly 90 per cent people of that area were dependent on

agriculture. But after shifting of the State capital from Shillong to Guwahati in 1972 the urban growth has been expanding towards the southern periphery of Guwahati and an industrial belt has been growing along the National Highway-37.All these developments have moulded the agrarian character to the rur-urban character. The rapid urbanization and industrialization have been growing so rapidly in that area that very soon the rur-urban character may be transformed to a purely urban character.

Table 5.5 shows the families dependent on agriculture and other than agriculture in the sample villages of the region. It is revealed from the table that the families of non-agricultural class have out numbered the families of agricultural class which is only one-fourth of the total sample families. The two important causes for such a high percentage (Table 5.5) of workers in non-agricultural actives are :

Firstly, the large agricultural land holdings have been gradually fragmented into small holdings among family members resulting a decline in interest on agricultural activities.

Secondly, the growth of industries and its ancillary activities have attracted the people of that area to earn their livelihood from different non-agricultural sources of income leaving aside their agrarian identity.

Table - 5.5

Economic character of the people in the Area under study

Sample village	Total no. of sample village	No. of agriculturist	No. of non-agriculturist.	% of agriculturist	% of non-agriculturist.
Fatashil	49	5	44	10.20	89.80
Betkuchi	21	7	14	33.33	66.67
Pub-Baragaon	20	7	13	35.00	65.00
Borsajai	19	4	15	21.05	78.95
Pachim-Baragaon N.C.	10	1	9	10.00	90.00
Total	119	24	95		
Percentage	100.00	20.17	79.83.		

Source : Field survey.

The development of industries and other commercial activities as well as rapid growth of human settlement have given an impetus to grow a number of daily markets in different transport focal points of the area where from people buy their necessities. Besides taking the advantage of these daily markets, people of the region also avail weekly markets of Beltola (Sunday & Thursday), Katahbari (Tuesday), Betkuchi (Wednesday) and Maligaon - Kamakhya Railway station (Friday) located at an average distance of 3.4 km. Generally people prefer to go to the nearby small daily markets, grown nearby. The petty traders dealing with vegetables, fishes and other daily necessities

in these small daily markets cater to the needs of the people in the area.

The following table 5.6 gives a picture of average distance to the market from each sample village. From the table it appears that most of the small daily markets are

Table - 5.6

Average distance to the markets (in km.)

Sample village	Daily market	Weekly market
Fatashil	1.5	3
Betkuchi	1.0	5
Pub-Baragaon	1.2	3
Borsajai	1.7	2
Pachim-Baragaon N.C.	3.0	4
Total average	1.68	3.4

Source : Field survey.

located within an average distance of 1.68 km. Mostly people come to the daily markets on foot to procure day-to-day necessities as revealed from the table - 5.7. After the introduction of bus services in the area, the people generally come to the weekly markets by bus as seen from the table - 5.7. A large number of people use bicycles as one of the cheapest modes of transport.

Table - 5.7

Mode of transport to the markets used by the villagers.

Sample Village	For Daily market				For weekly market			
	Walk-ing.	Cycle	Bus	Others	Walk-ing	Cycle	Bus	Others
Fatashil	21	8	10	10	1	15	28	5
Betkuchi	15	5	-	1	10	2	7	2
Pub-Baragaon	15	5	-	-	8	8	4	-
Borsajai	15	3	-	1	-	1	16	2
Pachim-Bagagaon N.C.	1	8	-	1	-	9	-	1

Source : Field Suvery.

With the growth of industrial belt in the area under study the demand of rented houses have been increasing. About 81.6 per cent of total employees of 19 factories live outside the factory premises. It is important to be noted that most of the employees of the factories come from different places and live in the rented houses of the villages nearby as revealed by the table 5.8. The table shows that out of 81.61 per cent employees residing outside the factory premises, 62.7 per cent employees are residing in the rented houses out of which 84.92 per cent in rented houses of the southern periphery of Guwahati and the rest in the city core area and in the area outside the G.M.C. boundary.

Table - 5.8

Factory Employees' dwelling arrangement

Outside the factory premises					Total	Inside the factory premises in Total.
Peripherial villages	Dweller in Rented house	%	Dweller in own house.	%		
Gotanagar	12		13		25	
Tetelia	20		16		36	
Pachim-Baragaon N.C.	31		42		73	
Pachim-Baragaon	80		18		98	
Pub-Baragaon	145		82		227	
Fatashil	38		40		78	162(18.4%)
Betkuchi	57		12		69	
Total in peripherial villages	383	63.3	223	36.7	606	
City core	68		24		92	
Neighbouring Villages outside the G.M.C. boundary.	-		21		21	
	451	62.7	268	37.3	719 (81.6%)	

Source : Field Survey.

This has resulted in an increasing source of income derived from renting letting the houses by many of the villagers. Such houses constructed by the villagers are not only used for dwelling purposes, but also for the other commercial activities.

From the Table 5.9, it shows that 21.84 per cent of total households have separate kitchen houses but the rest have no separate kitchens. A very little per cent (3.5%) of R.C.C. dwelling houses are found in the region. Most of the dwelling houses (36%) in the villages are purely 'Kutcha' having floor and wall with earth (mud) and 34.5 per cent dwelling houses are 'Pucca' having cement plustered wall, floor and tin roof and 26 per cent dwelling houses are 'Semi-pucca' with concrete wall and earth floor. 26.05 per cent of total households have cowshed in the sample villages, Rare cowsheds.

It is found from the table 5.9 that the number of 'Kutcha' houses (in case of rented house) are more as compared to the pucca houses in the area. This house type pattern indicated the poor standard of the people and slow urbanization in the area.

About 71.9 per cent employees are having within a reach of 1 to 2 km. and so 56.6 per cent of workers are able to come on foot and the rest by cycles, buses, and other vehicles as revealed by the table 5.10 .

Table - 5.9

Housing pattern of the Sample villages

Sample Village	Dwelling House pattern				Total	Kitchen (Separate from Dwelling house.	Cow Shed	Rented House pattern			
	RCC	Pucca	Semi pucca	Kutcha				Rented for Dwelling		Rented for shops	Rented for others.
								Pucca	Kutcha		
Fatashil	4	38	13	20	75	5	9	6	5	8	6
Betkuchi	2	10	15	23	50	10	6	-	11	3	4
Pub-Baragaon	-	6	12	16	34	4	7	1	8	-	-
Borsajai	1	9	10	9	29	6	5	4	9	2	2
Pachim-Baragaon N.C.	-	6	2	4	12	1	4	-	1	-	-
TOTAL	7	69	52	72	200	26	31				

Source : Field Survey.

Table - 5.10

Mode of travel to the factories (For Employees)

Distance (km.)					Total outside employee	Travelling mode of Employee.			
< 1	1-2	2-3	3-4	> 4		Foot	Cycle	Bus	Others.
451	66	48	8	146	719	407	192	89	31
62.7%	9.2%	6.6%	1.1%	20.4%	100.00%	56.6%	26.7%	12.4%	4.3%

Source : Field Survey.

With the growth and development of industries and other commercial activities as well as growth of human settlement in the region, the local youths have been inspired to take up some petty business activities like earth carrying (for land filling by trucks) establishing petty retail shops, daily wage earnings, etc. Many business men from within and outside Assam have been coming to this area bringing a new socio-economic dimension to the area. Gradually banks, post offices and other financial institutions have been coming up in this area to meet the growing demands of the settlers of the area. At present the people of the villages get the services of banks and post office within their easy reach with an average distance of 2.5 km. as shown by the table 5.11.



Liquid borne effluent released off without effluent treatment from an industry at Betkuchi Village.



Water borne effluent accumulated at low-lying neighbouring area in a factory at pub-Baragaon.

OKDIFCD



Earth cutting on hill slope near
National Highway at Sarusajai vill.



Industrial Smoke spreading in the
atmosphere around the dwelling place.

OKDIPCD



A timber industry showing heaps of pine log in the study area.



Auto-engineering workshops along the N.H.- 37.



A timber industry showing heaps of pine log in the study area.



Auto-engineering workshops along the N.H.- 37.

OUDCD



Water logging resulted after earth filling near National Highway at Betkuchi village.



Traffic jam by the trucks on the National Highway.

CWDSCD



Growth of industrial and commercial sites at the cost of agricultural field.



The junction point of rivers Basistha-Bahini and Bharulu rivulet at Fatashil village near N.H.-37.

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CHAPTER - 6

SUMMARY AND CONCLUSION

This research project is on the study of the industrial development in the southern periphery of Guwahati and its impact on the physical environment and the socio-economic character of the peoples of the area. The whole work is summarised as follows :

The study area is mainly confined to the southern periphery of Guwahati particularly the ward No. 10 & 11 under Beltola and Julukbari Mouzas. The significance of the study of this area is that a large number of industries have been growing in that area particularly in those two wards along the National Highway and other approach roads. It is important to assess the impact of these growths on the physical as well as socio-economic condition of the area. Therefore through this study an attempt has been taken to evaluate its impact on the area and from this point of view the study has a great significance.

6.1. Summary :

The study report begins with the explanation of the problem, objectives, research questions to be enquired, the techniques and methods of study, its significance and a brief review of the relevant works.

A brief historical background of the study area is stated to know its actual growth and development. The historical significance of the present study area dates back to the reign of the kings Narakasura and Bhagadatta. The present Guwahati city which was known earlier as Pragjyotishpur, was the capital of their kingdom. During the reign of the said kings a long earthen rampart was constructed by joining the small hillocks together in order to protect the city Pragjyotishpur, the capital of Kamrup from the foreign invaders. The remnants of that earthen rampart are still lying in the southern periphery of Guwahati. In the early 19th century, Guwahati gained importance as an administrative centre and virtually it became the head quarters of the state during the British period. In 1878, the Guwahati town with an area of 6.74 sq.km. was brought under the Local Board. The area of Guwahati under Municipalty was expanded to 7.5 sq.km. with 8 wards in 1940. In post independence period specially after the shifting of the state capital from Shillong to Guwahati, the town grew so tremendously and its Municipalty had to be converted to a corportation in 1974 with the coverage of an area of 257.09 sq.km. divided into 34 wards. The area was again expanded to 261.77 sq.km in 1991 and the population of the city also simultaneously increased to 5.77 lakhs in 1991. This expansion of Guwahati have been taking place towards the direction of southern periphery affecting the natural environment and the original socio-economic set-up of the area.

The geographical background of the study area has been presented refering to its location, physiography, drainage, climate, soil and vegetation. The location of the study area is confined to the southern periphery of Guwahati stretching from Basistha Chariali to Jalukbari Chariali along the National Highway-37. The area stands on the alluvial deposit in the south bank of Brahmaputra river. The area is bounded by the Garbhanga Reserve forest on its south in east-west direction, a number of hillocks on the north and the Deepar Beel on the west.

The Basistha - Bahini river flows down from the Garbhanga Reserve forest and runs through the middle of the region and meets Deepar Beel. There are also a number of small natural streams in the area. The monsoon season receives the heaviest rainfall in the year with an average rainfall of 300 mm. The Rani and the Garbhanga, the two reserve forests lie in the south of the region. The hillocks lying in the north of the area are found barren having no natural vegetation. Human settlements have been growing fast on these barren lands.

The socio-economic background of the region is studied on the basis of the investigation performed through sample survey. This study deals with different socio-economic aspects of the people of the area.

Till 1970, the entire area under study had a pure agrarian society of mostly tribal and other backward classes of people. The scheduled Tribe, the largest group of people in the region includes Boro, Karbi, Lalong, Rava and Garo. As revealed from the study, the S.T. people constitute 52 per cent followed by S.C. (22.7 per cent) and rest belongs to the general group. The area is a Hindu dominated area.

With the shifting of the state capital from Shillong to Guwahati in 1972, the population of Guwahati has been increasing very rapidly and as a result many new settlements have come up in this area. From the study it is revealed that 36.95 per cent population belong to migrated people from different parts of Assam and its outside while 63.1 per cent belong to the indigenous tribal and other classes of people.

The average sex ratio of the sample households is 928 females per 1000 males which is much higher than the corresponding figure of Guwahati (783 females per 1000 males).

The southern periphery of Guwahati has comparatively poor in educational facilities. It is also found that Fatashil village has comparatively higher number of educational institutions owing to its good transport accessibility. The literacy rate of sample villages are found to be quite unsatisfactory. There is 40 per cent of the people are still under primary educational level.

As for the provision of social ammenities like drinking water, markets, banks, post offices, health centre etc. the area is poorly served. A number of daily markets at the focal points of the roads have been growing to cater to the needs of the people. Apart from the daily markets the area is also served by a number of weekly and bi-weekly markets.

The physical landscape of the southern periphery being composed of alluvial deposits of Brahmaputra river gives a shape of agricultural economy in the area. At present the people from agrarian economy has been divirted to many of the non-agricultural works created by rapid industrialization and urbanization. The sample of people reveals that 21.85 per cent of people is primarily engaged in agriculture, 1.8 per cent in agriculture along with other economic activities and the rest is purely on non-agricultural works which include govt. service, daily wage earning and business activities.

As for the income level of the people of the area, the largest group is found in the range of Rs. 30,000 to Rs. 40,000 yearly income. There are 12 per cent families with yearly income of more than Rs. 70,000 and 8 per cent families with less than Rs. 10,000

As for the land-use pattern of the study area, unlike the city core this peripherial area has agricultural land although this has been gradually converted to other non-agricultural use. The major uses are under the built-up area and industrial growth.

The industries of this region are mostly concentrated along the National Highway - 37 and its connecting link roads which provide a good transport facility. A number of industries ranging from tiny & small to medium type has been growing in this region. It is evident from the sample survey that most of the industries ~~are of~~ has regional importance. A few ~~number of~~ industries ~~are~~ has of national importance like coffee processing factory, North-East dye house etc. From the survey it reveals that the industries came into existence in the region in the mids of 1970's. Since then the industries have been growing up at a faster rate. Out of the total industries under survey 55per cent have been grown during the period of 1985 to 1990. Most of the industries are concentrated in the ward No. 10 & 11 along the 37 N.Highway. The largest number of industries are concentrated at pub-Baragaon village followed by pachim-Baragaon and Betkuchi villages.

The study reveals that varieties of industries have ~~been~~ developed in the area out of which timber industries constitute a high percentage followed by iron & steel rolling and backery units (mainly biscuit factory). Besides these, there is a large no. of industry of various nature and a number of godowns. A large number of carrying agencies has been growing particularly along the National Highway resulting the growth of a large number of auto engineering works to provide the services to the carriers of different agencies. Out

of 20 sample industries, 18 industries are found to be in the category of consumer goods industry like the manufacturing units of plastic goods, iron goods, biscuits, clothes, etc. The other two industries namely North-East Dye house and Janata Silicate fall under the category of intermediate goods industry which cannot be directly, used by the consumers. The biscuit factories and the iron tube and rod manufacturing industries are comparatively larger in terms of the size of its employee, space area covered by its industrial premises and investment on labour, raw material andpower.

As for the sources of raw material, it is found that Meghalaya is the main supplier of wood & log to a large number of timber industries developed in the study area. The raw materials for the iron goods industries are generally supplied by SAIL, TISCO and BOKARO. About 50 per cent of sample industries are dependent on the raw materials procured from outside Assam and another 50 per cent on raw materials collected from local market, i.e. Guwahati and other parts of Assam.

From carrying the raw-material as well as to distribute the output to different destinations the the role of National Highway - 37 is very important. The mode of rail transport is also used in ~~carrying~~ bringing ~~the~~ raw materials from outside Assam.

The growth of industries has played a vital role in the socio-economic transformation in the area under study. Indiscriminate unplanned growth of the industries have an adverse impact on its surrounding physical environment. The industries have been polluting the area by oozing out the odd smell, smoke, noise, waste materials etc. The industrial growth has also affected the landscape in the region because most of the industries have been growing at the cost of lowlying agricultural land. For the preparation of the industrial premises and human settlements, tremendous earth-cutting. has been done in nearby hills destroying not only the scenic beauty of the area but also the ecological balance of the city.

Because of the growth of industries and its ancillary activities, an influx of population from various parts of Assam and outside has occured in this area. The people of different communities coming from different places having different social outlooks and life style have influenced the local people.

Industrialization in the area under study has greatly influenced the economic life of the people therein. Prior to 1970 neraly 90 per cent people of the area were dependent on agriculture but at present only a small section of indigenous people practise agriculture for their livelihood.

Large influx of population into the area as temporary settlers (who works in the non-agricultuarl activities) have been demanding a large number of rented houses resulting in the increasing source of income derived from ~~letting~~ renting the houses by many of the villagers.

Thus it is seen that a major impact of the growth of industries and other ancillary activities fall on the physical environment and socio-economic environment in the southern periphery of Guwahati.

6.2. Conclusion :

From the above study some important conclusions may be drawn which are as follows :

The present extension of Guwahati city has been in the direction of Southern periphery. In this connection the National Highway - 37 has played an important role.

A number of medium and small scale industries of varying nature has ~~been~~ developed along the National Highway particularly in ward No.10 and 11 under Beltola and Jalukbari Mauzas. Except a few industries of national importance, most of the industries ~~are of~~ has regional importance. The accessibility of the National Highway, the availability of open agricultural lands with scattered population, the market facilities of Guwahati as a premier city have given an impetus to the growth of industries.

With the growth and development of industries in the area, the commercial activities have been expanding to a greater extent. These activities mainly include the construction of godowns, carrier services, motor garages, tyre-tube repairing shops, line hotels etc. which have been growing along the National Highway.

The impact of industrialization and its ancillary and other commercial activities in the area largely falls on its physical environment and the socio-economic aspects of the inhabitants.

The growth and development of industries associated with increased human settlements have been taking place at the cost of productive agricultural lands. Many of the owners of these agricultural lands have been leaving the area after selling their lands to the industrialists and other business men at exhorbitant prices.

The oozing out of smoke, smell, noise and other waste materials from various industries have been polluting the atmosphere of the area alongwith partial damage to the agricultural productivity.

The industries and its ancillary activities have influenced the people of the region to a greater extent in changing their agrarian economy to a non-agrarian economy.

directly and indirectly, the industries should be set up at ~~an~~ atleast ~~5 to 10 kms.~~ at a distance of 5 to 10 kms away from the residential areas.

There should have be a proper plan to grow satellite township around Guwahati to solve the problem of population congestion of the city.

To maintain the ecological balance of the city, deforestation, earth cutting and filling, destruction of scenic beauty should be strictly avoided.

Proper drainage and sewerage is essential to solve the problem of water logging in low lying areas.

As the area under study is in the process of gradual transformation from rural to urban landscape, so it needs the attention of a team of experts consisting of town planners sociologists, urban geographers and economists to formulate a scheme for the allround development of the area.

ANNEXURE - I

List of Industries located along the 37 No. National Highway :
(From Jalukbari to Basistha Chariali)

Ward No.10

Sl. No.	Name of Industry	Village Name	Name of Mauza
1.	M/S Padumbari Timber Saw(P)Ltd.	Gotanagar	Jalukbari
2.	M/S Purbanchal (Pvt.)Saw Mill	Pachim-Baragaon.	"
3.	M/S Tetelia Automobiles Garage	Tetelia	"
4.	Aftfed weaving centre (Govt. of Assam Undertaking)	Pachim-Baragaon.	"
5.	M/S Jaiswal Rolling Mill	"	"
6.	M/S Real Biscuit (Pvt.)Ltd.	"	"
7.	M/S Bharatiya Scrap Industry	"	"
8.	M/S Timber & Timber Products (Pvt.) Ltd.	"	"
9.	M/S Raju Motor Works	"	"
10.	M/S North-Eastern Cylinder (Pvt.) Ltd.	"	"
11.	M/S Nezone Tubes Ltd.	"	"
12.	M/S Sun-Rise Biscuit Factory Ltd.	Pub-Baragaon	"
13.	M/S P.Das Pipe Company	"	"
14.	M/S Bikash Timber Industry	"	"
15.	M/S Purbanchal Steel Rolling Mill and Industry.	"	"
16.	M/S Trans power (Pvt.)Ltd.	"	"
17.	M/S Kalita Electrical (Pvt.)Ltd.	"	"

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18.	M/S Shree Syam Udyug (Pvt.)Ltd.	Pub-Baragaon	Jalukbari
19.	M/S Brahmaputra Coach Body Builders.	"	"
20.	M/S Prabhat Saw Mill	"	"
21.	North-East Dye House	"	"
22.	M/S Jajudia Saw Mill	Fatashilgaon	Beltola.
23.	M/S Madhav Saw Mill	"	"
24.	M/S Purbanchal Cables & Conductor (Pvt.) Ltd.	Betkuchi	"
25.	M/S Siv Shakti Tubes & Industries Ltd.	"	"
26.	M/S S.K.M. Enterprise	"	"
27.	M/S Tirupati Ispat (P) Ltd.	"	"
28.	M/S Beltola Timber Industries (P) Ltd.	"	"

Ward No.11

29.	Coffee Processing Factory	Sarusajaigaon	Beltola
30.	M/S Highway Timber Industry	Barsajaigaon	"
31.	M/S Timber Products (P) Industry.	"	"
32.	M/S Bhagabati Steel Rolling Mill Ltd.	"	"
33.	M/S Mahabir Coke Industry	"	"
34.	M/S Barun Saw Mill	"	"

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List of Industries along the Fastashil Gorchuk Road (Link Road)

Ward No.10

Sl. No.	Name of Industries	Village Name	Name of Mauza
35.	M/S Dolomite Powder Ltd.	Pub-Baragaon	Jalukbari.
36.	M/S Bharatia Udyug Mill	Fatashil gaon	Beltola.
37.	M/S Adarsh Plastic Industry	"	"
38.	M/S Manjushree Extrusions(P)Ltd.	"	"
39.	M/S Papu Poddar Tyre (P)Ltd.	"	"

List of Industries along the Lokhra Kalapahar Road(Link Road)

40.	M/S Janata Silicate Soap Industries.	Betkushi gaon	Beltola.
41.	M/S Eastern Pipe (P) Ltd. Company.	"	"
42.	M/S Robi Saw Mill	"	"
43.	M/S Rashtriya Ispat Nigam	Jutikushigaon	"
44.	Kamrup steel Mill	Jutikushingaon	"
45.	M/S Shree Khatuwala Re-Rolling Mills(P)Ltd.	"	"
46.	M/S United Baker's (P)Ltd.	"	"
47.	M/S Purbanchal Tyre (P) Ltd.	"	"
48.	M/S Manas Industry (Saw Mill)	Odal Bakra	"

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ANNEXURE - II

List of different Godowns (along the National Highway) :

Sl. No.	Name of Godowns	Location at Village	Name of Mouza
1.	M/S Wood log & scrap	Tetelia	Jalukbari.
2.	M/S Tetelia Godown (Raw Tea Leaf)	"	"
3.	M/S Sandal Wood Godown	Pachim-Baragaon	"
4.	Assam State Ware House Corporation	"	"
5.	M/S Tata Iron & Steel Company.	Pub-Baragaon	"
6.	M/S Godrej Godown	"	"
7.	M/S Gorchuk scrap iron godown	"	"
8.	Scrap iron godown	"	"
9.	M/S Cilli Godown	Fatashil goan	Beltola
10.	M/S E.R.C. Ltd. (Godown)	Betkushigaon	"
11.	M/S D.H.T.C. India Ltd. (Godown)	"	"
12.	M/S Lokhra Tea Ware House	"	"
13.	M/S Tata Authorised Dealer Agency (Regional Centre)	"	"
14.	M/S Dulal Ware House (Tea)	Sarusajaigaon	"
15.	M/S Charminar A.C. Sheet Godown	"	"
16.	M/S A.B.C. Corporation	"	"
17.	M/S Suhankar Ware House	"	"
18.	M/S Om Prakash National Corporation,	Barsajai	"
19.	M/S Perfect Motors Pvt. Ltd.	Sarusajai	"
20.	M/S Maruti Authorised Service Centre.	"	"
21.	M/S Deorah Properies Commercial Ware House	Barsajai	"

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22.	M/S Tea Man's ware House	Barsajai	Beltola
23.	M/S Eastern food processing & Tea Ware House.	Khanapara	"
24.	M/S Assam State Warehousing Corporation.	"	"
25.	M/S Kumber Tea Ware House	"	"

Source : (G.M.C. Offices of Bharalumukh, Guwahati-9 and Zoo-Narengi, Guwahati-21) and Field Survey.

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ANNEXURE - III

Schedule for Village Household Survey

1. Name of the Village :
2. Name of the family head :
3. If migrated, where from and when migrated. :
4. Mother tongue :
5. Caste/Community and religion. :
6. Family structure (or particulars of the family members) :

Sl. No.	Sex	Age in yrs.	Relation with Head.	Occupation		Income (in Rs.) per month		Educational status.	Student Class/ Where he/she reads
				Main	Subsidiary	Main	Subsidary		
1.									
2.									
3.									
4.									
5.									
6.									
7.									
8.									
9.									

Note :- H - Husband
W - Wife.
D - Daughter
S - Son
Dn- Daughter-in-law.
Sn- Son-in-law.
Si- Sister.
B - Brother.

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7. Details about occupation of wage earning members :

Sl. No.	Name of Job.	Places of work	Regular/ Casual	Factory/ Office/ Others.	Salary (in Rs.) wage, monthly daily.
1.					
2.					
3.					
4.					

8. House Type :

Sl. No.	Type of House (use the codes to specify)	Year of Construc-tion.	Function of the house.	No.of rooms.	Size of the house in feet/ m (floor area).

N.B.:- Functions : Dwelling/storage/workshop/office/school/Shop/ Doctor's house/place of enterteinment/others.

Codes to specify the types :

Roof	: Thatched	: RA
	Tiled	: RB
	Tin	: RC
	Asbestos	: RD.
	RCC	: RE
Wall:	Bamboo	: WA
	Wood frame but bamboo wall	: WB
	Half brick wall	: WC.
	Full brick wall	: WD.
Floor :	Katcha	: FA
	PUCCA	: FB.

9. Source of Drinking water :

10. Do you have electricity connection. :

Yes/No.

(i) If yes, year of connection:

11. Do you have any industrial connection ? Yes/No. :

A. If yes -what type of industry. :

12. Land use particulars (in bighas or acre). :

A. Built-up area :

B. Cultivable area :

C. Net cultivate/area. :

(i) Own land :

(ii) Leased in :

(iii) Leased out :

(iv) Operational holding (i)+(ii)-(iii) =

13. A. Whether you are self-sufficient in food production ?

Yes ☐ No. ☐

B. What Crops are grown :

Crop	HYV/Traditional.	Area	Production	Fertiliser used	Irrigational mode

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14. In case of not using modern agricultural inputs :

A. The reason(s) for not using HYV :

B. The reason(s) for not using Fertilizers :

C. The reason(s) for not having irrigation :

15. Are your crops affected by any diseases/insects ?
Yes/No.

A. If yes, what the measures you take generally do take ?

16. Are your agricultural field affected by any industrial waste pollutant ? Yes/No :

A. If yes, what kind of pollutants have affected ? (whether smoke/smell/slag/liquid).

B. Name of the industry units who affected your field :

C. How fields are affected ? Change in production/ enchroachment of agricultural field :

(i) If change in production.

Production (In weight) before and after the factory starts :

(ii) If enchroached : How much land ?

D. Are there any industrial complex within the village boundary ?

(a) If yes, the name of the industry : _____

(b) Year of establishment/starting of the industry : _____

17. Availability of agricultural implements :

Name of Implements	No.	Owned	Hired Rent paid (in Rs.)
Plough (wooden)			
Plough (Iron).			
Power tiller			
Tractor			
Sickles			
Hoes			
Sprayer			
Weeder			
Harvestor			
Rump set			
Tube well			
Dau.			
Others			

18. Crop marketing

Sold at/to	By selfp/ Middle men	Crops sold	Quantity/ (kg).	Price/ unit of weight	Mode of Transport-

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19. Inventory of Livestock :

Sl. No.	Name of the livestock	No.	Yield/day
1.	Breedable cows : (i) Local : (ii) Cross breed :		
2.	Scrub bulls :		
3.	Young cows :		
4.	Goats :		
5.	Pigs :		
6.	Ducks :		
7.	Poultry :		
8.	Other (specify) :		

20. Loan/Subsidy etc. :

Govt./Dept./ Bank/Mahajan	Purpose (with year).	Amount (in Rs.)	Rate of interest	Instalment paid.

21. The type of fuel you use for cooking :

Sl. No.	Fuel type	Source	Quantity Consumed per month	Price/ Unit.
1.				
2.				
3.				

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22. Do you face any difficulty in procuring the required fuel at present ? Yes/No.

A. If yes, please state the difficulty and the way to solve it.

Difficulty	How do you manage it
i)	
ii)	

23. Type of fuel used ten years back :

Type of fuel	Source	Quantity/month
1.		
2.		
3.		

24. Is there any change in your diet during last ten years ? Yes/No.

A. If yes, please specify the change :

25. Is there any change in the clothing pattern of the family member(s) during last ten years ? Yes/No.

A. If yes, please specify the nature and trend of change :

26. Compare to conditions obtaining 10 to 15 years back do you are better off in food, clothing and other consumption today ? Yes/No.

A. If yes, please specify the areas in which there is improvement.

(i)

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B. If no, please specify the areas in which there is deterioration.

(i)

27. Were you and your family members more happy ten to fifteen years back than what you are today ? Yes/No.

A. If yes, then why you are not happy with your present condition ?

(i)

B. If, no do you think that your material condition has improved today compared to what it was 10 to 15 years ago ?

(i)

28. Did you ever try to do anything to improve your economic conditions ? Yes/No.

A. If yes, please specify the efforts made by you.

29. Land sold during last 10 years :

Area	Year	To whom	Price	Purpose or selling.

Social Amenities for Villagers

30. A. Distance to the primary/Secondary/other schools from the village :

B. What mode of transport used by the students - Walking/cycling/bus/others :

C. Distance to the market from the village.

D. Mode of transport to the market.

E. Distance to the hospital/any health centre :

F. Distance to the bank :

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ANNEXURE - IV

Schedule for Factory Survey

1. Name of the Factory :

2. Year of construction :

3. Head office of Factory :

4. Address and map reference of Factory. :

5. Other factories and establi-shments owned by firm, if any. :

6. Area of the factory :

   A. Area of working floor-space :

   B. How many floors are there in the factory. :

7. A. Storage space(area) for inputs. :

   B. Storage space(area) for outputs. :

8. Building materials of factory :

9. Has it good/fair/poor parking facilities ? :

   Yes ☐ No. ☐

   If yes, in which area :

10. Why was this site chosen :
    Please specify the reason _____

    _____

11. What are its advantages/disadvantages about the site Chosen ?

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12. Is there any ~~nearest~~ factory of the same type ~~?~~ near the site?

Yes ☐ No. ☐

If yes, name of the factory and distance from this factory : Name ☐ ; Distance ☐

13. ~~W~~here the buildings used for anything ~~before~~ other purpose ?

Yes ☐ No. ☐

14. Is ~~it~~ Here easy/difficult ~~to~~ access ~~of~~ to vehicles ?

15. Does it give off unpleasant smells, water borne efluent smoke, noise ?

A. Is, so how far away are these effects noticeable ?

_____

B. What are the causes for unpleasent smell, noise/smoke, etc.

_____

I N P U T S

1. A. Source of power :

B. Power consumption per year

Unit _____ Rs. _____

2. A. Source of Water :

B. Water consumption per year

Volume _____ Rs. _____

3. Name of raw materials used in the factory : _____

_____

A. Source of raw materials :

B. Method of transport of raw materials :

C. Cost of raw materials in a year :

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D. Does the factory buy any readymade or semi-finished goods to use in its products ?

Yes ☐ No. ☐

E. If so, where do they come from ?

_____

F. Cost of readymade or semi-finished raw-materials :

in Rs. _____

4. Number of employees :

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EMPLOYMENT STRUCTURE

Sl. No.	Male/ Female	Age	Salary	Employee's origin place	Community/ Religion.	Grade/ Rank	Where do employees live		Outside Employee			Inside living employee's arrangement (factories.)
							Out side	Within the Campus	Name of living place & Distance	Living arrangement (facilities)	Mode of Transport to & from the factory.	

OSIDO

OUT PUT

1. What does the factory produce ?

   _____

2. Where are the products sent ?

   _____

3. How are they transported/mode of transport _____

   _____

4. Does the factory advertise its goods ?

   Yes _____ No. _____

   If so, over how wide an area ?
   please specify :

5. A. Are products sold direct to general public ? Yes/No.

   B. Are products sold direct to whole Salary ? Yes/No.

   C. Are products sold direct to shops ? Yes/No.

   D. Are products sold direct to other firms as raw materials ? Yes/No.

   Yes _____ No. _____

6. Are any products exported to other states or Nations ? Yes/No.

   A. If yes, where to and by what routes ?
   Please specify _____

   _____

   _____

   _____

MISCELLANEOUS

1. Where there any government incentives for establishing a/the factory the factory there ? Yes ☐ No. ☐

   If yes, please specify the form :

   A.

   B.

2. Did the firm have to obtained an I.D.C. (Industrial development certificates) ? Yes ☐ No. ☐

3. Is there a canteen ? Yes ☐ No. ☐

4. Do the workers have to wear special clothing ?

   Yes ☐ No. ☐

   If yes, where is this kept? _____

5. Has the factory got a training scheme ?

   Yes ☐ No. ☐

6. What changes, if any are taking place at the factory (e.g. enlargement, new products, new techniques, etc) ?

   Yes ☐ No. ☐

   A. If so, please specify in which area : _____

   _____

7. For how long is the factory working each day :

   _____

8. Description of site : _____

   _____

   _____

9. Remarks :

Signature of Enumerator.

Date.....

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ANNEXURE - V

Investment on Input of Industries (in Rs.) per Year.

Sl. No.	Name of Industry	Raw-material	Power	Labour	Total Investment
1.	Prabhat saw Industry	10,00,000	30,000	89,400	11,19,400
2.	North-East-Dye House	24,00,000	16,000	16,42,200	40,58,200
3.	Brahmaputra Coach Builder's	48,00,000	36,000	7,10,000	55,46,400
4.	Bikash Timber Industry	15,00,000	1,50,000	2,23,200	18,73,200
5.	Bharatiya Jerap Industry	1,00,00,000	50,000	12,90,000	1,13,40,000
6.	Kalita Electrical (P) Ltd.	15,00,000	28,000	1,92,000	17,20,000
7.	Nezone Tubes Ltd	15,98,00,000	18,00,000	15,07,800	16,31,07,800
8.	Real Biscuit(P) Ltd.	2,54,00,000	3,85,000	16,73,400	2,74,58,400
9.	Timber & Timber products Ltd.	20,00,000	90,000	5,26,800	26,16,800
10.	Adarsh Plastic Industry	1,08,000	50,000	75,600	2,33,600
11.	Manjushree Enterprise (P)Ltd.	1,50,50,000	4,50,000	10,63,800	1,65,63,800
12.	Shree Shyam Udyag	12,00,000	36,000	1,98,000	14,34,000
13.	S.K.M.Enterprise	10,00,000	42,000	1,36,800	11,78,800
14.	Shiv Shakti Tubes & Industries Ltd.	2,16,89,500	7,20,537	15,75,600	2,39,85,637
15.	Sun Rise Biscuit Co.Ltd	7,00,00,000	9,00,000	44,40,840	7,53,40,840
16.	Purbanchal Rolling Mill & Industries.	2,00,00,000	4,00,000	7,72,800	2,11,72,800
17.	Janata Silicate Ltd.	10,00,000	53,000	1,77,600	12,30,600
18.	Tirupati Ispat (P) Ltd.	2,00,00,000	6,00,000	3,25,200	2,09,25,200
19.	Coffee Processing Factory	25,00,000	30,000	2,76,000	28,06,000
20.	Transpower (P) Ltd.	47,88,900	7,00,000	N.A.	54,88,900

Source : Field Survey.

ANNEXURE - VI

Space occupied by Industries and Its Employee

Sl. No.	Name of Industry	Total area (sq.metre)	No.of Workers.
1.	Prabhat Saw Industry	2,675.6	10
2.	North-East Dye House	12,040.2	60
3.	Brahmaputra Coach Builder's	6,689.0	26
4.	Bikash Timber Industry	9,364.6	12
5.	Bharatiya Scrap Industry	2,675.6	56
6.	Kalita Electrical (P) Ltd.	668.9	12
7.	Nezone Tubes Ltd	29,500.0	74
8.	Real Biscuit (P) Ltd.	2,675.6	94
9.	Timber & timber products Ltd,	5,351.2	48
10.	Adarsh Plastic Industry	2,006.7	5
11.	Manjushree Enterprise (P) Ltd.	2,675.6	82
12.	Shree Shyam Udyog	5,351.2	12
13.	S.K.M. Enterprise	200.0	12
14.	Shiv Shakti Tubes & Industries Ltd.	18,354.6	76
15.	Sun Rise Biscuit Co.Ltd.	21,404.8	223
16.	Purbanchal Rolling Mill & Industries	6,689.0	45
17.	Janata Silicate Ltd.	5,351.2	7
18.	Tirupati Ispat (P) Ltd.	4,013.4	20
19	Coffee Processing Factory	N.A.	7
20.	Transpower (P) Ltd.	28,140.0	N.A.

Source : Field Survey.

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