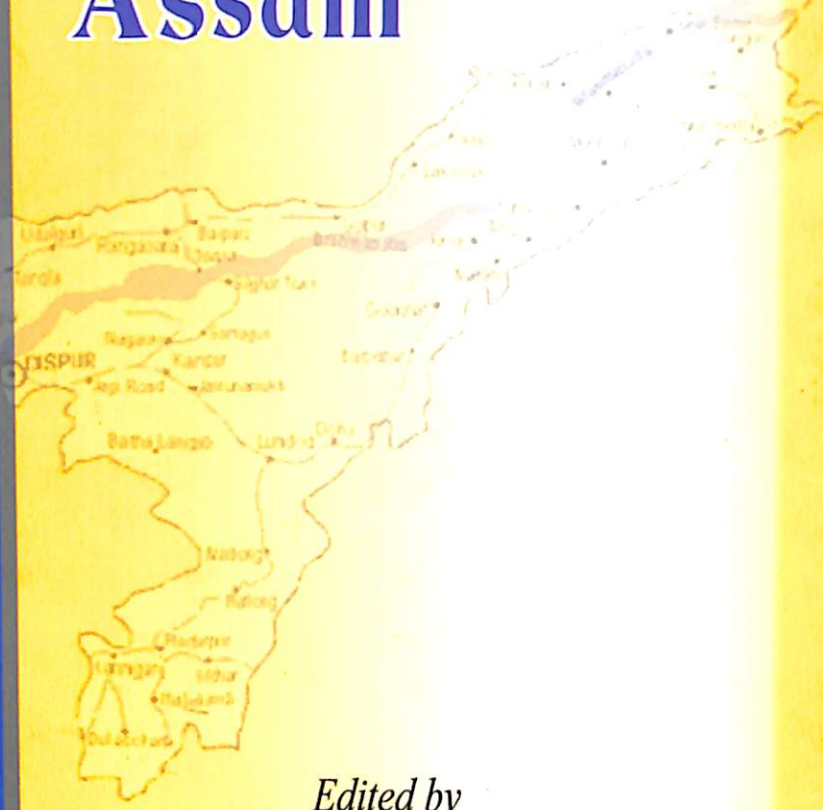


Problems of Industrial Labourers in Assam



Edited by

Dr Sanjib Kumar Borkakoti





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About the book

Problems of Industrial Labourers in Assam is a compilation of twenty eight research papers presented in a national seminar which was held in A.D.P. College, Nagaon in 2012. The research papers included in the book delve deep into the burning problems of the industrial labourers in Assam. There is a common concern for welfare of the industrial labourers running through all the papers. Many new information have come to light through these research papers. This book will be helpful for both academicians and the planners.

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Problems of Industrial Labourers in Assam

Proceedings of UGC sponsored National Seminar on
Problems of Industrial Labourers in Assam

Compiled by
Arati Bharali

Edited by
Dr Sanjib Kumar Borkakoti



Anandaram Dhekiyal Phookan College
Nagaon, Assam

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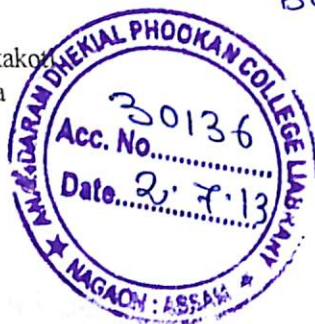
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Editorial

The industries happen to be the leading force of almost all economies. Most of the innovations in any economy take place in the industrial sector. It gives employment to the unemployed, manufactures the essential commodities for people, and creates scope for a buoyant tertiary sector too. But all these cannot come true if the wheels of the industries are not run by the labourers. The industrial labourers create value added, on which the entrepreneurs thrive. So these labourers play a crucial role in the growth and well-being of the entire secondary sector.

Unfortunately all concern for industrial growth and entrepreneurial problems seem to generally ignore the problems of the labourers, who happen to be the main force behind the industries. It is in the fitness of the things that their concerns are addressed to, both in field and in academic circle. We therefore deemed it our duty to dwell at length on this issue. We organized a national seminar on the problems of industrial labourers in Assam on September 28 and 29 of 2012 in A.D.P. College, Nagaon.

We received overwhelming response from all over to our call for papers. We selected 77 papers for presentation in six technical sessions, which were conducted by Prof Nirankar Srivastav of North Eastern Hill University, Prof P. Nayak of North Eastern Hill University, Prof S.C. Kakati of Dibrugarh University and myself Dr Sanjib Kumar Borkakoti of Anandaram Dhekial Phookan College. The deliberations were very lively and fruitful. Many research

scholars found beneficial tips from co-participants as well as chairpersons.

After the seminar was over, a screening committee went through the papers and selected 28 papers for publication. The task of editing these papers was assigned to me. I was assisted by my colleague Arati Bharali, who downloaded the papers from e-mail attachment and prepared an MSWord file. The contributors were allowed to submit modifications in their papers in the light of deliberations in the seminar. The young researchers tried best to prepare their papers with primary data collected from field works.

The maiden chapter of this book happens to be the key-note address of the seminar delivered by Prof Nirankar Srivastav. He has covered the entire gamut of issues concerning industrial labourers. He has drawn attention to the growth of informal sector in a disproportionate manner since 1991. According to him, low wages of labourers in the unorganized sector is the central problem in Indian labour market. He highlights issues like job security for the industrial labourers.

Nazneen Akhtar has presented a socio-economic profile of weavers in Sualkuchi. She has highlighted their low wage structure. Rupon Basumatary, Sakarsing Boro and Dhrubajyoti Boruah have studied the conditions of workers in Borbam Tea Estate. He has appreciated the Tea Estate for providing amenities to the labourers as per rule. Jyotimala Hazarika has discussed the status of education and health of the tea garden labourers in Golaghat district. Subhadeep Chakraborty and Anjan Kumar Bordoloi have prepared socio economic profile of tea workers in Tinsukia district. They found the problem of alcoholism a drain on the labourers' income. Consequently most of them become highly indebted. Nitashree Mili and Dipankar Doley took up the study in Dibrugarh district, where they found problems like absenteeism, alcoholism, domestic violence etc among the tea garden labourers.

Dr Minamuddin Ahmed and Dr Sadananda Payeng discussed the nature and formation of the tea labourer community from a

historical perspective. Dr Bismita Bora made a case study of a tea garden in Nagaon district. She found that though the female workers contributed a high percentage of family income, most of them did not enjoy decision making power in the family. Prabir Kr Dev Purkayastha and Shibu Das also studied the problems of women tea labourers in Nagaon district. They found that the female labourers worked more than the male labourers, but they lived a life of hardship and mostly remained illiterate. Kakali Hazarika also concluded that female tea workers faced the worst exploitation. She pointed out that only 30% gardens had appointed welfare officers.

Kakali Boruah has examined the indebtedness of the brick kiln workers and found that majority of them are indebted. They take advance from a middleman in 'Dadan' system and thus become bonded labourers. Ruby Bharti narrated the strain on the female workers of brick kilns, how their health deteriorates with the excessive workload. Dr Gayatree Das showed how the children were put to hazardous works in the brick kilns. Prasanta Kr Gogoi studied the health related problems of the child labourers engaged in industries of Nagaon. He showed how these children suffered from many injuries in work place. Joy Kumar Singha showed that poverty drove the children to work in restaurants and dhabas.

Parag Dutta studied the health problems of mechanics working in automobile workshops. He found most of them suffering from hand dermatitis as they did not take sufficient precautions. Dr Palash Dutta and Dr Tazid Ali used uncertainty model to measure health risk arising due to industrial pollution. They used fuzzy set approach for the same. This model is relevant for paper and pulp industry, oil refining industry etc for Assam.

Bidisha Lahkar Das and Dipankar Pathak analyzed the impact of globalization. They studied tea and silk industry for that. They found decline in employment consequent upon increasing globalization. Arati Bharali found from her investigation that globalization has enhanced the tertiary sector, not the secondary sector. Pinkumoni Kashyap and Pallab Jyoti Saikia showed that

while the number of industrial labourers increased in Assam, their share in state domestic product have been steadily falling. However Kallol Bhattacharya finds globalization helpful for Indian industries. He showed that value addition by the workers per head increased during this period. But wage as proportion of net value added declined.

Biman Kumar Nath, Ajit Debnath and Kaju Nath showed that while the labourers in formal sector are lacking in proper health facilities, the workers in the informal sector are deprived of even subsistence wages. Dilip Saikia and Kalyani Kangkana Das showed that unorganized manufacturing sector has contributed a lot in employment generation. Ganga Rani Das studied the construction workers and showed their pitiable conditions. Seema Sharma, Sweta Sarmah and Ruchi Todi showed how the unorganized labourers have been immensely affected by different types of violence in Assam. This has resulted in fall in productivity.

Arpita Sharma Nath analyzed workers' participation in management of Nagaon Paper Mill and found that increased role of workers in management has increased overall productivity. Priyanka Bora and Deepjyoti Chakraborty appreciated Oil India Limited for looking after welfare of the workers. Lastly Beauty Neog described a few Acts, framed in the interests of the industrial labourers.

We hope this compilation of research papers will help researchers as well as planners to get a comprehensive idea about the complexity of the problems faced by our industrial labourers. If the industrial houses take note of the issues raised herein, the effort put in by the scholars will be successful. There has to be follow up activities by the scholars to that end. At the same time onus lies on the government too to redress the administrative issues. Thus all the stakeholders must rise to the occasion if the industrial sector has to be lifted up in Assam. With that hope, we place this book in the hands of the readers.

Dr Sanjib Kumar Borkakoti

Problems of Industrial Labourers

Prof Nirankar Srivastav

I consider it a privilege to stand before you and presenting the key note address in the inaugural session of the UGC sponsored National Seminar on "Problems of Industrial Labourers in Assam", organized by the Department of Economics and Department of Statistics of A.D.P. College in collaboration with Department of Economics & Statistics, Nagaon office of the Government of Assam. I am conscious of the fact that this college is well established and famous for its rich cultural heritage and traditions. The society has immensely benefited by the great contribution of the college by way of imparting quality education in major traditional and inter-disciplinary subjects. This way the college offers a fine balance between age old valued cultural traditions and modern age requirements. The Department of Economics and Department of Statistics of this College deserve congratulations for their efforts to organize the national seminar on well meaning topic. I wish them best for this great endeavor. I am more than sure their efforts would definitely generate the academic debate on this relevant issue and draw the attention of people at large.

I would like to take this opportunity to share some of my thoughts on the contemporary labour market issues in India. My attempt would be to present some of the major debates among

the academic circle on the issue which are resulted due to major changes in the Indian labour market in last two decades especially after the implementation of major economic reforms of 1991. The purpose of these reforms was to liberalize, globalize and privatize Indian economy. At that time it was expected that these changes would lead India on the path of faster economic growth and its advantages would reach the public at large in raising their welfare. Of course, these measures have affected the socio-economic lives of public in a number of ways.

Significant changes are observed in the structure of Indian economy and industrial sectors during last two decades. This has also affected the economic life of industrial workers in many ways. I would be interested in highlighting some of the issues related to industrial labourers. It would be interesting to analyze how the major economic policy reforms have changed the socio-economic life of industrial labourers. One of the major changes that took place in the structure of Indian economy is known as the process of 'tertiarization'. In this process the proportion of agricultural and industrial sector decline consistently and share of service sector increases in Gross Domestic Product (GDP). This change influences the overall growth of industrial sector in the economy. This reduces the growth prospects of traditional labour intensive industries and enhances the scope of highly technical and capital intensive industries. This resulted in overall growth of industrial sector; but overall demand of industrial labourers declines. This is seen in the form of rising unemployment among industrial workers. These workers look for alternative jobs in other sectors of the economy which more often are less remunerative.

The institutional structure of industrial sector can be broadly divided into organized (formal) and unorganized (informal) sector. The organized sector consists of public sector, private corporate sector and co-operatives, manufacturing units registered under

factories Act 1948 and recognized educational institutions. All those workers, who are employed in manufacturing units, i.e., the workers employed in large scale, village & small scale industries are considered industrial labourers in general sense. The demand for industrial labourers like that of all the factors of production is a derived demand, which depends on the volume of final output demanded from the firm and therefore, being supplied by it. Hence, the growth of industrial output is an important factor, which influences the demand and wages for labourers. The share of industrial workforce in India is around 18% producing 27% of GDP. The organized sector employs 10% worker to produce 20% of GDP, whereas 90% workers in unorganized sector produce 7% of GDP. Public sector constitutes 66% of organized employment. This reflects the real scenario of Indian industrial workers that majority of them are working in unorganized sector which is relatively less productive and rewarding to workers.

1. Wage and Employment:

In last two decades many sectors of economy have witnessed number of policy reforms but labour reforms have been with a little slower pace. Therefore, the labour laws which were 'rigid' have not changed much and made 'flexible'. Due to prevailing labour market rigidities the new tendency has emerged in employing the industrial workers. This reflected in the rising of proportion of casual workers to the permanent worker in organized and informal sector. Furthermore, there has been economy wide decline in employment elasticity of output in secondary sector. This implies the decrease in the demand of industrial labourers for industrial output. This is mainly due to replacement of labourer with capital. This phenomenon is known as 'Employmentless growth'.

2. Central Problem of India's Labour Market:

The central problem of India's labour market is that wages

are too low in unorganized sector and relatively high in organized sector. In many cases wages in unorganized sector are even below subsistence level along with very poor working conditions with practically no job and social security. But in organized sector wages are higher and increasing (adjusted to inflation) along with better working conditions; the worker enjoys job and social security there. This small but powerful section of entrepreneurs and workers discourages the labour policy reform to invite foreign direct investment in labour intensive export manufactures, as this has happened in other Asian countries. Therefore, the central issue is how to provide a social, income and job security for unorganized sector workers and reduce the inequalities with organized sector workers.

3. Regulations Governing Labour Market:

Labour is concurrent subject as per constitution of India. So both state and central governments make law to protect the interest of labourers. In many instances International Labour Organization (ILO) conventions are also followed. However, most of the laws are applicable to the organized sector workers only. There are some laws to regulate the unorganized workers too, but these are hardly implemented in favour of workers. There is no national minimum wage and universal unemployment insurance scheme. However workers have right to form a trade union to take part in collective bargaining negotiations.

4. Evidences of Enforcement of Labour Laws:

Enforcement of labour laws in many instances is ineffective to enhance labourer welfare. In many cases Factory Act is violated. For example 58% of factories employing more than 10 workers are not registered under the Act. In most cases entrepreneurs do not register their enterprises in order to avoid the labour laws, state vigilance and taxation. But this adversely affects welfare of factory workers.

5. Economic Reforms and Labour Laws:

Many structural economic reforms were initiated after 1991, but reforms in labour laws to become more flexible could not be framed and implemented. Some evidences are given below :

- 1) No evidence of nominal or real wage parities.
- 2) Decline in the strengths of trade unions.
- 3) Losses of mandays are more due to lockouts than strikes after 1991.
- 4) Shift in manufacturing employment into smaller sized factories.
- 5) The decline in the share of registered manufacturing and the rise in informal sector employment have weakened worker's bargaining power.
- 6) The Wages to Cost of Capital ratio (rental ratio) has declined which implies relative cheapening of labour vis-à-vis capital.

6. Informalization of Industrial Labourer :

Informalization of Industrial Labourer is taking place after 1991 in three ways :

- 1) The proportion of unorganized sector in total manufacturing employment to organized sector is increasing.
- 2) The proportion of informal (casual/contract) labourer to the permanent labourer is increasing within organized sector.
- 3) Increasing sub-contracting or outsourcing by the organized sector to unorganized sector. There is a trend to outsource the production of ancillary units from large scale manufacturing units to small and medium scale units in unorganized industrial units. In this way manufacturing sector reduces the employment of permanent workers.

On the other hand this process increased the demand for casual workers in unorganized sector.

The research question is 'why is this taking place'? Is this because of labour market rigidities or import competitiveness? The share of informal sector in formal sector of manufacturing has gone up to 66%. The share of unorganized manufacturing in total manufacturing employment has increased from 80.7% in 1983 to 85% in 2005. The percentage of contract workers to total workers in organized manufacturing sector has increased from 14% in 1995-96 to 29% in 2005-06. This implies that new jobs created in the formal sector of Indian manufacturing sector after 1990 were of low quality informal jobs. This way the manufacturing sector is not creating much of 'decent' jobs.

Evidences are there that wages and employment benefits received by casual workers are much lower than those of regular workers. The incidence of poverty is much higher among casual workers than that of regular workers. The 61st round employment and unemployment survey of NSS reveals that in 2004-05 the average wage per day earned by regular wage worker in organized manufacturing sector was Rs 169 while wage earned by casual worker was only about Rs 55. This implies that three casual workers can be employed in place of one permanent labourer. Casual workers not only get lower wages but they are also deprived of various social security benefits such as EPF, insurance, maternity leaves etc along with job security.

7. Casual Labourer in Manufacturing Sector :

The major characteristics of casual labourer reveal that their relative share is 35% of casual workers in organized sector and 65% were in organized informal sector in 2004-05. Education level and work experience of casual workers is lower than regular workers. As the education level and experience increases, the

proportion of regular wage workers becomes more than that of casual labourer. With growing informalization the average quality of labourer is declining with adverse impact on their productivity. If this trend is continued then it would have an undesirable effect on sustainable industrial growth in long term.

The index of impact penetration ratio (IPR) is used to capture the effect of import competitiveness on domestic demand of a product and employment of casual workers. This ratio is defined as the proportion of import to the total domestic demand of a product for a given year. Higher this ratio for a product means that the domestic producers would face higher degree of cost competitiveness with imported products. In such situations the domestic producers would be under pressure to reduce the cost of production drastically to compete with the lower price of imported products. This is most likely that such firm would employ more of casual workers. Empirical findings support this hypothesis significantly true that higher the IPR higher would be the degree of informalization.

The employment of casual workers is also related to labour market reforms. Some states in India are front runners in implementing the reformed labour laws whereas other states are non starters in this direction. A State wise study reveals that higher labour market reform (LMR) reduces the informalization. This is an important lesson for us to learn that as policy measures state government should give priority to implement labour reforms timely and effectively to increase the welfare of industrial labourers.

8. Concluding Remarks :

The labour market conditions have changed considerably in last two decades. The positive sides of the changes are increasing educational level, living standards, rate of changing jobs, labourer productivity and average wage among industrial workers.

However, the negative side includes declining rate of employment growth, social and job security, increasing informalization, growing wage inequality and worsening working conditions. The process of liberalization looks for removal of market distortion and functioning of greater flexibility of labour market to enhance the labourer welfare.

The intensification of import competition leads to informalization since 1991. Globalization is leading to 'race to bottom' in labour standards. Labour market reforms tend to counter this situation. 'Industrial Disputes Act' is mainly responsible for labour market rigidities, wage inequalities and job insecurity between permanent and contract workers. Increased informalization after 1991 has enhanced wage inequalities and job insecurities in labour market. Lower wages to the contract workers is due to cost cutting rather than difference in labourer productivity. Contrary to general expectation the permanent workers are more concerned of job insecurity than contract workers as former has to pay higher opportunity cost. Stronger bargaining power of regular workers may have negative outcomes on their employment as firms substitute away from regular labourer in favour of contract labourer.

Once again, I would like to express my gratitude to organizers of this national seminar for inviting me and giving an opportunity to address this august gathering. I sincerely hope that forthcoming sessions of today and tomorrow will have fruitful deliberations on these and many other aspects of industrial labourers' problems and will come out to suggest certain policy measures for the state government and entrepreneurs to tackle with these issues. All sections of society have to join hands together to play key role in enhancing industrial labourers' welfare.

♦♦♦

Socio-Economic and Structural Analysis of Cottage Industry Workers in Sualkuchi Block of Kamrup District, Assam

Nazneen Akhtar

INTRODUCTION

Our country, India has a large and well- developed cottage industry sector. Practically every state and region has its own special niche products made in this sector - be it Lucknow's famous Chikan work or famous Pashmina shawls of Kashmir. Cottage industry, particularly handloom is one of the largest manufacturing sub-sectors of rural Assam, providing livelihood to a large section of rural population. In this regard, the name of Sualkuchi deserves special mention.

Sualkuchi, the famous "Silk town" of Assam, occupies a unique place in the cultural history of the state for preserving the heritage of silk weaving in the State. Situated in the north bank of river Brahmaputra in Kamrup district, this town is famous for its sarees and mekhala chadars woven from Mulberry, Tassar and

Muga silks. This is the abode of the Baishyas of Assam, whose primary occupation is silk processing and weaving from time immemorial. About 35 kms from Guwahati, Sualkuchi is a block of Kamrup District with a population of 70,962 (2011 census).

OBJECTIVES

The objectives of my paper are :(i) to examine the nature of workforce engaged in cottage industry in Sualkuchi and to analyze their socio-economic profile, (ii) to examine their working and living conditions, and (iii) to highlight the problems faced by the workers and suggest remedial measures for their betterment based on our observation and suggestion of the workers.

METHODOLOGY

The present work is based on empirical study. Respondents have been selected from different parts of the block. Sualkuchi block has a total of 43 villages, of which 3 villages were selected randomly for my study, one with a population between 500- 1000 persons and the other two with population of above 1000, and covering a total of 108 sample households. The survey was carried out in the 1st week of January, 2012 and respondents were interviewed through the help of a questionnaire.

MAJOR FINDINGS

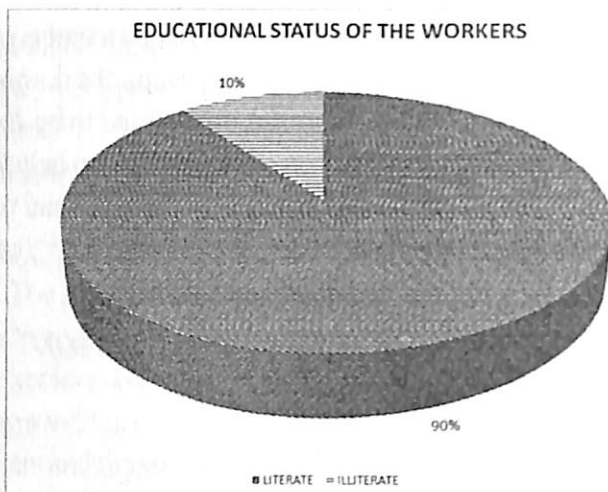
On the basis of the questionnaire and keeping in mind the various objectives of the study, I was able to gather some relevant information pertaining to my paper. Although originally Sualkuchi was a 'craft village' having several cottage industries till the forties of the last century such as handloom weaving industry, oil processing, goldsmith, pottery etc, the industries other than handloom are now almost extinct and the artisans have already taken up silk weaving as a profession.

- By classifying the workers and their family members into 6 main classes on the basis of age-groups, the dominant age group of working population is found to be 26-45 years. Although the children of the family also help their parents, they are involved mainly in doing menial work like card-punching etc

AGE-WISE DISTRIBUTION OF POPULATION

AGE-GROUP	PERCENTAGE
0-5	5.4
6-15	11.1
16-25	27.4
26-45	36.9
46-60	15.7
61& ABOVE	3.2
TOTAL	100

- The study area also reveals a high percentage of literacy of the people which has greatly helped them to raise their standards of living in the society. It also indicates the growing awareness and consciousness that exists among them. Of interest is the recent trend of young women with college degrees taking up weaving activity seriously as an occupation.



- While 95 per cent of the households in the study area are non-migrants, just a mere 5 per cent are migrants. These migrant people have come in search of work or after marriage from the neighbouring districts like Nalbari, Nagaon and Lakhimpur districts of Assam.

MIGRATORY STATUS

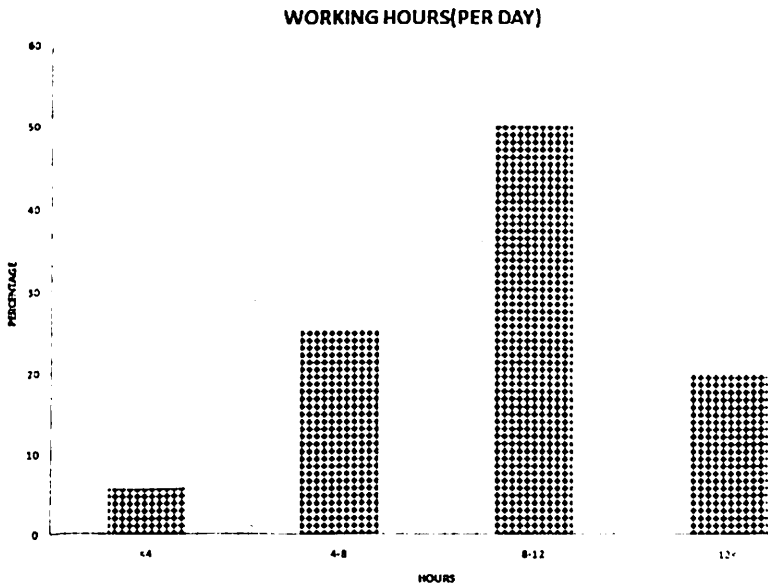
STATUS	PERCENTAGE
Migrated	5.55
Non-migrated	94.46
TOTAL	100

- The workforce in Sualkuchi comprises of hired migratory young women, mostly from the Bodo dominated areas and from other districts of Assam, seeking wage-employment in Sualkuchi to earn a living.

WORKERS WORKING IN THE UNIT

TYPE	PERCENTAGE
Household workers	48.86
Hired workers	51.14
TOTAL	100

- A working day typically begins at 8 am and continues up to 10 pm with breaks in between. However, during festival time the workers have to put in more hours in weaving.



As regards their social and economic conditions, their plight is much better off. Variations in income level

however, lead to variations in house-types. But with rising income levels and developed means of transport and communication and hence, better availability of building materials, more and more people are building pucca houses to live in.

- The families have access to well constructed flush and manual service latrines.

TYPE OF LATRINE FACILITY

TYPE	PERCENTAGE
Flush	55.55
Manual Service	44.45
TOTAL	100

- While some have access to electricity in the house, others use kerosene for the purpose of lighting lamps in their houses. There are frequent power-cuts which greatly retard weaving activity. Potable drinking water is the need of every human being. There are various water sources available to the people, either within or outside the premises like hand pumps, wells etc Better facilities like cooker, sewing machine, iron, radio, tape, bicycle, T.V, fan, fridge, scooter, motorcycle, cell phone etc are also being used increasingly by the workers. But the workers also suffer from minor as well as major illnesses like eye problems, backache, B.P problems, gall bladder stone, diabetes, asthma etc.

PROBLEMS: Despite comparatively better socio- economic conditions of Sualkuchi weavers than the weavers in the rest of

the country, they too are struggling to overcome a few problems that are hindrances in their living.

1. Whatever the people of Sualkuchi are, are due to their own efforts. They have not received any form of major government support so far. Sometimes yarns are made available at subsidized rates but it is beyond the reach of the poor weavers.
2. Previously dyeing, reeling, spinning etc were other activities carried out by the people of Sualkuchi but today their work has been confined only to the weaving activity. Muga is not readily available. Artificial silk mostly Tassar is now being used in the process of weaving.
3. There is shortage of skilled and expert weavers, lack of finishing and processing facilities, efficient marketing facilities, modern designs, guidance for pricing and packaging.
4. Besides this, the acute shortage of power is a major concern, which slackens production during the peak hours.
5. The wages that the weavers get after toiling hard for the whole day is very low. This is because the weavers are unaware of the real value of their products in the international market.
6. The weaving workforce in Sualkuchi is predominantly hired and migratory in nature.
7. At present Sualkuchi silk is facing the most prominent threat from China with its superior and cheap products in Mulberry and Chinese Tassar which appears like Muga.
8. Above all, the government schemes are not properly implemented.

SUGGESTIONS: Sualkuchi, also known as 'Manchester of the East' is a heritage to the age-old cultural history of Assam. So it should be our endeavour to keep alive our handloom cottage industry.

1. The Handloom and Textiles Department, Assam should take up necessary steps to organize workshops and seminars on co-operative education frequently to make the weaver member of co-operative societies aware and educate them on cooperation.
2. Special attention should be paid in implementing different government sponsored schemes in real sense of the term. EXPOS and Trade fairs should be organized in different districts at least twice a year so that the weavers get opportunities to sell their products.
3. Proper training on weaving using well-developed looms, developed design, dyeing system should be imparted to the weavers.
4. Apart from imparting training, Jacquard and Draw-boy looms should be given to the weavers of weaving cooperative societies.
5. Other Government agencies like Assam Government Marketing Cooperation (A.G.M.C) and ARTFED should also take more helpful steps in marketing the products of weaving co-operative societies of Assam.
6. It is necessary to inspire new generation to take up weaving as a profession. The most important aspect, in my view, is to study the taste and preferences of the modern consumers and accordingly different dresses should be made.

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Socio-Economic and Working Condition of Plantation and Factory Workers : A Case Study of Borbam Tea Estate of Sivsagar District, Assam

Rupon Basumatary
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INTRODUCTION

Notwithstanding the formulation of many labour related policies with national and international applicability, instances of non-compliance to these policies cannot be proved false. The result is that many millions, working primarily in the private and unorganized sectors are forced to work in inhuman conditions. With no options in front, generation after generation, these people are forced to stick to the works they are in. Among these workers, plantation workers such as Tea Tribes constitute a major group. Research works show that these people, besides working in inhuman conditions, also live in poor socio-economic conditions.

Tea Tribes, one of the most backward and poorest agricultural labourers, having their distinct cultural identity, are the backbone of the tea industry of Assam and are identified as a community. So they may be considered for inclusion in discussion about problems of industrial labourers. Moreover these labourers put in labour in the industrial component of the tea estate, thereby making them industrial labourers. They are also considered as a part of great Assamese society. These tribes, who hail from states like Andhra Pradesh, Jharkhand, Odisha, Chattisgarh, were brought to Assam by the East India Company before India's independence. Although not considered as Tribes in Assam, this term is used for them by some Anthropologists and Sociologists; descendents of these workers are called Tea Tribes.

These people are dipped in poverty and depend upon the tea planters. Based in rural and remote areas and endowed with low bargaining power, these people are being exploited and marginalized over time. The socio-economic parameters of them are very miserable.

2. CONCEPTUAL FRAMEWORK

Working conditions refer to the working environment and all existing circumstances affecting labourers in the workplace, including job hours, physical aspects, legal rights and responsibilities. (US Legal:2012, Online).

Socio comes from social, and refers to any number of demographic and social conditions, such as the age structure, racial composition, sex ratio, marriage & divorce rates, and so on. Economic refers to the economic conditions, such as income, unemployment rates, savings rates, and so on (PCREVIEW, 2012: Source- online)

The term 'socio-economic' is used as an umbrella term to cover many social and economic dimensions.

3. THE STUDY SITE

The study site taken for this paper is the Borbam Tea Estate, established in 1865 which is situated on the border of the Nagaland state. The study site belongs to the Amguri Development Block of Sivsagar District of Assam and has a scenic beauty of being situated on the foothill of the Nagaland State. The estate has a highway distance of about 45 KMs from the district headquarter Sivsagar. The estate has a population of about 3575.

The Estate lies on the south bank of the mighty river Brahmaputra. The Estate has its own processing and manufacturing unit. The Estate lies at the approximately equal distance of Jorhat and Sivsagar towns. The Estate is also bordered with other tea estates like Amgoorie Tea Estate, Borshilla Tea Estate etc The term Borbam is believed to have come from the word BOR meaning very and BAM meaning highlands. Thus, Borbam seems to mean very high land and it seems to be true as it is located at the higher grounds of the river Jhanji.

4. OBJECTIVES

This paper has been prepared with the following objectives:

- (a) To study the socio-economic conditions of the workers.
- (b) To understand the working conditions of the workers of the estate.

5. METHODOLOGY

5.1. Data Collection

The study is based mainly on primary data collected through questionnaire prepared for the purpose. Two types of

questionnaire were used: one for households and another for the administrators. A total of 60 households were randomly selected. The household's questionnaire includes data related to socio-economic conditions, educational level of parents, and demographic characteristic of the household. On the other hand, the administrator's questionnaire includes conditions of work provided in the estate.

5.2. Analysis

The information provided in the questionnaire are analyzed in the light of the various labourer related policies enacted by the national governments over time. Crossed verification of information furnished by households and administrators was made to ensure accuracy.

LIMITATIONS OF THE PAPER

- (i) Limited number of indicators of the working conditions were examined to test their conformity to the related policies and guidelines.
- (ii) Limited number of socio-economic variables have been examined.

6. FINDINGS

6.1. Socio-Economic Conditions :

6.1.1. Demographic feature

A total of 60 households were selected randomly for sample. Total population of the sample was found to be 385 where numbers of male and female were respectively 134 and 251 and the average size is 6 per household. This shows that women constitute 65.19 % of the total population, whereas male constitutes only 34.81%, showing a favorable sex ratio towards women which is 1873

female per 1000 male. Child sex ratio¹ is also found favorable towards girl child which is 1206 per 1000 male children. The study also identified about 33.33% of people above 60 years of age including some above 80. But, none of them are found to have been covered under the Indira Gandhi National Old Age Pension Scheme (IGNOPAS)².

6.1.2. Education

The picture of education does not appear satisfactory when compared to the national aggregates. The literacy rate³ is 68.64% of the total population as against the national 74.04%. The percentage is higher for women, 70.11 than that of men, 67.16. Although participation⁴ in primary, secondary and higher secondary education was found, not a single person was found to have completed a higher education degree nor have participated. The study shows that 45.19% participated in primary education, 18.32% in secondary education and 5.13 participated in higher secondary. One interesting finding is that the number of illiterate persons among the higher age group is larger; signifying that participation in education is increasing in younger generations.

6.1.3. Food Sources

Three sources of food were found in the study: Estate provided food, cultivation and PDS. Food items provided by the company include : flour and rice, which are provided fortnightly. These items are provided to the employees and their dependant members of the family. However, all members of the family are not provided the same amount. The amount depends upon the age-group of the member. The quantity provided per member is given in the following table.

Table-1:
Fortnightly Provision of Flour and Rice per member in Kg*.

	For Adult Worker/adult dependant	For those in the age group 9 – 16 years	For those in the age group 2 – 8 years
Flour	3.26	1.44	1.22
Rice	3.26	1.44	1.22

*Source: Report of the Welfare Officer, Borbam Tea Estate.

Apart from the foods provided by the estate, 35% of the households have their own cultivation as food source. Moreover, 33.33% have access to Public Distribution System (PDS) foods including rice, sugar, etc

6.1.4. Household Economy & Employment:

Income here is used in a narrow sense to include earning only from employment in organized sectors. All the households under study have reported to live on a household income below Rs. 5000 per month. The extent of financial inclusion among these people was found dissatisfactory.

The employment, however, is used to include both permanent and temporary employment. As per the Indian definition of working age group, which is 15-60 years, the work participation rate (WPR)⁵ and labour force participation rate (LFPR)⁶ are respectively 28.05% and 38.44%. The average number of dependants was found to be 4 per households. All the employed persons found in the study are employed in the estate itself and

not anywhere else. Among them 75% are permanent and the remaining 25% temporary. The percentage of male permanent employee was found higher than that of female counterparts. The picture, however, is reverse for temporary employee.

7. WORKING CONDITIONS

7.1. Safety Measures, First Aid and Compensation for accidents

Provisions of safety rules are there in the Factories Act, 1948 and Plantation Labour Act, 1951.

The Estate has taken adequate measures to prevent accidents at workplace and occupational diseases. Similarly risky machines are fenced, wheels protected, sprayers provided protective scientific aprons, goggles, shoes, spraying gloves, regular health check up and certification by medical inspector of plantation every three months. The pesticide handlers are trained. Besides, women and persons below 18 years are not given to handle hazardous chemicals such as pesticides.

The estate uses the norm of Maximum Residual Limit (MRL)⁷ while using pesticide and insecticide in the plants. Weather protection is provided to the workers. The workers are provided various materials such as umbrella, slippers, apron, and protective dress.

First aid Kit Boxes are there in the working places as per the latest specification. Trained personnel are there to handle the kit.

For its safety measures, the estate has also been certified HACCP (Hazard Analysis Critical Control Point), certified by New York Based RA (Rainforest Alliance)⁸ and ETP (Ethical Tea Partnership).

Compensation is paid to the workers for worksite accidents leading to disablement - permanent or temporary- as per rule⁹.

7.2. Worksite facilities

Congenial worksite facilities are seen to be provided to the workers in factory. Changing rooms have been provided separately for male and female in the working places of the estate. Washing, storing and drying facilities are also provided to the workers in the workplace.

In the working places there are sanitary facilities such as latrine and urinals separately for male and female. There are 9 latrines and 9 urinals in the tea factory separated for male and female with appointed sweepers.

Clean drinking water with cooling facility for summer season is available in the factory working place. Drinking water and tea are supplied from the factory to the garden workers while they are at work.

Government Anganwadi Centres (AWCs) are there within the Estate. Besides, there are three numbers of crèche for children of working people. These crèches are attended by trained women attendants. Gruel meals are provided to the children in the crèche. Moreover, in the Estate, there is a 'Prayas' specially provided for physically challenged children where they are given different types of education. These crèches are found to be adequately spacious.

7.3. Recreation Facilities

Plantation Labour Act, 1951 makes provision of recreation facilities in the plantation¹⁰.

Recreation facilities are provided to the workers. Sports facilities, separately for staff and workers, have been provided. There are facilities for indoor and outdoor games. Football, cricket, badminton etc are played in the estate.

Shelter and Rest rooms are provided in the estate. There are also clubs such as Mother's Club, Staff Club, Girls' Club etc.

7.4. Working hours, rest or interval at work, lunch rooms

The factories act, 1948 and PLA, 1951 limit the maximum weekly working hours to 48 hours for an adult worker and 27 for an adolescent. These are seen to be followed in the estate. The working hours are different for adult - 8 hours i.e. 48 hours per week and adolescent - 4 hours i.e. 24 hrs per week. During these working hours, two intervals are given, splitting the working hours into less than 5 hours each as required by the provision of section 55 of the Factory Act, 1948. These are: lunch break - 1 hour and tea break - 1/2 hours; such that total hours spent in the factory and garden do not exceed the deadline of 10 and 1/2 hours set by the Factories Act, 1948 and 12 hours as set by PLA, 1951. Besides, Nursing breaks are provided to the nursing women. The Estate authority also provides rest and lunch rooms inclusive of canteens. The Estate has lunch rooms with water facility and adequate lighting and ventilation.

7.5. Wage rate, Bonus & Gratuity

Wage rates are determined with consideration of the PLA and the minimum wage rate is set by the governments. No difference is there between the wages of male and female, which complies with the Equal Remuneration Act, 1976 and the provision of ILO Equal Remuneration Convention, 1951. They are paid at the rate of Rs 84 a day while adolescent (15 to 18 years) are paid at the rate of Rs 42 a day. The wage rate is well above the minimum wage rate set for Tea Plantation workers in Assam which is Rs 66.50 for an unskilled ordinary worker.

Workers are paid bonus as per rule¹¹. The minimum percentage of bonus is 8.33% of the wages earned during the accounting year and the maximum percentage paid is 20%. This provision of bonus corresponds to the Bonus Act, 1965. Gratuity is also paid to the workers after retirement as per acts¹².

7.6. Leave and holidays

There are provisions for leave with wages. The working and leave days ratio for an adult worker is 20:1 i.e. for every 20 working days, 1 day leave is provided. For an adolescent worker, it is 15:1. A fourteen days leave is also granted for sickness. Moreover, pregnant women are entitled to medical care and granted leave as per the national law. There is provision for maternity leave which is 84 days. These provision complies with the Maternity Benefit Act, 1961 which provides for 12 week leave and Articles 47-50 of ILO Plantation Convention, 1958 (No. 110). However, no paternity leave is granted.

The Plantation Labour Act, 1951, and Article 43 of ILO Plantation Convention, 1958 (No. 110) make provision for one day rest in a period of seven days to all workers. In the Estate, Sunday is observed as weekly holidays for the garden labourers. On the other hand, for the factory workers, it is Monday. The Estate also observes some specific State/Union holidays.

7.7. Child Labourer and Night Work

The Child Labour (Prohibition and Regulations) Act, 1986, the Factories Act, 1948, and the ILO Plantation Convention, 1958 (No.110) prohibit employment of children below 14 years of age¹³.

These provisions are seen honored within the Estate. Child labourer is not seen in the Estate. The estate does not employ a person if he/she is below 15 years.

Section 66 and 71 of Factories Act, 1948 and Section 25 of PLA, 1951 prohibit employment of women and children during night. Night shift workers are there in the estate. However, the estate does not employ adolescent and women in the night shift.

7.8. Insurance

Membership of the Assam Tea Plantation Provident Fund Scheme (1955) and Deposit Linked Insurance Scheme (1984) are available to the employees of the estate. In the estate, 12% PF deduction is made from the wages of the workers.¹⁴

8. OTHER AMENITIES PROVIDED BY THE AUTHORITY AT PLACES OF RESIDENCE

8.1. Education

There are three Lower Primary Schools in the estate. These schools have now been taken over by the Government. Earlier these were under the sponsorship of the estate. The estate has also made a special arrangement for the education of physically challenged children by providing buildings known as 'Prayas'. Library facility is also provided with a capacity of sufficient number of users and adequate number of books. Moreover, the estate provides transport facilities to school and college students at no cost. Scholarships are also provided to the meritorious students within the estate.

8.2. Water Facility

Water is provided to the workers by the estate authority. There is a central Iron Removal Filtration plant and water is provided through some distribution points with pucca platforms. All households were found to have access to the same water source- pipe water provided by the estate. However, 11 households (18.33%) stated the presence of problems of distributed water.

8.3. Housing & Sanitation

The Plantation Labour Act, 1951 makes provision for Housing

to the workers. In the estate, housing is provided to all the permanent workers as per the specification of the government from time to time. No rent is collected for the houses provided. The basti workers (workers from outside the estate) are not provided housing but are paid Rs 100 per month instead. Sanitary amenities such as Latrine and Bathroom are provided to the permanent workers of the estate along with housing facilities. However, seven households (11.67%) are dissatisfied with the housing conditions and 45% of households have reported to have faced sanitation problems including Latrine and Bathroom.

8.4. Cooking & Other Materials

Firewood is provided to the labourers and the staffs are provided cooking gas. Workers are also provided slippers, blanket, mosquito net etc in respective seasons. 100% of the households have reported to have availed these materials. Moreover, other kinds of assistance are provided to the workers in certain domestic ceremonies.

8.5. Access to health services

The estate has its own two hospitals, one dispensary and ambulance facilities with adequate numbers of personnel. All types of employee - permanent along with their dependants and casual workers have access to the health facilities free of cost. Moreover, the dependants of casual workers are also given first aid treatment whenever required. All costs are borne by the estate. Only 5% of the households have reported medical problems within the estate.

8.6. Awareness programmes

Awareness programs are periodically held by estate on various subjects such as women trafficking, education, health,

various kinds of diseases, family planning, alcoholism, sanitation etc 100% of the households reported to have participated in at least one awareness programme.

9. CONCLUSION

The study has found that there is a good compliance to the national policies and ILO guidelines as regard to the working conditions in the tea estate under study. Rather many welfare based programmes and amenities are provided to the workers and dependents which go a little beyond what is required to be provided as per rule. Labourer strike and factory lock-out is not seen for the last many years in the estate; in general dissatisfaction has not arisen among the workers in these years.

References and Notes :

1. Child Sex Ratio = (female child in the age group 0-6 years) x100/male child in the same age group
2. As per the IGNOPAS, w.e.f. 01.04.2011, a BPL person in the age group 60-80 years is eligible for Old Age Pension with an assistance of Rs 200 per month. Besides, those above the age of 80 years are eligible for assistance of Rs 500 per month.
3. The literacy rate as per Indian Census is defined as percentage of literate people of the population above 7 years of age.
4. The term participation is used to mean both those people who had attained a certain educational level and those people who are enrolled now. Besides, minors are also taken into consideration while calculating the figure.

5. Work force participation rate (WFPR) is defined as the percentage of work force to total population. $WFPR = \frac{\text{Work Force} \times 100}{\text{Total Population}}$. Work force includes those people in the age group 15-60 and who are participating in economic activities. WFPR shows the percentage of employment in the economy.
6. Labour force include those people in the age group 15-60 engaged in both economic and non-economic activities. Labour force participation rate is defined as the percentage of labour force to total population.
7. Maximum Residue Limits (MRLs) are the upper legal levels of a concentration for pesticide residues in or on food or feed based on good agricultural practices and to ensure the lowest possible consumer exposure. The regulation of MRLs is applicable since 2008 with a harmonized EU MRL that has replaced the previous national MRLs.
8. Certification criteria, among others, includes ecosystem conservation program, protection of wild animals and waterways, prohibition of contracting children under the age of 15, use of protective gear for workers, guidelines about agro-chemical use, and prohibition of transgenic crops.
9. Section 8 of the Workmen's Compensation Act, 1923 makes provision for compensation due to accidents. The amount however is decided by the appointed Commissioner. This provision is reproduced in the PLA, 1951.
10. Section 13 of PLA, 1951 states "The State Government may make rules requiring every employer to make provision in his plantation for such recreational facilities for the workers and children employed therein as may be prescribed".
11. As per Bonus Act, 1965, every employer shall be bound to

pay to every employee a minimum bonus which shall be 8.33 per cent of the salary or wage earned by the employee during the accounting year or one hundred rupees, whichever is higher, whether or not the employer has any allocable surplus in the accounting year.

12. Section 4 of Gratuity Act, 1972 states that the gratuity amount does not exceed Rs 3.5 lakh.
13. Section 66 of Factories Act, 1948 says "no woman shall be required or allowed to work in any factory except between the hours 6 A.M. and 7 P.M." Section 71 of the same act prohibits employment of child in the period of 10 PM to 6 AM.
14. As per amendment-dated 22.9.1997 in the Act, both the employees and employer contribute to the fund at the rate of 12% of the basic wages, dearness allowance and retaining allowance, if any, payable to employees per month.

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Socio-Economic Condition of Tea Garden Labourers of Assam : Special Reference to Golaghat District

Jyotimala Hazarika

Introduction

Tea Industry plays a very significant role in the economic development of Assam. The importance of the tea industry in the nation's economy and its role in our planned economic development have been widely recognized. It is the largest organized industry which comprises more than a million of workers employed both in plantation and manufacturing industry. Most of the workers who have been employed in the tea estates of Assam are those who have migrated in the early part of twentieth century from other parts of India particularly from Odisha, Madhya Pradesh and Andhra Pradesh. Some of them have also come from Chotanagpur area of Bihar and eastern U.P. The special feature of the industry is that it not only employs the male members of the family but also women members and children above the age of 12 years. Women and children are considered better tea pluckers.

Although tea is one of the oldest organized industrial sectors in the country, the socio-economic conditions of workers employed in this sector still continued to be a deplorable state. These workers

are educationally backward and they live in totally unhygienic condition. Their economy mostly depends on daily wage and most of them live below poverty line.

Assam is the pioneer of tea production and is known as the 'Garden of the tea world'. The tea tribes are generally labourers. They live in villages, inside tea-estates. These estates are located in inferior places. They are exploited by the tea planters. The labourers have to face various problems such as non-education, low income, poverty, poor standard of living, poor health facilities etc

Although production and cultivation of tea in Assam is increasing substantially over a period of time but the condition of the tea garden laborers is deteriorating. The welfare schemes for the labourers in the tea gardens are in a vary pathetic condition. Majority of the tea gardens do not have proper health facility, drinking water, sanitation etc It is obvious that without a parallel upliftment of the tea garden labourers along with that of other people, no real development can take place in a society. Moreover thousands of tea garden labourers are still deprived of various departmental schemes and programmes undertaken by the government.

Objectives

In this paper attempt is made to study the socio-economic conditions of tea garden labourers.

1. To analyze the prevailing socio-economic conditions of the workers in tea industry and see how best these could be improved upon for the betterment of this poor working class.
2. To examine the wage structure, other social security measures, education facilities, health facilities of the tea garden labourers.

3. To analyze the problems of income earning and saving behaviour of the tea garden labourers.
4. To make an objective assessment of the needs and prospects of women employment in tea estates.
5. To suggest measures to ensure satisfactory level of development of workers in tea industry of Assam.

Methodology

This paper is prepared with the help of information collected from different sources. Primary data are collected by personal interview, from different offices and organizations such as ACMS and Assam Tea Plantation PF and Pension Fund Scheme, Nidhi Bhawan, Golaghat. Secondary data are collected from different books, journals, news papers etc

Scenario of Golaghat District

Tea garden labourers have to depend upon the daily wage which is not satisfactory and thus most of them live below poverty line. As the per capita income of the tea garden labourer is very low, their saving potential is low. The power to save and will to save of these tea garden labourers are low. They are not aware of the advantages of increased savings. Most of the tea garden labourers are spendthrift. They spend their income on the consumption of some harmful habitual activities such as liquor.

Golaghat district covers the total area of 3502 sq km and is located 100 meters above sea level. It lies between 93016' East to 94010' East longitude and between 25050' North to 96047' North latitude. The district is bounded by Brahmaputra River on the North, Jorhat and Nagaland on the East, Karbi Anglong and Nagaland state on the south and Nagaon, Karbi Anglong on the West. The total population of the district has been recorded as 9,46,279 comprising of 4,90,286 males and 4,55,993 females.

The Economy of Golaghat district is dependent on agriculture. Crops grown in the district are sugarcane, tea and rice. Tea industry is one of the major industries of Golaghat district. At present there are 106 tea gardens in Golaghat district. Besides male workers a large number of female workers are employed in these 106 tea gardens. But the socio-economic condition of the workers still continue to be a deplorable state. They have to live in unhygienic condition. Most of the women have suffered from diseases. The nature of care taken during the reproductive stage is an important determinant of women's health. Most of the women are not aware of the fact that better nutrient food is important not only for a mother but also for her baby. The wage which the labourer receives is not sufficient to meet their basic needs. Thus their power to save is low.

The rates of daily wages of tea garden workers of Golaghat district are the same with all the tea garden workers of Brahmaputra valley. It is presented in the following table.

Table 1:
Rates of daily wages of tea plantation labourers
of Golaghat District (2001-12)

Sl. No	Wage Rate in (Rs.)	W.e.f.
1	37.60	1.4.2001
2	43.50	1.4.2002
3	48.50	1.4.2003
4	51.10	1.4.2006
5	51.10	1.4.2007
6	54.80	1.4.2008
7	58.50	1.4.2009
8	66.50	1.4.2010
9	71.50	1.4.2011
10	84.50	1.4.2012

Source : Nidhi Bhawan, Golaghat
A.T.P.P.F. & P.F. scheme, Golaghat Zone

It is clear from the above table that the wage which the tea garden labourer receives is not sufficient to meet the basic needs of the family. It is not possible for the labourer to improve the living standard in the present employment. Thus savings for old days or future needs is not possible for them.

In this context the concept of vicious circle of poverty can be mentioned. The vicious circle of poverty (Ragner Nurkse) implies that an economy is poor because it is poor. The vicious circle of poverty operates both on the demand side and the supply side. The demand side of the vicious circle is that the low level of real income leads to a low level of demand which in turn leads to a low rate of investment and hence back to deficiency of capital, low productivity and low income. On the supply side low productivity is reflected in low real income. The low level of real income means low savings. The low level of savings leads to low investment and to deficiency of capital. The deficiency of capital in turn leads to a low level of productivity and back to low income.

Educational Facilities

An educated woman almost always has more value and status in the eyes of her family and her community. She is more likely to share in family decisions about how many children to have, how to bring them up, how to spend money, how to organize domestic affairs etc. An educated woman can raise a healthier family. Education thus is considered to be essential in order to raise the status of women in the family and society as well as to improve the quality of family and society.

In case of the tea garden it is seen that in most of the families, both the father and mother are generally employed as wage earners. As a result, a girl child is to look after her younger brothers and sisters; and also to take care of the domestic work during the working hours of her parents. Thus, in many families it has

been found that the girls of school-going age are not sent to school. The traditional attitude such as "education is not very important for girls" still exists in the tea gardens. In the opinion of the workers, it is more important for girls to learn their roles and domestic duties so as to get prepared for their future married life.

Most of the gardens have opened primary schools for children education. But the attendance in the schools is not satisfactory. Except in a few gardens most of the schools have less than 100 students on the roll. A survey commissioned by Assam Sarva Sikhsha Abhiyan Mission during 2002 shows that 25% of children in the age group of 6-14 are out of school in entire Assam, while 43% are among the tea garden. The Assam Sarva Sikhsha Abhiyan Mission constituted the Tea Garden Education Committee and Assam Human Development Report estimates that 1000 tea garden education committees were set up by 2003. Presently, the state government manage tea garden schools in the Barak valley and Golaghat district in the Brahmaputra valley. The remaining schools are managed by the management companies. Among the government schools in the tea garden, 11.82% of workers received educational facilities in the Barak valley while it is 2.04% in the Brahmaputra valley.

Experimentally I had visited a few tea gardens of Golaghat district. The schools situated within the jurisdiction of these tea gardens are as follows. In Numaligarh T.E. there are only four L.P. Schools and one M.E. school. In Naharjan T. E. there are one L.P. School, one M.E. School and one High School. In Balijan T.E. there is only one L.P. School. In most of these schools infrastructure is not satisfactory. Majority of the tea gardens have only a lower primary school with a very small number of students.

Health Status

Under the plantation labour act 1951, each tea garden should have a health centre with adequate facilities. As the tea garden is remotely located and does not have proper connectivity to the nearest town areas in many cases, therefore, having a health centre should be the prime concern of each tea garden. The health facilities to the tea garden labourer in Assam valley are provided to only 3.38% of the total work force. The majority of the tea garden workers belong to single owned tea gardens, therefore, as a whole the health condition in the tea gardens is pathetic. In these hospitals, only those patients are treated who are either permanent or casual workers. During the lean season when the casual workers are out of work, they are unable to avail any medical facility.

Tea is one of the few industries that mainly depends upon women labourers. In Assam gardens 45% of women are employed in tea plantation. The job of plucking is done mostly by the women workers and the strength of the women labourers in a garden is almost equal to and even more than, that of men. The women workers of the tea plantation often remain busy with their work in the tea beds for a longer part of the year. After the day's work when they return to their home, they have to perform almost every household duty.

There is very limited time to take care of themselves. On the whole the women workers by and large do not get time for recreation and relaxation. The situation however, is not identical with the men folk. After finishing their work in the plantation, they generally spend the evening without any definite work to do. This continuous excessive strain, coupled with an imbalanced and under nutritious food-habit, may probably have contributed towards the frequent incidence of a number of diseases among the women.

Most of the women workers have been found to suffer from diseases like backache, chest pain, knee pain, gastritis, cough and

cold etc. Interestingly, most of the respondents have taken these ailments as part and parcel of their working life, and as such they generally do not go for any kind of treatment for the same.

Public Distribution System

The public distribution system in the tea gardens is the oldest food distribution system in the country. It was started during the later part of the nineteenth century by the British tea merchants to provide rice and other items to the labourers. During the 20th century, the system was rationalized and food items were provided only to those who were employed. During the post independence period, it was locally known as 'Ration' and was extended to many items. Rations are provided to those who are employed as casual workers for four months in a year during the plucking seasons. Thus being a tea garden labourer, majority of the labourers who are generally not working in the tea garden as well as who work as casual labourers were denied rations under the tea garden system of PDS. As to receive subsidized items from local fair shops, the labourers need to have a ration card, which they usually do not have.

In Assam social security scheme viz the 'Assam Tea Plantation Provident Fund and Pension Scheme 1955' was enacted to provide provident fund and pension to the workers engaged in the tea gardens of Assam; there is deducted 12% as P.F. contribution from wages of the employees of the garden and a matching share from the management has been merged with the above P.F. and after cessation of work they get the whole amount with interest as P.F. dues. They get the pension benefit also.

The data on total number of P.F. members (permanent & temporary), the P.F. dues and pension benefit received by the tea garden workers of Golaghat district have been presented in the following table.

Table -2
P.F. & Pension Benefit received by the workers of Golaghat District (2009-2012)

Year	No. of P.F. Members				No. of Workers who Received Pension			
	Permanent	Temporary	Total	A/c Settled	Family	Amount Settled	Revised	Amount Settled
2009-2010	39394	11888	51282	1280	738	33,01,147.00	744	21261566.00
2010-2011	39,658	11,901	57,559	1707	1447	5132775.00	631	15667495.11
2011-2012	41,611	10,994	52605	1703	1525	73,06,650.00	1201	37465430.00

Source : Nidhi Bhawan, Golaghat
A.T.P.P.F. & P.F. scheme, Golaghat Zone

Suggestions

1. It is essential to provide educational facilities to women workers. Majority of the tea garden women workers are reluctant to send their daughters to schools. This attitude has to be changed.
2. Awareness should be created among the women workers. The management should provide more opportunity for them to expose themselves to the outside world.
3. The labourers should be made aware of the harm caused by their heavy drinking habits.
4. Promotion of qualified persons in different sectors are also very much needed, since lack of leadership is one of the major problems. The children who are interested in studies should be given free education not only in primary school but also in higher education.
5. The government should take up schemes for the general well being of workers employed in this sector.
6. Leisure and recreation facilities should be equitably distributed. Women should get much more leisure time than their male counterparts.

Conclusion

In conclusion it can be said that no real development can take place in a society without the development of tea garden labourers. Education is one of the important indices of the social status of an individual in a society. It is not only insurance for women in times of need, but also an assurance for the full fledged development of their personalities. Development of tea garden labourer would become a reality only if necessary changes in socio-economic conditions take place.

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Socio-Economic Condition of Tea Industry Labourers in Tinsukia District of Assam

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ASSAM TEA-AN INTRODUCTION

Assam is the major producer of quality tea in India, contributing about 55 percent to country's total tea production. It is generally believed that the people of Bodo tribe brought Tea into Assam (India line, 2008). But they produced tea for themselves and hardly took it outside Assam. As pointed out by Bhuyan (Bhuyan, 1974) the tea plant was discovered in 1823 by Robert Bruce, merchant and soldier of fortune, during his visit to Rongpur, where he was imprisoned by the Burmese. A Singpho chief furnished Bruce with some plants and in the year 1824 he gave some of these plants to his brother C. A. Bruce who later handed them over to David Scott. Scott in turn gave a few specimens of it to the Botanical Garden, Calcutta (Kolkata). This discovery enabled the East India Company to develop a trade, which China had hitherto monopolized. The first consignment of 12 boxes of

tea manufactured by the Singpho chiefs was shipped from Calcutta (Kolkata) to London in 1835. The first auction of tea took place in London on May 26, 1841, which was conducted by M's McKenzie Lyll & Company in which 35 chests of tea made by the Singpho and 95 chests from the government plantation of Assam were offered (North East Enquirer, 2002). The biggest research centre of tea in the world, now situated in Jorhat, was started in Calcutta (Kolkata) in 1900 by India Tea Association. In 1904, a laboratory was started at Heelea-kah Tea Estate near Mariani, Assam. In 1912, the laboratory was shifted to Tocklai (Jorhat) and was renamed as Tocklai Experimental Station. In 1964, the experimental station became Tea Research Association (TRA). The first Indian to start planting of tea was an Assamese nobleman Maniram Dutta Barua, popularly known as Maniram Dewan. He was a Dewan of Assam Company until he resigned in 1841 to start his own tea estate. After Maniram Dewan's pioneering efforts, many others, mostly Assamese, came forward to plant tea. Someswar Sharma became the first Indian Superintendent of the tea industry of the Mauband Tea Company, Jorhat. After independence things started changing. The British-owned industry changed hands. Although the Jalans, Saharias, Ahmeds, Kanois, Darshan Lalls and a few others were already there, the reputed industrialists of India like the Birla, Khetan, Poddar, Paul, Shetia, Rhuia and Tata amongst others became the major producers of Assam tea.

ASSAM TEA INDUSTRY

Today there are more than seven lakh tea garden labourers engaged in more than 900 tea gardens (North East Enquirer). Cinnamora Tea Estate was the first Tea Garden of Assam established by Maniram Dewan in 1850. According to the

Directorate of Tea, Govt. of Assam, there are about 28,000 small Tea gardens in the state producing about 75 million Kgs tea annually. According to another report, Assam has over 800 tea plantations that are of medium to large size. There are also over 200,000 small-scale cooperative and individual tea farms. On an average, Assam produces over 500 million kilogram of tea per year, making it the largest tea growing region in the world (North East Enquirer). The Tea Board has opened a cell at the Assam Agricultural University to train small tea growers with the aim of improving the quality of Assam tea. Assam's tea industry is dependent on about two million labourers almost all of whom are the descendents of those who were brought to Assam as slaves first by the East India Company and later by the British rulers and entrepreneurs from 1830's through 1920's, mostly from the Santhal Parganas district of Bihar (now in Jharkhand state). The descendents of these slaves are now called Tea Tribes (Chatterjee and Das Gupta, 1981; Verghese, 1996). The tea tribes form the backbone of the Assamese tea industry. The tea-tribes are found mainly in the districts of Darrang, Sonitpur, Nagaon, Jorhat, Golaghat, Dibrugarh, Cachar, Hailakandi, Karimganj, Tinsukia and partially almost in other districts of Assam. It may be mentioned here that Santhali speaking tea tribes are also found in parts of Kokrajhar and Bongaigaon districts. The population of Santhali speakers is about 135,900. People from the Singpho, Bodo, and Moran and Kachari tribes are also involved in growing, and harvesting of tea. Tea-tribes of Assam are among the backward and most exploited Tribes in India, though their newer generation is comparatively educated and now it has intellectuals and professionals in various fields.

STATUS OF TEA INDUSTRY LABOURERS IN ASSAM

According to Sriram Ananth reports, Assam alone produces more than 50% of India's total tea, and the Assam economy is deeply reliant on tea-exports of around 1,50,000 tonnes yearly, both within India and internationally, fetching over Rs 400 crore in foreign exchange every year and resulting in an industry turnover of over Rs 3000 crore per annum. Across many plantations in Assam, most of which are situated in the upper parts of the state, the condition of the tea garden labourers is nothing short of abysmal. Adivasis brought in as indentured slave-labourers from Central India by the British form the vast majority of the labourers, with the rest consisting of other local tribal communities, as well as Nepalis, Bengalis, Oriyas and so on. During the initial decades from the 1850s till the 1920s under the British, the working conditions were akin to harsh slavery, with flogging, torture and even the throwing of dead workers in rivers. While certainly not comparable to earlier times, the working conditions today are still far from being the well-regulated environment that functions according to the Plantation Labour Act promulgated in 1951 to protect the interests of labourers in plantations, who form the single largest organized sector workforce in Assam and the entire Northeast region numbering anywhere between 8 to 10 lakh depending on the season.

The North Eastern Social Research Centre based in Guwahati conducted a comprehensive study in the year 2004 across 172 tea gardens in Assam along with numerous interviews and group discussions with labourers and families. The study brought to light numerous violations of the Act, including inadequate or completely non-existent provisions for drinking water, crèches, schools, proper health facilities, sanitation for women workers and shelter. Women, who are the backbone of

the tea industry and the large majority of the workforce, face even harsher working conditions. In all the tea estates visited, one could not spot a single crèche for infants and toddlers. Sanitation facilities were either inadequate or completely non-existent. There have been many instances of verbal, physical and even sexual abuse. Women are in fact preferred as labourers because most managers feel that they are particularly suited for garden work and easier to exploit. Thus, while women workers for the most part get the same as their male counterparts, not a single woman can be spotted in the plantation factories where the wages for workers are marginally higher than their garden counterparts. It must also be added that tea garden labourers are forced to accept increasing labour exploitation due to harsh material conditions and lack of choice. Some who have access to cultivable land tend to be better off and more self-sufficient, at times working in the gardens only for short durations of time out of temporary necessity. Those possessing no land or having uncultivable land, and who leave the gardens, often end up as informal labourers in nearby towns and cities. Education levels, health indicators and poverty levels for these labourers are among the lowest in Assam. Many families find it difficult to get their children into educational institutions and later on in finding proper employment. Thus the oppressive environment of the tea garden is often the only recourse for many of these families.

OBJECTIVES OF THE STUDY

The investigation has been carried out with the following two objectives :

1. To examine the social situations including education, health, and housing & sanitation of the Tea Industry Labourers (in the study area)

2. To understand the economic conditions - livelihood pattern, income, expenditure, alternative skills (if any) - of the Tea Industry Labourers (in the study area).

METHODOLOGY OF THE STUDY

For the purpose of the study all the permanent labourers employed in the sample tea garden i.e., Margherita Tea Estate are categorized according to their assignments in operational areas of management like- Plantation, Factory/ Office, Hospital and other areas. On being categorized, ten percent of each category is randomly taken as sample. Thus there emerged 80 sample workers for intensive study. This is shown in Table-1

Table-1

Grouping of the total labourers in the sample tea garden according to their assignments in operational areas of management and the number of sample labourers selected from each group

Respondent Group	Total Workers (No's)	Sample selected(No's)
Plantation Labourers	270	27
Factory/Office Labourers	210	21
Hospital Labourers	160	16
Other Labourers (Watchman, Driver etc)	160	16
Total :	800	80

Sources : Field Survey

NB: 10% of each of the activity areas of the sample organization is taken for intensive study. Thus the total samples come to 80 workers. This is presented in Table-1.

The sample includes various demographic characteristics like literate/illiterate, married/unmarried, rich/poor, technical/non-technical, etc group of labourers to quantify the parameters of socio-economic status of the tea garden labourers in area under study.

The present study is conducted on the basis of primary data collected by the investigators (Authors of this paper) through direct personal interview with the sample labourers by use of a structure schedule designed for the purpose.

In analyzing the data, statistical tools like simple average & percentage are used.

ABOUT THE STUDY

The Sub-Division of Margherita has seven big tea gardens with their factories aimed by the industrial giants like the McLeod Russel India Ltd. (Williamson Magor Group) and Tata Group in addition to six other small tea processing units and large plantation areas owned by the local entrepreneurs. The present study is conducted on the labourers of the oldest tea gardens of the sub-division Margherita Tea Estate (under McLeod Russel India Ltd.).

The Sub-Division of Margherita (Tinsukia District) is the pioneer in the industrial history of the entire North Eastern Region. The Railway and Trading (AR&T) Co. began their network of industries by opening coal mines and raw-mills in this locality during the later part of 19th century. They looked around and found the soil and climate suitable for the tea and the southern bank of the river Burhi Dehing- that passes through the heart of the Sub-Division; and in 1891 established the tea estate with an area of 78 bighas of plantation. The management of the tea plantation was handed over to M/s Makum Assam Tea Co. and in 1892 Dr. John Berry White was inducted as the founder chairman of the company in 1894, an area of 1000

bighas of land was acquired and a total of 1500 workers were engaged for plantation purposes. At present, owned by the industrial giant McLeod Russel India Ltd., the Margherita Tea Estate has around 614 hectares of plantation area. The study takes the 800 permanent labourers of the Margherita Tea Estate as its universe. It is important to note that in addition to the permanent labourers the management employs host of casual/ temporary labourers particularly during the plucking season on need based basis. The temporary workers do not come under the purview of the study.

SOCIAL PROFILE

Tea Garden Labourers have their own unique social profile distinct from other demographic groups. The study makes a humble attempt to draw a brief social profile of the sample Tea Garden Labourers. This is presented in Table-2

Table-2
Social Profile of the sample Tea Garden Labourers

Sl No	Indicators of social profile	No. of sample respondents	Percentage of total sample
1.	Gender category:		
	Male	50	62.50
	Female	30	37.50
2.	Age group of the respondents:		
	Below 20 years	01	01.25
	21-30 years	28	35.00
	31-40 years	25	31.25
	Above 40 years	26	32.50

Sl No	Indicators of social profile	No. of sample respondents	Percentage of total sample
3.	Marital status:		
	Married	70	87.50
	Unmarried	10	12.50
4.	Spatial origin:		
	Assam	14	17.50
	Jharkhand	30	37.50
	Odisha	25	31.25
	Others	11	13.75
5.	Linguistic origin:		
	Assamese	05	06.25
	Hindi	08	10.00
	Telegu	06	07.50
	Nepali	10	12.50
	Oriya	35	43.75
	Bengali	16	20.00
6.	Religious belief:		
	Hindu	58	72.50
	Muslim	-	-
	Christian	22	27.50
	Others	-	-
7.	Caste group:		
	General	20	25.00
	ST	-	-
	SC	-	-
	OBC	26	32.50
	MOBC	34	42.50
8.	Level of education:		
	Illiterate	28	35.00
	Primary	17	21.25
	High school	15	18.75
	Matriculate	13	16.25
	H.S	04	05.00
	Graduation & above	03	03.75

Sources: Field Survey

Problems of Industrial Labourers in Assam

1. GENDER

One important characteristic feature of tea-garden labourers in general is that a substantial proportion of female also participate in the workforce. This may be due to the fact that certain activities like plucking, sorting etc are better done by the female labourers than their male counterpart. In the present survey it is found that 37.5 percent of the total samples workers are female as against 62.5 percent male labourers.

2. AGE GROUP

Tea garden labourers more particularly the plantation labourers generally get into employment at their early ages. As their level of education is low they are left with no option but to join as workforce in tea gardens to earn their living. The finding of the present study as presented in Serial No 2 of Table-2 reveals that out of the 80 sample workers in the garden under study as many as 54 are within the age group of upto 40 years, thereby constituting 68.75 percent of the total sample workers. This means that as many as 68.75 percent of the sample tea garden labourers are young.

3. MARITAL STATUS

Tea garden labourers generally get married early. Their social milieu is developed in such a way that no boy or girl remains unmarried for long time. Of course, now a days with spread of education among the tea-garden labourers, the practice of early marriage is checked to some extent among the educated folk of the tea garden community. In fact, it is the illiteracy of the workers that induce them to marry early without recognizing its adverse impact on the society by way of population explosion. The finding of the present study as reflected in (Serial no 3) Table-2 reveals that a large majority (87.5%) of the tea garden labourers are married.

4. SPATIAL ORIGIN

The spatial origin of the sample labourers as highlighted in Table-2 (Sl. No. 4) reveals that a large majority of the tea-garden labourers, constituting 68.75 percent of the sample labourers originates from the states of Jharkhand & Odisha. Only 17.5 percent of the labourers originate from Assam as against 13.75 percent from other states of Andhra Pradesh, Madhya Pradesh and West Bengal. This may be due to the fact that the nature of work required to be performed at tea gardens calls for special skill and dexterity on the part of the labourers; on which people belonging to the states of Jharkhand & Odisha command more expertise, for which their ancestors were hired by the British planters during our pre-independence period.

5. LINGUISTIC ORIGIN

So far as the linguistic origin of the sample labourers is concerned Table-2 (Sl. No. 5) reveals that a large majority (43.75%) of tea garden labourers speak in Oriya followed by Bengali (20.00%), Nepali (12.50%), Hindi (10.00%), Telegu (7.50%) and Assamese (6.25%).

6. RELIGIOUS BELIEF

Table-2 (Sl. No. 6) shows that a large majority of the sample tea garden labourers are Hindus constituting 72.5 percent of the total sample. The remaining 27.5 percent labourers are followers of Christianity. Labourers belonging to no other religious belief are found in the sample.

7. CASTE GROUP

So far as caste background of the sample tea garden labourers is concerned 42.5 percent belong to MOBC group, followed by 32.5 percent OBC. The General caste category labourers

constitute only 25 percent of the total workforce in the sample tea garden, vide serial no 7 of Table-2.

8. LEVEL OF EDUCATION

It is disheartening to find that the tea garden labourers have a very poor educational profile. As many as 35% of the labourers are illiterate, followed by (21.25%) read upto the primary school level. Only 16.25% of the labourers read upto matriculation; while only 5.00% passed upto higher secondary level as against only 3.75% having educational qualification of graduation & above.

ECONOMIC PROFILE

Like social profile, the garden working community has its economic profile as well. The economic profile of labourers considerably determines their standard of living; which again considerably depend among others on social profile of the labourers. Thus, socio-economic conditions of labourers are mutually inter-related. Therefore, to depict a clear picture of the socio-economic condition of the tea garden labourers, a study into their economic profile also becomes imperative. This is reflected in Table-3.

Table-3
Economic Profile of the sample Tea Garden Labourers

No.	Indicators of economic profile	No. of sample respondents	Percentage of total sample
1.	Monthly income in rupees :		
	Upto 3300	60	75.00
	3301-7500	18	22.50
	Above 7500	02	02.50

No.	Indicators of economic profile	No. of sample respondents	Percentage of total sample
2.	Monthly savings in rupees :		
	100-500	25	31.25
	501-1000	11	13.75
	Above 1000	NIL	NIL
	No saving	44	55.00
3.	In-debttness:		
	Friend / relative	35	43.75
	Private money lender	20	25.00
	Bank	15	18.75
	Other (employees benefit fund)	05	06.25
4.	Asset Holdings:		
	T.V. and Music	80	100
	Player	80	100
	Bicycle	02	02.50
	Motor Cycle	15	18.75
	Land Property		

Sources: Field Survey

1. MONTHLY INCOME

Monthly income denotes the amount of salary in monetary term that a worker gets from his/her employer at the end of a month. Of course, tea garden labourers get some facilities in kind also in addition to their money income. For the purpose of the study, those additional facilities which are non-monetary in nature, are not included in a labourer's monthly income. Moreover, tea garden labourers get festival bonuses every year, those incomes are occasional and are also not included in the study. To depict

the economic profile of the sample labourers, only the monthly salaries are considered.

It is important to note that the Reserve Bank of India classified our income groups in three categories as under: (a) Economically Backward Community with monthly income upto Rs. 3300; (b) Lower Income Group with monthly income in the range of Rs. 3301-7500 and (c) Higher Income Group with monthly income of above Rs. 7500. This definition was extended by a RBI Study Group to offer guidelines to the banks for determining credit worthiness of bank customers who apply for loans. However, in the absence of any standard definition to categorize the labourers according to their income range, the present study takes the aforesaid guidelines of the RBI Study group to draw economic profile of the sample labourers. Breakup of the sample labourers according to various income group are presented in Table-3. Sl. no.1 reveals that a large majority (75.0 percent) of the labourers belong to economically weaker section of the community with monthly income not more than Rs. 3300; as against 22.50 percent belong to lower income group with monthly income ranging from Rs.3301-7500. The affluent sections constitute only 2.5 percent of the total labourers with monthly income above Rs.7500.

2. MONTHLY SAVINGS

It can be seen from Table-3 (Sl. No. 2) that majority (55%) of tea garden labourers do not have the habit of thrift. Largest number (35.25%) of the labourers saves Rs. 100-500 per month; while only 13.75% save Rs.501-1000 per month. No worker saves more than Rs.1000 per month.

3. INDEBTEDNESS

Table-3 (SL no.3) denotes that 93.75% of the sample tea garden labourers are indebted to various sources. It can be seen from the table that 43.75% of the labourers are indebted to their

friends and relatives followed by 25.00% to private money lenders, 18.75% to banks and 6.25% to other sources like employees' benefit fund.

4. ASSET HOLDINGS

It is interesting to find from Table-3 (Sl. No. 4) that every sample tea garden labourer is having a T.V. set, a music player and a bicycle of his/her own. Even a women labourer owns a bicycle which is used by her son and/or husband. While 18.75% of the sample labourers have reported of having land property; only 2.5% owns motorcycle.

5. RANGE OF INCOME ACCORDING TO SERVICE GROUP

Table- 4

Break-up of the respondents according to their range of monthly income and service group

Respondent group	Total No. of Labourers	No. of respondents with monthly income range of (Rs)		
		Up to 3300	3301-7500	Above 7500
Plantation Labourers	27(100)	20(74.07)	07(25.92)	NIL
Factory/office Labourers	21(100)	15(71.40)	05(24.00)	01(5.00)
Hospital Labourers	16(100)	12(75.00)	03(19.00)	01(6.25)
Other Labourers (Watchman, Driver, etc)	16(100)	13(81.25)	03(18.75)	NIL
Total	80(100)	60(75.00)	18(22.5)	02(2.50)

Sources: Field Survey

NB: Figure in parentheses indicates percentage of group total.

Table-4 presents a dismal picture of the monthly income of the sample tea garden labourers. It can be seen from the table that

as many as 75% of the sample tea garden labourers are within the income range of upto Rs.3300; thereby indicating that as many as 75.00% of the tea garden labourers belong to economically backward community, followed by 22.50% of lower income group with monthly income range of Rs.3301-7500. Only 2.50% of them enjoy monthly income above Rs.7500 which belongs to higher income group.

The table further shows that in all the respondent groups more than 70% of the labourers earn not more than Rs.3300 per month. The largest concentration of 81.25% of the "other labourers" group falls within this lowest range of income. Very few labourers, who earn above Rs.7500 per month, are from Factory/Office & Hospital.

6. SPENDING HABIT ACCORDING TO SERVICE GROUP

Spending habit of labourers constitutes a very significant part of the study on labourers' economic condition. The spending behaviour of labourers considerably depends upon their mental set up which in turn is greatly regulated by the social milieu to which the worker is subjected. A person with small income can also enjoy a progressive life if he/ she is prudent and judicious in spending. On the contrary, a person with sound income may fail to achieve any remarkable progress due to lack of prudence and lavish spending habits. To depict a picture of the spending habit of the sample tea-garden labourers, total monthly income of the entire 80 sample labourers is split into different spending heads as reported by the respondents. Savings being a part of the labourers' monthly income set aside for future spending, it is also included in the list of spending by labourers to absorb the whole income of the sample labourers. This is shown in Table-4. The table shows that the tea garden labourers spend 27.68% of their monthly income on food followed by 19.18% on education, 18.34% on

alcohol & smoking, 12.60% on clothing, 10.87% on repayment of debts and 4.90% on others. Savings constitute only 6.09% of a tea garden worker's income. The table further denotes that all the service group of the labourers with the exception of plantation labourers, spend the highest proportion of their income on food; which ranges from 25.24%-30.88% of their income in various group of labourers. Contrary to this, the plantation labourers spend highest proportion (33.63%) of their income on alcohol & smoking. The spending on education is the highest (23.91%) with the hospital labourers followed by factory/office labourers (23.00%). The lowest spending (8.08%) on education is done by the plantation labourers. It is important to find that repayment of debts constitutes a very important component of spending by the tea garden labourers with varying degrees related to different group of labourers, varying from 8.42% to 23.19% of their total income. The highest spending of 23.19% of total income on repayment of debts is attributable to the "other group" of labourers.

7. SOURCE WISE INDEBTEDNESS OF LABOURERS

Table-5

Break-up of the sample labourers according to their service groups and sources of indebtedness

Respondent Group	No. of respondents	Friend/ Relative (No's)	Private money lender (No's)	Banks (No's)	Others (employees benefit fund) (No's)	NIL
Plantation Labourers	27(100)	18(66.67)	03(11.11)	02(7.40)	03(11.11)	01(3.71)
Factory/Office Labourers	21(100)	08(38.09)	08(38.09)	05(23.82)	NIL	NIL
Hospital Labourers	16(100)	06(37.50)	04(25.00)	03(18.75)	01(06.25)	02(12.50)
Other Labourers (Watchman, Driver, etc)	16(100)	03(18.75)	05(31.25)	05(31.25)	01(06.25)	02(12.50)
Total	80(100)	35(100)	20(100)	15(100)	05(100)	05(100)

Sources : Field Survey

NB : Figure in the parentheses indicates percentage of group total.

Break-up of the sample labourers according to their working groups and sources to which they are indebted as presented in Table-5 reveals that plantation labourers borrow mostly from their friends & relatives, who constitute as high as 66.67% of the lenders to this group of labourers. The table further shows that the hospital labourers also rely highly on their friends & relatives (38.09%) as compared to the other sources to get financial accommodation in times of their needs. On the contrary, factory/office labourers depend equally on their friends & relatives as also on private money lenders. One important revelation of Table-5 is that labourers belonging to every service group are dependent on private money lenders in varying degrees.

MAJOR FINDINGS OF THE STUDY

Tea garden labourers are mostly male within the age group of upto 40 years, married and originate either from Jharkhand or from Odisha, mostly speaks Oriya. They are followers of Hinduism and belong to the caste group of either MOBC or OBC. They are either illiterate or read upto primary school level. The tea garden labourers are very poorly paid. As many as 75% of the labourers get monthly salary upto Rs.3300. In this sense they belong to economically backward community. Only 2.5% of the labourers get monthly salary of above Rs.7500. While 55% of the tea garden labourers do not have the habit of thrift, as many as 93.75% of the labourers remain indebted to various sources in varying magnitude. T.V. set, Music Player and Bicycle are the commonly available assets with every tea garden worker. Very few of them have land property and/ or motorcycle. The tea garden labourers in general spend close to 28% of their monthly incomes on food, while 19.18% is spent on education, 18.34% is taken away by alcohol and smoking and close to 11% is spent of repayment of debts.

Saving constitutes a little more than 6% of the worker's income. Though all groups of tea garden labourers are addicted to alcohol & smoking to some extent or other, the plantation group of labourers are more prone to them and they spend highest part (33.63%) of their income on such items (alcohol & smoking).

SUMMARY AND CONCLUSION

It is found that 37.5% of the total sample labourers are female as against 62.5% of the male labourers. Out of the total sample labourers as many as 68.75% are young and within the age group of upto 40 years. So far as the marital status is concerned, majority (87.50%) of the sample labourers are married. The study shows that a large majority (68.75%) of the sample tea garden labourers originates from Jharkhand and Odisha. A large majority of 43.75% of tea garden labourers speak in Oriya followed by Bengali (20.00%), Nepali (12.50%), Hindi (10.00%), Telegu (7.50%) and Assamese (6.25%). The study shows that a large majority of the sample tea garden labourers are Hindus constituting 72.50% of the total sample and the remaining 27.50% labourers are Christians. As regard the caste, 42.5% of the sample labourers belongs to MOBC group followed by OBC (32.5%). As many as 35% of the labourers are illiterate followed by 21.25% read upto primary school level. Only 3.75% of the labourers have educational qualification of graduation. It is observed that a large majority (75.00%) of the labourers earns a monthly income of upto Rs.3300 as against 22.50% with monthly income ranging from Rs.3301-7500. As many as 35.25% of the labourers save Rs.100-500 per month and other 13.75% save Rs.501-1000 per month. The study reveals that large majority (93.75%) of the sample tea garden labourers are indebted to various sources. It is found that every sample tea garden labourers have a T.V. set, a Music

Player and a Bicycle. The study shows that 27.68% of the total income is spent on food, 19.18% is spent on education. 18.34% on Alcohol and Smoking and close to 11% is spent on repayment of debts. The plantation groups of labourers are more prone to Alcohol & Smoking habits, and they spend the highest proportion (33.63%) of their monthly income on it. The tea garden labourers are mostly indebted to friends and relatives, the highest being the plantation labourers (66.67%), followed by factory/office (38.09%) and hospital labourers (37.50%).

Thus it can be concluded that socio-economic conditions pertaining to tea industry labourers at Tinsukia district of Assam seems to be not satisfactory. The sample tea garden under study indicates the poor status of socio-economic life of the labourers. It proves that the tea labourers in Assam have got many benefits & privileges in theory, but in reality there lies a different scenario. The difference is caused by the absolute profit motive and unconcerned attitude of the management of the tea gardens. Inactive role of trade unions makes these labourers powerless. To deal with this situation a basic solution will be a positive negotiations between the states, the management and this community, which will definitely encourage and contribute to their socio-economic empowerment.

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Socio-Economic Problems of Labourers in Tea Industry : A Case Study of Dibrugarh District, Assam

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INTRODUCTION

The tea industry of Assam is the dominant industrial sector of the state playing an important role in the economy of Assam. All the garden labourers are from the 'Adivasi' community who were brought to Assam as bonded labourers by the British and are belonging mainly to Chotanagpur and its adjoining areas of West Bengal, Bihar, Odisha etc The tea tribes, being basically labourers, live in villages, inside the estate. These estates are located in interior places and this contributes to the backwardness and exploitation of them by the tea-planters and others. The tea community, who are the backbone of the tea industry in Assam, never received proper attention in the development process. Although the tea labourers are part of the composite structure of heterogeneous Assamese community, they have a feeling that they have not been given their due status as they are not regarded as 'scheduled caste' and 'scheduled tribe' in Assam. They are simply 'other backward classes', while in other states they are given scheduled caste and scheduled tribe status and get the benefits.

OBJECTIVES

1. To examine the social situation of the tea garden labourers including health, education, housing and sanitation etc in the study area.
2. To understand the economic condition - livelihood pattern, income etc of the tea garden labourers.
3. To suggest some measures to uplift the status of the labourers.

METHODOLOGY

The required information are collected from both primary and secondary data sources. Primary data are collected through **interview schedule and participant observation**. Minimum 220 household surveys were carried out. Secondary data are collected from various relevant books, journals and tea garden offices.

STUDY AREA

The study area is confined to Dibrugarh district of upper Assam which is known as a tea city of North East. It is the largest tea exporting town of India. The entire district is surrounded by tea plantations and tea factories. Six tea gardens were surveyed for the research work. All the garden labourers are from the 'Adivasi' community.

Table 1 : Surveyed tea gardens

Name of the tea estates	Area under tea cultivation (hect)	Labourer population
Drial	525	1300
Dinjoy	140.31	448
Kharjan	653.82	1643
Hatiali	376.65	889
Moderkhat	182.75	876
Nadua	263.23	1382

Source : Offices of the tea gardens

LIMITATION OF THE STUDY

1. The major limitation of the study is that it takes only six tea gardens as a case study to represent the whole district.
2. Sample size taken is relatively small.

FINDINGS

The conditions of plantation labourers are governed by the Plantation Labour Act 1951 and the rules promulgated thereunder by appropriate government. The Plantation Labour Act is unique in the fact that it requires employers to provide the workers with medical facilities, educational facility, housing, sickness, maternity benefits and other forms of social security measures. But the survey shows that such acts are not fully implemented to the purpose. No efforts have been sincerely made to drag them out from the pools of poverty and other evils. The workers have to live with the basic facilities provided by the tea-planters.

Housing facilities

Though management provides the minimum housing facilities to all the labourers engaged in the tea garden, yet the houses are found to be less spacious. Houses comprises of both kutchha and pucca. In case of any damage to the residential houses, the facilities provided for repairment of the houses by the management are not adequate, as per the respondents. Most of the garden workers of Dibrugarh live in the most unhygienic conditions. Drinking water and sanitation facilities were found to be inadequate which resulted in deaths of many children and adults out of diarrhoea, jaundice etc Open field defecation is still widely practised in the areas. Firewood still remains major source of fuel in the area. All the tea gardens have the electricity facilities but

there are some cases where only the factory, office and houses of officials are provided with regular electricity supply, not the garden labourers. Hand pumps are the most common sources of water supply in all the tea gardens. But one hand pump is provided for 3 to 4 families in an average.

Table 2 : Nature of House

Tea Estate	Kutchra (%)	Pucca(%)	Semi-Pucca (%)
Drial	35.3	2.0	62.7
Dinjoy	38.7	5.2	56.1
Kharjan	27.2	6.1	66.7
Hatali	39.4	6.3	54.3
Moderkhat	15.8	4.3	79.9
Nadua	28.9	10.2	60.9

Source : Field Survey

Wage rate

According to the tea garden rule, the wage rate of the plantation workers has been fixed at Rs 70-85 per day. The wage rate of the plantation workers has been found to be inadequate against their daily laborious work and also insufficient to cope up with the present economic inflation.

Working hours

The working hour for every tea garden worker have been fixed at 9 hours per day. Though Sunday being exempted from work, yet in cases of excess work, labourers were also found to toil even on holidays. Heavy work load in garden as well as back in household puts a heavy load on the labourers specially women workers, affecting their physical health.

Education

All the surveyed tea gardens possess primary schools. But the infrastructure lacks proper management. It also lacks proper furniture, teaching staff, electricity, water supply and urinals. Educational environment is not encouraging.

The problem of illiteracy is one of the major obstacles for the development of these Adivasi communities. Majority of the sample workers are found to be illiterate. No worker surveyed has education of graduation and above. The first and foremost constraints, which come in the way of education, are geographical and communicational factors. Tea gardens are located in far off places from the educational institutions like high and higher secondary schools. During survey, at present only 15.75 % of the respondents do not send their children to school, while 84.25% send their children to school. But study reveals that most of the children either drop out of school to work in the garden or they stay at home to do household works, which reflects low literacy rate is among the workers in the gardens.

Table 3: Educational level of the respondents

Sl. No.	Educational level	No. of respondents	Percentage
1	Illiterate	94	42.72%
2	Primary	69	31.36%
3	Middle	45	20.45%
4	High School	12	5.45%

Source : Field Survey, 2012

Fig.1 Educational level of the tea garden workers

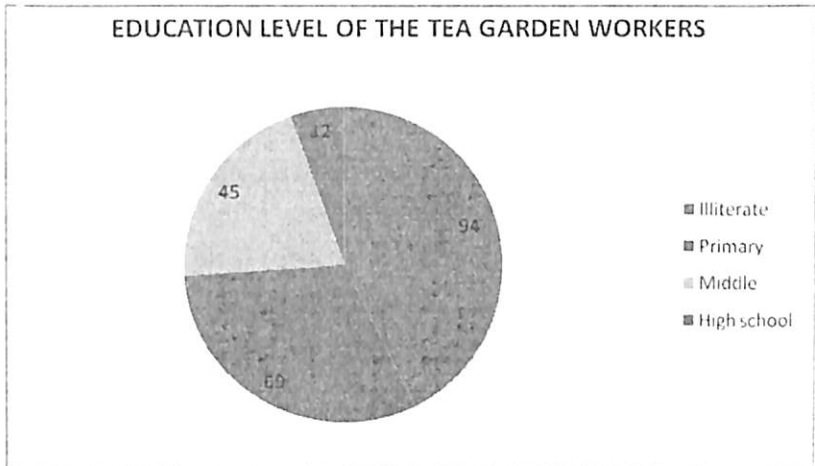


Table 4 : Family Norms

Questions	Response Category	Percentage of respondent
Restriction from parents/guardians while getting education	To great extent	35.2
	To some extent	37.1
	Not at all	27.7
Supportive environment at home	To great extent	29.1
	To some extent	37.1
	Not at all	33.8

Source : Field Survey, 2012

Medical facilities

Despite several initiatives by the State Government, health conditions in the tea gardens have continued to worry the Health Department. The survey revealed high magnitude of

undernutrition and infectious diseases among tea garden population. Nutritional problems like underweight among children (59.9%), thinness among adults (69.8%) and micro nutritional deficiency disorders like anaemia (72%) were widespread. All the gardens possess one garden health centre, but lack modern medical facilities of proper treatment during emergencies. There are no maternity benefit schemes available for tea garden labourers. It is generally witnessed that during the pregnancy and post delivery period, the women perform works in the garden. There are many cases of death due to maternity causes. Death due to maternity problem is a frequent phenomenon. From women worker's point of view, the major problem is to consult male doctors in dispensary. Women workers, who are by and large illiterate, feel shy of consulting male doctors especially in gynaecological problems. Many of the common health problems are listed in the table no 5 which are the result of unhygienic living conditions and improper health planning and medical facilities in the area.

Table 5: Health Centres

Tea Estate	Name of the Health Centre
Drial	Drial central hospital
Dinjoy	Dinjoy tea estate hospital
Kharjan	Kharjan tea estate hospital
Hatiali	Hatiali tea estate hospital
Moderkhat	Moderkhat tea estate hospital
Nadua	Nadua tea estate hospital

Source : Field survey, 2012

Table 6 : Major health problems

Tea estate	Health problems
Drial	Jaundice, Typhoid, Malaria, Diabetes, Anemia, Diarrhea etc
Dinjoy	Jaundice, Paralysis, Malaria, Blindness, Typhoid etc
Kharjan	Gastro-enteritis, Malaria, Diarrhoea, Asthma, Heart problem, Jaundice, Anemia etc.
Hatiali	TB, High blood Pressure, Malaria, Jaundice, Malaria, Diabetes, Anemia etc.
Moderkhat	Malaria, Asthma, Typhoid, Jaundice, Gastro-enteritis etc.
Nadua	Jaundice, Malaria, Heart problem, High Blood Pressure, Diabetes, Anemia etc.

Source : Field survey

Marriage

Early marriage is a common phenomenon among tea garden labourers. Economic burden, lack of education, and prejudices of the parents are the major causes of the early girl child marriages. This ultimately results in maternity deaths, ill health of both mother and child and even some inherited life-long diseases.

During the survey, it is found that 25% of the women got married at an early age of 14 years. About 73% of the women got married in the age group of 13-21 years. The marital age of the women was found to be quite pre-mature to bear the post-marital consequences.

Table 7 : Age of the women at the time of marriage

Sl no.	Marital age	Percentage
1	13-18	32.5%
2	18-24	58.33%
3	24-29	7.5%
4	29-34	1.6%

Source : Field Survey, 2012

Domestic Violence

Domestic violence is one of the most pervasive of all forms of hazards against women. Women who are the backbone of tea industry, often faces severe negligence not only in the work place but also at home. The cases of discrimination and harassment against women labourers were also collected during the survey. Alcoholism in the plantation was found to be a major cause of domestic violence. It also leads to considerable absenteeism from work leading to poor productivity, neglect of care for children etc Physical atrocities on the women, separation in the families and misuse of money are common forms of domestic violences.

Moreover women are found to be lacking the minimum independence in any decision making process. They are either dependent on their husband or their in-laws.

Table - 8

Percentage of women facing Domestic violence and having role in Decision making.

Sl	Suffering domestic violence	% of sufferers	Women having role in decision making	% of women
1	Yes	35.51%	Yes	41.20%
2	No	64.49%	No	58.80%

Source: Field Survey, 2012

REASONS BEHIND THE BACKWARDNESS

1. Location of the tea gardens which are generally in located far off places from the developed areas
2. Lack of economic independence and empowerment
3. Lack of education
4. Lack of awareness
5. Negligence of the management

SUGGESTIONS :

1. Proper implementation of plantation labour act
2. Opening of self employment schemes
3. Profitable educational schemes for children of the tea gardens
4. Encouragement and awareness for girl child education
5. Change in the attitude of management

CONCLUSION

Demographically, tea garden labourer community of Assam represents around 20 per cent of the total population of the state. The life of these workers is very hard. Yet they are contributing to the growth of the industry. The tea garden labourers, who are the backbone of the tea industry in Assam, are considered among the most backward and most exploited tribes in India. They still seem to be voiceless. They could be made conscious about their dignity only through education. A number of steps like spread of awareness among labourers themselves, improvement in their economic condition, change in the attitude of management etc are required to enable these labourers to lead their lives with dignity.

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Nature and Formation of Tea-Garden Labourers in Assam in 19th Century- A Historical Analysis

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The tea industry occupies a prominent place in the economy of Assam. The discovery of tea by Robert Bruce in 1823 and also Coal and petroleum in 1825 in the Brahmaputra valley inspired the British imperialist power to colonize Assam.¹ The strained trading relation between the British and the Chinese also encouraged the former to occupy the province at their earliest. The existence of large tracts of waste-lands influenced the company government in its decision to annex the province. Captain Jankins' submission of the first scheme for colonization of the waste-lands in 1833 was followed by a few successful experiments of tea plantations and eventually the British Government formed a set of special rules for grants of waste-lands to planters in 1838. They gradually engulfed the entire lands which were full of forests and natural resources.

After discovery of tea plants, the Europeans found a new avenue of investment of capital and exploitation of resources of the province. The waste-land rules were initiated from time to time since 1838 at extremely favorable rates for the European tea entrepreneurs with a view to attract and encourage the investors. Grants of some lands of lease were held revenue free while others yielded revenue gradually after a definite period. These rules were revised in 1854, 1861, 1874 and 1876 respectively. It was seen that from these rules only the European entrepreneurs who possessed huge amount of capital could take up tea-cultivation. After establishment of the "Assam Tea Company" in 1839, tea was firmly established as the most important cash crops in the province. Total average areas under tea increased from 2,311 acres in 1841 to 8000 acres in 1859 and almost 31,350 acres in 1871. In 1872 the total areas taken up by the tea plantations in the Brahmaputra valley was officially reported to be 3,64,990 acres. Difficulties for the indigenous entrepreneurs gradually increased during nearly a three-decade period, initially by the government and later by the government and planters jointly. The importance of tea in the European market determined the bond between the tea planters and the government which was after all the executive agent of the European industrial interest. However, the tea plantations being labour intensive, they required constant supply of cheap labourers. From the very beginning the tea industry of the province faced acute shortage of labour force. Besides, rampant epidemics, natural calamities, civil wars and repeated foreign invasions in Assam in the early part of the 19th century had largely led to decline in population.

Tea plantations have been the major employer of wage labourers in Assam for nearly one and half century. But adequate number of cheap labourers was not available in the province for

tea plantation. Tea planters had to pay high cost both for recruitment and maintenance of immigrant labourers in the early days. The Assamese agricultural labourers were generally unwilling to work in the newly emerged tea-gardens instead of their traditional paddy cultivation. Lees remarked that 'the Assamese were a lazy lot and indifferent to work whereas the Cacharis were industrious.'² Of course he could not appreciate the real cause behind this 'laziness.' He failed to realize the prevailing ecology and unfavorable policies of the government which never attracted the Assamese people to this type of work. Paddy was the common crop in Assam and it was grown in sufficient amount with little effort because of the fertility of the soil, scanty population and extremely low rate of land revenue. Cultivation of Paddy produced a large return without huge capital investments.³ Moreover needs of the people were meagre and the amount of crops produced by them were sufficient enough to run their family. People were also not accustomed to work as wage-labourers as land-man ratio was favourable to the peasants. Apart from it the fertility of the soil in the Brahmaputra valley did not call for deep-ploughing. On the other hand the heavy soil of highlands, which were suitable for tea-plantation, required heavy ploughing. This difference in labour process necessarily prevented the Assamese peasantry from switching over to plantation work.⁴ Moreover, the local tribal people like the Cacharis and Laloongs were basically opium eaters. These opium addicted people worked as tea-garden labourers mainly to earn cash money to purchase opium from the government agencies, as the colonial government had already banned opium cultivation of the local people. Therefore, they reluctantly agreed to render manual labour in the tea-gardens. So, the nature of their work was primarily transitory and not permanent.

With a view to compel the Assamese peasantry to work in

the tea gardens, the British government progressively increased land revenue during the period of next three decades.⁵ As the common people failed to meet the increased amount of revenue, they had to quit the land. It is found that the increased assessment of revenue in 1868-69 had improved the position of tea planters by compelling the ryots in large numbers to work in the tea gardens.

Meanwhile, expansion of tea industry was more pronounced in three major tea producing districts of Assam viz. Lakhimpur, Sivsagar and Darrang. These three districts alone contributed to 97 percent of the total tea production and accounted for 91 percent of the total cultivable land under tea in 1891. Here also, the increased revenue caused serious harm to the peasants. Gradual indebtedness and exploitation of the peasants in their land on the other hand created a favourable environment for the tea planters, who had already set out some evil schemes of binding these people to tea plantation.

The number of tea gardens had enormously increased between 1860s and 1880s. It forced the planters to make sufficient supply of cheap labourers. To avoid higher cost of recruitment, government considered recruitment of labourers from mid-India more profitable. So government formed associations among themselves for recruiting labourers and sent their agents to different places of the country.⁶ They started to recruit labourers from diverse social, ethno-lingual and economic background of a wider region in eastern India comprising of some tribal areas of Bihar (now Jharkhand), Madhya Pradesh, West Bengal, Odisha and Andhra Pradesh. It started the process of importation of immigrant labourers to Assam, which ultimately culminated in the formation of the tea garden labourer community with various ethnic groups and communities viz. Munda, Oriya, Khariya, Gowala, Orans, Mahali, Shantal, Tali, Bhumij, Jhula Muslim, Kaya, Panika etc

The tea planters of Assam preferred to bring people of aboriginal races from Bengal and Chottanagpur region considering the fact that they could adjust with the work condition and labourer process in the estates. Chottanagpur region was major supplier of the type of labour force required in tea estates of Assam. Here, certain factors had compelled them to abandon their homeland. The disintegration of their tribal economy by the Brahmins and the upper caste Hindus forced people to migrate. The said upper caste Hindus took possession of the tribal villages by eliminating the rights of the village headmen.⁷ The traditional due on the labourer class was increased and new levies were imposed on them. Moreover, increase of commercial crops and payment of rent in cash, enhanced importance of the 'Mahajans' or money lenders in their rural economy. These feudal people consolidated both political and economic power in the society. Apart from it, deficiency of rainfall often affected the agricultural production which made peasants dependable on money lenders. These ultimately forced these unfortunate people to leave their home land. These emigrant people from Chottanagpur were mainly of Mochee, Kurmi, Baori, Dangars, Bhumij, Santhal, Mundas and Gowala community.

Initially, the recruiting agencies were not so successful in their business because they had to hire people at a higher rate. These people also often demonstrated against exploitation of planters. For instance, the labourers raised a strong demonstration at the office of the Assam Tea Company for not setting three months wage arrears. Thereafter, planters employed 'contractors' to import labourer force at commission basis. However, on transportation of the 'Coolies' (a derogatory term) they inflicted inhuman tortures on the ship. Mortality rate among them rose higher on their prolonged voyage to Assam. In 1861-63, many unfortunate Coolies died on board due to over-crowding, insufficient and unhygienic

food supplied to them. There was no medical treatment, no proper accommodation or toilet. So, diseases like typhoid and cholera were common among them. Out of 84,915 labourers imported to Assam between 1863 and 1866, 30,000 people died.⁸ The mortality rate in every shipment of Coolies to Assam was said to be as high as 50 percent. They were shipped in large batches as if they were just like herds of cattle. There was no space even for standing on the ship. The disease stricken feeble labourers at last arrived the tea estates of Assam but to face a worse environment in the 'coolie lines' (residential lanes of labourers).

However gradual increase in the demand of labourer, higher cost of recruitment and high mortality rate among the recruited people led the colonial government to interfere in the plantation business. The Act of 1863 was passed whereby Government introduced license system to the recruiting agencies. In 1870, another Act was passed permitting 'Sardari System' of recruitment.⁹ Thereafter, the licensed contractors became mediator between the Coolies and planters. A section of people called 'arkatis' were at the root of the recruiting machinery who was to go about from village to village. They used to collect people including husband, wife, children, forced them to leave their houses, brought to the agents of tea estates and ultimately received a certain amount of money against each man supplied. In 1873, a law was passed to liberalize the previous one and to permit free recruitment. By 1882, another law was enacted popularly known as 'Dhubri System'.¹⁰ However, the wage rate of the labourers fixed by the government was never acceptable. It was extremely low and without additional benefit to the labourers. On the other hand the tea companies were much concerned about their economic benefit only. For instance, the Assam Tea Company and Jorehaut Tea Company greatly increased their dividends during 1860s to 1880s without

caring for the legitimate dues of their workers, which greatly offended them.

The wage-rate generally varied between Rs. 2.50 and Rs 3.50 per month in the 1840s and early fifties and its rose to Rs 4.00 immediately after the revolt of 1857. But on the whole these wages were not sufficient enough to run the family of tea garden labourers. So in 1859, large numbers of Cachari labourers lodged protest. This time, the leaders of the strike were apprehended, tried on the spot and punished for this offence. Moreover, the planter was empowered in his own district to arrest without warrant any worker alleged to have absconded from his tea garden. The unfortunate labourers had to remain under strict vigilance of tea planters. They were inflicted severe punishment if caught.

These crucial policies continued up to 1908. The conditions of recruitment were inhuman and the wage rate of the labourers fixed by the government was never acceptable. It was extremely low and without additional benefit to the labourers. On the other hand the tea companies were much concerned about their economic benefit only. Nevertheless, the planters under compulsion, gradually began to increase their wages and in 1864 the monthly wage of a labourer rose to Rs 7.00. Meanwhile, Maniram Dewan pleaded the government for the restoration of the 'Rajas' in upper Assam and protection of the indigenous people of Assam. Like Maniram Dewan, Anandaram Dhekial Phukan too submitted his memorandum for minimizing tax burden and simplification of the complicated procedure in the law courts. Moreover, the tea garden labourers had to lead a pathetic and inhuman life without having proper food, accommodation and medical treatment. They were thus treated as 'serfs' by the European planters throughout the colonial period. Surendranath Banerjee, in his memorandum to the government of India in 1888 stated,

'the Coolies were in a state of quasi- slavery. no state of recognized slavery could be worse.' The planter in fact neither encouraged new labour saving technology nor improved tea economy during the period of our study. So, it is evident from the point of formation of labour force, that labour process in the plantation sector remained backward in Assam throughout the nineteenth century.

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8. Assam Labour Enquiry Committee, 1906, p.136
9. The System of 'Sardars' or 'Mahoris' are still prevalent among the tea garden labourers who act as spokesman or mediator in their activities.
10. Under this system, the recruiters could escape from all the obligation of the former act by sending their police to Dhubri.

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Problems of Working Women Labourers in 'Tea Tribe' Society

(A Case Study of Kondoli Tea Estate in Nagaon District)

Dr Bismita Bora

INTRODUCTION

The 'Tea Tribe' population of Assam constitutes 25 percent (Memorandum to the President of India by ATTSA, 1994) of the total population of Assam. Tea being a major agricultural plantation crop, it plays a vital role in improving the socio-economic condition of India which provides direct and indirect employment to about 4 million workers. Assam is the largest producer of tea in India. Tea cultivation in Assam mainly depends on the 'Tea Tribe' community. In general, the 'Tea Tribe' can be defined as migrated wage labourers inhabiting areas in and around tea gardens which provide them their livelihood. Ahmed (1999:113) believes 'Tea Tribe' as an 'exclusive social category differentiated from a more orderly peasant society of Assam'. Tea industry is labour intensive and it provides employment to large number of female workers too. Female workers are more in tea gardens as tea is plucked mainly by women. Therefore, the study become more significant in a community in which women have been proving themselves as effective bread earners for the family.

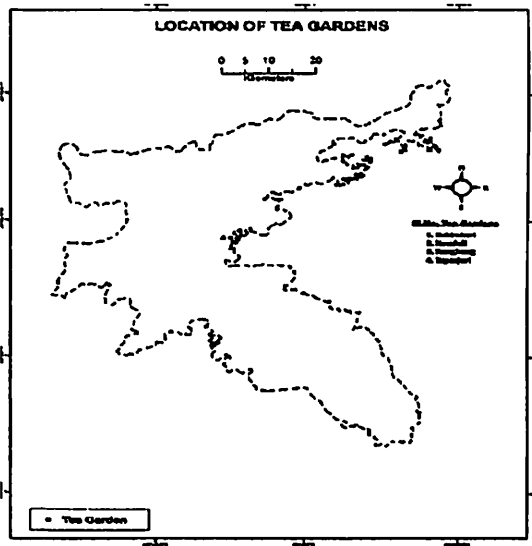
OBJECTIVES OF THE STUDY

The study has the following objectives:

1. To evaluate women participation in economically gainful activities.
2. To analyze women literacy level and women participation in family matters, social organizations.
3. To find out the problems faced by the working women in the tea gardens.

STUDY AREA

The study is concerned with Kondoli Tea Estate in Nagaon district of Assam. Nagaon district is located in central Assam covering an area of 44,35.3 sq km and is situated at 25 0 45' N to 26 0 45' N latitudes and 92 0 33' E to 93 0 20' E longitude. It is encircled by hills on three sides and by the Brahmaputra river on the one side. Kondoli Tea Estate with its four divisions viz. Sukimbari (main), Kondoli, Rengbeng and Tapatjuri is situated about 30 km. towards east from Nagaon Town.



The total population of Kondoli Tea Estate is 7850 and the total household is 1040. (Source : Asstt. Labour Commissioner Office, Nagaon)

METHODOLOGY

First of all an attempt has been made to understand and evaluate the problems of working women from various secondary sources like newspapers, magazines and journals etc Thereafter, a questionnaire was prepared which reflect the socio-economic condition of 'Tea Tribe' people. 30 percent households were randomly selected from four divisions of Kondoli Tea Estate. Among the women workers, 30 percent were also randomly selected to evaluate the various problems faced in their day to day life. The questionnaire was presented before the head of the households at an interval of four/five houses. Apart from this common questionnaire, a special questionnaire was also presented before the selected working women to find out their problems in tea garden situation.

The collected data were classified and grouped according to the selected parameters. Analysis was firstly made on individual divisions and then collectively of the tea gardens. Lastly, an overall picture (all divisions) was obtained to represent the condition of the working women in the 'Tea Tribe' community in Kondoli Tea Estate.

ANALYSIS

Women are the backbone of a society but it is also a well known fact that they are faced with many problems especially in Indian context. They are variably exploited, suppressed and subject to harsh restrictions, discriminatory rules and unreasonable customs etc Therefore, the problems of women have emerged as one of the core issue in prevailing social conditions. For the purpose of the present study, an attempt has been made to ascertain the present

problems of women in Kondoli Tea Estate of Nagaon. The selected variables include participation in gainful economic activities, their level of education and participation in social, political organization and women's role in decision making.

i) Women Participation in Economically Gainful Activities

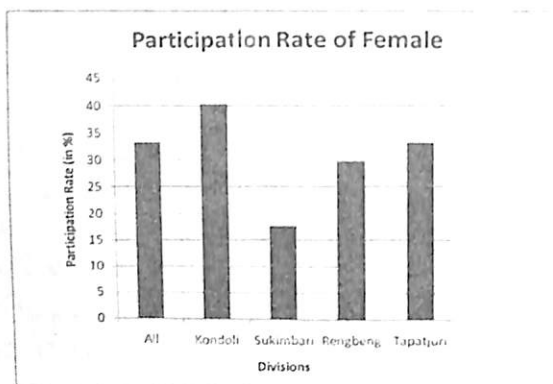
Women participation ratio in economically gainful activities in Indian context is found to be very low. The same pattern is observed at state level in Assam and district level in Nagaon where female component of the population constitute about 28 percent and 20 percent of the workers respectively. As against 28 percent and 20 percent participation of female population in economic activities at state and district level it is found to be significantly high at 33.33 percent in the Kondoli Tea Estate of Nagaon district.

Division	Proportion of Female Workers	Participation Rate of Females
All	17.5	33.3
Kondoli	21.1	40.4
Sukimbari	9.2	17.6
Rengbeng	14.2	29.7
Tapatjuri	17.5	33.2

Source : Sample Survey, 2012

Women workers are generally engaged in plucking, pruning, manuring and manual weeding in the tea gardens. The probable factors having such large women workers in the plantation are: i) Tea plantation is a special kind of agricultural work and is therefore familiar to Indian women; ii) facilities have been given to male workers to settle in, or in the vicinity of plantations and to have their wives and family with them; iii) many women seek employment in order to balance the family budget (Kaniampady, 2003:184-185).

Though the female participation in economically gainful activities is high in Kondoli Tea Estate, yet the women workers cannot spend their earning according to their choice as in most of the families (about 76%) the male counterparts used their earning in buying intoxicants (local Haria). As a result of this, the women workers have to spend their earning to maintain their families. Apart from this, the working woman has to bear double work load unlike the working man who is considered to be the bread earner of the family, even though a female member may also be an earning member. Generally in a tea garden family, the husband is not found to assist his wife in the domestic chores.



ii) Educational Level of Women

Education is one of the important indices of the social status of an individual in a society. An educated woman can take part in decisions of the family with regard not only to the structure and size of the family and its upbringing but also in respect of financial planning and budgeting. Level of education, thus, may be considered to be an instrument of raising the status of women in the family as well as in the society.

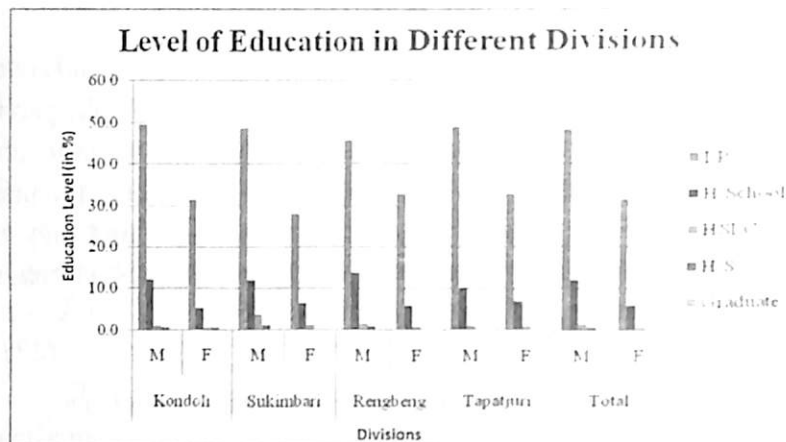
Table : 2
Level of Education in Kondoli Tea Estate (Figure in Percentage)

Standard	Kondoli		Sukimbari		Rengbeng		Tapatjuri		Total	
	M	F	M	F	M	F	M	F	M	F
LP	49.3	31.4	48.6	27.9	45.5	32.7	48.7	32.8	48.3	31.4
H.School	12.0	5.3	11.7	6.3	13.5	5.8	10.1	6.7	12.0	5.8
HSLC	0.9	0.3	3.6	0.9	1.3	0.6	0.8	0.8	1.4	0.6
H.S	0.6	0.3	0.9	0.0	0.6	0.0	0.0	0.0	0.6	0.1
Graduate	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	62.8	37.2	64.9	35.1	60.9	39.1	59.7	40.3	62.2	37.8

Source : Sample Survey, 2012

Table -2 reveals that only 37.8 percent females are literates against 62.5 percent literate males in Kondoli Tea Estate. A further analysis of female literacy suggests that 31.4 percent of the female population is educated till primary school level, 5.8 percent till high school level of which only 0.6 percent clear the HSLC examination.

It was found during investigation that in most of the houses where both husband and wife are employed as wage earners, their girl child has to look after her younger siblings and also take care of the domestic chores during the working hours of her parents. For which many girls are not sent to school and drop out percentage from school is high among the girl students.



iii) Women Participation in Social Organization

In the 'Tea Tribe' community women play a vital role though it is very limited. They, like in most of the traditional societies, are the foundation of family system and they play an important role to bring about social cohesion. In order to improve economic conditions they have formed 'Self Help Groups'. Apart from this, they also actively participate in festivals like Durga Puja, Kali Puja, Holi, Karam Puja, Tusu Puja or other major religious festivals in the community. Though their participation as organizers in a male dominated society is very limited, they actively participate in these events.

Table : 3
Women Participation in Social Organization
(Figure in percentage)

Divisions	Participate in Social Organization	Not participate in Social Organization
All	31	69
Kondoli	41	59
Sukimbari	0	100
Rengbeng	17	83
Tapatjuri	20	80

Source : Sample Survey, 2012

During the course of field survey on working women it has been found that only 31 percent women are taking part in social organizing bodies of the tea gardens. However most of them are involved in 'Self Help Groups' in their localities. Only a miniscule proportion female participation was found in trade organizations, financial organizations and various kinds of festival committees.

During the survey about 75 percent working women respondent however expressed their inability in getting extra time even to take care of their children due to their double work load. In such a situation, most of the women do not have opportunities to improve their status in the society.

iv) Women's role in taking decisions

In fact one of the important indicators of the status of women is whether women can play an active and effective role in the decision making process in the family and social sphere.

Table : 4 Decision Making Power of Women (Figure in percentage)		
Divisions	Can Take Decision	Cannot Take Decision
All	22	78
Kondoli	27	73
Sukimbari	0	100
Rengbeng	17	83
Tapatjuri	20	80

Source : Sample Survey, 2012

In most cases, it is generally found that the husbands take the decisions and the wives by and large accept the decisions. During the time of sample survey among the **working women respondents** who were interviewed in this regard, 78 percent women said that they cannot take part in the decision making process in the family. In most cases the head of the family takes decisions in joint families and the husband takes decisions in nuclear families. Generally women are ignored to take part in decision making processes.

However, in case of certain vital issues like marriage, festivals, education to children etc all the members of the family discuss together and in such discussions, the women can put forward their opinions freely and proper importance may be given to their opinions but generally they do not take part in the decisions related to finances and general domestic activities.

CONCLUSION AND SUGGESTIONS

The above discussion reveals that the women in the 'Tea Tribe' community contribute significantly to the economy not only of the tea gardens but also of the family. Though the female work participation is much higher than the state and district level, yet the working women in the Kondoli Tea Estate are facing some problems like low literacy level, lack of leisure time, negligible role in family decision and low participation in social organization. The women workers lead a very busy daily life with practically no time to have leisure and relaxation. They are overburdened with their productive and reproductive and other domestic activities. Sometimes these multiple responsibilities result in role conflict for many of them.

On the basis of above observations the following few suggestions may be put forth for the improvement of 'Tea Tribe' women labourers in Nagaon district.

1. State Government may be relatively more vigilant to see that the labourer welfare measures incorporated in the Plantation Labour Act, 1951 and Plantation Labour Rules, 1956 are implemented in tea gardens.
2. The NGOs and the woman's organizations could initiate several programmes to take care of grass-root level conscientious, adult literacy and social education etc for the promotion of overall welfare of the women and their children.
3. The women's organizations could also take initiatives to teach the women labourers to save part of their income so that in times of need they may not borrow from the money lenders.
4. Political awareness should be created among the women workers.
5. The plantation management should provide more opportunity to them to expose themselves to the outside world so that they may be able to widen their horizon and be motivated to progress and development.

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A Study of the Problems of Women Labourers in Tea Gardens of Nagaon District

**Prabir Kr Dev Purkayastha
Shibu Das**

Tea industry in Assam is the largest industry of the State. It plays a significant role in the economic development of Assam. Tea industry contributes a large share to the state domestic product. Assam alone produces more than half of India's total tea production. About ninety nine percent of tea produced in the North East India is produced in Assam. Assam tea also commands a significant share in the international tea market. Assam contributes substantially to the earnings of foreign exchange through export of tea. Nearly seventy five percent of tea produced in Assam is exported. It may be mentioned here that the total area under tea cultivation in Assam accounts for more than half of the country's total area under tea cultivation.

Presently, this industry is facing several problems like age-old gardens, scanty rainfall, recurring floods, increasing cost of production, general fall in the prices of tea, stiff competition in the international market and absence of support price. In this paper, effort has been made to study the socio-economic problems of female tea labourers in Nagaon District of Assam.

There are three hundred and eighty eight gardens in Nagaon district.¹ Out of them only twenty two are registered gardens covering a total area of 13,964.34 hectares.² Total area under tea cultivation in the registered gardens is 8299.72 hectares. All these registered gardens together produced 1,63,20,516 kg., 1,70,25,320 kg. and 2,42,53,897kg. of tea during 2009, 2010 and 2011 respectively.

Year	Production (Kgs)
2009	16320516
2010	17025320
2011	24253897

Source: Office of the Asstt. Labour Commissioner, Nagaon

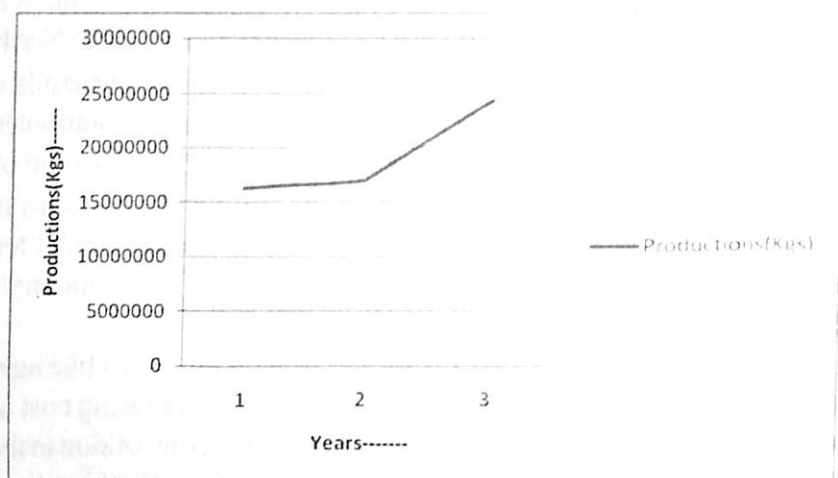


Fig : 2 Production of tea in various registered gardens in Nagaon district

Methodology : In order to assess the socio-economic conditions of women tea labourers, the following methodology has been applied :

Field Survey : A survey was conducted among hundred women tea labourers in Nagaon district covering five registered gardens, viz; Amsoi Tea Estate, Jiajuri Tea Estate, Kondoli Tea Estate, Rangaloo Tea Estate and Chapanala Tea Estate. While selecting the respondents, non-probability judgment sampling technique was used because the population of the study area were very large. Thus, twenty women tea labourers per garden were selected for personal interview. Altogether one hundred women tea labourers are thought to be reasonable to get a balanced response.

Research Tools : An interview schedule consisting of eighteen questions was used to collect responses. The interview schedule deals with the various aspects involving their life-style such as working hours, nature of employment, daily income, nature of their residence, sanitation facility, drinking water facility, canteen facility, average rest period etc.

Secondary Data : In order to know the total number of gardens, names of the registered gardens, nature of employment, male-female ratio etc, secondary data are used. Apart from these, discussions and consultations with concerned government and garden officials were also conducted in the course of the study.

The study reveals the following facts :

Working Hours : Nearly sixty five percent of women tea labourers reported that they generally worked for eight hours in

the field. Against this hard labour, permanent labourers get Rs. 85/- per day. In addition to this daily wages, permanent workers get subsidized ration, provident fund, gratuity, medical allowances etc Every year, before Durga Puja, they also get bonus at a rate determined by the government of Assam, labour unions and garden authority depending upon the financial soundness of the garden. The casual women workers get wages at the rate of Rs. 90/- per day. The wage rate slightly varies from garden to garden. But they do not get ration, gratuity, provident fund, medical allowances etc like the permanent employees. However, they are entitled to get bonus before Durga Puja. In today's inflated market condition, it is difficult to maintain even a minimum standard of living with such a small income.

Working of Male Partners : Out of one hundred respondents, eighty five female workers reported that their male partners also worked in the garden. The rest reported that their male partners did not work regularly. They worked only occasionally & their family was totally dependent upon the income of female counterpart only, which shows a very pathetic situation of tea garden households (Table-2, fig. 2):

Table-2
Working of Male Partners

Serial Number	Male Partner Working	Number of Responses	Percentage
1	Yes	85	85%
2	No	15	15%
3	Total	100	100%

Source: Field Study

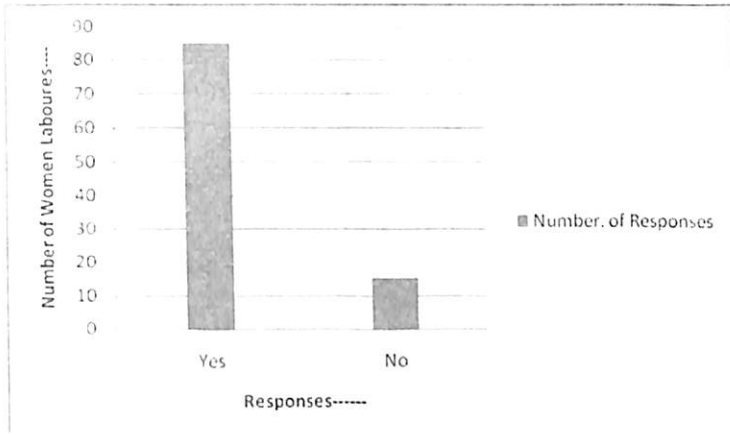


Fig. 2 Working of Male Partners

Number of Children : Field survey revealed that tea labourers did not go for family planning. Table-3 exhibits the size of their family. It is thus clear that as high as seventy percent of women tea labourers have more than two children. Only twenty percent have two children. This high birth rate may be due to lack of education and ignorance among the tea community. High birth rate has a negative impact on the health of female tea labourers (Table-3, Fig-3):

Table-3
Family Size of Tea Labourers

Serial Number	Number of Children	Number of Responses	Percentage
1	1	10	10%
2	2	20	20%
3	Above 2	70	70%
4	Total	100	100%

Source: Field Study

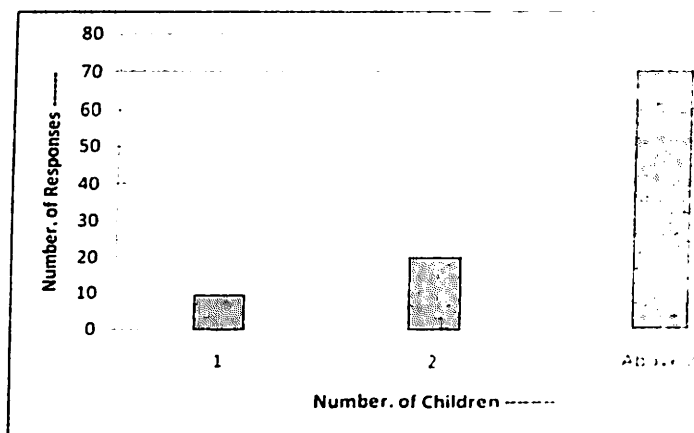


Fig. 3 Family Size

Educational Level : Field survey revealed that most of the women tea labourers were illiterate. It may be noted here that out of hundred female workers, sixty percent do not have any formal education. The rest received education mostly up to class III. However, the situation is slowly improving. They have started sending their children to schools. It is observed that out of hundred households, as high as ninety percent are sending their wards to schools. (Table-4, fig-4)

Table -4
Schooling of Children

Serial Number	Sending Children to School	Number of Responses	Percentage
1	Yes	90	90%
2	No	10	10%
3	Total	100	100%

Source: Field Study.

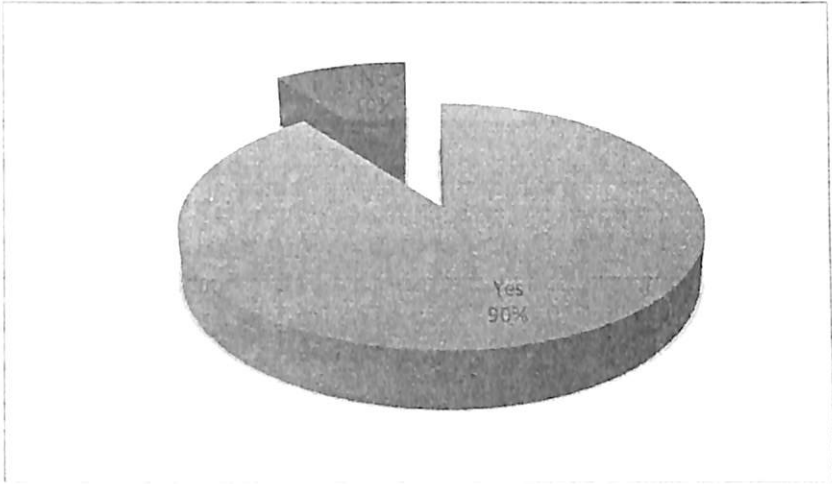


Fig. 4 Schooling of Children

Nature of Accommodation: About seventy five percent of tea women labourers reported that they stayed in the quarters provided by the garden authority. The rest stay in their own accommodation. Sixty five percent of the garden quarters have pacca floor and thirty five percent have kaccha floor. The female workers very often complaint regarding their accommodation particularly during the rainy season. It is also observed in the field that sanitation facility is also very poor among the tea labourers. Many of them use open fields for such purposes.

Drinking Water: When questions regarding drinking water were put to them, unfortunately it was found that none of the respondents had water filter or water purifier. Nearly seventy percent reported that they used common tube well water for drinking purpose. About twenty percent of the respondents reported that they used well water. During summer they do not get sufficient water as some wells dry up. Another five percent collect their water from common pumps set up by garden authority.

However, when the system fails due to load shedding or mechanical failure, they have to cover long distance for getting drinking water. (Table-5, fig-5):

Table-5
Nature of Drinking Water

Serial Number	Sources of Drinking Water	Responses	Percentage
1	Tube Well	70	70%
2	Well	25	25%
3	Pump Sets	5	5%
4	Total	100	100%

Source: Field Study

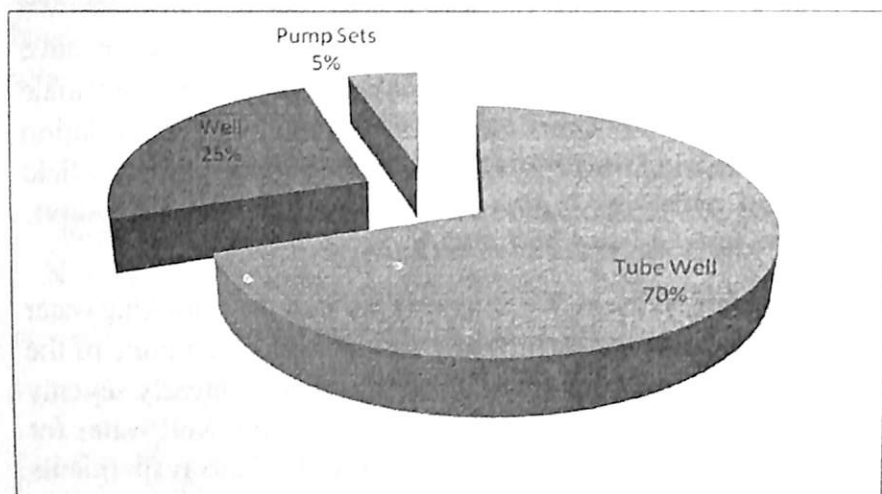


Fig. 5 Sources of Drinking Water

Drinking Habit : Drinking habit is found to be very common among the tea community. It is reported that almost all the male labourers consume locally produced wine commonly known as Chulai in the evening hours after their day long work. It is also observed that about forty percent of female labourers also consume Chulai. In fact, the habit of taking liquor is inseparable to the garden workers. It adversely affects their both mental and physical health. It deteriorates their mental ability as well as physical strength. Moreover, they lose a good part of their hard earned money on such bad habit.

Other Aspects : It is observed in the field that almost all the female workers cook for their family members in addition to their garden duties. As high as seventy percent of the respondents informed that their rest period was less than eight hours. They also cover long distances to reach their field. None of the surveyed garden had canteen facility for workers. It is observed that they got married earlier, having more children & working equal hours as compared to male laboureres. As a result, most of the women labourers are suffering from anemia, low weight & chronic diseases.

Findings : From the above discussion, it is very clear that the female tea labourers in tea gardens in Nagaon district lead a very painful life. Actually, they work more than their male counterparts. In spite of working for 8 long hours or more in the open fields, they are to share all family responsibilities. 15% of the female labourers informed that their male partners did not regularly work. They are to run their whole family with their small income. 70% of female labourers have more than 2 children. Some of them even have 5 to 6 children. Most of the female members are totally illiterate. They even do not take care of their health. They do not use any birth control technique. They go by traditions. Some

of them (40%) are even addicted to local wine. They also cover long distances to collect water for their families particularly during hot summer, when most of the wells dry up. They have little time for leisure.

Suggestions: In the light of the findings of study of some of the tea gardens in Nagaon district, the following suggestions are offered to remedy the various problems confronting the female tea labourers. The suggestions are offered with the belief that they are workable and if implemented sincerely, would definitely improve the social status of this bulk portion of industrial workers of Assam.

- i) The garden authority should reduce the working hours of female tea labourers by one hour or so. It will increase their rest period and motivate them for better performance.
- ii) In the present inflated market condition, their daily wage rates must be enhanced. The Government should pass legislation for compulsory raising of their daily wage.
- iii) Canteen facility must be offered in all tea gardens in Assam. In the canteen food should be supplied at subsidized rates. Purified drinking water must be made available in all garden canteens.
- iv) Government and Non Government Organizations should take up awareness programmes regarding health and hygiene in the garden areas. Benefits of small family and family planning programmes should be made familiar to them.
- v) A grievance redressal cell may be created in every garden to entertain various logical grievances of tea community in general. Garden officials should be more co-operative in their behaviour towards tea labourers.

- vi) Efforts should be made by the Government and garden authority to keep up the morale of tea labourers particularly women tea labourers by ensuring them job security, enhanced wage rate and above all due recognition for their hard work. They should encourage women labourer's participation in decision making.

Conclusion : Overall prosperity of the tea industry in Assam definitely can help economic development of the state. Despite some progress, as a whole the performance of tea sector is not upto the marks. Women tea labourers are the most important component of tea industry. In fact, well-being of our tea industry cannot be ensured without ensuring the well-being of female tea labourers. They should be given proper attention to avail their rights to maintain minimum standard of living.

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Women Empowerment among Tea Garden Labourers

Kakali Hazarika

Introduction

Tea industry is one of the major driving forces of Indian economy. Being the second largest employment provider, around 12, 58, 800 families are directly employed in this sector and almost same number of people are engaged as casual workers (Wal, 2008). It is the only sector where more than 50 per cent labourers are women (Baruah, 2008). Tea plantations are located in remote areas and were sparsely populated during the colonial period when these were initiated. As a result, families were employed rather than individuals, thus absorbing women into the labour force.

The women workers are the integral part of the labour force engaged in the plantation industry in India. Owing to the very fact that soft hands and nimble fingers are suited especially for tea leaves plucking, they dominate the employment scene in tea plantations. However, the wages of the women workers continue to remain low (SOMO, 2006). They are always suppressed by their male partners as well as by the garden authority. The ineffective implementation of the statutory provisions has impeded the progress in the direction of alleviating the plight of women

workers in this industry. Paucity of reliable data and other information have been the major drawbacks.

Objectives of the Study

1. To observe the participation of women workers in tea industry of Assam
2. To identify the problems faced by the women workers and
3. To suggest measures to bridge the gap between men and women in tea industry.

Research Methodology

This work is primarily an empirical enquiry of the problems related to women empowerment in tea industry. A variety of quantitative and qualitative methods of data collection is employed. The study combines both desk and field research. Secondary data have been collected from books, published literature of the plantation companies, associations, journals, reports published by different organizations (public and private) and websites. Primary data are collected from 300 female workers of six big tea gardens in Jorhat district, selected randomly. Semi structured questionnaires are tools used for data collection. The simple techniques of percentage analysis, mean analysis and Chi square have been used for comparative assessment. While studying the status of women empowerment in tea industry, emphasis was given on understanding the process of implementation rather than quantifying the participants.

Plantation Workers

The majority of the workers working on the plantations in the northeast are third or fourth generation migrants were brought

by the British from the central part of India, and the majority of them are either lower caste or tribal people belonging to the lowest social strata. Workers have always lived inside the plantations and housing has been used as an effective means of enslavement of generations of workers by the plantation owners.

Social status of the workers has ensured that their plight has been continuously ignored for generations. These workers have very low literacy rates. Non-availability of any other livelihood in the region ensures that the children of the plantation workers are left with no other option than to work on the plantations under abysmal conditions. There is no escape from the vicious circle of the highest level of exploitation. The plantation workers also do not enjoy even basic amenities like safe drinking water; often the workers suffer from diarrhoea, cholera and other waterborne diseases. Malaria and tuberculosis are also rampant. The infant mortality rate is much higher than the national average. It is estimated that only one percent of the workers are active after attaining the age of 60.

The tea plantation workers in India are covered by the Plantation Labour Act (PLA), 1951, which regulates the working and living conditions of these workers. As well as prescribing standards for housing, healthcare and education, the PLA regulates working conditions including maximum working hours, overtime payments, child labour, paid leave, and sickness and maternity benefits. However, it seems that even though the Act has been there for more than 50 years, the majority of workers are deprived of the basic minimal necessities in their lives. Their wages have not seen any real increase for so many years. Women who are a major workforce in the industry continue to face increased discrimination. Plucking the leaves from the plants is a very hard and tiring job. The women have been often denied the maternity and related benefits they should have under the Plantation Act.

Ironically, the tea industry is considered one of the most organized industry in India, with the first union being recognized by the industry as early as 1948. There are more than 50 recognized unions in West Bengal alone. However, the industry associations have been denying the benefits that workers should receive under the Plantation Labour Act. Most of the workers have been classified as unskilled workers and are paid daily wages; the majority do not receive any wages for Sunday.

Women Workers

The removal of tea leaves without ruining the quality is a delicate matter and has been carried out by women. Women move between rows of tea bushes picking leaves by both hands, tossing them into large baskets on their backs. This first flush involves removing the downy terminal bud on the stem and the first two leaves below it. This is also referred to as 'fine plucking'.

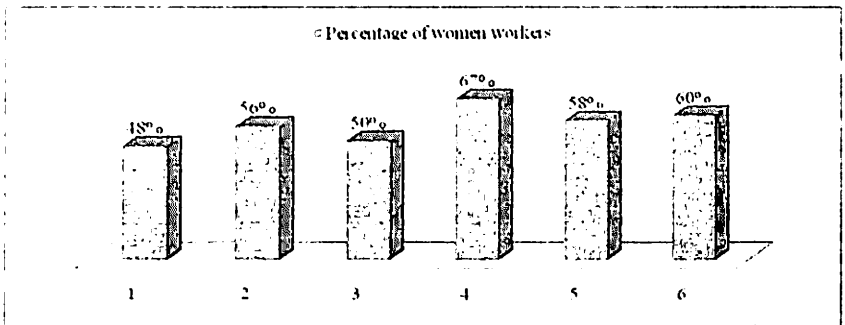


Fig 1: Percentage of Women Workers in Selected Gardens in 2010

Source : Field Survey

It is observed in the study that all the sample gardens prefer women labourers and around 50 per cent of their total workforce is women. To find out the relation between women workers and performance of the garden, Chi Square test is followed.

Table 1: Performance of Gardens and type of Workers Employed in the Gardens

Types of Workers Employed	Doing well in (N = 4)	Not doing well (N = 2)
Preference for Women workers	75 %	50 %
Preference for Male workers	25%	50 %

To find out the relationship between type of workers (either women or men) employed in selected gardens and performance of the plantation; the hypothesis is, these two attributes are strongly dependent, that means type of workers can influence the performance of the garden. The table value of Chi square for 1 degree of freedom and 5 % level of significance is 3.841 and the calculated value is 0.368.

Therefore it shows that the calculated value of Chi square is lower than table value which means that the hypothesis is accepted. Hence types of workers can change the performance of a particular garden. The gardens having higher percentage of women workers are performing well in business.

Tea pickers who are capable of picking quantities of the finest leaves are considered as assets to the company and would therefore receive better wages than those with lesser skills or those in training. Unskilled pickers may have an adverse effect on the quality of the tea as well as on the yield harvested.

Three million women pickers are there worldwide. They provide the cheapest labour for the most important role in the tea industry. More than half a century after the country's independence, health and educational opportunities for these labourers are among the most basic, and other forms of social support either absent or inadequate. In most tea estates, according to health officials, there exist serious issues about the state of women's health. Many of them suffer from a range of diseases like anemia, allergy, gastro intestinal disorders; under- nourishment continues to be a norm.

Early marriage is widely prevalent in most tea estates, young women find themselves in an unenviable position. The fact that multiple-birth is a common feature to tea tribe women only adds to their difficulties. The absence of proper healthcare in most tea gardens is a hurdle that is yet to be surmounted. Although some tea majors have established well equipped hospitals, there are hundreds of tea estates without necessary health support in the form of infrastructure and doctors. For the women of such estates, there is little recourse to healthcare as they cannot afford private medical intervention, which may be available outside the estates.

Table 2: Marital Status of the Women Workers in the Sample Gardens

Marital Status	Percentage
Married	64 %
Widow	5 %
Separated	3 %
Unmarried	28 %

Source: Field Survey

Table 3 : Number of Children of the Women Workers belonging to Age Group 15-45

Number of Children	Percentage
1	1 %
2	2 %
3	6 %
4	10 %
5 or more	80 %

Source : Field Survey

The National Rural Health Mission has forged ties with some tea estates to augment the available healthcare facilities. However, the net has not spread to cover many tea estates where healthcare support is nil, a fact that even NRIIM personnel acknowledge.

Those well acquainted with the situation say that lack of awareness among the women created by scarce educational opportunities is a critical issue that needs to be addressed. Surprisingly, even after intervention from the Sarva Siksha Abhijan Mission, the girl child in tea estate still gets a raw deal. Right from the time she steps into the school, the girl child also has to take part in running the household with little time to enjoy childhood. Later, as the family grows, and with her mother at work she would take care of younger siblings, and thus find no time for studies.

Table 4 : Education Level of the Women Workers

Education Level	Participation (in percentage)
HSLC or more	3 %
Class V to X	10 %
Class I to IV	23 %
Illiterate	64 %

Source : Field Survey

When we examine the factors like household decision-making, control over resources, freedom of movement, workforce participation rate, women's experience of violence, attitude towards unequal gender role etc, we find some interesting results. Only 11% of women participate in all the household decision making process.

While analyzing the linkage between women empowerment and human development, we find that female literacy rate is positively related with human development. This is because in Assam, especially in tea gardens, women are engaged in wage employment basis and their economic conditions are not good.

Findings of the Study

1. Majority of the workers are unskilled.
2. More than 64 per cent women workers are illiterate.
3. The average earning of labourers is Rs 84 per day.
4. About 64 per cent of the women workers are married.
5. 80 per cent of the married women workers have more than 5 children.
6. The women workers are ignorant about family planning measures.
7. Around 80 per cent of the gardens provide maternity benefits to the women workers, which is only 84 days as a whole.
8. Only 30 per cent gardens have appointed welfare officer to look after the social securities provided to the workers.
9. Only 18 per cent women workers are aware about available welfare schemes for labourers.
10. Women are in a disadvantageous position both in absolute sense and relative to men in the area of access to education, employment and exposure to media.
11. Most of the women do not have final say about the use of their own earnings.
12. Most of the women do not have household decision-making power, particularly in large household purchases.
13. Most of the women do not have freedom of movement.
14. Traditional gender norms particularly those concerning wife beating are still prevailing among the tea garden labourers.
15. Only 4 per cent female labourers are exposed to physical as well as sexual violence.

Suggestions for Improvement

The present study throws light on the status of women empowerment in the tea industry. It is found that in spite of number of efforts on the part of government, female tea garden workers are disempowered, both absolutely and relative to men. The major implications of the study are as follows :

1. The first and foremost attempt should be expansion of education among the women workers of tea gardens, which is lagging behind.
2. Measures must be taken to prevent availability of alcoholic beverages in and around garden area.
3. To become empowered, urge should come from one's heart. Women workers must realize the implications of their subordinate status and should long for emancipation. Their labour union must guide them in this direction.
4. Enlightened women should organize awareness camps in the gardens to make their sisters aware about themselves.
5. Students, particularly girl students have a great role to play. They can make these illiterate women workers of tea gardens aware of their rights.
6. Special value based education should be introduced for the women workers so that violence and injustice against women can be reduced.
7. There must be some type of reservation for women in membership of Labour Unions. Unions must focus on the equal rights of the women workers in their workplace.
8. Media should highlight the ongoing injustice and exploitation of female workers in the tea gardens.

Conclusion

There is no doubt that tea workers, particularly women workers in India are facing one of the worst form of exploitation in the modern times, especially in industry, which is making billions of dollars in profits. Government and Tea Board must take strong initiative to overcome these problems of the workers, particularly women workers as they constitute more than half of Indian tea industry workers. Majority of the Indian tea producers are not getting fair price in the market for their produce and this is passed on to the workers as wage cuts. The underdeveloped conditions of the workers adversely affect the industry, as without a strong and skilled labour force one cannot imagine a productive tea industry. Hence, labour welfare with appropriate social security measures is urgent need for the long term sustainability of the industry. It will be possible when women workers of tea industry will get proper remuneration for their most sensitive work of tea leaf plucking.

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Incidence of Bonded Labourer in Brick Kiln Industry in Nagaon District, Assam

Kakali Boruah

I. Introduction

Bonded labourer exists in a high range in brick kiln industry. Bonded labourer refers to those sections of labourer who work physically to pay debt. A person becomes a "bonded labourer" when his/her labour is demanded as a means of repayment for a loan. The person is then tricked or trapped into working for very little or no pay, often for seven days a week. It indicates a long-term relationship between employee and employer which is done through a loan, by custom or by force and which denies the employees various freedoms including to choose his or her employer to enter into a fresh contract. (Srivastava 2005). Bonded labourers are not justified by laws regarding employment procedure, wage - fixation and living conditions. Due to measurable economic conditions or vicious circle of poverty, the labourers are voluntarily entering into this relationship. (Bhukuntha 2005)

In India, according to the Bonded Labour System Abolition Act (1976), "Bonded labour system" means the system of forced, or partly forced, under which a debtor enters into an agreement

with the creditor to the effect that (i) in consideration of an advance obtained by him or by any of his lineal ascendants or descendants (whether or not such advance is evidenced by the document) or (ii) in pursuance of any customary or social obligation, or (iii) in pursuance of any obligation devolving on him or by any of his lineal ascendants without wages or with nominal wages for unspecified period.

Debt bondage is a situation when a person provides a loan to another who uses his or her labour or services to repay the debt. The basic characteristics of bondage are element of force, below minimum wages, long hours of work on an average 12-16 hours a day, immobility of labourer etc Consequences of bondage are loss of freedom of movement, loss of right to sell labour at prevailing market rates, loss of human dignity etc (Chopra, 1982).

In India, along with agricultural sectors, the trend of bonded labourers are experiencing in many small and unorganized sectors including brick kiln industry. (Majumdar, 2010). These labourers are bonded to the owner in the sense that they are recruited through advance payment system. This system of advance payment is mainly developed from the correlation of demand and supply of labourer. As the brick industries are running at the time of agriculture off season, the supply of agricultural marginal labourer is very high. Advancing a substantial part of family-subsistence, labourer is locked for the whole production season and this system earns a social legitimacy while ensuring smooth supply of labourer. (Gupta, 2003). Due to expansion of construction sector, the demand for the labourers is very high. Though bonded labourer is prohibited in India by law, it is widely practised in brick kiln industry.

In Nagaon district more than 100 commercial brick kilns (registered and unregistered) are presently operating in three subdivisions viz-Nagaon, Kaliabor and Hojai. These demand based, seasonal, labour intensive industries depend on migrant

labourers. The circular pattern of migration describes the nature of employment in the brick fields. The brick kiln activities require many skilled and unskilled labourers. All these units are employing on an average 100-150 workers as per the muster rolls. The seasonal migrant workers live in the worksite throughout the period of six to eight months of production, and returns back to the village after the production season comes to a close. The recruitment process, wage structures and payment systems are different for different category of workers, which clearly explore the incidence of bonded labourer in brick kiln industry.

II. Objectives

This paper has tried to study the following objectives.

1. To study the recruitment process and wage structure of the labourers.
2. To study the incidence and causes of debt-bondage of labourers.

III. Methodology and area of study

The universe of the study is the brick kiln workers of Nagaon District. Purposive and convenience sampling method has been used to select the sample for the study. 14 registered kilns (8 units from Nagaon sub-division and 6 units from Kaliabor sub-division) were randomly selected from the published list of District Factory Office, Nagaon. This study is based on observations, and interviews of 140 workers. From each unit, 10 labourers were purposively selected from different categories of labourers. Both primary and secondary data have been used in the present study. Primary data were collected through field survey (during November to January 2010-11). Some information were also collected from owner and labour Sardar. Data were collected by specially designed questionnaires and later tabulated and analyzed.

IV. Result and discussion

IV.i. The nature of recruitment and wage structure of the workers : It is evident from the survey that all surveyed units depend on the migrant low caste landless workers, local daily wage earners and casual workers of nearby tea gardens. From survey (Table 1) it was found that the kiln labourers are recruited indirectly, through advance payment system, "Dadan". Hence they are bonded to the owner in the sense that all of them are recruited by paying advance as loans or friendly loan (Iqbal, 2006, Gupta, 2003).

Table 1 shows that Patheras (green brick maker) are the largest workforce (40%) and they are recruited by paying Rs 5000-10000 as friendly loan to the head of the family at their place and have to come with family and work as a unit for the repayment of the loan. Nikashi (20%) and Rezas (20%) are recruited by paying advance Rs 1000-2000 per head by the Sardar before the work actually commenced. The skilled labourers -Mistry-(firemen) (10%), Loader- (10%) are recruited by paying Rs 4000-6000, Rs 1000-15000 respectively as advance payments.

The owners depend upon the Sardar (intermediary) in order to establish a contact with labourers in their place and to bring them to work site. It is indirectly done through labour contractors (Sardars) who receive a commission (@ Rs 20 per labour) through an informal deduction from labourer's wages. The Sardar channels advances and he is responsible for the labourer's work and debt-servicing.

The study revealed that wages are fixed directly by the Sardars and indirectly by the owners on the basis of their work requirements. Two types of wage systems prevailed : "piece rate" and "monthly system". 126 surveyed respondents are paid by piece rate system and only 14 respondents are paid on monthly basis. Traditionally, all workers receive only subsistence (Khoraki) on weekly basis during production period, which amount to Rs 120-150 per week

(per head or per family). The remaining portion of their earning is retained for payment of the debt.

In Brick industry, works are classified on the basis of 'natural ability' of the workers. This naturalization is very clear as the 'men work' is separate from 'women work' and male labourers are paid higher than female labourers. Male Patheras get Rs 400 but female Patheras get Rs 350 per thousand bricks. Again male Reza and Nikashi get Rs 150 per thousand bricks carrying whereas the female labourers get only Rs 100 per thousand bricks. The weekly holiday is not Sunday for the workers; usually the payment day is weekly off day. In this day, the works stops at mid-day and begins again later on next day.

The labour Sardar arranges labourers, distribute earnings after debt-servicing deductions and guaranteeing repayment of debts. The illiterate workers have to depend on the Munchi or Sardar for their accounted wages and debt repayment. Due to less payment or not full payment, labourers are also bound not to leave the work and to live at worksite without basic necessities of life.

Table 1 : Term of payments, recruitments and wage structures.

Category of workers	No of respondent (%)	Terms of Payment (current rate) in Rupees	Recruitment
Patheras(green brick maker)	56 (40%)	Piece rate@350-400 per thousand.	Advance payment@5000-10000.
Reza (green brick carrier to kiln)	28 (20%)	Piece rate @100-150 Per thousand	Adv payment @1000-2000
Nikashi (Fired brick carrier from kiln)	28 (20%)	Piece rate @100-150 per thousand	Advance payment @1000-2000
Loader(staker)	14 (10%)	Piece rate @450-500 per thousand	Advance payment@5000-6000
Mistry(Fireman)	14 (10%)	@4000-6000 per month	Advance payment@10000-15000
Total	140 (100)		

Source - Field Study & Records of Factory Office, Nagaon.

IV.ii The migratory status of labourers

Brick kiln industries are characterized by the compulsion to recruit migrant labourer from some region owing to their expertise. Table-2 revealed the migratory status of labourers. It is evident from table-2 that majority of labourers are migrant (84.2%) and recruited by the Sardar. Only 15.7% of surveyed labourers are local who come from nearby villages. Further analysis of the table revealed that out of 118 migrants workers only 18 come from other states like Bihar, Odisha and they are skilled labourers; but remaining 100 workers come from other districts like Dhubri, Kokrajhar or from places like Rupahi, Lawkhowa in the same district and some nearby tea gardens, who work on temporary basis. The involvement of intermediary in case of local labourers is very limited. In Nagaon District, skilled labourers come from outside Assam and unskilled labourers come from local areas.

Table : 2 The migratory status of labourers

Kilns	Migrants			Total	Local	Grand Total
	Same District	Other district of the state	Other states			
Nagaon Sub-division	25	30	10	65	15	80
Kaliabor	35	10	8	53	7	60
Total	60(42.9%)	40(28.6%)	18(7.14%)	118(84.2%)	22(15.7%)	140(100%)

Source : Field Survey

IV.iii Worker's indebtedness in brick kiln industry

Indebtedness is one of the most common economic

characteristics among the labourers in the brick kiln industry as they are recruited through advance payment. The system of advance payment and the verbal commitment to work and to return the advance have created many problems of debt bondage. Table 3 shows about the indebtedness among the brick kiln workers. During survey it was found that 107 (76.4%) sampled workers are indebted to the owner as they have recruited through "Dadan". Only 22 (15.7%) respondents have no loan as they are local labourers and paid daily based on their workability. 11(7.9%) respondents did not reply as they are subordinate members of the family. Since the bonded labourers are very poor and assetless, most of them relapse into bondage.

Table 3 :- Indebtedness of labourers

Indebtedness	Brick kilns at Nagaon Sub-division	Brick kilns at Kaliabor Sub-division	Total (%)
Indebted	60	47	107(76.4%)
No loan	15	07	22(15.7%)
Do not know	05	06	11(7.9%)
Total	80	60	140(100)

Source: Field Survey

IV.iv Sources and terms of indebtedness among the labourers

Labourers accept loan in a verbal contract without any written document. The kiln owners are also bound to invest such money without interest due to the expertise of the labourers and for regular supply of labourers.

Table 4 :- Sources and terms of indebtedness among the labourers

Sources of debt	No of respondent	Written/verbal	With interest/without interest	Guarantee (Land Labour)
Labour Sardar (Advance payment)	98 (91.6%)	Verbal	Without interest	Labour
Relatives and friends	09 (8.4%)	verbal	With interest	nil
Bank & any other source	nil	-	-	-
Total	107 (100)			

Source-Interview Schedule

Table 4 revealed that 98 (91.6%) sample labourers took money as advance (loan) from the owner (through the labour Sardar). The agreement was done verbally as the Sardar was familiar to them. Usually they are not supposed to pay interest but have to work to return the advance. Only 9 (8.4%) labourers borrowed money from their relatives and friends verbally with interest. Labour is the only "guarantee" or "collateral" of the loan for all labourers. Banks and other institutions are yet out of their reach.

IV. v. Reasons for which advance (loan) is taken

Loans are the fundamental issues between the employer and the labourers; so it is very important to know the reasons why the loans are taken. The migrated labourers are bound to contract with employer due to their poor economic conditions.

Table 5 revealed the compulsion to accept loan. 75(70.09%) respondents revealed that they accepted loans advances due to their poverty. They hardly got any job to subsist their family in their native place. 12(11.21%) respondents accepted loans due to slackness of agricultural production, and 10 (9.3%) used the money for the treatment of their illness. Another 10(9.3%) respondents used the advance money to buy some property like utensils, ornaments and mobile phone.

Table 5 : Reasons for which advance(loan) is taken

Reasons	No of respondents	percentage
Poverty, unemployment, family subsistence	75	70.09%
Slackness of agriculture	12	11.21%
Ailments(minor illness)	10	9.3%
Others(ornaments and valuable property)	10	9.3%
Total	107	100

Source : Field Survey

IV.vi: Labourers' perceptions about debt

In Brick Kiln industry, it is a very important question that does labour feel bonded. All labourers take advances at the time of joining a kiln as well as subsequently. Since repayment is done through labour, all labourers are bonded to the owner. It is difficult to assess the psychological reaction about debt bondage. We attempted to explore the concept of bondage among labourers. The study found that, labourer does not feel bonded and number of such labourers who accept the advances voluntarily as a traditional system is 106 (75.7%, Table 6). Only 13(9.3%) respondents admitted that "Dadan" is a system of debt bondage and 21 labourers (15%) had no idea. Illiteracy and unorganized nature are basic causes for such incidences.

The incidence of voluntary acceptance of debt revealed that the labourers were compelled by their economic conditions. Some sudden expenditures like illness, marriage cannot be arranged by the workers and they have to finance through credit from labour Sardar. Repayment of debt through work also provides creditability for further loan and guarantee for future employment to the worker. Illiteracy, unemployment and vicious circle of poverty, slackness of agriculture and need to subsist the family during off season are some of the important reasons why the workers are trapped by debt bondage.

Table-6 : Perceptions about debt bondage

Perceptions	No. of respondent	Percentage
“Dadan” –a system of debt-bondage	13	9.3%
Traditional System	106	75.7%
No reply	21	15%
Total	140	100

Source-Field Survey

IV.vii. Restricted mobility and indebtedness

Kiln owners do not make profit directly from the loans they offer as they do not charge any interest or fees. However, they are benefitted in other ways from the provision of loans and the use of household members as collaterals. The biggest advantage of offering advances is that it ensures regular supply of labourers. Once a family is trapped by Dadan, it will continue for a long time. If any family member has worked as kiln labourer for a while, the family can work nowhere else at their own discretion. They have only debt redemptions to supply them physically at the kiln.

Table 7 revealed the duration of labourer's work with same Sardar and the owner. Only 8 labourers (5.7%) worked up to 6

months as they are temporary labourers from local villages, and 20 respondents (14.3%) worked for 6-12 months as they are skilled labourers and they can change their workplace frequently as they get higher income and lured by other owners. 13(9.3%) labourers worked for 1-2 years as they are newly joined young workers, and they were facilitated by their friends. 45(32.1%) respondents worked for same Sardar for 2 to 5 years, and 43(30.7%) no of respondents worked under the same Sardar for more than 5 years. Only 11(7.9%) labourers did not reply as they could not remember the actual years of working, but revealed that they have been working for long times under the same Sardar and kiln. The survey revealed that once the contract was done with a labour Sardar, changing owner is probably not easy. Most of labourers replied that they were not free to quit the kiln as they had taken "advance" from the Sardar.

Table 7 : Data on period spent with present Sardar

Period	Number of labourers	Percentage
Up to 6 months	08	5.71%
6 months to 12 months	20	14.3%
1-2 years	13	9.3%
2-5 years	45	32.1%
More than 5 years	43	30.7%
Do not remember	11	7.9%
Total	140	100

Source Field Survey

V. Conclusion

The "Dadan" or advance payment is an old and widely practiced system in Brick Kiln industries. Through the Sardar, the owners lure the workers at the off season in their native place. In the area of origin, from where males are on the move, women or

children may find themselves in bondage. Poverty is emphasized as being the root cause for accepting advances and trapping themselves into bondage.

Due to the nature of production, Brick Kiln industries are still not regarded as formal industrial units and workers never enjoy the benefits of formal sector. It is practically difficult to implement the laws at brick kiln industry. That is why the Factory Act (1948) and Bonded Labour Abolition Act (1976) could not yield the desired results. The system of recruitment of labourer in the brick kiln industry is different from the past agrarian servitude of bonded labourer. Voluntary acceptance of debt bondage waives off the need for contractual agreement. Both employers and workers believe that advance payment fosters "mutual trust".

The system of payment and repayments are so smoothly organized that there is no need for forced extraction of labour at the workplace. But it makes workers vulnerable to bondage and pushes them to perpetual indebtedness. As most of them borrowed money from their familiar Sardars no written agreement is made between them. Usually they are not supposed to pay interest. But the recruitment process, working and living conditions clearly showed the incidence of debt bondage in the brick kiln industry. Unless the advance payment is stopped, the debt-bondage among kiln labourers can not be mitigated.

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Problems of Women Labourers Engaged in Brick Industries : A Case Study of South Kamrup

Ruby Bharaty

Introduction

Brick making is a predominantly a rural industry with brick making units belonging to small and informal sector. Likewise in the rural areas of South Kamrup nearly 50 brick industries are running with production of bricks. These industries are located at Dharapur, Khanamukh, Garal, Azara, Palasbari, Manpur, Kukurmara, Nahira, Jharobari, Nagarbera, Hekera etc

The brick industries operating in this region of the state has a low level of mechanization and a high level of labour intensity. Therefore in each brick kiln large number of workers of both sexes are employed by the kiln owners basically in the winter season. On an average 50% of the total number of workers are women. So these workers in general and the women workers in particular are seen to face variety of problems during the tenure of their service in the brick industries and also in the process of brick making.

Objectives of the study

The general objectives of the study are as follows :

- a) To make a study as to why large number of women workers are engaged in brick industries.
- b) To study the causes of establishment of large number of brick industries in the area under studies.
- c) To study different types of problems faced by the women workers engaged in the brick industries.
- d) To contribute some ideas for the reduction of the problems.

Methodology

The present study is mainly based on field work. Social research is made always in the field, not in laboratory. Without a meticulous field study the very rhythm of social science is meaningless. Methodology is an indispensable part of field investigation without which an investigator cannot proceed in his or her work. Methodology includes general principles and specific steps followed in research. In this study the following steps are involved-

a) Collection of secondary data

Secondary data were collected from different journals, magazines, news papers, bulletin of economics and so on. So far as the literature are concerned, the investigator used internet too.

(b) Collection of primary data

In the present study most of the data are primary in nature. For the collection of primary data, a field survey was conducted. Here the random sampling methods are adopted. Some of the brick kilns located in South Kamrup are selected randomly and interacted with large number of women workers according to the structured interview schedule. Along with the workers their

employer and significant persons are also interacted to collect information about different aspects and problems faced by the women workers.

Results and discussions

The brick manufacturing is usually hand - moulded task and therefore it is very labour intensive. Thus the small scale brick making units play a crucial role in providing jobs and income for millions of poor people particularly in rural areas of India. Similarly in this area also as estimated from the survey that about 10,000 people directly and indirectly are involved in the brick kilns in peak season around November to the onset of the rainy season of the following year (April/ May).

For the preparation of brick, clay is taken from the topsoil of fallow fields and moulded into green bricks which are then dried under sun rays. Thereafter these dried bricks are fired in a kiln or 'Bhatta'. Firing essentially means heating the bricks to a very high temperature (800 degree centigrade to 1100 degree centigrade) over a period of time and then cooled.

These products are the most familiar bricks. In the Fig. 1, the systematic stages of preparation of bricks are shown.

Soil → Moulding → Green brick → Drying and Storing → Dry brick → Firing → Finished product.

Fig. 1 Stages of preparation of bricks

Large number of brick industries in the area

The number of brick industries in the area is quite high in comparison with other parts of the state. The simple reason is that the soil of this area which is the principal raw material is most suitable for the production of good quality brick. Also the established fact is that the towns and cities are the large brick

demand centres. The area under study is located in the vicinity of the city of Guwahati. Also now-a-days the villages are not lagging behind in the demand of bricks. Apart from that to supply the products suitable transport system is a must. Of course this region is suitably connected with other parts of the state including Guwahati by state P W D roads and national high ways. The other components necessary to run the brick industry are easily accessible to the brick kiln owners in this area. Therefore in view of the ever increasing demand on the one side and the employment generation and as a way of livelihood more and more brick units are coming up in this area.

Recruitment of workers

The workers are generally engaged at the beginning of the month of November of every year and their services continued till the end of April/ May of the next year. From the survey it is found that though earlier in most of the brick kilns in this area workers came from Bihar, Odisha, Jharkhand etc along with the remote areas of Assam, now-a-days few workers are from outside the state. Almost all the workers are from the remote areas surrounding the town of Dhubri and from the surrounding areas of Nagarbera of the district of Kamrup. The migratory labourers belong to the minority community. Of course in some Bangla Bhata workers from SC/ ST community are seen to be engaged. But their number is very small.

For the appointment of workers in a particular brick kiln industry a leading man known as Sardar plays the vital role who bring the workforce to the brick kiln. The brick kiln owner gives some advance money to the Sardar and accordingly he gathers the workers of both sexes to cater to the needs of the brick kiln owner. From the interaction with the owner and workers it is observed that most of the workers are in the age range of 20-40

years. As observed from the study the task of brick making is very tough and therefore the employer is very careful in selecting the workers. Generally they engage physically fit and energetic workers and prefer to engage both husband and wife with their children. In table-I information regarding the number of workers are shown for some surveyed brick kilns

Table-1 workers recruited in some of the brick kilns as recorded in field survey during January/ 2012

Location	Total surveyed brick kilns	Total workers engaged	Total women workers engaged	Number of respondents
Dharapur	2	150	60	7
Garal	1	75	40	5
Azara	2	175	90	7
Manpur	1	100	45	4
Nahira	1	80	50	7
Total	7	580	285 (49%)	30

From the table it is seen that 49% women workers are working in these brick kilns. It is found that these workers are from the distant places. At a time it is observed that in all the brick kilns workers from the surrounding area of the brick kilns are not engaged. It is because the local workers frequently used to go home causing interruption in the production works.

Problems of women workers

a) Health and sanitation

From the study it is clear that the women workers in different brick kilns in this area come from distant places and maximum of them come with entire family. Therefore they stay within the campus of the industry in some congested cottages. The women workers stay with great dissatisfaction. As a result the women workers cannot maintain secrecy which they need. Apart from that the brick kiln owners have not provided adequate number of toilets among

the households. The women workers along with the male workers use common toilets; the number of toilets are not sufficient to meet the demand of the users. The scarcity of toilet facilities is a major health risk and therefore at different points of time open defecation becomes essential to the women workers also. As a result disease like diarrhoea is seen to be most common among the workers.

Table-2 Nature of works done by women workers

Location	Brick making	Brick carrying	Varieties	Total
Dharapur	25	20	15	60
Garal	18	15	7	40
Azara	40	36	14	90
Manpur	20	15	10	45
Nahira	18	15	17	50
Total	121 (42%)	101 (35%)	63 (22%)	285

Table-2 shows that in all the brick kilns out of the women workers 42% are engaged in brick making who are known as Pathera and 35% are engaged in the job of carrying(they are called Reja) green brick and subsequently fired bricks and the remaining 22% are employed for variety of works. Workers engaged in these activities are exposed to the sun for long hours. Also they are exposed to high concentration of dust. Apart from that during the process of firing of brick there is large scale emission of hydrocarbons, sulphure dioxide, carbon monoxides etc As a result these women workers are seen to suffer frequently with skin, eye, lung and respiratory diseases.

Again in the process of making and carrying bricks, there involve a wide range of physical position and posture. The carrying of green and fired bricks is done by head load. With the interaction with the women workers in the surveyed brick industries, we came to know that generally 9 to 12 pieces of bricks are carried at a time by them. Therefore every one of them are having back

pain , leg pain, pain of shoulder, pain at elbow, neck injuries etc. As a result there is decline in work efficiency among the women workers in addition to medical expenses. It is worth mentioning that the kiln owners provide health care treatment and medicines for certain common diseases but for continuous and prolonged treatment, the workers have to bear the expenses from their own earnings.

b) Socio-economic problems

In order to have an idea about the socio-economic conditions and the problems faced by the women workers in brick kilns factors like religion, marital status, age at marriage, education etc are relevant.

Table-3 Marital status of women workers at surveyed brick kilns

Location	Unmarried	Married	Widow	Divorced	Total
Dharapur	15	35	4	6	60
Garal	9	25	2	4	40
Azara	16	60	5	9	90
Manpur	12	26	3	4	45
Nahira	15	31	1	3	50
Total	67 (23 %)	177 (62 %)	15 (5.2 %)	26 (9.1 %)	285

Table-3 depicts the marital status of women labourers. It is observed that 62% of them are married. From the information it was known that almost all of them belong to Muslim community. In Table-4 the age at marriage of the women are shown.

Table -4 Age at marriage of women workers of the surveyed brick kilns

Location	Up to 18 years	18 to 20 years	Above 20 years	Total
Dharapur	22	12	1	35
Garal	17	2	6	25
Azara	40	16	4	60
Manpur	21	4	1	26
Nahira	26	---	5	31
Total	126 (71 %)	34 (19.2 %)	17 (9.6 %)	177

Study reveals that 71% women labourers got married before the age of 18 years while 19.2% within the age of 18 to 20 years and 9.6% at the age of above 20 years. They are illiterate and unskilled. Their economic condition is very poor. Poverty and unskilled nature of these workers compel them to engage in the brick kilns where education and training are not needed. Due to their illiteracy and ignorance of any labour laws they are working with low wages. Hence their annual earnings are very small which in no way help them to meet the minimum requirements for living. The wages of the workers are given on the basis of performance of works. From the survey conducted during the month of January, 2012 the moulders i.e. Patheras were paid Rs. 450/- per thousand piece of brick: produced, Rs. 125/-per thousand for carrying either dry or fired bricks. It reveals that the workers are to remain working for hours together to earn more. On the other hand if any worker remains absent in discharging duties due to illness or for some unavoidable circumstances, they are deprived of their wages. This has adverse effect on their economic state. The women workers are to depend on other activities as the brick kilns remain operative for 6 to 7 months in each year. So the women workers cannot depend solely on the work of brick kilns round the year. Thus going to their native villages during the remaining part of the year, they engage themselves either in agricultural activities or as maid or agricultural labourers etc Since in the rural areas, there are very little scope for engagement in such activities they are bound to work at pitiable wages. Thus without education, training or transferable skills these women labourers are ill prepared to do anything besides working in brick kilns. Thus a change in livelihood strategy are extremely difficult, specially for this category of women labourers. On the other hand the women workers hardly get any time for recreation or leisure activities. Although all of them contributed to the family's survival it is disheartening to note that

they do not receive any independent income and have to depend upon their male folk entirely. At a time women workers need to shoulder the responsibility of managing their families. All the married women workers informed that in spite of performing hard labour during the whole day with their husband, they need to do all the works related to the preparation of food at their residence without rest. Along with different problems another vital problem arises with their children. Most generally children are attached to their mothers at the work place instead of going to schools. To impart formal education to their children is a serious problem. As the brick kilns are located at isolated places away from the human settlements, the workers do not get the facility to enroll their children in a government school. Also due to the seasonal nature of work at the brick industry they cannot admit their children in any schools in the nearby areas of their industry. As a result their children are deprived of proper education. So their children are also compelled to enter into the same job like their parents. Of course now a days the children are getting school education from Sarba Siksha Abhiyan. But that is not enough for them as the process stops as soon as they leave the brick industry.

c) Miscellaneous problems

From the study it is observed that the serious and major problems faced by the women workers are the physical and sexual harassment. Of course all these problems are created from among the workers only. Therefore the owner of the brick kilns also face some unnecessary problems. Of course the owner smoothly settles all types of their quarrels and misunderstandings. But even then the women workers are to work under severe mental torture from their fellow companions. Apart from that due to the illiteracy and lack of knowledge these fertile women workers do not take population control measures. As a result women workers are

compelled to give birth more children. Hence physical health deteriorates on one side and on the other side they are bound to shoulder the responsibilities of such a big family even after performing hard labour in the brick kilns.

Conclusion

From the study it can be concluded that the women labourers are living in the campus of the brick industries with inadequate facilities. As a result they suffer from different diseases. In spite of doing hard labour they do not get due wages. Therefore their economic condition is very pathetic. They are also constrained to perform duties against their will. Some of the women workers are also sexually harassed by the male workers. Thus to reduce the problems and shortcomings of the women labourers the following remedial measures may be adopted.

- i) The owner of the brick industries should provide suitable shelter with proper sanitation.
- ii) Proper health care facilities should be provided to the workers and their children.
- iii) Adult education programme for the women workers of the brick kilns should be implemented to make them literate.
- iv) With the initiative of the owners of brick kilns the labour department should come forward to prevent physical-mental torture, sexual harassment and molestation of women workers. For this, the department should introduce special wing that can supervise the matter and take necessary action against the wrong-doers.
- v) The government as well as NGOs should make awareness programmes which will discuss the ill effects of early marriage among the women workers in the brick kilns.

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A Study of the Problems of Child Labourers in Brick Industry of Kamrup District

Dr Gayatree Das

1. Introduction

Childhood is the most innocent stage in a human life. It is that phase of life where a child is free from all tensions, Child labour is a global problem but its magnitude varies between countries. It is also a very big social and economic problem in Assam. The term child labour is used for employment of children below the age 14 years. Child labour is done by any working child, who is below the age 14 years which is considered illegal by law and customs. The Ministry of Labour, Government of India has employed the term 'Child labour' only in the context of children doing 'hazardous' work. So the children not doing 'hazardous' work are not considered to be child labourers and are said to be doing child work. By this narrow definition of child labour we see that the Labour Ministry's definition only includes a very small percentage of children who are in the work force and leaves out millions of children who required policy support from the government. Some non-governmental organizations have been playing vital roles in addressing this problem. They have

focused their activities to eliminate child labour from our state. And one hazardous area where children end up as migrant workers are the brick kilns spread across Assam. Apart from health hazards, another serious problem is that children drop out of school and gradually lose interest in formal education. In this study child labour refers to all forms of works undertaken by children below 14 years of age. The study was carried out in four brick units of Dharapur Chariali and Azara of Kamrup district which are located near Gauhati airport.

The general objective of this study is to understand the conditions being faced by the children at the worksites and to measure work safety in their workplace. The maximum number of families or workers migrate from different states as shown below:

Sl. No.	Name of the districts	Number of workers(%)
1	Dhubri	63
2	Kokrajhar	13.7
3	Cochbehar	6
4	Barpeta	3
5	Marigaon	2.8
6	Darrang	2.6
7	Goalpara	1.6
8	Bangaigaon	1.4
9	Kamrup	0.8
10	Bihar	0.5
11	Nalbari	0.3
12	Nagaon	0.3
13	Udalguri	0.1

2. Methodology

Both primary and secondary data have been used in this study. Secondary data are collected from some newspapers, other publications etc For this study primary data have been collected from three main sources -i) child workers ii) parents iii) owners or managers of the brick industry.

The brick industry has been chosen for the purpose of the study because it is seasonal in nature and the labour force often includes migrants' families with children.

3. Reason for working in brick industry

It is important to understand why they choose to work in brick industry. The majority of brick industry children said that they worked in brick industry because their families or relatives worked or lived there. About 90% of parents said that their children have to work for money to fulfil their needs. According to the managers (owners) of brick industry there are mainly three reasons that the children come to work in brick industry :

- i) No strict working regulations (such as they could come any day they wanted to work) anyone who is interested can get this kind of work very easily.
- ii) Children in the neighbouring villages come to work in brick industry.
- iii) Some children quit school and look for jobs to earn money. Here they earn money faster than in other jobs.

Although the owner or manager of brick industry knows about the child labour laws, they give them some work to help them. Also some managers said that some parents requested that their children be allowed to work too, otherwise parents would not take the job.

Lastly we can say that, actually poverty and lack of economic alternatives are major factors behind families taking their children along with them to work in brick industry.

4. Findings

a) Tasks undertaken by child workers

Child workers in brick industry usually performed multiple tasks. Their common tasks are pulling brick wheel barrows, loading bricks onto and out of brick wheel barrows, loading bricks onto trucks and arranging bricks to dry. Some children also performed heavy and dangerous works as brick machine operators or firing brick kiln workers. When the firing process completes and the kilns are cool enough to unpack the bricks, children mostly girls from the nearby villages come to unload bricks and load these onto trucks for distribution.

Another set of heavy tasks for children involves the preparation of clay, starting from extracting, crushing/grinding, mixing and carrying clay to brick making machines. The findings show that at least about 22% of the interviewed child workers performed clay crushing or grinding. The following table shows some percentage-wise tasks done by child workers living in brick factories and not living in brick factories :

Sl. No.	Name of the tasks	Living in brick factories (%)	Not-Living in brick factories (%)
1	Pulling brick wheel barrows	51.6	70.8
2	Loading bricks in and out of brick wheel barrows	42.3	53.4
3	Loading bricks onto trucks	42.3	40.5
4	Arranging bricks to dry	45.3	36.6
5	Operating a brick making machine	10.5	6
6	Crushing and/or grinding clay	22.2	19.3

b) Working conditions in brick industry and problems of labourers

The brick industry units selected for this study were found to have poor and hazardous work conditions due to unbearable heat, flying and burning ashes, falling bricks, lack of sanitation, no first aid kits and no work safety regulations.

Work in a brick industry is time bound seasonal work, starting from October through May, until monsoon season starts. Child workers in brick making industry can work on a contract daily or on weekend or anytime they are free to come to work. Their usual working hours range from a minimum of three to ten hours daily. Payment are made on price rates (or product basis) set for specific tasks.

We have seen so many problems of the children working in the brick industry. The children have problems with their health due to unsanitary environment i.e. unclean, smoke, bad smells of manures etc The most common health impact is watery eye or eye itches because of smoke and flying ashes (83% among village children and 75.8% among brick industry children), cough and lung problems due to the dusty work environment. Some other health problems are shown in the following table :

Sl. No.	Name of the health problems	%
1	Fever	40.4
2	Dysentary	40.4
3	Backache	40.4
4	Skin itches	40.4
5	Skin rashes	37.2
6	Body or muscle ache	36.2
7	Chest pain	31.9

One task undertaken by children working in brick industries is operating brick making machines that is well known for causing severe injuries to children. Brick units taken for this study are without safety devices and as a result some children have had arm or palm injuries. Some children even lost their arms due to such accidents.

One of the major problems of working children in brick industries are : their parents are not educated and their children also. They quit school in order to help their parents with their work. Those who are still in school do not attend school regularly because sometimes their parents need their labour immediately to finish up contract works. Their parents do not know the value of the present education. So our first duty is to motivate them about the importance of their children's education.

5. Suggestions for improving working conditions in brick industry

The following suggestions are given for improving working conditions in brick industry.

- i) Reduce work loads for children.
- ii) Increase wages for children.
- iii) Provide protection equipments to all children.
- iv) Impose rules that prevents engaging children in dangerous tasks and bans the employers from forcing children to work beyond their physical capability.
- v) Provide sick leave benefits.
- vi) Provide support for children's schooling because most of the parents of the child workers have no ideas on how to improve the working condition.
- vii) Labour law inspector should visit these brick industry units to enforce child labour laws. Civil society groups need to know when this inspection takes place and what action is being taken to remove child labourers.

6. Conclusion

Although government have initiated various steps for prohibition of child labourers in any kind of industry, a good number of brick industry units in South Kamrup area are running with child labourers and creating air pollution in the localities also. From the findings of this study there are numbers of problems faced by the workers in brick industries which are unique and required unique solutions. These workers are highly vulnerable to exploitation, lack of effective voice and have virtually no bargaining power. Perhaps these children are unobserved and unnoticed by the government and civil society. As a result they miss their education, damaging their future prospects and at the same time damaging their health. The local administration as well as the labour department are never seen taking any strict action against these brick industries in this regard. There seems to be a good understanding among the owners, local administration and the labour department.

By nature children cannot fight for their rights because they are powerless. They need others to advocate and campaign on their behalf.

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Study of Child Industrial Labourers Working Under Hazardous Conditions with Special Reference to Their Health Problems

Prasanta Kr Gogoi

1. Introduction

According to a recent estimate of the International Labour Organisation (ILO), more than 120 million children between the ages of 5-14 are employed as full time labourers around the world and among them a good number of such children are being engaged in the most hazardous and dangerous industries. In India itself, it is estimated that there are at least 44 million child labourers in the age group of 5-14. Paradoxically, ILO also estimates that across the globe there are a total of 115 million children under the age of 18 currently involved in hazardous work. That is more than half (53%) of the 215 million child labourers worldwide are engaged in hazardous child labour. Most hazardous child labour is found in the agricultural sector but children are in fact working in almost every economic sector, including sectors considered extremely hazardous such as mining and construction. Child labour in

hazardous industries is becoming very high in India because of shrinkages of agricultural land and expansion of urbanization in recent years. Study reveals that most of the child labourers are illiterate and school drop-outs who have therefore had no alternatives but to sustain a livelihood as industrial workers and penetrating into a risk loaded working environment.

The term "child labour" refers to work and economic activities carried out by persons under the age of 18 years, that harms their safety, health and well-being and/or hinders their education, development and future livelihoods.

Child labour is not child work. Child labour is the opposite of child work. Child labour hampers the normal physical, intellectual, emotional and moral development of a child. Children who are in the growing process can permanently distort or disable their bodies when they carry heavy loads or are forced to adopt unnatural positions at work for long hours. Children are less resistant to diseases and they suffer more easily from chemical hazards and radiation than adults. UNICEF classifies the hazards of child labour into three categories, namely (i) physical, (ii) cognitive, (iii) emotional, social and moral. The matter becomes more serious to child when they are engaged in hazardous industries which are at high risk of fatality.

As far as hazards of child labour are concerned, the physical hazards affect child labourers immediately and directly. They affect the overall health, coordination, strength, vision and hearing of children. Contemporary research reveals that hard physical labour over a period of years stunts a child's physical stature by up to 30 percent of their biological potential. Working in mines, quarries, construction sites, and carrying heavy loads are some of the activities that put children directly at risk physically. Jobs in the glass and brassware industry in India, where children are exposed

to high temperatures while rotating the wheel furnace and use heavy and sharp tools, are clearly physically hazardous to them.

An estimated 115 million children carry out hazardous child labour. These children work in jobs where they risk being killed or injured or can suffer work-related ill health, although precise data is lacking due to under-reporting of occupational accidents and illness. ILO estimates that as many as 22,000 children are killed at work each year. Well over 70 per cent of child labourers work in the most dangerous sectors, namely, agriculture, construction, mining and fishing. Long-term health problems due to working as a child labourer may not develop or become disabling until the child is an adult. Permanent health problems can include: musculoskeletal disabilities due to carrying heavy loads; lung diseases from exposure to dusts; cancers and reproductive disorders due to exposure to pesticides and industrial chemicals. The effects on health of working long hours, poor sanitation, stress, sexual harassment and violence at work also need to be considered.

Some of the examples of the most hazardous form of child labour in the manufacturing sector of India are stated to be Glass Factories, Brick industries, Match factories, Fire Crackers industries etc Firozabad of Agra district of Uttar Pradesh is the home of glass bangle and glassware industry in India. It is estimated that about 50,000 children below the age of 14 work in this industry. This is one of the highest concentrations of child labourers in the world. Children are used in all the various phases of bangle making and glass blowing. About 85 percent of them are employed in carrying molten glass on a seven-foot iron rod called labya from the furnace to the adult worker and back to the furnace. They sit in front of furnaces where the temperature is said to be 700 degrees centigrade. Children, as they are small in stature have to go close to the fire when they collect molten glass from the furnace. In her field research on the glass industry in India, Dr Burra Neera notes

that the children's faces were only about six to eight inches away from furnaces that were burning at 1500-1800 centigrade. As they work with fire in these factories, accidents are also common. When children carry moulded glasses up and down, pieces fall on the floor and unless the children are very careful they can get burn injuries quite easily. In the long-term, the continuous exposure to high temperature harms their health permanently.

For more than seven decades, thousands of children have been working in the match factories at Sivakasi in Tamil Nadu. Respiratory diseases, eye infection, and exposure to chemical agents are the major health hazards in the match and fireworks industries. Researchers accuse the employers of not taking any precaution for fire safety in such workshops where even a small crack could start a fire. They found several children with burn scars on their hands, thighs and legs and 80 percent of the children interviewed in such workshops reported cases of accidents.

In this study, based on the line of UNICEF's classification, overall scenario of working child labour in hazardous environment has been studied in Nagaon Town. In addition to direct physical hazardous impact on child labourers, the cognitive development which includes literacy, numeracy and the acquisition of knowledge necessary to normal life is also greatly affected by their working surroundings. Work may take so much of a child's time that it becomes impossible for them to attend school; even if they do attend, they may be too tired to be attentive and follow the lessons. In this study, out of total sample, 16 percent is child labourers in the study area. Out of the total child labourers of the sample, 82 pc is engaged in different hazardous industries like garages, welding activities, electric repair work, motor vehicle repair/building works, car washing and greasing, bidi making and distributing etc Again out of total child labourers engaged in different hazardous industries mentioned above, highest percentage of child labourers are engaged

in garages i.e 55 percent, followed by Brick industries i.e 25 pc, and other industries 20 percent.

Health information collected from randomly selected industries have been analyzed and found that out of the total sample, 25 pc of child labourers, who are working in welding are suffering from eye related problems, 66 pc of the total child labourers are suffering from skin related diseases working in garages and 9 pc of child labourers are victims of accidental burn injuries. Apart from that, there are cases of respiratory problems (lung disease) of child labourers in all sectors of industries but most cases are found in brick industry and garage workers which is about 70 percent of the total sample.

1.1 Study Area

i) Location: Nagaon is the Headquarter of Nagaon District of Assam. Nagaon Town is one of total seven towns of Nagaon District covering an area of 9.22 sq km and total population of 2.3 lakhs in 2011 which is the highest among all towns. Latitudinal and longitudinal extension of Nagaon Town is 26 degree 19 minutes to 26 degree 21 minutes North and 92 degree 39 minutes to 92 degree 42 minutes East. There are 26 numbers of municipality wards.



Fig - 1 : Map of Nagaon Town

1.2 Objectives

- a) To categorize hazardous industries in Nagaon Town.
- b) To study different groups of child labourers and their health related problems.
- c) To prepare a strategy for managing child labourers.

1.3 Database and Methodology

This study is based on primary data. However, for reference research articles, PDF Research publication in internet, journals, have been used. Primary data are collected through a prepared questionnaire consisting of their socio-economic as well as health related queries. For analysis of data representation bars, graphs have been prepared by using Excel. Maps are prepared through GIS-9.3.

1.4 Research question

Whether economic condition of parents has forced child to workers labourer in hazardous industries ?

1.5 Significance of the study

Workplace hazards can cause a number of types of injuries. In general, there are four injury categories i) Traumatic physical injuries ii) Repeated trauma injuries iii) Mental injuries iv) Occupational diseases. A discourse on the impact of Occupational diseases, such as poisoning from chemicals or other hazardous materials on child's overall development is the need of the hour and it is significant in the study area as because cheap labourers are abundant there due to economic constrains of families.

2. Analysis and Discussion

Relevant information from the study area are gathered through a prepared questionnaire and analyzed through simple statistical

tools and techniques. A total sample of 256 respondents have been interviewed randomly from different unorganized sectors of industries and on the basis of different categories of industries, hazardous industries are grouped into three categories which are named as most hazardous, moderate hazardous, low hazardous industries respectively. Out of the total number of 265 garages, 10 percent which is 26 numbers, is selected for study. Out of total 10 numbers of Body Repair works (Motor Vehicle Body Construction works), 50 pc have been selected for study, similarly 1 number Bidi making and whole seller and 2 numbers of Brick industries are selected for the study.

2.1. Demographic and Socio-Economic information : In all the sample units, child labourers are being engaged. Except Brick and Bidi Making industries, male child labourers are predominant, which is 88 pc. Age group in garage child labourers is below 14 years but above 12 years. There are 87 pc of male child workers found in garages and motor body building (construction) industries in the surveyed area. The remaining 3 percent of child labourers are female working in Brick Kiln industry.

Data collected in relation to the study are analyzed and it revealed that in the sample 25 pc is Hindu and 75 pc is Muslim of the total surveyed child labourers. As for level of literacy, 65 pc of the total sample obtained primary education (below class V), 25 pc obtained higher education (below class X), 10 percent of the total surveyed is illiterate (have no formal school education). In case of child labourers engaged in unorganized hazardous industries, 78 pc of child labourers is primary school dropouts, 20 percent is high school dropouts, and remaining 2 pc is illiterate or have no formal school education.

In the research question being put for investigation that parental economic condition of child labourers in the study area is the root cause of increasing incidence of child labour. When

investigated about the economic condition of their parents/guardians, it is found that the monthly family income is from 1600 to 2400 rupees per month which is a minimum of INR 53 to INR 80 per day. This poor economic condition of parents of surveyed child labourers at Nagaon Town force them (child) to become child labourers to support their family. As far as economic condition of child labourers is concerned, they are the poorest. There are 35 pc of child labourers whose wage rate is less than INR 25 per day, 55 pc of child labourers having INR 50 per day and 10 pc of child labourers got INR 60 per day.

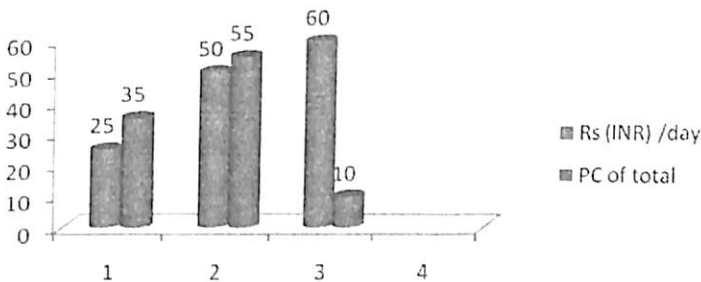


Fig -2 : Daily wage and percentage of total workers

The child labourers working under selected category of the study area in which child labourers in Garages have obtained INR 30 per day in mechanical works per day, INR 40 per day in vehicle body construction activities, INR 50 per day in Welding. Moreover child labourers working in Bidi making and distributing industry got INR 25 and Brick industry at Nagaon Town got INR 30.

2.2 Occupational and health related hazards identified

While many of the health risks child labourers are exposed to threaten immediate damage to health, others are likely to develop over many years and might only become manifest in their adulthood. Exposure to pesticides, chemicals, dusts and carcinogenic agents

in agriculture, mining and quarrying and manufacturing increase the risks of developing bronchial complaints, cancer and a wide variety of diseases (Forastieri, 1997; ILO, 1998; Fassa et al, 2000). In India, industries with large proportions of child labourers also tend to have high rates of TB and silicosis. Stonecutters and slate workers, for example, have silicosis rates of 35% and 55% respectively (Parker, 1997). Cancer risks are raised significantly through exposure to asbestos in mining and construction and to aniline dyes in carpet and garment manufacturing (ILO, 1998). Ergonomic factors such as heavy lifting and poor posture raise the chances of musculoskeletal problems developing in later life (Forastieri, 1997; ILO, 1998; Fassa et al, 2000).

2.2.1 Occupational disease : Disease that is caused from occupational environment is called occupational disease. It is caused by physical, chemical or biological agents. There are cases of sensitization dramatics which is caused by different types of organic and inorganic solvents used in cleaning and washing different engine parts in garages of Nagaon town. Most of the skin related ailments are found in garage workers as well. Apart from that, child labourers of the study area in brick industries are suffering from lung related disease due to exposure to dust particles. In a practical demonstration along the 37 national highways at Haiborgaon area whenever a magnet is touched on the ground it attracts 30 - 40 grams of iron dust but the same magnet attracts only 2-5 grams of iron dust at Kachalukhowa and Madhupur Village. This result of high concentration of iron dust in sands of South Haiborgaon area exhibit high lung related diseases. The local people near the brick stated that coughing and snoring is a common health problem due to dust smog. Occupational lung diseases are concerned primarily with work related exposures to harmful substances, be they dusts or gases.

Table : 1 Some of the most common work place hazards

Sl. No.	Category According to CDCP, Work place Hazards	Category of UNICEF's classification	Identified work place hazards in Nagaon Town
1.	Abrasive blasting	1. Physical hazards	1. Electrical accidents
2.	Aerosols		2. Respirable dust
3.	Antineoplastic agents	2. Cognitive hazards	3. Toxins
4.	Asphalt fumes		4. Fires
5.	Bicycle saddles	3. Emotional, social and moral hazards	5. Heat stress
6.	Carbonless copy paper		6. Diesel exhaust
7.	Cold stress		7. Insects, scorpions
8.	Diesel exhaust in mining		8. Electric and magnetic fields exposures
9.	Electric and magnetic fields		
10.	Electrical accidents in mining		
11.	Explosions and explosives in mining		
12.	Fires in mining		
13.	Hazardous drug exposures in health care		
14.	Heat stress		
15.	Insects, scorpions, and spiders		
16.	Noise in mining		
17.	Poisonous plants		
18.	Respirable dust in mining		
19.	Rock falls in mining		
20.	Take home toxins		
21.	Ultraviolet radiation		

2.2.2. Work related injuries : It is apparent that child labourers have injury rates almost twice as high as adult workers . Among injured young workers 16-17 year old and adolescent males appear to suffer the highest number of work-related injuries. In this context, occupational hazards of Nagaon town have been studied and systematically categorized as shown in the following figure.

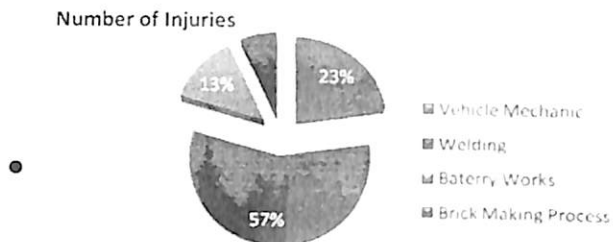


Fig -3 : Injury to child labourers

The Pie representation showing percentage of injuries of child workers of different categories in the surveyed industries at Nagaon town. From the obtained set of data there are found that 57 pc of the total reported injuries occurred in welding in repairing work of vehicle. Followed by it, injuries of 23 pc of the total child labourers is due to works done in mechanical activities like lifting of heavy motor parts, hammering, lifting etc

3. Conclusion and Remedial Measures

Often child labour is considered to be a "necessary evil" in poor countries such as India for the maintenance of the family. The study of child labourers in Nagaon Town exhibits various hidden facts of growing rate of child labourers in the region. Firstly, the parental economic condition of child is deprived or challenging and therefore to support their family, child workers are growing. It is an eye opening fact that a large numbers of child labourers are primary school dropouts that is 82 pc which is contradictory to the policy of right to education of children. Here in this study it has been found out that there is an inverse relationship between parental economic status verses input of child labourers. To combat this situation it is suggested to increase wage rate of such adult workers who have school growing children or to make a policy for discouraging child labour for child's holistic development. Study

on Health related issues of child labourers at Nagaon Town exhibit that there are physical, chemical, cognitive and psychological hindrance among the child labourers. It has been found that there are injuries on surveyed child labourers in welding activities which is 57 pc. Cases of lung related disorders among child labourers are reported at peripheral areas of Brick industries.

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Socio-Economic Profile of Child Labourers Working in Tea Stalls, Restaurants and Dhabas of Nagaon Town

Joy Kumar Singha

Introduction

In 2000, the International Labour Organization estimated 246 million child worker aged between 5 and 17 were involved in child labour of which 171 million were involved in hazardous activities. ILO has estimated that child labourers are found 61 pc in Asia, 32 pc in Africa, 7pc in Latin America, 1pc in USA, Europe and other wealthy nations. In Asia and Latin America 22 pc and 17 pc of the workforce are children.

In India, the child labourer has been in employment in all the industries - hazardous or non-hazardous. The state government is empowered to determine the hazardous or non-hazardous industries but the actual position is that all the state governments have not able to do so as yet. The Child Labour Act is applicable upto 14 years of age. There are so many industries in which the age of the child labourer has been shown higher than the actual one on the basis of statement of their guardians in fake affidavits.

It is simply because the parents or guardians do not want removal of their children from their employment because of their poverty, limited income and ever increasing cost of living. According to a survey of child labourers undertaken on orders of the Supreme Court of India, the total number of such labourers in India is five lakh. Out of it, Odisha is on top employing 2.15 lakh children in industries.

According to report of a UN body, thousands of children have been employed in Italy in leather industry while in Portugal, young girls are employed in domestic services and clothing industries. In USA, 28 pc of the children are working in inhuman conditions. It may be noted in this connection that the pressure is being mounted at the international level for elimination of child labourers from the industries by imposing curbs on Indian goods which are manufactured by ongoing child labourers. Government of India holds the view that it cannot be eliminated overnight but in a phased manner. For this purpose a new act is being brought up by repealing the act of 1986.

Though thousands of child labourers prevail in N. E. India but in official record it is found very less. Even though activities say it is easy to spot children scrubbing pots and pans and doing other work at street side restaurants and dhabas in the northeast like in the rest of the country, the labour ministry data paints a different picture. Following the queries filed under the RTI Act by the NGO(BBA) Bachpan Bachao Andolan, the ministry data revealed negligible incidence of child labourer in the region. On October 10, 2006, the government banned the employment of children as domestic helps and in street side restaurants. Violators can be jailed for upto two years and fine Rs. 20,000. The number of inspections carried out from October 2006 to April 2008 in Arunachal Pradesh, Manipur, Sikkim and Meghalya were only

09, 39, 60 and 24 respectively. 6 cases of violation in Arunachal Pradesh were detected. In other states the violation cases are found nil. Assam is the lone north east state where according to the document, a prosecution has been filed and during the mentioned period 1,261 inspections were carried out of which 46 violation cases were detected. However, to queries filed under RTI by BBA, the labour ministry said a mere 8,105 violation of the ban were detected across the country during the above mentioned period.

In this study an attempt has been made to explore the problems of child labourers working in hotels, restaurants and roadside dhabas of Nagaon town.

In Nagaon town in a rough estimate there are more than 180 tea stalls, 20 restaurants and 20 roadside dhabas.

Objectives

1. To study the socio-economic condition, literacy rate of the child labourer and their parents/guardians.
2. To study health related problems of the child labourers.
3. To suggest ways to stop/restrict the children from working in hazardous industries.

Methodology

The present study is based on primary data. For reference research materials like publications in internet, 2011 have been used. The sample of tea stalls, restaurants and dhabas were selected by using appropriate sampling technique. Since tea stalls, restaurants and dhabas are of homogeneous character so by applying simple random sampling methods the sample were selected.

Analysis of Data

As mentioned in the methodology by using the simple random sampling technique out of the 180 tea stalls 20 tea stalls, out of the 20 dhabas 4 dhabas, and out of 20 restaurants 4 restaurants respectively are selected for study. A total number of 120 child labourers were selected and according to the prepared schedules they have been interviewed and recorded.

Demographic and socio-economic information:- The child labourers who are engaged in these industries are found to be below 14 years and above 10 years. But according to the proprietors their age are about 14 years [fake affidavits certificates are with them when labour inspector inspects their industries] the child labourers who are engaged in these restaurants, are almost 100 pc. male child labourers. Data being collected in relation to the study are analyzed and it revealed that in the sample 40 pc is Hindu and of them 90 pc belong to SC & ST, and 60 pc is Muslim and of them 90 pc belong to rural area.

The study revealed that out of the selected sample of 120 child labourers, 28 child labourers have received wage between Rs. 50.00 to Rs. 60.00 per day, 25 child labourers have received wage between Rs.60.00 to Rs. 70.00 per day, 32 child labourers have received wage between Rs.70.00 to Rs. 80.00 per day, 19 child labourers have received wages between Rs. 80.00 to Rs. 90.00 per day and 16 child labourers have received wages between Rs.90.00 to Rs. 100.00 per day.

This can be represented by the following table and histogram:

Sl.No	Wages of labourer per day(in Rs.)	No. of child labourers
1	Rs. 50.00 to Rs. 60.00	28
2	Rs. 60.00 to Rs. 70.00	25
3	Rs. 70.00 to Rs. 80.00	32
4	Rs. 80.00 to Rs. 90.00	19
5	Rs. 90.00 to Rs. 100.00	16
Total		120

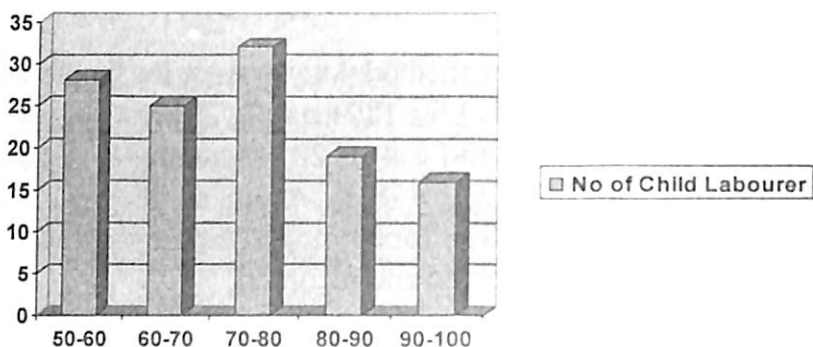


Fig : Wage per day (in rupees)

It is also observed that the economic condition of the parents/guardians of these child labourers are very weak. The income of parents/guardians of these child labourers ranges from Rs. 1800 to Rs. 3000 per month which is Rs. 50 to Rs. 100 per day. This poor economic condition of the parents/guardian of these children compels them to work and support their families. For these child labourers work has become a necessity due to the economic needs of the parents and the child himself.

Regarding level of literacy studied in the sample, 60 pc of the total child has obtained primary education (below class V), 15 pc has obtained middle class level education (below class VIII) and 25 pc of the child has been found illiterate that means they have no formal education.

The child labourers working in these industries suffer from health risk. Most of the migrant children cannot go home, sleep at their work place, which is very bad for their health and development. No proper medical treatment is provided by the proprietor/ manager whenever these children suffer from any illness.

Child labour is a very complicated developmental issue, effecting human society all over the world. It is a matter of grave concern that children are not receiving education and leizure which

is important for the growing years because they are sucked into commercial and laborious activities. Some common causes of child labour are poverty, parental illiteracy, social apathy, ignorance, lack of education and exposure, exploitation of cheap and unorganized labour. Here in my study it has been found that poverty, over population, lack of education are the main causes of child labour. Parents are forced to send their children, even when they know it is wrong.

Considering the magnitude and extent of the problems, it requires concerted efforts from all section of the society to make a dent in the problem.

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Occupational Hand Dermatitis in the Roadside Automobile Workshop Mechanics

Parag Dutta

Automobile workshop workers are a class of labourers, often categorized as unorganized labourers. They are prone to long-term toxicity due to their routine works such as motor vehicle assembly, spray painting, burning of fuels, welding, brazing and repairing of radiators. (Boffetta et al., 1997) Mechanics are exposed to a wide range of chemicals that include heavy metals such as the ones contained in brake fluids, detergents, lubricants, degreasers, paints, metal cleaners, solvents and fluids. Constant exposure to these chemicals lead to chronic poisoning among the mechanics which are manifested in the overall health status of them. Drastic increase in the number of automobile vehicles in last two decades have caused the growth of numerous automobile repairing workshops in almost each and every part of the present day world (Pachathundikani and Varghese, 2006). The municipal area of Nagaon is no Exception. Besides, the company authorized sales and servicing outlets, numerous roadside garages for repairing of the vehicles have been set up during past a few years in the area. Along the A.T. Road (Old N.H. 37) the Khutikatiya-Haibargaon

area is a hub of auto-vehicle workshops of the Nagaon Municipality with more than a hundred different types of auto-workshops like company authorized automobile sales and servicing dealers, roadside auto-engine repairing workshops, vehicle body builders and welders, battery and auto-electrical repairing workshops, auto-tyre sales and repairing centres, vehicle washing centres etc. The workers in most of these workshops work in a hazardous environment and in the absence of proper hazardous waste and healthcare management and awareness they fall prey to the toxic effects of the toxic chemicals used in the automobiles. The roadside workshop mechanic-cum-labourers are more prone to this sort of toxicity as most of them are without much healthcare awareness. These roadside workshops hardly follow any basic waste management norms and as such, these labourers are more prone to auto-chemical toxicity than the company authorized sales and servicing dealers who at least follows some basic norms and health regulations. Present study is an investigation of occupational health problems manifested in the hands of the car mechanics in the roadside workshops of the above mentioned area with reference to the working environment of these workshops and the healthcare management associated with various hand dermatitis seen among them.

Objectives :

The objectives of the present study are :

1. To monitor various skin problems visible in their hands due to their constant contact with toxic auto-chemicals during their working hours.
2. To investigate possible causes behind the existing hand-derma diseases among the mechanics.

Methodology :

Present study calculated total number of mechanics and workers working in the roadside automobile workshops in the area to be excess of 400 in more than 100 different types of workshops. This report has been prepared on the basis of empirical analysis of 50 of these workers working in 30 different randomly selected different types of roadside workshops. These randomly selected 30 strata wise workshops includes: 6 vehicle body building and repairing workshops, 14 two and four wheeler engine repairing and servicing centres, 3 tyre repairing and sales centres, 3 welding workshops, 2 battery and auto-electrical maintenance workshops, 1 vehicle washing and cleaning centres and 1 car accessory seller. 50 workers were selected with rational representation from each of these types of automobile workshops taken as samples and with the help of a self administered scheduled questionnaire necessary information were collected. These 50 mechanic-cum-workers include 14 from vehicle body building and repairing workshops, 18 from engine repairing and servicing centres, 6 from tyre repairing and sales centres, 5 from welding workshops, 3 from battery and auto-electrical maintenance workshops, and two each from vehicle washing and cleaning centres and car accessory seller.

The randomly selected workers are observed and any irregularity found in the skin especially hands are noted down and photographed along with their working environment wherever possible. The questionnaire is used to record and monitor the chronological extent of diseases in them as well as to know their socio-economic conditions, literacy and awareness level, smoking and drinking habits of these workers, their nature of works, knowledge of these workers about different toxic chemicals affecting their derma tics like, hydrocarbons, isocyanates, degreasers, asbestos, lead, xylene occurring in paints, varnishes and coatings, various solvents, oil and brake lubricants, metal

cleaners, adhesives, nickel, various antiknock agents like MMT (Methylpentadienyl Manganese Isobutyl) etc Moreover, the history of the derma diseases in these mechanics, mode of treatment, precautions he is using, nature of ventilation and waste management procedures in these workshops were also recorded in the field survey. These records are used as the description and analysis tool as the causes of the recorded diseases among the mechanics and to put forward necessary suggestions.

Results and Discussions:

Nagaon district is one of the most populous districts of Assam with a total population of 28,26,006. Nagaon is the headquarter of the district and the largest urban centre of the middle Brahmaputra valley region of Assam with a population of 1,36,817 persons (including nearby census towns) as per 2011 census data. The town experiences huge traffic flow and the streets of the town are found heavily congested with vehicles for most time of the day. Upto 31st March 2011, total of 94,899 vehicles was registered in the district. Moreover, the location of the place in the middle of the state and its roadside location along the National Highway no 37 have increased the traffic flow in the roads of this urban area by many times than its actual number of vehicles registered in the district. The following table categorizes the registered vehicles of the district:

Vehicle	Truck	LMV Goods	Bus	Omni Bus	Taxi	Auto Rikshaw	Two Wheelers	Car	Jeep	Tractor	Trailer	Crane	Govt. Vehicles	Others	Articulated
no	6449	755	382	79	1707	4664	66209	10180	700	1321	421	26	477	1519	10

Source: Statistical Handbook of Assam, 2011

Large input of registered as well as plying-on- the-road motor vehicles in the roads of the district is the chief cause of heavy traffic density of the urban area; to cater the mechanical need of these vehicles in the area requires a large number of repairing workshops. However such roadside automobile workshops in the district as well as Nagaon Town lacks authentic documentation. Present study finds out approximately 100 nos of such workshops in the study area and the total number of workers working in these workshops to be approximately 400.

Through the questionnaire cum scheduled survey information regarding the age, economic status, health condition, extent of narcotic use among these workers and exposure time of the workers are collected and are represented in the table below. It is found that the labourer-cum-mechanics represent different age groups from 15 years to 55 years. All the workers belong to poor economic class. 37 of the labourers in these workshops i.e., 74% uses narcotic products regularly e.g., tobacco products, ganja, liquor, gutka and pan masala etc.

Age Group (yrs)	No of Sample worker	Economic Status	No of person with Skin Dermatics	Narcotic Users	Exposure Time (in yrs)
10-20	16	Lower Class	4	12	0-5
21-40	25	Do	11	10	10-25
41-50	17	do	6	13	25-35
51 and above	2	do	1	2	40

Among the mechanics and labourers in these auto-workshops, 28 are employed on a skimpy wage of less than Rs 3000 per month.

Among the labourers, 29 (58%) belong to the rural hinterland of the Nagaon Municipal Area. 6 of these labourers (12%) are from outside Assam.

49 out of total 50 mechanics (98%) are found to be literate. However, level of education among these workshop workers represent on erratic pattern. 6 of the total labourers (12%) are found to be educated up to intermediate level or above, 19 up to High School level (38%), and the remaining 24 (48%) up to primary school level. None of the roadside workshop mechanics or workers is found to have any degree or diploma in automobile courses.

Among the workers and mechanics in these workshops, 24 are found to be fresher in the business and 26 are in the work with previous training or employment in the same sector. Workers out of 50 (42%) were recorded with probable sign of hand dermatitis which are grouped below:

Disease	Total No. of workers associated
Rashes	13
Allergic content dermatics	04
Irritant hand derma tics or eczema	15
Hand-Nail infection	11
Vibration white finger	2
Leukoderma (White skin)	1

The outer layer of the skin (the horny cell layer of the epidermis or stratum corneum) acts as a barrier to prevent micro-organisms and other contaminates from entering the skin. Among other protective properties, its PH is slightly acidic. This inhibits growth of bacteria and can help neutralize the degreasing agents that are in soaps and cleansers, which are often alkaline. Excessive contact with the cleansers can destroy the acidity, de-fat and strip the surface layer of the skin leaving it prone to inflammation and

infection. Hot water causes a rise in skin temperature and allows increased penetration of irritant substances¹.

The skin's functions and effectiveness depend on its moisture content. If the skin dries out, the skin becomes rough, thickened and flakey. This eventually leads to cracking of the skin because of loss of elasticity. Over-hydration from prolonged contact with water prevents sweat from evaporating and results in dry skin².

Automotive workers are faced with many skin irritants, grime and germs that can cause skin breakdown and allergic reactions mostly caused by bare hand touch of greases, solvents, paints, coolants and many other work-related chemicals on a daily basis³. Moreover, removing grime and dirt after work is a messy job that often involves scrubbing the skin with harsh abrasives. The most important factors which trigger the onset of the derma problems especially in the hands of the motor mechanics are -

- Many cleaning and degreasing substances used
- Exposure to fine dust during hand sanding
- Some substances in two-part adhesives, body fillers and foam fillers
- If the hands are frequently wet, or wet for prolonged periods during the workday (for example during wet sanding)
- Contact with oil, grease, solvents and degreasing agents
- Pre-existing sensitive skin or atopic dermatitis (eczema)
- Thermal burns
- Vibrating power-driven hand tools

Major Skin Problems found in the Mechanics :

Rashes :

Exposure to industrial oils, greasing or cooling agents can cause oil folliculitis (inflamed hair follicles) and comedones

(blackheads and whiteheads). These conditions appear on any area of the body where there is excessive oil on the skin or clothing, commonly the forearms and thighs⁴.

13 of the workers are recorded in the study with such rashes in their skins. Among these workers, 6 are working in each of two and four wheeler engine repairing workshops and automobile body builders and one from tyre repairing centres.

Allergic contact dermatitis:

Allergic contact dermatitis is an immunological response (allergy) to a contact allergen, e.g. nickel in tool handles such as spanners and wrenches, or epoxy hardeners found in body fillers and sealants. Only people who are allergic to a specific agent (the allergen) will show symptoms⁵.

4 mechanics have been recorded with such allergic reactions and they basically belong to the engine repairing workshops (3) and automobile body builder and repairing centre (1).

Irritant hand dermatitis or eczema:

Irritant contact dermatitis is the name given to inflammation of the skin resulting from direct contact with a chemical or physical agent that damages the skin. It is commonly known as eczema.

The features of irritant contact dermatitis are recorded as⁶:

- Irritant contact dermatitis presents episodes that recovers and repeats,
- The most common site for irritant dermatitis is the back of one or both hands.
- Mild to moderate acute dermatitis or chronic dermatitis presents with dry, flaking, itchy patches of skin.
- Severe acute dermatitis presents with red, swollen, blistered patches of skin often accompanied by finger cracks, ulceration and pain.

Eczema is found to be the most widespread among all the skin problems recorded in the hands of the vehicle mechanics of the study area with a total of 15 persons found to be affected. Among 15 affected persons, 5 represents the vehicle body building and repairing workshops, 4 from engine repairing workshops, 2 from welders, 3 from battery and electrical maintenance workshops, and one representing car washing and cleaning workshops.

Hand-Nail infection:

Bio-based adhesives used on car body trims are manufactured from polymers obtained from plants, animals and micro-organisms. These organisms include bacteria, moulds and yeasts, which are able to survive and often thrive in adhesives, especially when they have been stored for long periods of time. These products multiply the risk of hand and nail infection among the mechanics and workers in these roadside workshops⁷.

11 workers are recorded with such infections out of whom 5 represented engine repairing and servicing workshops, 4 from tyre repairing centres and 2 from battery and electrical repairing centres.

Vibration white finger:

Vibration white finger is caused by repetitive injury from hand held vibrating tools such as sanders, polishers and air chisels and can lead to permanent damage. For some people, symptoms may develop over a period of a few months of exposure, but for others they may take a few years. With continued exposure to vibration, the condition is likely to become permanent⁸.

Specific features and symptoms of vibration white finger include:

- Tingling and numbness in the fingers

- ❑ Not being able to feel things properly
- ❑ Loss of strength and grip in hands and fingers
- ❑ Fingers become white (blanching) and red and painful on recovery (particularly in the cold and wet, often only affecting the finger tips at first).

2 persons are recorded from the study with trace of the above syndromes in the study area. Both of these persons are found working in the welding centres of the area.

Leukoderma (White skin):

Leukoderma or white skin occurs when the pigment producing cells of our body are selectively destroyed. This is a toxic reaction in contrast to the autoimmune reasons for white skin in vitiligo, but vitiligo can appear similar to leukoderma. Leukoderma can be the result of direct contact with certain workplace chemicals such as phenol. Exposure in the motor repair industry may occur because the binding agent in normal brake pads, brake shoes and clutch disks are manufactured with phenol resin and adhesive⁹.

One person working in an engine repairing workshop is recorded with signs of this disease in the study area.

Workplace risk assessment and management:

Workplace risk assessments identify 'hazards' (anything that has the potential to cause harm) and 'risk' (the likelihood of an event occurring). A generic risk assessment in any motor vehicle repair establishment should include a specific section on skin exposure and should cover the following¹⁰:

- ❑ Hazardous properties and adverse health effects from the exposure of chemicals
- ❑ Hazardous properties of vibrating tools
- ❑ Frequency and duration of exposure

- ❑ Familiarity with the material safety data sheets of chemicals
- ❑ Information regarding tools used in the workplace
- ❑ Provision, correct use and maintenance of personal protective equipment

The study reveals that very few of the workshop owners as well as the mechanics and workers working in these workshops are serious upon assessing the risk of the occupational works upon the workers' health and managing their health problems.

Out of 50 mechanic-cum-workers surveyed in the study area, very few are found to be aware of the toxic effects of the chemicals used (only 8% of total workers are found to have some knowledge) in the automobile sector. The following table represents the nature and extent of the precautionary measures adopted by these workers to minimize the impact of the chemical toxicity upon their health, especially skin :

Protective measures taken	No of Mechanics	Percentage
Knowledge of harmful elements like lead, asbestos, xylene, isocyanates, MMT, nickel etc	4	8%
Remove skin contaminations by washing with clean warm water	3	6%
Use of Mildest cleanser	Nil	
Use of barrier creams before work to protect the skin	7	14%
Use of moisturizing cream after cleansing	Nil	
Person with pre-work history with derma problem	6	12%
Keep oily rags in pocket	29	58%
Use of solvents and fuels like kerosene for cleansing	39	78%

The table given above reveals that 78% of the mechanics use kerosene or other fuel for cleansing their skin after work. Moreover, 58% of them casually keep oily rags in their pockets which aggravate the chances of their skin getting infected.

30 workshops were covered under the study from where sample mechanics for the study were selected. Effort is also required from the part of the management of these workshops to ensure the health of their workers. But it is found that very few of these workshops provide their labourers with necessary aids to ensure their good health. The following table shows proper scenario of the role of the workshop management in the protection of health of their workers :

Protective measures taken	Number of workshops
Regular check up of the mechanics by doctors	Nil
Providing workers with warm water for cleaning	5
Providing the workers necessary protection kit in the form of dress, shoes, gloves etc	8
Make skin protecting lotions for protecting, cleansing and moisturizing available for the workers at free of cost	2

Summary and Suggestions:

It is seen that the automobile mechanics of the study area mostly belong to the nearby rural areas and are employed against poor wage or salary structure. Most of these labourers are improperly educated or trained to know and understand the ill effects of the chemicals they regularly deal with. They are little aware of the protective measures to be adopted against the skin problems. A considerable amount of these mechanics carry hand dermatitis problems and the most important of these include- ace form rashes, allergy, eczema, hand and nail infection, vibrating white finger and leukoderma. It is also found that the management of these automobile workshops is doing very little to protect their mechanics and workers from the skin diseases. Thus, proper management of hand dermatitis among the automobile mechanics of the study area may need the following efforts and measures:

- ❑ Tell workers how to look after their skin;
- ❑ Remind them to wash any contamination from their skin promptly;
- ❑ Don't use aggressive cleaners or solvents to clean skin;
- ❑ Tell them about the importance of thorough drying after washing;
- ❑ Provide soft cotton or paper towels;
- ❑ Supply moisturizing pre-work and after-work creams;
- ❑ Provide appropriate protective clothing/gloves;
- ❑ Use and store gloves correctly;
- ❑ Replace gloves when necessary;
- ❑ Conducting periodic health check-ups for the labourers;
- ❑ Ensuring proper ventilation of the workshops and better drainage system.

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Health Risk due to Release of Pollutants from Industries : A Fuzzy Set Approach

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1. Introduction:

Human being has always been exposed to pollutant/radiation from different sources in the environment. The largest proportion of human radiation exposure originates from the natural environment. Establishment of different kinds of industries is another source of environment pollution. Human as well as animal population are exposed to the polluted environment by the following pathways:

1. Inhalation of Air
2. Intake of Water
3. Intake of Food

Therefore when hazardous substances are released into the environment, an evaluation is necessary to determine possible impact these substances may have on human health and environment. To address this issue, health risk assessment is performed to estimate dose and risk to humans from hazardous substances present in the environment. Dose computation basically

depends on the basic dose assessment model and exposure pathways. Basically, ingestion dose, inhalation dose etc received by the members of the public is computed using the standard dose assessment model. Model is a function of parameters. However, exact values of the parameters are not always known with precision. For example, the measured data for contamination of food items carry a large amount of uncertainty; source of the specific food item from where it has been collected is not certain. Subsequently, the dose computed or assessed always carries an uncertainty and obviously this uncertainty is subjective in nature due to the human intervention. This kind of uncertainty is known as epistemic uncertainty. Another kind of uncertainty called aleatory uncertainty may arise due to random nature of the parameters. In this study we will concentrate only on epistemic uncertainty. Risk is computed from the dose by multiplying the appropriate dose to risk conversion factor.

2. Impact on Human Health from Industries :

The industrial sector in Assam has been centralized around some particular sectors like tea, petroleum, coal, jute and forest based products.

Industries in Assam can be broadly classified into four heads:

- (a) Agro-based industry,
- (b) Mineral-based industry,
- (c) Forest-based industry and
- (d) Other industries.

Agro-based industries of Assam include-Tea industry, Sugar industry, Grain mill products industry (Rice, Oil and Flour Mill), Food processing industry and Textile industry.

Mineral-based industries of Assam includes Railway workshop, Engineering industry, Re-rolling mill, Steel Works,

Motor Vehicle Workshop, Galvanized wire units, Cycle factory, Aluminum utensils industry, Cycle spare parts, Steel Trunk, Tubewell pipe, Steel wire net, Barbed wire, Cement industry etc. Moreover, the non-metal based industries include Oil industry, Natural Gas-based industry etc.

Forest-based industries of Assam include Plywood industry, Sawing mill, Paper and Paper-pulp industry, Match industry, Leather industry, Hardboard industry etc.

Other industries of Assam include Power industry, Fertilizer industry, Printing Press, Brick and Tiles industry, Chemical industry etc.

2.1 Pollution from Different Industries:

The pulp and paper industry is one of the largest and most polluting industries in the world which pollutes our water, air, and soil.

Mill waste water continues to wreak havoc on surrounding eco-systems.

Air discharges from pulp mills contain hormone-disrupting and carcinogenic chemicals, such as chlorinated phenols, polycyclic aromatic hydrocarbons (PAHs), and VOCs. BC's coastal pulp mills are the largest provincial source of airborne dioxins and furans, which are among the most carcinogenic substances known. Pulp mill pollution continues to affect our environment in the following ways:

1. Kills fish, kelp, and important aquatic invertebrates;
2. Emits cancer-causing and hormone-disrupting chemicals into the environment;
3. Consumes millions of litres of fresh water; and
4. Puts communities at risk from chemical spills, such as the 1994 chlorine dioxide spill in the Powell river.

Oil refineries are the largest industrial producers of volatile organic chemicals, or VOCs. These chemicals react with nitrogen oxide in the presence of sunlight to create ground level Ozone. Ground level Ozone is a toxic gas that is the primary ingredient of urban smog. VOCs play a role in serious respiratory infections, reduced lung function and asthma. Young children and the elderly people are particularly vulnerable to smog and Ozone pollution.

Oil refineries also release other toxic chemicals into the air such as Benzene. The oil refinery industry is the largest source of Benzene emissions. Benzene is heavier than air and sinks to low lying areas. Benzene affects the blood and blood organs within the body by causing the cells to function incorrectly. For example, Benzene's effects on bone marrow can lead to anemia and damage the immune system because of changing blood level of antibodies and a reduction in white blood cells. Long term exposure to Benzene has also been linked to Leukemia.

Workers risk exposure to a number of chemicals and unhealthy materials that are present while drilling for oil. These include crude oil, Hydrogen Sulfide gas, Asbestos, Formaldehyde, Hydrochloric acid, Benzene and heavy metals. Drilling for oil can also produce radioactive waste. This happens when naturally radioactive materials like stones or soil are brought to the surface during the drilling process. Radioactive waste can also be found in produced water, sludge and drilling mud. Produced water is underground water brought to the surface during the drilling process, along with the oil. It can be as much as 100 times more radioactive than water from a nuclear power plant. Workers are exposed to the radium isotopes that are released from these wastes, raising their risk of cancer. The Radon gas that is released during drilling also increases workers' risk of lung cancer.

Health hazards generally associated with crude oils are inhalation of the toxic volatile hydrocarbon components, such as

Benzene. Repeated or prolonged skin contact with some chemicals can cause Dermatitis or skin cancer.

Air pollution in coal mines is mainly due to the fugitive emission of particulate matter and gases including Methane (CH_4), Sulphur dioxide (SO_2) and oxides of Nitrogen (NO_2). The mining operations like drilling, blasting, movement of the heavy earth moving machinery on haul roads, collection, transportation and handling of coal, screening, sizing and segregation units are the major sources of such emissions. Under-ground mine fire is also a major source of air pollution in some of the coal fields.

High levels of suspended particulate matter increase respiratory diseases such as chronic Bronchitis and Asthma cases while gaseous emissions contribute towards global warming besides causing health hazards to the exposed population.

Methane emission from coal mining depends on the mining methods, depth of coal mining, coal quality and entrapped gas content in coal seams.

The major source of water pollution in the coal mines is the carry-over of the suspended solids in the drainage system of the mine water and storm water drainage. In some of the coal mines, acidic water is also found in the underground aquifers. In addition, waste water from coal preparation plant and mine water are other sources of water pollution.

Fertilizer production involves the manufacture of

1. hazardous chemicals (ammonia);
2. strong mineral acids (sulphuric, nitric and phosphoric);
3. oxidizing agents, some that can be potentially detonated, such as ammonium nitrate and, to a lesser extent, some NPK compounds.

Cement dust contains heavy metals like nickel, cobalt, lead, chromium, pollutants hazardous to the biotic environment, with adverse impact for vegetation, human and animal health and

ecosystems. The population most exposed to cement dust pollution includes the workers and managers in cement plants and factories, families of the workers and managers living in staff houses of factories, and other neighbourhood habitations. Children studying in the schools situated in proximity to factories are particularly prone to cement dust exposure. Inhalable dust concentrations in cement production plants, especially during cleaning tasks are usually considerably higher than at the construction site. Cement dust causes lung function impairment, chronic obstructive lung disease, restrictive lung disease, pneumoconiosis and carcinoma of the lungs, stomach and colon.

The workers and other persons associated with the above mentioned industries are highly vulnerable to the chemicals and other poisonous substances released from the industries. Estimation of the risk to their health is a necessity to take precautionary measures to minimize the same.

3. Fuzzy Set in Uncertainty Quantification :

Fuzzy set theory is an important mathematical tool to model uncertainty. It is especially used to model epistemic uncertainty. Many researchers have used fuzzy mathematics for quantification of risk. Dahab et al (1994) introduced a rule-based fuzzy-set approach to risk analysis of nitrate-contaminated groundwater. The uncertainty associated with assessing health risks of nitrate and its impact on results were represented using a fuzzy-set approach and incorporated into the nitrate-risk-assessment methodology. Uricchio et al (2004) proposed a decision-support system, based on fuzzy logic, for groundwater-pollution risk evaluation. The evaluation of the risk of polluted sites through fuzzy logic was studied by Lehn and Temme (1996). They have developed a model to assess the risk of a contaminated site for the environment, in particular human health. Mohamed and Co'te'

(1999) adopted concepts of fuzzy-set on risk assessment of contaminated sites to account for uncertainty in the input parameters (heterogeneity of soil and sediments), which were represented by fuzzy numbers. Lein (1992) calculated environmental risk from a hazardous waste facility using fuzzy logic. Darbra et al (2008) studied ways to deal with uncertainties in the environmental field and gave examples of fuzzy-logic approaches applied to environmental risk assessment. Using fuzzy set theory Castiglia et al (2010) presented results from risk analyses that explore potential exposure of medical operators working in a high dose rate Brachytherapy irradiation plant.

Here we have computed radiological risk for the radionuclides Cs-137, HTO (tritiated water) and OBT (organically bound Tritium) contaminating ten different kinds of food items. The uncertain parameters are expressed in terms of minimum, most likely and maximum. Therefore we have modelled these parameters as fuzzy numbers taking the most likely value as core and the interval [min, max] as the support. After calculation, the risk is reported as fuzzy number for each of the three radionuclides. Further we have calculated average width, nonspecificity and fuzziness of the output fuzzy numbers.

3.1. Basic Concept of Fuzzy Set Theory :

To estimate the effects of environmental pollution on human, risk assessment is performed. However environmental data tend to be vague and imprecise; so uncertainty is associated with any study related with risk assessment. Fuzzy set theory is a tool which is used to characterize imprecisely defined variables, as well as to define relationships between variables based on expert knowledge and use them to compute results. In this section, some necessary backgrounds and notions of fuzzy set theory are reviewed as Klir and Yuan (2005) and Dutta et al (2011).

Definition 3.1.1: Let X be a universal set. Then the fuzzy subset A of X is defined by its membership function $\mu_A : X \rightarrow [0, 1]$ which assigns a real number $\mu_A(x)$ in the interval $[0, 1]$, to each element $x \in X$, where the value of $\mu_A(x)$ at x shows the grade of membership of x in A .

Definition 3.1.2: Given a fuzzy set A in X and any real number $\alpha \in [0, 1]$, the α -cut or α -level or cut worthy set of A , denoted by ${}^\alpha A$ is the crisp set

$${}^\alpha A = \{x \in X : \mu_A(x) \geq \alpha\}$$

The strong α -cut, denoted by ${}^{\alpha+} A$ is the crisp set

$${}^{\alpha+} A = \{x \in X : \mu_A(x) > \alpha\}$$

For example, let A be a fuzzy set whose membership function is given as

$$\mu_A(x) = \begin{cases} \frac{x-a}{b-a}, & a \leq x \leq b \\ \frac{c-x}{c-b}, & b \leq x \leq c \end{cases}$$

To find the α -cut of A , we first set $\alpha \in [0, 1]$ to both left and right reference functions of A . That is, $\alpha = \frac{x-a}{b-a}$ and $\alpha = \frac{c-x}{c-b}$.

Expressing x in terms of α we have $x = (b-a)\alpha + a$ and $x = c - (c-b)\alpha$, which gives the α -cut of A as ${}^\alpha A = [(b-a)\alpha + a, c - (c-b)\alpha]$

Definition 3.1.3: The support of a fuzzy set A defined on X is a crisp set defined as

$$\text{Supp}(A) = \{x \in X : \mu_A(x) > 0\}$$

Definition 3.1.4: The height of a fuzzy set A denoted by $h(A)$ is the largest membership grade obtained by any element in the set.

$$h(A) = \sup_{x \in X} \mu_A(x)$$

Definition 3.1.5: A fuzzy number is a convex normalized fuzzy set of the real line R whose membership function is piecewise continuous.

Definition 3.1.6: A triangular fuzzy number A can be defined as a triplet $[a, b, c]$. Its membership function is defined as

$$\mu_A(x) = \begin{cases} \frac{x-a}{b-a}, & a \leq x \leq b \\ \frac{c-x}{c-b}, & b \leq x \leq c \end{cases}$$

Definition 3.1.7: A trapezoidal fuzzy number A can be expressed as $[a, b, c, d]$ and its membership function is defined as

$$\mu_A(x) = \begin{cases} \frac{x-a}{b-a}, & a \leq x \leq b \\ 1, & b \leq x \leq c \\ \frac{d-x}{d-c}, & c \leq x \leq d \end{cases}$$

4. Average width of a fuzzy number :

The width of an interval is the difference between the end point and the initial point of the interval.

That is, if $[a, b]$ is an interval then its width is $b-a$.

Since a fuzzy number can be considered as a generalization of an interval, we define width of a fuzzy number and call it average width. Let A be a continuous triangular fuzzy number whose membership function is defined as

$$\mu_A(x) = \begin{cases} \frac{x-a}{b-a}, & a \leq x \leq b \\ \frac{c-x}{c-b}, & b \leq x \leq c \end{cases}$$

Then alpha-cuts of A are $[(b-a)\alpha + a, c - (c-b)\alpha]$ where $\alpha \in [0,1]$.

We calculate average width of A following the steps below:

Step 1: Divide $[0,1]$ into N numbers of sub-intervals and consider each value as an alpha value.

Step 2: Then find alpha-cuts for each alpha-value.

i.e., $[(b-a)\alpha + a, c - (c-b)\alpha]$, where $\alpha \in [0,1]$.

Step 3: Calculate width of each alpha-cut (alpha-cut gives closed interval).

That is, $c - (c-b)\alpha - \{(b-a)\alpha + a\} = (c-a)(1-\alpha)$

Step 4: Sum up all the widths and divide by N+1.

That is, $\frac{(c-a)(1-\alpha)}{N+1}$, which will give the average width of

the fuzzy number A.

In a similar fashion we can calculate average width of non triangular fuzzy number.

For example, let A be a fuzzy number whose membership function is given as

$$\mu_A(x) = \begin{cases} \frac{\sqrt{x}-2}{2}, & 4 \leq x \leq 16 \\ 5-\sqrt{x}, & 16 \leq x \leq 25 \end{cases}$$

Alpha-cuts of A are $[(2\alpha + 2)^2, (5-\alpha)^2]$

Considering 1000 alpha-cuts, the average width of A is

$$\{sum((5 - \alpha)^2 - (2\alpha + 2)^2)\} / 1001 = 10.995$$

For two fuzzy numbers with same support and core, average width can be used to compare their uncertainty. More the average width, more is the uncertainty associated with the fuzzy number.

Presence of uncertainty of the parameters of the dose assessment model propagates to the computed risk. The uncertainty associated with the risk is finally expressed in terms of fuzzy number because subjective or epistemic uncertainty of the governing parameters of the dose assessment model is treated as fuzzy number. As TFN encodes only most likely value (mean in case of stochastic case) and the spread (confidence level), we have considered all the input parameters as triangular fuzzy number. Aggregation of all the fuzzy numbers in the risk assessment is carried out using fuzzy arithmetic, Dutta et al (2011).

5. Measure of Uncertainty :

In this section we reviewed different types of measure of uncertainty, Klir and Yuan (2005). The concept of information is intimately connected with the concept of uncertainty. The most fundamental aspect of this connection is that uncertainty involved in any problem solving situation is a result of some information deficiency. Information (pertaining to the model within which the situation is conceptualized) may be incomplete, imprecise, fragmentary, not fully reliable, vague, contradictory, or deficient in other ways. In general, these various information deficiencies may result in different types of uncertainty.

Uncertainty based information was first conceived in terms of classical set theory and later in terms of probability theory. In addition to classical set theory and probability theory, uncertainty based information is now well understood in fuzzy set theory, possibility theory and evidence theory.

Three types of uncertainty are now recognized in the five theories, in which measurement of uncertainty is currently well established. They are: nonspecificity (or imprecision), which is connected with sizes (cardinalities) of relevant sets of alternatives; fuzziness (or vagueness), which results from imprecise boundary of fuzzy sets; and strife (or discord), which expresses conflicts among the various sets of alternatives. In this section we briefly explain the different uncertainty measures for infinite set.

5.1. Uncertainty in Crisp Set

Nonspecificity of crisp sets :

Measurement of uncertainty (and associated information) was first conceived in terms of classical set theory. It was shown by Hartley (1928) that using a function from the class of functions

$$U(A) = c \cdot \log_b |A|,$$

Where $|A|$ denotes the cardinality of a finite nonempty set A , and b, c are positive constant ($b > 1, c > 0$), is the only sensible way to measure the amount of uncertainty associated with a finite set of possible alternatives. Each choice of values of the constant b and c determines the unit in which uncertainty is measured. When $b=2$ and $c=1$, which is the most common choice, uncertainty is measured in bits, and we get $U(A) = \log_2 |A| \dots(5.1)$

The Hartley function in the form (5.1) is applicable only to finite set. However, this form may be approximately modified to infinite sets on R . Given a measurable and Lebesgue-integrable subset A of R , meaningful sets of (1) for infinite sets takes the form

$$U(A) = \log [1 + \mu(A)] \dots(5.2)$$

Where $\mu(A)$ is the measure of A defined by the Lebesgue integral of the characteristic function of A . for instance, when A is an interval $[a, b]$ on R , then $\mu(A) = b - a$ and $U(A) = \log [1 + b - a]$

5.2. Uncertainty in Fuzzy Set Theory:

5.2.1 Nonspecificity of Fuzzy Sets:

A natural generalization of the Hartley function from classical set theory to fuzzy set theory was proposed in the early 1980s under the name U-uncertainty. For any nonempty fuzzy set A defined on a finite universal set X, the generalized Hartley function has the form :

$$U(A) = \frac{1}{h(A)} \int_0^{h(A)} \log_2 |{}^\alpha A| d\alpha \quad \dots (5.3)$$

where $|{}^\alpha A|$ denotes the cardinality of the α -cut of A and $h(A)$ is the height of A.

When a nonempty fuzzy set A is defined on R, and the α -cuts of ${}^\alpha A$ are infinite sets, we have to calculate $U(A)$ by modified

form
$$U(A) = \frac{1}{h(A)} \int_0^{h(A)} \log_2 [1 + \mu({}^\alpha A)] d\alpha \quad \dots (5.4)$$

which is generalized form of (5.2). It is assumed that ${}^\alpha A$ is a measurable and Lebesgue-integrable function; $\mu({}^\alpha A)$ is the measure of ${}^\alpha A$ defined by the Lebesgue integral of the characteristic function of ${}^\alpha A$. As for continuous fuzzy set, α -cuts produce close intervals i.e., ${}^\alpha A = [A_1(\alpha), A_2(\alpha)]$, then $\mu({}^\alpha A) = [A_2(\alpha) - A_1(\alpha)]$. So, the equation (5.4) takes the form

$$U(A) = \frac{1}{h(A)} \int_0^{h(A)} \log_2 [1 + A_2(\alpha) - A_1(\alpha)] d\alpha \quad \dots (5.5)$$

5.2.2 Fuzziness of a fuzzy set:

In general, the measure of fuzziness is a function

$$f : F(X) \rightarrow R^+$$

where $F(X)$ denotes the set of all fuzzy subsets of X (fuzzy power set). For each fuzzy set A, this function assigns a non-

negative real number $f(A)$ that expresses the degree to which the boundary of A is not sharp.

In order to quantify as a sensible measure of fuzziness, function f must satisfy some requirements that adequately capture intuitive comprehension of degree of fuzziness. The following three requirements are essential:

1. $f(A)=0$ iff A is crisp set;
2. $f(A)$ attains its maximum iff $A(x)=0.5$ for all $x \in X$, which is intuitively conceived as the highest fuzziness;
3. $f(A) \leq f(B)$ when set A is undoubtedly sharper than set B .

Employing the standard fuzzy complements and choosing Hamming distance, the local distinction of a given set A and its complement is measured by $|A(x) - (1 - A(x))| = |2A(x) - 1|$,

And the lack of each local distance is measured by $1 - |2A(x) - 1|$,

The measure of fuzziness, $f(A)$, is then obtained by adding all these local measurements :

$$f(A) = \sum_{x \in X} (1 - |2A(x) - 1|)$$

The range of function f is $[0, |X|]$; $f(A) = 0$ iff A is crisp; $f(A) = |X|$ when $A(x) = 0.5$ for all $x \in X$.

The above formula is applicable only to fuzzy set on finite universal sets. However, it can be modified to fuzzy sets defined on infinite but bounded subsets of R . For example if $X=[a, b]$, then the above formula can be modified by replacing summation with integration. The replacement then results in the formula.

$$f(A) = \int_a^b (1 - |2A(x) - 1|) dx$$

$$= b - a - \int_a^b |2A(x) - 1| dx$$

6. Estimation of Uncertainty in Health Risk Assessment: A Case Study

In this section we have considered a case of human health risk due to radiological pollutant like Cs-137, ITO, and OBT. We have estimated the uncertainty of risk from this three pollutants through ingestion of contaminated food, from inhalation and from water intake. The data set regarding the release of radio-nuclides from artificial source of radiation (Nuclear Power Plant) used in the risk calculation is obtained from Health Physics Division, Bhaba Atomic Research Centre (BARC), Mumbai. Due to security purpose, the location, time period and sources of radiation are not disclosed. In this study, population is considered as those people who are engineers, scientist, workers and labourers working in the nuclear power plant (radiation source) as well as living in the vicinity of the sources.

We have used the following general forms of comprehensive radiological risk assessment models as provided by EPA, 2001.

Risk due to ingestion of contaminated food:

Risk(/Yr) = Activity on food items(Bq/Kg) × Intake of food(Kg/Yr) × Risk factor(/Bq)

Risk due to air intake:

Risk(/Yr) = Air Intake (m³/yr) × Air Activity (Bq/m³) × Risk factor (/Bq)

Risk due to ingestion of water :

$$\text{Risk (/yr)} = \text{Water Intake (L/Yr)} \times \text{Water Activity (Bq/L)} \times \text{Risk Factor (/ Bq)}$$

Interval arithmetic is used to combine the input fuzzy numbers in each of the risk models. Total risk for any radio-nuclide is computed by adding up the risk of that radio-nuclide through different pathways. Information regarding all the food items is modelled as fuzzy numbers. The triangular fuzzy number representation of the raw data collected as the intake of the food item is as shown in Table 6.1. Data including intake activity on food items, air intake, air activity, water intake, water activity, risk factor for the radio-nuclides Cs-137, HTO and OBT are given in tables 6.2, 6.3 and 6.4 respectively.

Table 6. 1: Intake of food items (Kg/Yr)

Food items	Value			Representation
	Min	Most likely	Max	
Wheat	104	108	114	Fuzzy
Rice	24	27	29	Fuzzy
Maize	1	2	6	Fuzzy
Pulses	19	23	29	Fuzzy
Vegetables	59	83	97	Fuzzy
Fruit	19	30	38	Fuzzy
Milk	66	96	102	Fuzzy
Mutton	8	12	19	Fuzzy
Fish	11	14	18	Fuzzy
Eggs	2	4	7	Fuzzy

Table 6. 2: Intake of food; intake of water & air ; activity of water & air for the radio-nuclide Cs-137

Activity of radio-nuclide Cs-137 in food items (Bq/Kg)				
Wheat	1.50E-01	9.75E-01	2.24E+00	Fuzzy
Rice	1.50E-01	1.50E-01	1.50E-01	Fixed
Maize	6.91E-01	1.32E+00	2.35E+00	Fuzzy
Pulses	6.30E-01	1.77E+00	3.21E+00	Fuzzy
Vegetables	1.25E-01	2.66E-01	8.24E-01	Fuzzy
Fruit	0.00	0.00	0.00	Fixed
Milk	1.22E-01	2.01E-01	5.07E-01	Fuzzy
Mutton	1.61E-01	2.77E-01	5.03E-01	Fuzzy
Fish	8.50E-02	2.62E-01	2.48E+00	Fuzzy
Eggs	5.58E-01	6.62E-01	8.24E-01	Fuzzy
Air Intake (m ³ /yr)				
	7313	8902	9855	Fuzzy
Air Activity (Bq/m ³) for radio-nuclide Cs-137				
	0.00	0.00	0.00	Fixed
Water Intake (L/Yr)				
	803	1095	1482	Fuzzy
Water Activity(Bq/l) for the radio-nuclide Cs-137				
	1.50E-03	4.60E-03	2.04E-02	Fuzzy
Risk factor (/Bq) for Cs-137 of food				

Table 6. 3: Intake of food; intake of water & air, activity of water & air for the radio-nuclide HTO

Activity of radio-nuclide HTO in food items (Bq/Kg)				
Fish	1.00E+02	3.54E+02	9.72E+02	Fuzzy
Air Intake (m ³ /yr)				
7313		8902	9855	Fuzzy
Air Activity (Bq/m ³) for radio-nuclide HTO				
	0.30	11.6	116.0	Fuzzy
Water Intake (L/Yr)				
	803	1095	1482	Fuzzy
Water Activity(Bq/l) for the radio-nuclide HTO				
	15	84	189	Fuzzy
Risk factor (/Bq) for HTO of food				
1.20e-12				
Risk factor (/Bq) for HTO of water				
9.44e-13				
Risk factor (/Bq) for HTO of air				
1.04e-12				
<i>Intake of food is same as mentioned in table 6.1</i>				

Table 6.4: Intake of food; intake of water & air; activity of water & air for the radio-nuclide OBT

Activity of radio-nuclide OBT in food items (Bq/Kg)				
Fish	2.00E+01	1.19E+02	4.94E+02	Fuzzy
Air Intake (m ³ /yr)				
7313		8902	9855	Fuzzy
Air Activity (Bq/m ³) for radio-nuclide OBT				
	0.00	0.00	00.0	Fixed
Water Intake (L/Yr)				
	803	1095	1482	Fuzzy
Water Activity(Bq/l) for the radio-nuclide OBT				
	0.00	0.00	00.0	Fixed
Risk factor (/Bq) for OBT of food				
2.66e-12				
Risk factor (/Bq) for OBT of water				
2.09e-12				
Risk factor (/Bq) for OBT of air				
5.38e-12				
<i>Intake of food is same as mentioned in table 6.1</i>				

Risks due to contaminated food, due to inhalation and due to water intake for the radio-nuclides Cs-137, HTO and OBT are calculated using the risk assessment models given in section 6. The output in each case is obtained in the form of fuzzy number, since the input parameters are modelled as fuzzy numbers. In the total risk for Cs-137 there is no contribution of risk due to inhalation, whereas in case of organically bound Tritium (OBT) total risk is only due to ingestion of food. Details of the output fuzzy numbers and their corresponding average width, nonspecificity and fuzziness are given in tables 7.1, 7.2 and 7.3 respectively. Also their graphical representations are depicted in figures 1 to figure 8 respectively.

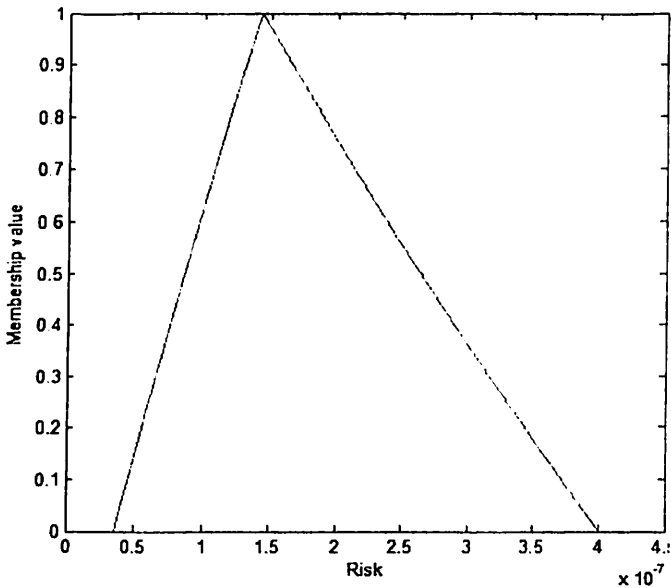


Figure 1: Risk due to ingestion of contaminated food Cs-137

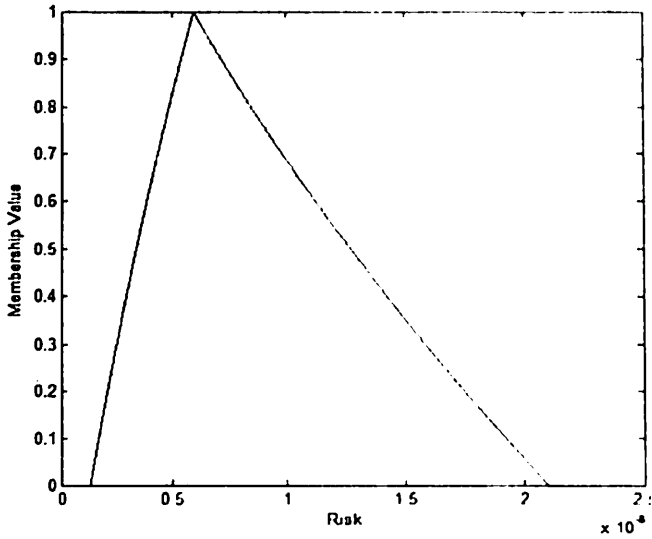


Figure 2: Risk due to water intake for Cs-137

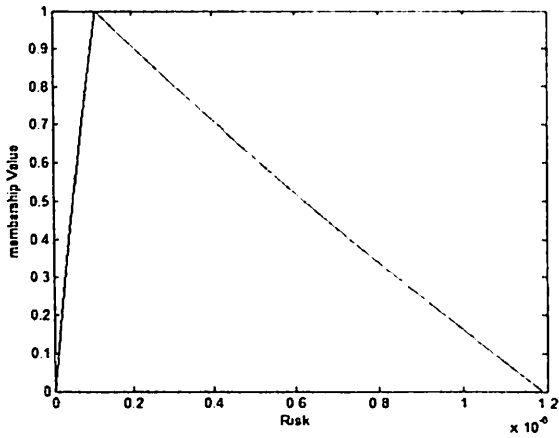


Figure 3: Total risk for the radio-nuclide Cs-137

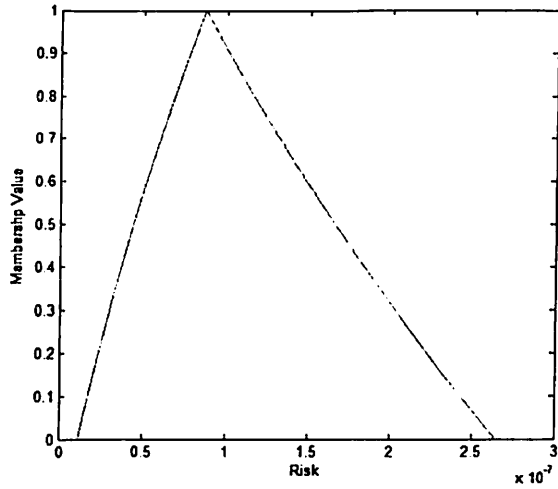


Fig. 4: Risk due to ingestion of fish for HTO

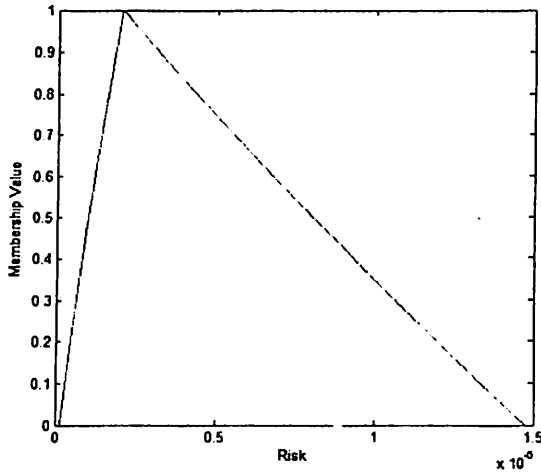


Fig. 5: Risk due to air intake for HTO

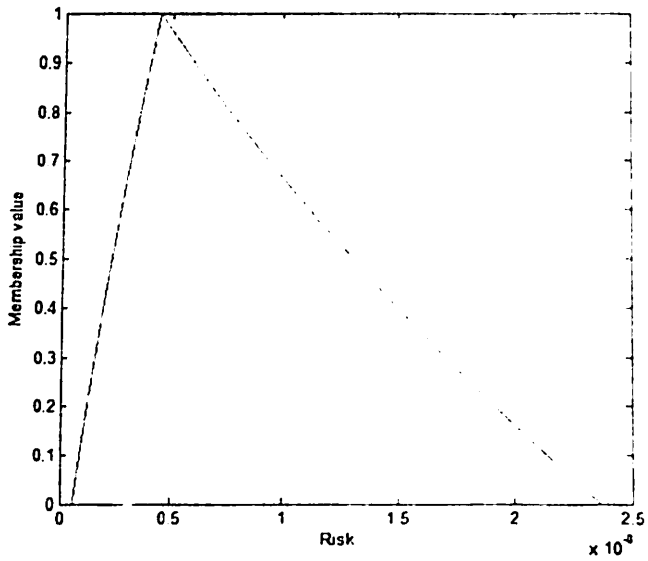


Fig. 6: Risk due to water intake for HTO

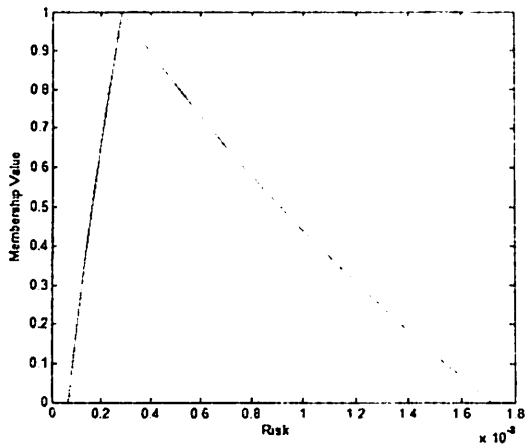


Fig. 7: Total risk due to HTO

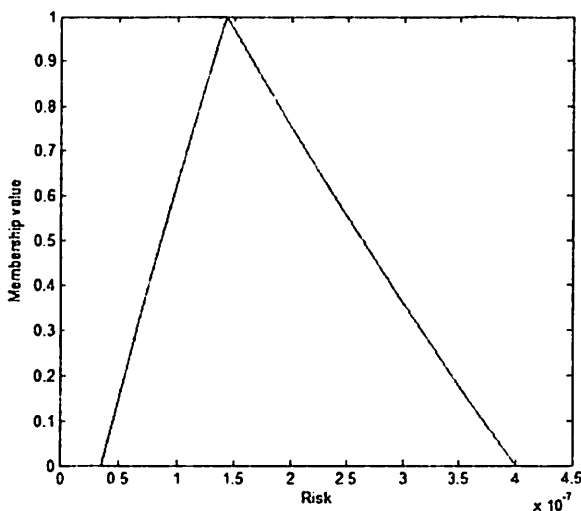


Fig. 8: Risk due to ingestion of fish for OB

7. Result and Discussion:

From table 7.1 we observed that total risk for Cs-137 is around the point 0.1430×10^{-6} but it may vary in the range of 0.0355×10^{-6} to 0.4002×10^{-6} . Uncertainty in the risk as measured by nonspecificity and fuzziness are respectively given by 1.7876×10^{-7} and 1.8233×10^{-7} . Similar observation can be made for the radio-nuclides HTO and OB. The range of the risk for HTO is maximum and it is minimum for OB, which shows that uncertainty is the highest in case of HTO and the least for OB. Calculation of average width, nonspecificity and fuzziness also corroborates the above fact.

Table 7.1: Uncertainty measurement of risk for Cs-137

Pathways	Range of risk	Average Width	Nonspecificity	Fuzziness
Due to ingestion of food	[3.4855e-08, 1.4020e-07, 3.8312e-07]	1.7105e-07	1.7105e-07	1.7413e-07
Due to inhalation	[0,0,0]	0	0	0
Due to water intake	[6.8255e-10, 2.8471e-09, 1.7117e-08]	7.7256e-09	7.7256e-09	8.2172e-09
Total	[0.0355e-06, 0.1430e-06, 0.4002e-06]	1.7876e-07	1.7876e-07	1.8233e-07

Table 7.2: Uncertainty measurement of risk for HTO

Pathways	Range of risk	Average Width	Nonspecificity	Fuzziness
Due to ingestion of food (fish)	[1.32e-09, 5.9500e-09, 2.0988e-08]	9.4928e-09	9.4928e-09	9.8518e-09
Due to inhalation	[2.1939e-09, 1.0770e-07, 1.1885e-06]	5.7905e-07	5.7905e-07	5.9315e-07
Due to water intake	[1.1403e-08, 8.6832e-08, 2.6439e-07]	1.2326e-07	1.2326e-07	1.2649e-07
Total	[0.0149e-06, 0.2005e-06, 0.1474e-05]	7.1183e-07	7.1183e-07	7.2955e-07

Table 7.3: Uncertainty measurement of risk for OBT

Pathways	Range of risk	Average Width	Nonspecificity	Fuzziness
Due to ingestion of food (fish)	[5.83e-10, 4.4380e-09, 2.3652e-08]	1.1002e-08	1.1002e-08	1.1535e-08
Due to inhalation	[0, 0, 0]	0	0	0
Due to water intake	[0, 0, 0]	0	0	0
Total	[5.83e-10, 4.4380e-09, 2.3652e-08]	1.1002e-08	1.1002e-08	1.1535e-08

8. Conclusion :

Health risk assessment is an important and popular aid in the decision making process. The core aim of risk assessment is to estimate the severity and likelihood of harm to human health from exposure to a substance or activity that under plausible circumstances can cause to human health. The assessment is performed using model. A model is a function of some parameters. These parameters are often tainted with different kinds of uncertainties. So, in risk assessment studies, it is very important to include all available information into the mathematical models. While conducting health risk assessment studies, the first step is to collect all information that is available. Depending on the type of collected information, variables of the risk equation should be modelled as crisp, random or fuzzy variables. In the case study done in this paper the parameters governing the risk models are amount of contamination on the food item (Wheat, cereals etc), annual intake of the specific food item, and dose conversion factor. The information regarding these parameters is expressed in terms of maximum, minimum and most likely value. So, the parameters are represented as triangular fuzzy numbers. This imprecision or uncertainty of the parameters is then propagated to the output risk through some models. Here we have calculated risk due to ingestion of contaminated food, risk due to ingestion of water, risk due to inhalation. The radio-nuclides considered are Cs-137, HTO (tritiated water) and OBT (organically bound Tritium). After calculation of risk for each of the radio-nuclide we have compared the relative uncertainty associated with them. It has been observed that uncertainty is the most for HTO and the least for OBT.

A similar kind of risk assessment can be made for the labourers/workers and the others who are working and living in the vicinity of the oil industries, fertilizer industries, tea industries etc located in Assam region.

Acknowledgement:

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Impact of Globalization on Industrial Labourers With Special Reference to Agro-Based Industries in Assam

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Introduction:

Indian economy experienced major policy changes in early 1990s. The new economic reform, popularly known as, Liberalization, Privatization and Globalization (LPG model) aimed at making the Indian economy as fast growing economy and globally competitive. The series of reforms undertaken with respect to industrial sector, trade as well as financial sector aimed at making the economy more efficient. This period of economic transition had a tremendous impact on the overall economic development of almost all major sectors of the economy, and its effects over the last decade can hardly be overlooked. Essentially, the reforms sought to gradually phase out government control on the market (liberalization), privatize public sector organizations (privatization), and reduce export subsidies and import barriers to enable free trade (globalization). There was a considerable amount of debate

in India at the time of introduction of the reforms, it being a dramatic departure from the protectionist, socialist nature of the Indian economy until then.

Assam is predominantly rural and the economy primarily agrarian with almost 75% of the population directly dependent on agriculture as source of income and another 15% of its population dependent on allied activities for living. Due to globalization and the WTO agreements on agriculture, many tariff barriers have been removed by the government due to which a number of products of other countries have started entering in our markets. We are already facing stiff competition from Sri Lanka and Kenya in tea, one of our major agriculture-based industry. The process of globalization generated economic gain from rapid growth of industrial export but the farmers and industrial labourers who are involved in this sector have been affected badly by this development. Assam's economy is lagging as it is fundamentally based on agriculture. Assam is lagging far behind in the use of modern agricultural technology to improve its agricultural productivity compared to the rest of the country; that means it is still a highly labour intensive economy. As such, the impact of globalization on our labour-intensive economy is undoubtedly a mixture of good and bad outcomes.

Objective:

The main objective of the study is to find and analyze the impact of globalization on farmers and labourers in the agro-based industry in Assam.

Methodology:

The present paper is a descriptive study, which discusses the impact of globalization on agro-based industries in Assam. The study is based on secondary data only. The sources of

secondary data used in the study are various books, journals, reports and information available in the internet.

Impact of Globalization on agro-based industries in Assam:

Guy Brainbant says that the process of globalization not only includes opening up of world trade, development of advanced means of communication, internationalization of financial markets, growing importance of MNCs, population migration and more generally increased mobility of persons, goods, capital, data and ideas but also infections, diseases and pollution. The term globalization refers to the integration of economies of the world through uninhibited trade and financial flows through mutual exchange of technology and knowledge. Ideally, it also contains free inter-country movement of labourers. The economy of Assam is overwhelmingly agricultural, with around 75 per cent of the population directly or indirectly depending on this sector. Much of the agricultural activity is subsistence farming, particularly in the hill areas, where jhum cultivation is the mainstay. Apart from rice and some other food crops including fruits and nuts, Assam produces substantial quantities of jute and sugarcane. Her forest resources, although not as abundant as they used to be in the past, make for another basic factor of her economy. The reforms that were brought by the Government of India has no doubt changed the economy to a great extent bringing phenomenal economic growth, and this has increased the number of millionaires and billionaires. But the percentage of poor people has also risen. A brief analysis of the effects of globalization on the labourer class involved in agro-based industries is stated below.

Workers and wages:

The census reports from 1961 to 2001 indicate a decline in percentage of cultivators from 65 in 1961 to 28 in 2001 which

may be due to many reasons among which globalization is one of the most important factors. The percentage distribution of workers in the state as per census reports is shown in the Table-1

Table 1: Percentage Distribution of Workers

Sl. No.	Classification of Workers	1961	1971	1991	2001
1.	Main Workers	100.0	100.0	86.4	74.6
	(a) Cultivators	64.7	55.9	44.0	28.1
	(b) Agricultural activities	3.6	9.9	10.4	6.7
	(c) Other activities	31.7	34.2	32.0	39.8
2.	Marginal Workers	-	-	13.6	25.4

Source: Chapter VII, Economic Survey 2010-11, Assam

The above table clearly shows a huge reduction in the number of workers engaged as cultivators or in any other agricultural activities in other sectors due to rapid economic changes brought about by the policy of LPG. As a result of economic reforms import of thousands of items of agricultural produce have been liberalized. We are now importing even foodgrains from developed countries that have an excess of them, and such imports are capturing our food market. Our producers are, as a result, facing serious challenges. At the same time, the government too have slowed down the procurement of food grains and producers are not getting remunerative prices. The growing costs of agricultural inputs and shrinkage of the market for agricultural produce are not only causing problems for farmers, but are also affecting rural employment severely. As the farmers cannot reduce the cost of other inputs, they are resorting to reducing the cost of labour-component in cultivation. They are pressurizing the agricultural workers to work more. They are giving the latter lesser wages. They are employing women and children for lesser wages, and going in for more and more mechanization. Due to massive rural unemployment, there is widespread migration of agricultural workers to other states and to cities.

As per data collected by the Directorate of Economics and Statistics, Assam, the average daily wage rate of workers (carpenters, blacksmith, field-labourer, herdsman and other agricultural labourer) shows a more or less steady upward trend.

Table -2: Average Daily Wage Rate in Rural Areas
(in Rupees)

Year	Skilled labourer wage		Unskilled labourer wage				Other Agricultural labourer	
	Carpenter	Blacksmith	Field labourer ploughman	Herdsman	Reaper & Harvester			
	Man	Man	Man	Man	Man	Woman	Man	Woman
2001-02	87.01	62.17	52.01	37.56	50.71	40.73	47.02	42.16
2002-03	92.93	68.02	52.32	48.53	52.05	46.50	49.21	47.47
2003-04	102.4	85.11	57.53	52.05	60.13	42.18	55.40	49.32
2004-05	108.77	88.25	62.05	54.85	63.90	49.18	59.27	48.52
2005-06	113.91	94.45	64.19	63.01	65.02	49.02	61.44	47.69
2006-07	120.80	100.69	71.02	63.07	68.09	52.61	65.46	53.88
2007-08	123.53	97.29	76.44	72.19	74.27	59.53	72.11	58.04
2008-09	133.89	104.64	84.65	82.72	82.55	66.76	83.47	66.60
2009-10	147.08	121.33	92.91	92.08	93.25	74.05	102.83	87.00

Source: Chapter VII, Economic Survey 2010-11, Assam

The above table clearly depicts that although the wages of the labourers are increasing, they are increasing at a very slow pace and not at the rate at which the prices of essential commodities are increasing.

Decline in employment:

Some in-depth studies have shown various short-term and long-term adverse effects of globalization on our economy. According to an estimate, imports from foreign countries have killed as many as 4 lakh small and medium size industries in India. This has added to the already existing problem of unemployment in the country. A report of the Planning Commission's task force on employment opportunities has revealed that there is a huge decline of employment opportunities between 1993-94 and 1999-2000. The situation in the recent past in Assam is such that the specific activities or sectors, in which rural workers in general and

rural female workers in particular are employed, have already begun to suffer setbacks. Assam as a whole cannot benefit much from the process of globalization. 88.9% of its 26.6 million people live in rural areas. Without attaining economic sufficiency for this segment of the population, the development of the state will remain a far-fetched dream.

Impact of Globalization on the tea industry labourers:

Globalization has now become the buzzword of any economy. No country or region can escape the effects of globalization. An economy has to depend on other economy to fulfil the demand as the taste and preference of the consumers increases. The more we are approaching modernity, the more we are getting dependent on others. Tea is the only industry worth the name that kept us on the industrial map of the country. The industry being the largest industry of the state, it is playing a dominant role in the economy of Assam. It is the largest single industrial sector in the state, which is contributing a big share in the state income of Assam. The industry is a labour-based industry. In Assam the tea garden labourers together receive around Rs. 2 crore daily as wages. Impact of Globalization coupled with import threats and rising competition from other beverages has adversely affected the tea industry of Assam. There is no agreement on the number of workers employed in the tea industry and different sources give different figures. It is estimated that almost 50% of the workers are women. Tea pluckers, who are almost exclusively women, work six days a week from 8 am until 4 pm. Men mainly work as field supervisors, carry out weeding and spraying, or work in the tea factory. Tea workers' wages are set by tripartite negotiations between the government, employer associations, and trade unions. Their social status has ensured that their plight has been continuously ignored for generations. These workers have very low literacy rates and

non-availability of any other livelihood in the region ensures that the children of the plantation workers are left with no other option than to work on the plantations under abysmal conditions. There is no escape from the vicious cycle of the highest level of exploitation. The plantation workers also do not enjoy even basic amenities like safe drinking water, and often workers suffer from diarrhoea, cholera and other waterborne diseases. Malaria and tuberculosis are also rampant. The infant mortality rate is much higher than the national average. It is estimated that only one percent of the workers is active after attaining the age of 60.

Impact of Globalization on the silk industry labourers :

The women of Assam are born weavers from the ancient time. Sualkuchi bears the millennial heritage of handloom culture since long past. Asia's largest silk village Sualkuchi has 95% of its population engaged in silk industry for earning. According to one survey, every day 17,000 weavers are engaged simultaneously in their looms for the Silk ware. About 50,000 people are employed directly or indirectly in the Silk industry.

Economic Activities at a Glance

Total family engaged in weaving	4478 Nos.
Total No. of Loom	17000 Nos. (approximate)
Total No. of self employed weavers	4944 Nos.
Total No. of weavers employed	12056 Nos
Indirect employment generated	10000 Nos (Approximate)
Yarn consumption yearly (Approximate)	Mulberry silk 200000 kg Muga silk 98000 kq.
Production of Cloth	31 lakh linear meter (approximate)
Value of finished products	Rs 90 crore (approximate)
Export of products to other countries	Rs 1200 lakh (approximate)

Source : Director, Handloom & Textile Dept, Govt of Assam

With the advent of globalization, the silk industry of Assam is facing a lot of competition from the global market. There is a lot of potentiality in this industry. It has ample opportunity to export and also provide employment to a large numbers of rural populace. But the lack of proper guidance, new technology, raw materials scarcity of market are the main problems faced by the silk industry. Besides this, most of the weavers are women in this industry and majority of them are low paid. Although women wage earners are increasing, in most of the cases they do not have control over what they produce because of poor education and technical skills and poor social status. Globalization in the textile industry may result in economic gain at the cost of the society in general and the women workers of Assam in particular. Globalization also increases job insecurity, deteriorates working conditions and affects the rights and status of workers.

Conclusion :

The impact of globalization on the agro-based industries of Assam is bound to be crucial. Although the productions of these industries are increasing slowly and gradually global market is throwing many challenges to the industry. One of the worst sufferers of globalization is the workers and labourers who are involved in the industry. On one hand, we see that the upcoming generation is not willing to stay in rural areas and join the agricultural activities because of the lucrative opportunities, which are there in the urban areas. On the other hand, the workers and labourers who are involved in the industry have to work hard to increase the production to survive in the market. Besides, they are also paid less and not the minimum facilities are provided to them to cut the cost. Thus, we can conclude that agro-based industries are the heart and soul of Assam and as most of the population of Assam

reside in rural areas and are involved in these industries, they should be properly taken care of. Adapting to change is very essential and integral part of any industry but not at the cost of the workers and the labourers who are running the industry. To cope up with the international competition adequate training facilities are to be provided to the labourers and attention is also necessary in relation to maintenance of international labour standards besides adequate health care, credit and work condition facilities.

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SSI Sector of Assam : An Empirical Analysis before and after Globalization in India

Arati Bharali

Introduction

The Small Scale Industrial (SSI) sector is a vital constituent of the industrial sector. It is a dynamic and vibrant sector of the Indian economy. This sector acts as a base for the development of entrepreneurial talent and has been contributing significantly to the National Gross Domestic Product besides meeting the social objectives including that of providing employment opportunities to millions of people across the country. Micro, Small and Medium Enterprises (MSME) constitute the dominant form of business organization worldwide. For instance, 99% of enterprises in European Union and about 80% in USA are small enterprises. In India, the share of SSIs is as high as 97%. Out of this 42.12 million are non-farm enterprises, 0.58 million are factory units (Census, 2006). It is estimated that out of 5.8 lakh factory units, about 5 lakh are factory SSIs and Medium Enterprises as per the new definition of MSMEs adopted by the Government of India in June 2006.

The Small Scale Industrial (SSI) Sector contributes significantly to the prime social objective of providing employment opportunities to millions of people across the country. The SSI sector has been contributing significantly to industrial production, exports and national Gross Domestic Product. This sector has been assigned the target of annual growth of 12% and creation of 4.4 million additional jobs during the Tenth Five Year Plan (Prasad, 2006).

Conceptual Framework

The definition of the SSI unit has undergone many changes since its origin. The Industrial (Regulation and Development) Act, 1951 treated SSI in India as an 'undertaking' and the first working definition based on two-fold criteria viz. investment and employment in the SSI was given in 1955. After withdrawal of the employment criteria in 1960, only the criterion of investment in plant and machinery was used to define a SSI unit (Ravil, 2009). Nevertheless, not only the investment criterion continued, but there had been significant leaps in its upper limit especially since 1980. By 1991, the investment limit had tripled over the figure in 1980 (Das, 2006). The definition of SSI adopted in 1999 with the investment limit up to Rs. 10 million continued up to Oct 12, 2006, the year in which the 'Micro, Small and Medium Enterprises (MSMEs) Development Act, 2006' was enacted. The term 'SSI' is no longer in circulation since the enactment of the new Act. The term 'SSI' is applicable only up to Oct 11, 2006. All the figures presented here upto 2006 are the figures for the erstwhile SSI sector and figures after that period are the figures for all MSMEs (GoI, 2007).

The Factories Act was enacted in 1948 under the Act, all industries with 10 or more workers and using power or industries

engaging 20 or more workers but without power were to be registered, whether they were small, medium or large-scale industries. As such, the number of registered factories under this Act does not give us an indication about the number of entrepreneurs in the SSI sector. It can only provide us with an idea of industrial growth in the State.

Objectives of the Study

The study seeks to

1. Analyze the empirical pattern of factories and employment in case of Assam.
2. Analyze the relationship between the number of factories and the employment before and after globalization in the state.

Results and Discussions

Data used in this paper are purely secondary data. In this analysis, an attempt has been made to see the growth of SSI sector and later the MSMEs in the state of Assam since independence. The figures of SSI units for Assam presented here are the figures for undivided Assam up to 1971 excluding Nagaland created in 1963. Three states were carved out in 1972 and other two in 1987 from the original territory of Assam of 1947. The growth scenario of the SSI sector in Assam has been shown separately for the period 2001-02 to 2008-09. Here the figure for the years 2007-08 and 2008-09 are the figures for MSMEs, not SSIs. To know about the effect of globalization on the employment pattern the period is divided into two phases. The first period is before globalization i.e. 1971-1991. The second period is after globalization i.e. 1991-2007.

Now let us have a look on the number of registered factories and employment in Assam during 1951-2001.

Table : 1 Number of registered factories and employment in Assam during 1951-2001 (Decade-wise).

Year	Number of Factory	Increase in the number of new factories	Number of people employed
1951	911	-	65193
1961	1247	336	80215
1971	1604	357	75462
1981	2090	486	90977
1991	3670	580	112572
2001	2512	(-158)	98862

Source: Economic Survey, various issues, Govt. of Assam

As per Table 1 the number of factories from independence up to the period of globalization, there is an increasing trend of the number of factories as well as employment. But immediately after globalization both the factories and the employment pattern witnessed a decreasing trend.

Employment opportunities can be categorized under three main heading viz primary, secondary and tertiary sectors. Factories are under secondary sector. There are various factors including social, economic, political, geographic etc which have influence over the pattern of employment. Keeping all other factors constant this paper makes an attempt to know the influence of the number of factories on the employment pattern. For this the model is framed as,

$$Y_t = \alpha + \beta_t + U_t$$

Where

Y_t = Number of people employed year wise

α = Intercept term

β_t = Number of factories year wise

U_t = Disturbance term which includes all other factors influencing the employment pattern

Impact of the number of factories on the employment pattern can be derived by using the model for the period before globalization by using the data given in Table 2.

Table: 2 Number of Registered Factories and Employment in Assam during 1971-1991

Year	Number of Factory	Increase in the number of new factories	Number of people employed
1971	1604	-	75462
1972	1618	14	76611
1973	1643	35	77231
1974	1677	34	78336
1975	1715	38	79780
1976	1742	27	80646
1977	1783	41	82996
1978	1800	17	84566
1979	1864	64	85455
1980	1897	33	87695
1981	2090	193	90977
1982	2261	171	89368
1983	2258	(-3)	93342
1984	2361	103	93438
1985	2462	101	99047
1986	2503	41	96813
1987	2604	101	83513
1988	2523	(-81)	90126
1989	-	-	-
1990	-	-	-
1991	2670	-	112572

Source: *Economic Surveys, 1974-75, 1989-90, 1994-95, Govt. of Assam.*

Linear Regression :

Dependent Variable	Independent Variable	R ²	F-Value	Sig.
Number of people employed during 1971-1991	Number of Factories 1971-1991	.677	35.599	.000
Number of people employed 1991-2007	Number of Factories 1991-2007	.001	.008	.932

Dependent Variable	Independent Variable	b_1	t-Value	Sig.
Number of people employed 1971-1991	Number of Factories 1971-1991	20.212	5.967	.000
Number of people employed 1991-2007	Number of Factories 1991-2007	-1.172	-.087	.932

The result of linear regression model shows that the model is correctly predicting 67.7% of the variation of the employment as due to the variation of the number of factories as depicted by the coefficient of determination at 0.677. The regression model predicts the total employment efficiently as revealed by the F value of 35.599 ($p < 0.01$). The regression coefficient implies that establishment of 1000 additional factories will induce an additional 20212 posts for employment.

Table: 3 Number of Registered factories & Employment in Assam during 1991-2007

Year	Number of Factories	Increase in the number of new factories	Number of people employed
1991	2670	-	112572
1992	2402	(-168)	113769
1993	2438	36	109801
1994	2516	78	103910
1995	2601	85	105555
1996	2511	(-90)	166469
1997	2526	15	105814
1998	2212	(-314)	103234
1999	2307	95	98570
2000	2406	99	108070
2001	2512	106	98862
2002	2695	183	96031
2003	2760	65	94473
2004	2923	163	96677
2005	3070	147	105452
2006	3182	112	112794
2007	3319	137	114233

Source : *Economic Surveys, 1999, 2008, Govt. of Assam*

The scene is quite different in case of after globalization as depicted in the Table 3. The number of factories as well as employment is depicting a fluctuating trend and somewhere it is negative too. This may be because of the fact that globalization opened up various opportunities for the employment. Hence these factories in Assam could not attract much people for employment.

Applying the formula above, linear regression was run by taking employment as dependent variable and number of factories as independent variable. It gives an insignificant result, meaning number of factories have no significant effect on employment after globalization. This is because of the reason that globalization paves the way for employment in different sectors. Globalization mainly enhanced the tertiary sector. Hence a tendency was created for movement of workers from the industrial manual work to the white colored job.

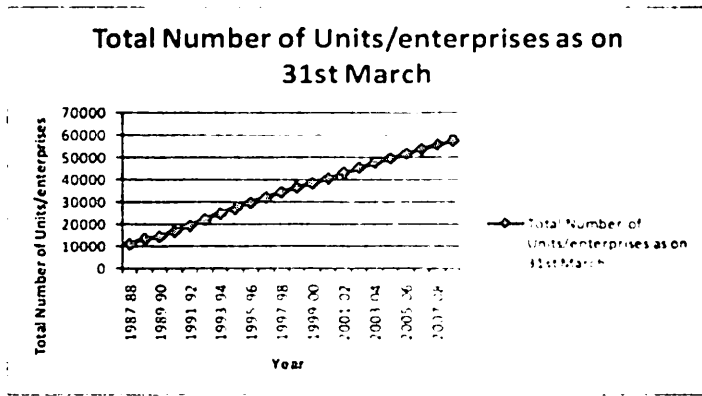
Table : 4 Number of permanently registered SSI units/MSMEs in Assam during 1987-88 to 2008-09

Year	Number of New SSI/MSME setup	Total Number of Units/enterprises as on 31st March
1987-88	NA	10953
1988-89	2306	13259
1989-90	1147	14406
1990-91	2361	16767
1991-92	2399	19166
1992-93	2876	22042
1993-94	2560	24602
1994-95	2303	26905
1995-96	2729	29634
1996-97	2431	32065
1997-98	2193	34258
1998-99	2224	36482
1999-00	1821	38303

Year	Number of New SSI/MSME setup	Total Number of Units/enterprises as on 31st March
2000-01	2116	40419
2001-02	2528	42947
2002-03	2246	45193
2003-04	2365	47458
2004-05	2067	49525
2005-06	2082	51607
2006-07	2172	53779
2007-08	1754	55533
2008-09	1631	57164 (excluding Sivsagar district)

Source: Directorate of Industries and Commerce (DIC), Government of Assam.

The Table 4 shows that the highest number of SSI units/MSMEs that were set up in a particular year is in the year 1992-93 with 2876 number of SSI units/MSMEs in the state. The lowest number is seen in the year 1989-90. Starting from 10953 number of SSI units/MSMEs in 1987-88, the number increased over the years and there are 57164 numbers of SSI units/MSMEs in the year 2008-09 in the state. Except in 1989-90 with 1147, 1999-2000 with 1821, 2007-08 with 1754 and 2008-09 with 1631 numbers of SSI units/MSMEs, the number of new SSI units/MSMEs set up each year has been over 2000 SSI units/MSMEs. The number of MSMEs set up in 2007-08 and 2008-09 is not much encouraging compared to previous years. Due to non-availability of data of Sivsagar district, the number of new industries in 2008-09 is comparatively less. This data is easily understood with the help a diagram.



Conclusion :

The paper discusses the fact that the number of factories have positive influence on the creation of employment opportunities upto the period of globalization from the time of independence of the country. But the factories failed to attract workers for job after globalization as most of the workers were already attracted by various other sources of employment. Therefore there is a need to strengthen the condition of SSI in the state by adopting suitable policy measures as well as initiatives of the entrepreneurs.

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Impact of Globalization on Industrial Labourers of Assam

Pinkumoni Kashyap
Pallab Jyoti Saikia

Section- I

Prologue

Globalization has become a buzzword for all the nations¹. In simple word, globalization refers to the process of integrating the country economy with the world economy. In a broad sense, the term 'globalization' refers to integration of economies and societies through cross-country flows of information, ideas, technologies, goods, services, capital, finance and people. In a narrow sense, globalization involves the creation of a world economy, which is not merely the sum of its national economies, but rather a powerful independent reality, created by the international division of labour, and the world market, which in the present epoch predominates over national markets. Large-scale, long-term flows of capital, commodities, technology and labourers across national boundaries define the process of globalization². In the words of Jagdish Bhagawati "Economic Globalization constitutes integration of national economies into the international economy through trade,

direct foreign investment, short term capital flows, international flows of workers and humanity generally, and flows of technology"³. As a result, the whole world becomes a global village.

In general, all those workers, who are employed in manufacturing units, i.e., the workers employed in large scale, village & small-scale industries are considered industrial labourer. The most important factor for economic development of a country is its industrialization. In the process of industrialization, emphasis has been given to the three major groups of industries— large-scale industries, small-scale industries and cottage industries⁴.

The outline of the study is divided into three sections. Section I gives a brief introduction, data source, objectives, data source, and methodology of the study. Section II will highlight the industrial infrastructure of Assam. Section III will discuss the impact of globalization on industry as well as industrial labourers of Assam.

Objectives of the Study

1. To highlight the status of industrial infrastructure of Assam.
2. To understand the impact of globalization on industrial labourers of Assam.

Materials and Methodology

The present study is based on secondary data. Relevant secondary data has been collected from the Census report 2001, Economic Survey of Assam 2011-12, Statistical Handbook of Assam 2010, reports published by Government of Assam etc The study period of 2001-2010 is taken into consideration to analyze the data. The foundation of the study comes from various secondary sources like research articles, published scholarly papers and books, various international and local journals.

Section- II

Industrial Infrastructure of Assam

Assam is one of the industrially backward states of the country. In spite of having high potential for development of resource-based and demand-based industries in the state, the pace of industrialization in Assam had not been satisfactory. Industries in Assam can be broadly classified into four heads:

(a) Agro-based industry, (b) Mineral-based industry, (c) Forest-based industry (d) Other industries.

Again, these industries can be classified into:

(a) Organized industries

(b) Unorganized industries

The organized industries of Assam include Tea, Petroleum, Paper, Cement, Plywood, Coal, Jute, Sugar etc The unorganized industries of the state include the small and cottage industries, Khadi and village industries etc Tea and Petroleum industries are the two important organized industries of the state, which have been playing an important role to sustain the economic development process of the state⁵.

The present status of industrial development in Assam is not upto the mark. The industrial scenario of the state is mainly confined to the employment oriented small-scale sector, which comprises of manufacturing and processing industries. The poor state of industrial development in Assam can be reflected by the fact that the contribution of the manufacturing sector to the state income, which was 15.6% in 1950-51, subsequently rose to 17.7% in 1960-61. It remained at the poor level of 15.5% in 1993-94 and fell to 6.2% in 2011. Moreover, total number of registered factories in Assam, which was 2677 in 1990 gradually declined to 2,438 in 1993. In 1991, there were 116 numbers of large and medium

industries in Assam. Gradually it increased to 118 in 1994 and 129 in 2000 respectively. At present 191 large industrial units and 18,637 registered small-scale industrial units are in Assam, out of which a good number of such units are lying in non-operational stage. There are at present 51 state PSUs in Assam.

The total number of factories in the state account for only 1.23% of the country total. The total value added by the factories is only 0.9% of the total value added by the same sector at the all India level. The contribution of manufacturing sector to Gross State Domestic Product was 7% during 2010-11, which was not encouraging. However, the Industries and Commerce Department of the State Government as well as some other agencies have been making efforts for implementation of various promotional schemes for sustainable growth and development in the industrial sector of the State. At present there are 16 Industrial Estates, 4 Industrial Growth Centers, 11 Integrated Infrastructure Development (IID) Projects, 17 Industrial Areas, 11 Growth Centers, 6 Mini Industrial Estate, One Export Promotional Park, one Food Processing Industrial Park spread over the different parts of the state, and these are the major infrastructural support and facilities to the entrepreneurs of the state. The total SSI/MSME units in the state numbered 34,327 are providing employment to 1,78,054 persons till the year 2010-11. In 2009-10, the value of produced goods of 1,214 number SSI units was worth Rs 916.79 crores. During the year, number of factories registered was 4,262 which provided employment to 1,50,485 persons. The growth of manufacturing sector has been estimated at 3.8% constant (2004-05) prices and 9.0% at current prices in 2010-11 over previous years. The growth observed in the manufacturing sector was the result of benefit achieved in the production of some selected industrial items like Tea, Wheat Flour, Jute textiles, Cement, etc over the level of production of the previous year⁶.

The factors, which are mostly responsible for such industrial backwardness include geographical isolation, low per capita income, lack of capital formation, and lack of infrastructure, shyness of capital, insecure investment climate, lack of markets, lack of entrepreneurial motivation etc⁷. All these constraints are always hindering in the path of industrial development of the state⁸.

Section- III

Impact of Globalization on Industries of Assam

Assam has been gradually integrated with the global economy. Globalization has considerable influence on labourer force of the state. It has tremendous exposure on local labourer market of Assam⁹. Assam is spread over an area of 78,526 square kilometers and is home to almost 3% of the country's population. In 1999-2000, the national unemployment rate was 2.3% while the same was a staggering 4.6% in the case of Assam. The trend of per capita state income both at current and constant prices for 1980-81 to 2000-01 shows that Assam continued to be below the all India average per capita income in both the pre and post liberalization period in 2001. All India per capita income at current prices was 61.67% higher than the per capita income in Assam and at constant prices it was 66.54% higher. This only shows the growing economic gap between the state and the rest of the country. As per the expected advance estimates for 2011-12, the per capita income will attain the level of Rs 22,956 at constant prices (2004-05) and Rs 33,633 at current prices as against Rs 21,406 and Rs 30,569 at constant (2004-05) prices and current prices respectively in the previous year 2010-11. In terms of growth rate, per capita income increased by 7.24% at constant (2004-05) prices and 10% at current prices in 2011-12 over the previous

year. The Net State Domestic Product (NSDP), also known as State Income, at 2004-05 prices was expected to grow by 8.57% as per advance estimates for the year 2011-12 compared to 7.33% during 2010-11.

The total income (product) from industry (mining, manufacturing and construction) in Assam constitutes only 18%, 19.9% and 19.5% of the total net state domestic product (at current prices) during 1973-74, 1977-78 and 1993-94 respectively. As per advance estimates for 2011-12, the growth of the 'Industry' sector, comprising of 'Mining & Quarrying', 'Manufacturing' (Registered and Unregistered), 'Electricity, Gas & Water Supply' and 'Construction', was expected to be encouragingly high as compared to 4.78% in the previous year 2010-11. This flourishing growth is due to the high growth of the 'industrial sector' contributed by the sub sectors especially 'Construction (11.86%)', 'Mining & Quarrying' (5.1%) and 'Manufacturing' (4.82%)¹⁰.

Case of a Few Industries of Assam

Agriculture is the mainstay of more than 70% of the State's population. As such, the performance of this sector contributes to the well being of the masses. In 50s, the share of agriculture in state income was approximately 60%, in the eighties it declined to about 50-55%. In the nineties, it was only around 35%. However, agriculture alone registered a growth rate of 6.64% and all together agriculture and allied sector was expected to attain a growth rate of 6.43% in 2011-12 against 6.49% in the previous year. In 1991, there were 12% of labourers involved in agricultural sector whereas in 2001 it increased to 18.2% out of total main workers. However, mobility of labourers in agricultural sector was initiated due to globalization¹¹.

Tea Industry of Assam is playing a vital role in the national economy. Assam's Tea industry provides average daily employment

to more than six lakh persons in the State, which is around 50% of the total average daily number of labour employed in the state. The tea production of the State was 4,875 lakh kg. as against 9,808 lakh kg. of total tea produced in the country during the year 2008¹². The tea production in Assam constitutes more than 50% of the total production of the country. In 1995, the growth of average daily number of labourer employment in tea industry was just only 2.32% over 1991. Further, in 1997, the same is only 2.19% over 1995. At present, there are more than 9,00,000 labourers associated with the industry of Assam¹³.

Assam has ample scope for bamboo based industry like Paper manufacturing industry, since this region has highest concentration of bamboo i.e., around 60% of the total bamboo of the country. In viewing of the potentialities, the Ministry of Agriculture, Govt of India, has recently launched the National Bamboo Mission and under this mission, it has proposed for plantation of selected species of bamboo in the state, in an area of 1,76,000 hectare, as a raw material for bamboo based industry.

Traditionally, Sericulture, a major cottage industry of the state, has practised in more than 10,532 villages and provided employment to more than 2.5 lakh family. Assam has the monopoly in production of Muga, the golden silk in the world and 99% of Muga silk produced in Assam. Assam has also achieved the right of "Geographical Indication" in Muga silk. In Sualkuchi more than 50,000 people are directly or indirectly employed in production of Muga out of whom 60% are female labourers.

The contribution of Industry sector to GSDP has also shown a downward trend from 27.5% in 2004-05 to 21.9% in 2011-12.

Table 1 : Trend of Average Daily Industrial Labourers in Assam
(in number)

Year	Number of Labourers
2001	98862
2002	96031
2003	94473
2004	96677
2005	105452
2006	112794
2007	114233
2008	129435
2009	137164
2010	150485

Source: Economic Survey of Assam 2010-11

Table 1 reveals that mobility of labourers in industrial sector. In 2001, there were 98,862 numbers of daily industrial labourers in Assam but the number has decreased continually to 96,677 in 2004. However, due to government initiatives and industrial policy of Assam, the number of industrial labourers has increased from 2005 onwards. There is 70.02% growth in industrial labourers from 2005-2010.

Table 2 : Trend of Average Daily Industrial Labourers and Contribution of Industry to State Domestic Product of Assam

Year	Number of Labourers	Contribution to SDP
2004-05	96677	27.5
2005-06	105452	25.7
2006-07	112794	24.5
2007-08	114233	23.6
2008-09	129435	23.8
2009-10	137164	22.7
2010-11	150485	22.1

Source: Economic Survey of Assam 2010-11

Table 2 shows the number of daily industrial labourers and their contribution of industrial sector to State Domestic Product (SDP) in Assam from 2004-05 to 2010-11. Above table clearly shows that though there is an increase in number of labourers in industrial sector of Assam but contribution to state domestic product has decreased over the year. There is negative correlation between number of labourers and contribution of industries in SDP. Number of industrial labourers in Assam has increased from 96,677 in 2004-05 to 1, 50,485 in 2010-11 and industrial sector's contribution to state domestic product has decreased from 27.5% in 2004-05 to 22.1% in 2010-11.

In Assam, globalization strategy leads to adverse effect on employment situation. When the labour absorption in the organized

sector declines during the period of reforms, it pushes the additional labour force to the unorganized sectors. The excess labour supply creates disequilibrium or imbalance in the labour market that leads to several adjustments in the unorganized labour economy. The surplus labour supply leads to partial or casual employment at low wages and without job or social security of any kind. Different study found that the casual labourers are highly exploited in terms of assurance of employment, contract procedures, paid leave, PF/pension, medical and other benefit and notice for termination.

Another significant impact of globalization on industrial sector is jobless growth promoted by the new technological changes and structural shifts in the global economy in favour of the so-called new economy. In order to meet competition and to increase productive efficiency, firms has forced to modernize their operations involving machineries, capital and high technologies. The choice of labour intensive technology has become obsolete. The immediate and direct consequence of the shift in the industrial technology is the replacement of unskilled personnel with skilled people.

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Impact of Globalization on Industrial Labourers

Kallol Bhattacharya

1. Introduction

Globalization is a common term for processes of international integration arising from increasing human connectivity and interchange of worldviews, products, ideas, and other aspects of culture.

In 2000, the International Monetary Fund (IMF) identified four basic aspects of globalization: trade and transactions, capital and investment movements, migration and movement of people and the dissemination of knowledge.

According to Prof. Amartya Sen globalization is a complex issue, partly because economic globalization is only one part of it. Globalization is greater global closeness, and that is cultural, social, political, as well as economic.

Globalization however has come to dominate the world since the nineties of the last century with the end of the cold war and the break-up of the former Soviet Union. The frontiers of the state with increased reliance on the market economy and renewed faith in the private capital and resources, a process of structural adjustment spurred by the studies and influences of the World Bank and other international organizations have started in many of

the developing countries. Globalization has brought in new opportunities to developing countries. Greater access to developed country markets and technology transfer hold out promise of improved productivity and higher living standard. But globalization has also thrown up new challenges like growing inequality across and within nations, volatility in financial market and environmental deteriorations and industrial and workers problem.

2. Objectives of the Study

1. Globalization and liberalization of industries in India
2. Impact of Globalization on Industrial Sector in India
3. Industrial conflict in India (post globalization)
4. Industrial workers in India (present day scenario)
5. Industrial workers in Assam (reference to tea industry)
6. Conflict areas requiring redressal

3. Methodology of the Study

1. Literature Survey: Journal Articles, Books, Newspaper Clippings, documents/ reports etc in public domain
2. Secondary data collected from the web & related blogs

4. Globalization and liberalization of industries in India

During the mid 1980s, the Congress Government headed by Rajiv Gandhi made a move to change its policies regarding business, licenses and permits, as also its attitude towards multinational companies (MNCs) operating in India. However, it was only during the succeeding government of Narasimha Rao (1991-96) that a strategy was actually formulated in this direction and marketed both in India and abroad. The strategy aimed to bring the Indian economy into the mainstream of the global

economy, and at the same time allow a whiff of competition and growth to Indian business. This, it was hoped would bring a new dimension to the concepts of quality, productivity and growth. The winds of liberalization that swept through the nation brought in a new era of technology, quality consciousness and competition, which compelled Indian business and industries to wake up from its slumber and reassess its assumptions for dealing with the 'compete-or-perish' situation.

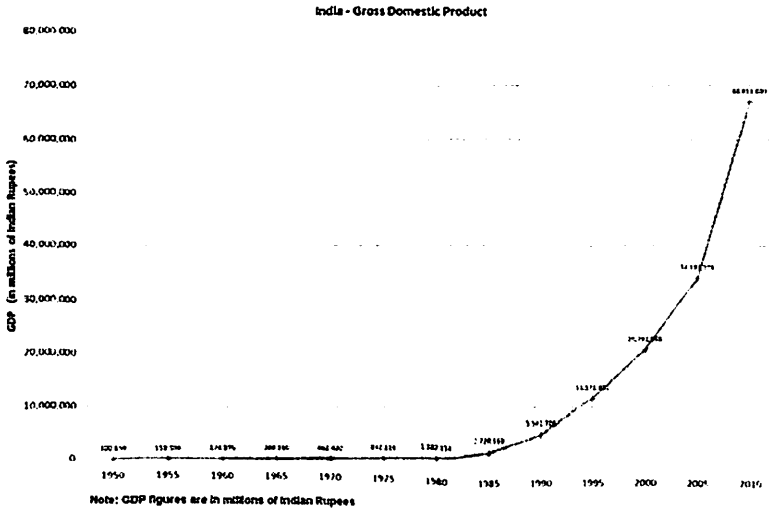
- ♦ The Pre-reform Scenario

In the pre-liberalization period India had pursued a short-sighted policy in the name of self-reliance, blocking out the rest of the world in the manufacturing and services sectors. Relying on bureaucratic controls, through licensing and centralized planning, the government had imposed restrictions on the capacity of business units, their location, choice and source of raw materials and so on. It had also kept a check on corporate take-overs and mergers, through the Monopolies and Restrictive Trade Practices (MRTP) Act. India had actively discouraged foreign investments in its capital markets to protect domestic industries. It had also denied itself access to international capital, technology and markets, unlike the Asian Tigers who went on to beat the first World nations at their own game. The tremendous progress made by the Asian tigers during the last three decades can certainly serve as an example to developing countries such as India. It was not that the socialistic state planning did not have its benefits in India. Heavy industries were established and significant strides were made in the field of agriculture. Industrial growth rose from 7 per cent in the early 1950s to 9% in the early 1960s. However the inevitable problems of socialism outweighed the benefits. Protected employment led to loss making units where as the license regime worked against competitive forces.

The Reform scenario

After 1991 there was a twofold shift in the Indian economic policy at the global level as also the national level.

1. At the global level, it sought to integrate the Indian economy with the world economy by allowing free movement of capital investment, both into and from India. This exchange would also expose India to new technology.
2. At the national level, it envisaged a decontrolled business environment where free market forces would be given more freedom to operate and state control would be reduced or eliminated. The omnipotent role of public sector corporations would be redefined, allowing disinvestments of their equity holdings by the government. One of the desired effects of such a major restructuring of the economy was growth and generation of employment which, it was hoped would lead to more purchasing power for the common man.



Source: http://en.wikipedia.org/wiki/Economic_history_of_India

5. Impact of Globalization on Industrial Sector in India

Impact of Globalization on Indian industry started when the government opened the country's markets to foreign investments in the early 1990s. Globalization of the Indian industry took place in its various sectors such as steel, pharmaceutical, petroleum, chemical, textile, cement, retail, and BPO. Globalization means the dismantling of trade barriers between nations and the integration of the nations, economies through financial flow, trade in goods and services, and corporate investments between the nations. Globalization has increased across the world in recent years due to the fast progress that has been made in the field of technology especially in communications and transport. The government of India made changes in its economic policy in 1991 by which it allowed direct foreign investments in the country. The benefits of the effects of globalization in the Indian industry are that many foreign companies set up industries in India, especially in the pharmaceutical, BPO, petroleum, manufacturing, and chemical sectors and this helped to provide employment to many people in the country. This helped reduce the level of unemployment and poverty in the country. Also the benefits of Globalization for Indian industry are that the foreign companies brought in highly advanced technology with them and this helped to make the Indian Industry more technologically advanced. The negative effects of globalization for Indian industry are that with the coming of technology the number of labourers required decreased and this resulted in many people being removed from their jobs. This happened mainly in the pharmaceutical, chemical, manufacturing, and cement industries.

6. Industrial conflict in India (post Globalization)

After the New Economic Policy and globalization, industrial conflict in India declined steadily although the trade unions protested vociferously for the first two or three years. But a general redefining

of industrial relations also took place. Old 'industrial warfare' in India appeared to have given way to cooperation and peace and employer-employee conflicts were apparently replaced by human resource management practices. But recent events, especially post-2000, appear to indicate otherwise. It can be felt that industrial conflict is re-emerging in India. Recent agitations and conflicts in well-known business organizations, especially in the fast growing big industries like automobiles, mobile phones, aviation etc have been growing of late, as part of a deliberate strategy of CTUOs to organize the unorganized workers. Globalization stoked conflict by aggravating unemployment, creating job insecurity and income inequality, as well as reducing the quality of jobs. The new economic policy in India did trigger a large number of conflicts in the early 1990s, primarily due to the changes that management sought to bring about. In fact, it was the very small choice that workers and their unions had between the devil (management pressure) and the deep sea (competitive failure) that compelled a reduction in conflicts and a rethinking on strategies. In many cases conflict simmered rather than erupted. The number of registered trade unions grew steadily during the economic reform period, although the rate of growth slowed. The number of workdays lost also showed an upward trend, despite fluctuations in certain years. The duration of work stoppages too became longer. In addition, workers involved in strikes started outnumbering those involved in lockouts. Indiscipline and violence as a cause of disputes, increased from 36.4 % of total disputes in 1995-98 to 55.7% in 2003-04 and to 73.5% during 2006-07. The bulk of the workdays lost occurred in five states and west Bengal topped the list. Conflicts of workers and management arose in the automobile industry and its ancillaries (Maruti, Bajaj, Bosche, Mahindra & Mahindra, Pricol, Honda Motorcycles and Scooters, Rico, Hyundai, etc) as well as the other industries like Jute, Airlines (Jet and Air India), Steel,

Tyres, Mobile Phones and Dairy Products. Several conflicts arose in the public sector like banks and insurance, oil sector, ports & docks, defence, telecom, coal and among contract workers and unorganized workers.

This fairly large body of conflicts in various industries certainly favour the thesis of revival of industrial conflicts in India. These conflicts were not just a result of the pressures of recession but have been occurring from time to time even in the years of economic growth. It is true that globalization worldwide has led to industrial conflict, as inequalities grow among different groups of employees. This has in fact led to the new concept and demand for inclusive growth in the 11th and 12th 5 year plans. The linkages with international phenomena, such as growing industrial unrest in Korea, China, Japan, France, Italy etc can provide a stronger argument.

7. Industrial workers in India (present day scenario)

Manufacturing industry employs just 11 per cent of India's workforce, but the sector is crucial for the economy as a whole. A senior general manager in Maruti Suzuki's Manesar plant was killed and several managers were injured in a violent confrontation between the workers and the management, an incident that prompted national dailies to speak of the "bad old days of militant trade unionism." Yet industrial unrest is at historic lows in terms of the numbers of incidents and man-days lost. During 1973-74, nearly 3,00,000 strikes were called prior to the Emergency. In 2010, just 429 such incidents occurred, according to data from the V.V. Giri National Labour Institute. What accounts for this shift? Has the Indian factory become a safer, better-paid and more secure workplace? Data suggests the opposite. Today, Indian workers are paid less in real terms than they were fifteen years ago, have less job security, and yet are less likely to strike. The incident at

Maruti Manesar signals the end of the all-powerful union capable of controlling the factory floor. Instead, industry's reliance on casual workers has created informal leaderless networks that operate outside the framework of strikes and settlements that undergird union activity. Data from the Annual Survey of Industries showed that real, inflation-adjusted wages for workers increased by nearly 40 per cent in 15 years, from 1981-82 to 1994-95, and then fell 15 percent in the next 15 years.

Wage payments, as a percentage of the net value created by firms, have dropped from 30.3 per cent to 11.6 per cent over 30 years, as profits have increased from 23.4 per cent of the net value to 56.2 percent, suggesting that firms have become more efficient, but wages have not risen in proportion with profits. The rise of cheap casual labour - stripped of health benefits, provident funds and pensions - could explain this trend. In 2000, casual labourers accounted for 38 per cent of employment in industrial sector such as manufacturing and construction. In 2010, they accounted for 58 per cent according to NSS data. India Inc. comprising government and corporate sector of the nation employed 7 per cent of the workforce in 2000 and contributed 60 per cent of the nominal GDP of the nation. It owed its workers at least Rs. 711 crore in unpaid wages in 2011-12, according to Lok Sabha data. This does not include "off-roll" workers or instances wherein the matter never reached labour courts. Labour courts had a backlog of 13,527 cases, which rose to 13,642 in 2011.

8. Industrial workers in Assam (reference to tea industry)

The Assam tea industry, which accounts for more than 50 per cent of India's total tea production, is witnessing a churning that will have far-reaching consequences. Assam's biggest economic contribution to the world is its tea. The tea industry

developed by the British planters brought in labourers from Bihar and Odisha and their descendents form a significant demographic group in the state. The tea plantations are mainly concentrated in upper Assam, Barak valley and central Assam. All the garden labourers are from the 'Adivasi' community, which is the lifeline of tea gardens. Demographically, tea garden labourer community of Assam represents around 20 per cent of the total population of the state accounting more than 45 lakh tea garden labourer population in the state and is one of the biggest contributors to the organized workforce as well as to the economy of Assam. Tea industry has contributed substantially to the economy of Assam by providing employment to nearly half a million population, contributing revenues and support to develop other infrastructure and service sector over the years.

The working class in the tea plantations of Assam is perhaps the most exploited in the organized sector of the economy. Low wages, poor housing and lack of avenues for social mobility have been a recurring theme since the inception of the plantation process. Among the total tea garden working labourers in each tea garden, only 30-40 per cent of them are permanent employees. During the peak season, each garden employs casual workers at wages much lower than the actual minimum wage. There are no maternity benefit schemes for the tea garden workers. It has been observed that during pregnancy and post natal period, women continue to engage in hard jobs. Most allegations of child labourers in the tea industry involve the functions of plucking, weeding, hoeing, and nursery work. And poor socio-economic conditions, ignorance due to illiteracy, over-crowded and unhygienic living conditions in the residential colonies make tea garden population helpless to various communicable diseases and underfeeding.

The tea economy is an integral part of Assam's economy and it is the second largest after oil and gas industry in the state, but

not a single nodal institution is managing this industry during the last 150 years. The state government in Assam has also not looked at the tea industry as a part of Assam's economy. There is a need to discuss the greater debate on inclusive development of the tea plantation economy in Assam. In the last 150 years, the tea community in Assam never received adequate attention in the so called development process witnessed by the state. If the tea garden community has been raising their voice under the banner of Adivasi tribes in Assam for last decade or so by changing their approach, it is not due to only "lack of place" among the greater Assamese nationalization process but also their own understanding of the idea of development.

Under the Plantation Labour Act 1951, each tea garden should have a health centre with adequate facilities. Most tea gardens are remotely located and do not have proper connectivity to the nearest town areas. In Assam, there is a need to set up a department exclusively for tea. Under this department, both welfare of tea garden labourer (both ex and present) and regulation, management and coordination of tea business need to be looked after much more effectively. The department needs to provide facilities under the Plantation Labour Act (with new amendment) to implement central and the state government welfare schemes in the tea gardens. Tea labourers are the back bone of the tea industry, so the management of all the tea gardens should follow the Labour Act 1951.

9. Conflict areas requiring redressal

◆ Labour vs Reforms

The recent Maruti experience and the rumblings among unions have caused industry bodies to sit up and renew their long-standing demand for reform in labour laws. India's labour laws were designed in British times when conditions were quite different. Laws

relating to registration of trade unions, participation of non-employees in unions, restrictions on closing factories, contract labour and strikes need major changes. Only about 8% of India's workforce is covered by labour laws, as the majority of workers are in the informal sector industrial workers are facing a host of problems. Their worsening economic condition is a source of deep discontent. Data collected by the Annual Survey of Industries (ASI) under the ministry of statistics shows the share of wages in industrial expenditure has dipped alarmingly over the years even as the value created by labourers has increased.

◆ **Wage vs worth**

In the decade between 1998-99 and 2008-09, net value added by workers increased from about Rs 2 lakh per worker to Rs 6 lakh, according to the latest available ASI reports. In the same period, wages as a proportion of net value added declined steeply from about 18% to 11%. This means, in essence, that workers are creating more profit than before, yet getting paid less and less. It is often argued that the productivity of Indian workers is low because of, among other things, restrictive regulation. But recent figures from the labour ministry's annual report show that productivity of the Indian worker was growing at over 7% in 2007 compared to just short of 4% a decade earlier. Only China, with a remarkable 11% growth rate, was ahead among major countries on this count. In the last five years, the man days lost because of strikes and lockouts have declined from about 300 lakh in 2005 to a mere 16.9 lakh in 2010. Although these figures often underestimate industrial disputes because of incomplete reports from states, and they do not include smaller units, but the declining trend is clear.

◆ **Unsocial Contract**

A very large number of workers - even in big industrial units

and the public sector - are now working as contractual workers. They are technically employed by the contractors. Thus, the principal owners have washed their hands of them. The wage differences between regular and contract workers are huge. In Maruti's new plant at Manesar there are about 1,000 permanent workers who get between Rs 13,000 and 17,000 a month. But the 1,200 contract workers get only about Rs 6,500. Contractual workers are also denied other benefits like provident fund and medical insurance. Since they are not on the rolls of the company, contractual workers can be removed at will. They are treated like sheep and this story is repeated across the country, in innumerable factories, big and small. So, as labour reforms is not taking place, a de facto change has set in. There is simmering discontent in industrial relations. Reeling under rising prices and harsh living conditions, and with no hope of support from a crisis ridden agricultural hinterland, a whole generation of workers - more educated and skilled than their predecessors - is looking for a way out and not finding it. Whether these conflicts will end in organized protest or anarchy - or a farsighted policy solution - only time will tell.

Table-1: Estimated Number of Informal/Formal Sector Workers in 1999-2000 and 2004-05 (in millions)

Category of Workers	2004-2005		
	Informal Sector	Formal Sector	Total
Informal Workers	391.73 (99.6)	28.91 (46.2)	420.67 (92.3)
Formal Workers	1.42 (0.4)	33.65 (53.8)	35.03 (7.7)
Total	393.15 (100.0)	62.56 (100.0)	455.7 (100.0)
1999-2000			
Informal Workers	339.71 (99.5)	23.04 (42.0)	362.76 (91.5)
Formal Workers	1.79 (0.5)	31.85 (58.00)	33.64 (8.5)
Total	341.50 (100.0)	54.89 (100.0)	396.4 (100.0)

Source : Directorate General of Employment and Training of Ministry of Labour

employers to adjust the labour force in the light of changing economic circumstances.

In a globalized world, persisting with labour laws that are much more rigid than those prevailing in other countries only makes us uncompetitive not only in export market but also in domestic market itself. Another issue that has to be addressed in parallel with efforts at labour market reforms is the need for a social safety net in the form of unemployment compensation or insurance in the event of retrenchment. Industrialized countries, and even some developing countries like China, are able to provide employers with greater flexibility to hire and fire labourer precisely because labourer retrenched in the process of restructuring has the benefit of unemployment insurance. A new social security scheme has been recently launched by the Central Government for the informal sector. These efforts need to be strengthened.

We can come to a conclusion that Globalisation is necessary, for an economy to grow, and especially for developing countries like India. There are plenty of evidences and records to support it. Firstly, there is a lot of unemployment in our country. This is mainly because of lack of jobs that even resourceful and skilled people do not get suitable jobs. In order to increase the number of jobs, we certainly have to invite foreign companies and there is no shame in doing so because in the long run, we are the ones who will get benefit out of it. Secondly, investment from foreign companies will give rise to infrastructure development. We will be able to get world-class infrastructure easily with the involvement of foreign companies. Thirdly, Tourism and foreign exchange will develop more rapidly and in both the cases, it is good for the economy of the country. Moreover, exchange will make it easier for students to interact with foreign students and develop better technologies.

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Industrial Labour Force of Assam at the Advent of Neo Liberalism

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The economic history of the country has witnessed through different dynamism in policy making. The recent clearance of Foreign Direct Investment (FDI) in retail including aviation, broadcasting, multi brand and single brand retail by the cabinet also can be expected to have resultant impact on the labour market. However, industrial workers both in organized (registered under Indian factory act of 1948) and unorganized (not registered under the factory act) have been facing multiple problems. The organized sector is seen to be an analytical matter for different research. But unorganized sector which constitutes 88.9 percent in Assam (Assam Employment Policy 2011) and 93 percent in India (National Council for Enterprises in Unorganised Sector) should also be given equal importance.

Theoretical aspects of labour

Padmini Desikachar and Brinda Viswanathan (2011) in their working paper Pattern of Labour Market Insecurity in Rural India: A Multidimensional and Multivariate Analysis have explained the

labour market insecurity by using the National Sample Survey data for the year 2004-05 for rural India and constructed a composite index. They used labour market insecurity, labour force status, labour time utilization and behavioural responses to labour market risks in construction of the index. They found that insecurity is more persistent among women than men. Insecurity persists severely among casual labourers. G.K. Lieten, (2002-2003) in his article on Child Labourer in India has found that the number of working children is quite more than 10 times the official estimate available in Census and NSS reports. Only 30 per cent of population are urbanized and urban child labour accounts for only 5.5 per cent of total child labourers in the country. He explained that child labour is an aberration which should be eliminated immediately from the country.

Parismita Chetia, Ranjit Bhattacharyya and C.K, Gogoi, (2011) in their paper on Labour Exploitation, Absenteeism and Industrial workers of Assam : A socio-Philosophical Study have explained how the industrial workers are exploited under different factors with reference to two industries of Namrup i.e. Namrup Thermal Power Station and Assam Petro Chemical Ltd. They found that such factors are mainly lack of facilities, incentives wages, welfare schemes and many other socio-economic factors. These factors affect the industrial labourers badly and ultimately lead to absenteeism in the industries.

Data Source and Methodology

The study is purely based on secondary sources of information. For quantitative analysis, statistical handbook of Assam 2011, Basic statistics of NER 2006, Economic Survey of Assam 2011-12, Annual Survey of Industries, Census of India, Assam Employment Policy 2011 and Assam Human Development Report

2003 are used. In order to make coherence with the quantitative analysis, some qualitative literature and information published in different regional newspapers, journals of both national and international repute are used in the study.

Objectives

The broad objectives of the study are as follows :

1. To identify the quantum of labourer force and industrial workers in Assam.
2. To examine industrial disputes and number of accidents taken place in industries of the state.
3. To analyze gender specific problems of labour class both in organized and unorganized sector.
4. To rationalize the existence of trade union and institutional infrastructure for industrial labourers.

Industrial Structure and Labourer Employment in Assam

Due to inadequate social overhead capital, industrialization in Assam could not be started before independence. But gradually industrialization has been started with a slow pace because during the first two five year plans only primary sector was given more importance. As soon as basic infrastructures were created from the third plan onwards, some special industries had been started. At present, tea and petroleum are the two dominant organized sector industries followed by coal, jute textiles, cement and fertilizer in terms of contribution to Gross State Domestic Product (GSDP) and employment. It should be mentioned that the number of registered factories in Assam is very low as compared to all India average. However, Assam has the only registered factories within the North Eastern Region (NER). Table I is constructed to present the number of registered factories and employment till 2010.

Table I : Registered Factories and Employment in Assam

Year	Number of Factories		Average Number of Daily Workers		
	Total	Functioning	Total	Male	Female
2005	1876	340	35865	33644	2221
2007	2299	339	36768	33858	2910
2009	2759	336	34786	31343	3443
2010	3048	342	36636	32906	3730

Source: Statistical Handbook Assam 2011

A huge gap is observed from the table I in the total number of factories and total number of functioning factories in the state. Failure of state government to recover the sick industrial units and declining net value added by some factories are two principal reasons behind this gap. However the average number of daily workers both for male and female are not increasing in a sustainable manner.

The second component of workers can also be observed in the growing Micro Small and Medium Enterprises (MSMEs). The role of MSMEs in the economic and social development of the state is well known. It is the nursery for entrepreneurship often driven by the individual creativity and innovation with contribution to GSDP, manufacturing output and employment generation.

Table II: Number of Workers in Registered MSME Units under the Commissionerate of Industries and Commerce, Assam

Year	Number of SSI/MSME units	Number of employment	Average No. of employment per unit
2001-02	2528	11538	4.6
2003-04	2364	11795	5.0
2007-08	1692	10471	6.2
2009-10	1678	12787	7.6
2010-11 (P)	1214	9002	7.4

Source: Economic Survey of Assam 2011-12

Table II shows the number of workers in registered MSME and their employment structure. There is a declining trend in the

number of Small Scale Industries (SSI) and MSME units in the state. On the other hand pace of reduction in number of employment is less than that of pace of reduction in number of units. Surprisingly, from 2007-08 to 2009-10, there is a reduction in number of SSI/MSME units but their number of employment is increasing. It reveals more and more number of workers is engaged with the existing units and also more number of MSMEs may not be registered. Secondly, the average number of employment is less than 10 for all periods. Thus most of the MSMEs could be coming under the purview of unorganized manufacturing which is otherwise known as Own Account Enterprises (OAE). No discussion on enterprises or factories can be complete without a treatment of the unorganized sector in which enterprises are typically established through own funds or funds from non institutional sources. Due to lack of data on unorganized sector for individual states, data related by National Sample Survey Organization (NSSO) for the N^o states are depicted in the following table III.

Table III : Enterprises and Employment in the Unorganized Manufacturing Sector - 2005

State	Number of Enterprises			Employment		
	Rural	Urban	Total	Rural	Urban	Total
Arunachal Pradesh	541	318	859	2299	1003	3302
Assam	333006	37774	370781	535424	97056	632480
Manipur	35797	16721	52518	52991	28379	81370
Meghalaya	34513	2474	36987	83286	7151	90437
Mizoram	3291	1810	5101	4949	4498	9447
Nagaland	7167	2739	9906	10938	5369	16307
Sikkim	3684	420	4103	6406	1219	7625
Tripura	38900	6470	45370	131652	13209	144861
All North-East	456899	68726	525625	827945	157884	985829
All India	12128266	4942554	17070820	23458285	12984513	36442798

Source: NSSO (2000) and NSSO (2006)

It is evident from table III that a bulk of enterprises both in rural and urban area are coming under Unorganized Manufacturing

Sector (UMS). In the entire NE states, the predominance of UMS is highest in Assam both in number and employment. It can be mentioned that since the opening up of the economy of India from 1991, there has been increasing casualization and informalization of workers. These workers do not come under the gamut of social security benefits, adequate wage rate and also they can hardly create some trade unions. Dispute and conflict are inherent characteristics of industrial societies. Therefore industrial dispute act was enacted in 1947 for the specific purpose to secure industrial peace and harmony in the country. When the history of labour movement is observed, for Assam, it started with Government printing press workers strike at 1918, Assam Oil Company workers strike of 1939, railway workers strike at 1920 which were seen in the pre independence period. However the shape and method of strike has got dynamism in the changing society, economy and labour market institutions. Now a days, industrial dispute in one industry can have cumulative impact on other sectors considerably.

Table IV : Statistics on Industrial Disputes in Assam

Item	Unit	2008	2009	2010
1	2	3	4	5
Industrial units involved	No.	7	16	19
Man days lost	No.	251394	49153	48534
Wages lost	Rs.	23704796	2829416	3481718
Production Lost	Rs.	389819755	1855200	116850000

Source: Statistical Handbook Assam 2011

Since 2008, if we observe the statistics of industrial disputes, the disputes have increased. Alongwith industrial units and man days loss, the loss of production and wage is increasing at a rapid pace in the rising price level of inputs and outputs as well. Another

problem associated with industrial worker is the accident inside the factory or establishments. Accident is one of the unexpected phenomena for every human being in general and industries in particular. But it also depends on the conditions of establishments like access to nearest health centre, sufficient place of working, degree of risk in movement of machineries and electrical infrastructure etc. However, industrial labourers both at organized and unorganized sectors have been facing different types of accidents. A report from the chief inspector of factories of Assam and published in statistical handbook of Assam is shown below:

Table V : Industry wise distribution of accidents in Assam

Nature of Industries	2008		2009		2010	
	Fatal	Non-Fatal	Fatal	Non-Fatal	Fatal	Non-Fatal
1	2	3	4	5	6	7
Mfg. of food and Beverages	3	38	1	32	1	29
Mfg. of Tobacco Products	-	-	-	-	-	7
Mfg. of wood corks etc.	-	1	-	1	-	-
Mfg. of paper and paper products	2	2	-	-	1	3
Mfg. of cake, refined petroleum products	1	2	2	-	-	-
Mfg. of chemical and chemical products	-	2	-	11	1	2
Mfg. of non-metallic mineral products	2	6	-	-	1	3
Mfg. of basic metal	5	13	-	-	1	2
Mfg. of fabricated metal products, except machinery and equipments	1	-	1	-	-	-
Mfg. of machinery and equipments	1	2	-	2	-	-
Mfg. of other transport equipments	-	-	1	-	-	-
Electricity, Gas, Steam and hot water supply	-	-	-	1	-	-
Storage and warehousing	-	-	-	-	1	-
Total	15	66	5	47	6	46

Source : Statistical Handbook Assam 2011

Since the highest number of workers in Assam is engaged in manufacturing of food products and beverages, the number of accidents also is highest in this industry. Number of fatal accidents are declining since 2009, but there were 3 fatal accidents in food and beverages and 5 in manufacturing of basic metal industries. However, non fatal accidents still occur in food and beverage industries followed by basic metal and non metallic mineral products.

Table VI : Cause wise Distribution of accidents in Assam

Cause of accident	2008		2009		2010	
	Fatal	Non-Fatal	Fatal	Non-Fatal	Fatal	Non-Fatal
1	2	3	4	5	6	7
Machinery moved by machine power	4	25	-	17	1	16
Machinery not moved by mechanical power	-	-	-	-	-	-
Transport	1	3	1	1	-	1
Electricity	-	1	-	2	2	7
Fire, explosion, Gassing	4	2	2	2	-	-
Molten metal	1	10	-	-	-	-
Use of hand tools	-	2	-	3	-	2
Struck by falling body	2	1	-	1	-	4
Falling from height	1	4	1	7	1	2
Falling on the flat	1	5	-	-	-	8
Falling into pits excavation	-	1	-	-	1	-
Stepping or striking against objects	-	4	-	2	-	-
Handling goods and articles	-	2	-	3	-	2
Others	1	6	1	9	1	4
Total	15	66	5	47	6	46

Source : Statistical Handbook Assam 2011

The causes of accidents in industries are shown in Table VI. Machinery moved by machine power has been found to be the primary cause both in fatal and non fatal accident. Machinery of an industry is one of the important asset and these machines are created by human beings. But unfortunately technology becomes a curse for labourers when accidents take place. Therefore the

machines created by human beings should take care of risk associated with it. Fire, explosion, gassing, electricity are some of the other causes of accidents in the industries. Fatal accidents made by different machineries and fire although declining, the non fatal accidents still take place in many industries of Assam.

Gender Dimension of Industrial Labour

In recent decades, economic and social inequalities have increased alongside high growth rates which is stemming from the growth process. It has also fuelled the inequalities between men and women. Women are overwhelmingly at the receiving end in the society, especially in developing economies. Most of their works are invisible and unpaid in nature. Therefore conventional statistics related particularly to women workers cannot provide the real picture. Women workers are exploited economically as well as socially - as women and as women workers. However gender inequality exists in the labourer market of Assam both in organized and unorganized sector.

Table: VII
Employment of Women in Organized Sector in Assam

Year	Public Sector		Private sector		Public and Private Sector		Percentage Share in organized sector
	Women	Total	Women	Total	Women	Total	
2003	77.4	528.0	241.1	551.1	318.5	1079.2	30.0
2004	77.3	525.1	255.6	527.0	332.9	1097.2	30.0
2005	81.5	524.5	268.4	605.2	350.0	1140.0	30.7
2006	81.8	519.7	299.0	599.7	380.7	1119.4	34.0
2007	84.9	527.0	310.8	640.5	395.7	1167.5	33.9
2008	85.6	527.3	266.5	554.6	352.1	1081.9	32.5
2009	87.3	531.7	273.0	571.7	360.3	1103.4	32.7
2010	87.0	531.1	279.7	583.0	366.7	1114.1	32.9

Source: Economic Survey of Assam, 2011-12
(figures are in thousand)

Employment of women in organized sector in Assam has been represented in table VII since 2003. The percentage share of organized sector women employment in Assam is less than 35% since 2003 and it reveals overall predominance of unorganized sector in the state. Private sector employment of women has been found to be higher compared to public sector employment. If we consider the data for 2009 and 2010, it is seen that employment of women in organized public sector has been falling to an extent but for the private sector it is gradually increasing. However, in both the employment category of private as well as public sector, women constitute a small percentage as most of the women's works are dominated by unpaid household works.

Labour Market Flexibility in Assam: A review of above approaches and magnitudes

The labour market of NER in general and Assam in particular also had been observed to be continually dominated by informal workers and enterprises. Informalization on rural areas is generally designated as Non Farm Sector and in urban areas it is known as informal sector. Labourers like rickshaw pullers, thela pullers, petty traders, casual workers at transport, hotel and restaurant, home based workers and self employed workers together constitute this sector. Since urbanization in NER is still at a nascent stage, most of these workers are seen in rural areas that determine the entire gamut of non farm sector. However, Assam being one of the early starters of industrialization, her labour market has seen informalization since last two decades.

The atmosphere of industrial relation of any industry depends on the trade union activism. It can be observed that the concept of trade union has been influencing a large section of categories of workers. Not only workers in large and medium scale industrial

establishments but even white collar workers, supervisory and management personnel have also been acting trade unions and associations. Trade unions are essentially the product of modern large scale industry which was taking root in the later half of the nineteenth century. While organizing workers in informal sector, the traditional strategies may not work. Insecurity of employment of these workers would act as strong obstacle to traditional methods of unionization. If trade union press too strongly for increasing wages and working conditions, there is every likelihood of the employer closing down the factory or moving elsewhere with new workers.

The Centre of Indian Trade Unions (CITU) has unionized workers in some small industries of Kolkata, but the union has the backing of the state government. In other areas like NER, such a case may not be possible. Therefore the activism under trade union in the north eastern region in general and Assam in particular are not in a favourable position. Number of trade union and their membership and operation are not up to the mark in Assam. Under such circumstances, the employer and the capitalist class can have the power of exploitation on the workers. Therefore there are numerous rational reasons for existence of trade union in an industrialized society which should be made free from the politics if possible.

Concluding observations

Labourers in the organized sector should not be confused with the unorganized counterpart. The problems generated within the organized sector workers are always different than the unorganized workers. If the labourer in organized sector is searching for good medical facilities, the labourer in the informal sector is searching for subsistence wage. Secondly gender should form an essential part in all dimension of labour market. Thirdly,

dispute settlement body for the organized sector should be stronger one and governments in this regard have many works to do. Fourthly, Assam being the first starter of development process in the entire NER, her problems of labourer market will obviously have effect on the other seven states. It should also be mentioned that the workers in the liberalized India are suffering from various problems and unorganized worker in this regard are the worst sufferers. There should be exclusive policies and statistics for them since more than 80 percent of workforce are in the unorganized sector in Assam. The government, labourers, trade union and employers should strive to make the labour market free of all problems.

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Role of Unorganized Manufacturing Sector in Expanding Employment Opportunities in Assam

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Introduction

Creation of gainful employment has been one of the major challenges for the policymakers in India, especially in the post-reforms period. This is partly because the employment situation during this period has not been encouraging and the organized manufacturing sector has failed to generate employment opportunities (Rani and Unni, 2004 and Sahu, 2007). Contrarily, the unorganized manufacturing sector has witnessed remarkable rise in both the number of units and workers during the post-reforms period (Sahu, 2007). The unorganized manufacturing sector of India is huge and quite diversified, including a wide range of manufacturing units, dispersed all over the country both in rural and urban areas. The unorganized manufacturing sector is largely labour intensive, and thus, holds the promise for generation of vast employment opportunities, especially in developing countries like India, which are labour abundant. Recognizing the role of the unorganized sector, the 11th Five Year Plan emphasized the sector as the most potential sector for

rapid employment generation, and thus, a panacea to the burgeoning labourer force in the country.

The industrial scenario of Assam, which is one of the industrially backward states of India,¹ is largely confined to the unorganized manufacturing sector. The Unorganized manufacturing sector with about 370.8 thousand units, which is more than 99.5 percent of total manufacturing units, accommodated about 632.5 thousand workers, which is more than 83 percent of manufacturing workers in Assam during 2005-06. In spite of the crucial role played by the sector in industrialization process in the state and employment generation and achieving other socio-economic objectives as well, the sector has not received due attention in the policy sphere and research community in the state. While for the India as a whole studies have shown that the unorganized manufacturing sector has witnessed sharp decline in number of units and employment during mid-1980s to mid-1990s and the period since mid-1990s has experienced significant rise of the sector in terms of both number of units and employment (Rani and Unni, 2005 and Sahu, 2007), the performance of the sector in Assam is not discussed yet. In this paper we have made an attempt to fill this void in the literature by analyzing the structure and growth of unorganized manufacturing sector in Assam.

The specific objective of this paper is to analyze the employment potential of the unorganized manufacturing sector of Assam by examining the structure and growth of the sector in terms of different indicators, especially growth and composition of employment by nature and quality of work and male-female category. We have also looked at different technology indicators such as capital intensity, labour productivity and ratio of gross value added to capital, etc in order to understand the efficiency of the sector. The analysis has been carried out for the overall unorganized

manufacturing sector as well as for different enterprise types.

The rest of paper is organized in the following sections. The next section briefly outlines the database used in the study. The third section discusses the importance of unorganized manufacturing sector in Assam. The fourth section analyzes the structure of unorganized manufacturing sector. In the fifth section we have examined the growth and composition of employment of the unorganized manufacturing sector in the States. The sixth section analyzes different technology indicators of the unorganized manufacturing sector. The last section summarizes the major findings along with policy implication.

Data Source

The present paper is based on secondary data. The National Sample Survey Organisation (NSSO) is the principal agency that collects information about various dimensions like output, employment, capital, gross value added, etc of the unorganized manufacturing sector in India. The NSS surveys cover all the units of unregistered manufacturing sector and provide a large variety of estimates for the entire unregistered manufacturing sector. In the NSS framework, the unregistered (or unorganized) manufacturing sector covers all the manufacturing enterprises that are not covered by Annual Survey of Industries. Per se, the sector includes all the manufacturing enterprises except (a) those registered under section 2m(i) and 2m(ii) of Factories Act, 1948 and Bidi and Cigar Workers (conditions of employment) Act, 1966 and (b) those run by Government (Central Government, State Governments, Local Bodies)/Public Sector Enterprises.

In the present paper data have been drawn from the latest three rounds of NSS survey on unorganized manufacturing, viz. 51st round (July 1994 – June 1995), 56th round (July 2000 – June 2001) and 62nd round (July 2005 – June 2006).² These

rounds, however, differ from each other in terms of industrial classification and coverage, which leads to a few conceptual and methodological inconsistencies in different rounds of data. For instance, the 51st round, 56th round and 62nd round data are based on the National Industrial Classification (NIC) of 1987, 1998 and 2004 respectively. Therefore, we have to make necessary adjustments to the industry groups under the NIC 1987 and NIC 1998, to make the industry groups comparable with the industry groups under NIC 2004. Secondly, some industrial categories such as repair services, repair of capital services, etc are included in the 51st round, but excluded in the 56th and 62nd rounds, and some industrial categories such as cotton ginning, cleaning and baling, recycling, etc are included in the 56th and 62nd rounds, but excluded in the 51st round. These industrial categories have been excluded from the analysis in order to make valid comparison among all the three NSS rounds.

Importance of Assam's Unorganized Manufacturing Sector

The size of unorganized manufacturing sector is huge both in terms of number of units and workers in Assam. As we can see from Table 1 that during 2005-06 more than 99.5 percent of manufacturing enterprises were in the unorganized segment in Assam. The dominance of the sector has remained since 1994-95. The predominance of the unorganized segment is true in respect of employment as well. In 1994-95 the segment accommodated about 83.3 percent of the workers engaged in manufacturing, which declined to 81.6 percent in 2000-01 and then increased to 83.1 percent in 2005-06. In other words, the organized sector accounted for only 0.50 percent of manufacturing units during 1994-95 to 2005-06 and about 16.7 percent of manufacturing employment in 1994-95, 18.4 percent in 2000-01 and 16.9 percent in 2005-06. Thus, it is clear that the unorganized manufacturing sector approximately

sums up the total manufacturing sector of Assam, especially from the view point of number of units.

However, the unorganized sector's contribution to manufacturing gross value added is not as large as that in case of number of units and employment. The sector's contribution to manufacturing gross value was only 26.17 percent in 1994-95, which has increased to 33.8 percent in 2000-01 and then declined to 24.9 percent in 2005-06. This is one of the most disturbing facets of the unorganized manufacturing sector of Assam and for India as a whole too, mainly because of abysmally low level of productivity and low level of technology-in-use, which we will discuss in a later section.

Table 1 : Structure of Assam's Manufacturing Sector:
1994-95 to 2005-06

	1994-95		2000-01		2005-06	
		% share		% share		% share
No. of Units						
Organized	1514	0.49	1435	0.51	1864	0.50
Unorganized	307200	99.51	278449	99.49	370781	99.50
Total	308714	100.00	279884	100.00	372645	100.00
No. of Workers						
Organized	124885	16.70	112542	18.41	128662	16.90
Unorganized	622814	83.30	498800	81.59	632481	83.10
Total	747699	100.00	611342	100.00	761143	100.00
Gross Value Added (Rs. Lakhs)*						
Organized	114535	73.83	160468	66.24	410918	75.11
Unorganized	40592	26.17	81781	33.76	136169	24.89
Total	155127	100.00	242249	100.00	547087	100.00

Note: * Values are at Current Prices.

Source: NSSO (1998a, 1998b, 2002a, 2002b, 2002c, 2002d, 2008a and 2008b), Annual Survey of Industries (various years).

Structure of Unorganized Manufacturing Sector of Assam

Before we discuss the growth performance of the unorganized manufacturing sector of Assam, it is worthwhile to analyze the structure of the sector. The composition and structural changes in unorganized manufacturing sector of Assam during 1994-95 to 2005-06 is shown in Table 2 in terms of three indicators, namely, number of units, number of workers and gross value added, separately for different enterprises types, viz. OAMEs, NDMEs and DMEs.³ It is obvious from Table 2 that a very large proportion of Assam's unorganized manufacturing sector has been continued to be constituted by the own account manufacturing enterprises (OAMEs), which are the tiniest self-employing enterprises. The dominance of the OAMEs segment is true in respect of each of the three indicators. For example, in 2005-06, 88.5 percent of the units, 74.6 percent of workers and 55 percent of gross value added in the unorganized manufacturing sector are concentrated in the OAMEs segment. On the other hand, these percentages are only of 10.3 percent, 18.1 percent and 31.1 percent respectively for NDMEs segment and 1.2 percent, 7.3 percent and 13.8 percent respectively for DMEs segment.

Table 2:

Structure of Unorganized Manufacturing Sector of Assam

Year	Enterprise Type	No. of Units		No. of Workers		Gross Value Added*	
		in '000	% share	in '000	% share	Rs. Lakh	% share
1994-95	OAME	262.9	85.6	489.5	78.6	21526	58.8
	NDME	42.0	13.7	116.3	18.7	12472	34.1
	DME	2.2	0.7	17.0	2.7	2586	7.1
	All Manufacturing	307.1	100.0	622.8	100.0	36583	100.0

Year	Enterprise Type	No. of Units		No. of Workers		Gross Value Added*	
		in '000	% share	in '000	% share	Rs. Lakh	% share
2000-01	OAME	247.4	88.9	392.5	78.7	26197	59.6
	NDME	28.2	10.1	81.1	16.3	10927	24.9
	DME	2.8	1.0	25.2	5.1	6813	15.5
	All Manufacturing	278.4	100.0	498.8	100.0	43937	100.0
2005-06	OAME	328.1	88.5	472.1	74.6	35619	55.0
	NDME	38.2	10.3	114.4	18.1	20132	31.1
	DME	4.4	1.2	45.9	7.3	8959	13.8
	All Manufacturing	370.8	100.0	632.5	100.0	64712	100.0

Note: * Values are at Constant (1993-94) Prices.

Source : NSSO (1998a, 1998b, 2002a, 2002b, 2002c, 2002d, 2008a and 2008b).

We can identify some changes that have taken place in the structure of the unorganized manufacturing sector of Assam between 1994-95 and 2005-06. In terms of number of units the share of OAMEs remained unchanged throughout, the share of NDMEs has marginally declined, which has gained by the DMEs. In terms of number of workers the share of OAMEs remained same during 1994-95 to 2000-01 and then declined marginally during 2000-01 to 2005-06, whereas the share of NDMEs declined during 1994-95 to 2000-01 and then increased during 2000-01 to 2005-06, and that of DMEs has significantly increased throughout the period. In terms of gross value added the share of OAMEs has marginally increased during 1994-95 to 2000-01 and then declined during 2000-01 to 2005-06, while that of NDMEs has declined during 1994-95 to 2000-01 and then increased during 2000-01 to 2005-06 and DMEs has increased during 1994-95 to 2005-06.

Thus, it is clear that Assam's unorganized manufacturing sector has been dominated by the OAMEs, which are the tiniest

enterprises, especially in terms of number of units and workers. On the other hand, the presence of NDMI's and DME's, which are regarded as the modern segment of unorganized manufacturing, in Assam's unorganized manufacturing sector has been very marginal, in terms of number of units and workers; but in terms of gross value added they have fairly respectable shares.

However, going by absolute numbers there has been overall improvement in number of units during 1994-95 to 2005-06, but a break up in the period shows that during 1994-95 to 2000-01 the number of units has drastically declined, particularly for OAMEs and NDMEs segments, while numbers of DME units has increased; and then during 2000-01 to 2005-06 the number of units has increased in each segments of the unorganized manufacturing sector. But the absolute figures for NDMEs units in 2005-06 are lower than those for 1994-95, while in the other two segments the figures in 2005-06 are higher than those for 1994-95. In terms of numbers of workers there has been improvement in the absolute numbers during 1994-95 to 2005-06 for the overall unorganized manufacturing sector, but except for DMEs segment, the OAMEs and NDMEs segments have suffered sharp decline in workers between 1994-95 and 2005-06. In the OAMEs and NDMEs segments the absolute decline in number of workers during 1994-95 to 2000-01 was much sharper than the increase in number of workers during 2000-01 to 2005-06. Contradictorily, the DMEs segment has experienced significant increase in number of workers throughout the period (from 17 thousands in 1994-95 to 25.2 thousands in 2000-01 and then to 45.9 thousands in 2005-06). In terms of gross value added, the unorganized manufacturing sector has experienced significant rise during the study period as well as during the two sub-periods.

Employment in Unorganized Manufacturing Sector Growth of Employment

The growth of employment in unorganized manufacturing sector of Assam during 1994-95 to 2005-06 is illustrated in Table 3. The employment situation in unorganized manufacturing sector has witnessed drastic decline (3.63 percent) during 1994-95 to 2000-01, but the sector has experienced significant rise (4.86 percent) during 2000-01 to 2005-06. For the entire period (1994-95 to 2005-06) there has been a marginal improvement of 0.14 percent in unorganized manufacturing employment in Assam. Looking at the growth of employment across the sub-sectors, the OAMEs and NDMEs sector have suffered sharp decline of 3.61 percent and 5.83 percent respectively between 1994-95 and 2000-01. However, both the sectors have experienced considerable improvement (3.76 percent and 7.12 percent respectively) during 2000-01 to 2005-06, but a marginal decline for the entire study period. Contrarily, the DMEs segment has enjoyed significant growth in workers throughout the study period.

Table 3: Growth of Employment in Unorganized Manufacturing Sector

Enterprise Type	1994-95/2000-01	2000-01/2005-06	1994-95/2005-06
OAME	-3.61	3.76	-0.33
NDME	-5.83	7.12	-0.15
DME	6.78	12.74	9.45
All	-3.63	4.86	0.14

Source: Same as Table 2

Composition of Workers by Employment type

Though the employment situation of the unorganized manufacturing sector of Assam is found to be improved in recent years (Table 3), it is also important to look at the composition of employment in terms of absolute numbers and in terms of part-time and full-time workers and male-female break-up. This is because the existing evidence for India as a whole, (though there is none for the state of Assam), suggests that in recent years the unorganized manufacturing sector has witnessed significant increase in the part-time workers, while the full-time workers has sharply declined (Sahu, 2007). This could be a case for Assam's unorganized manufacturing sector too. Therefore, we analyze the size and composition of workers in terms of the nature of employment: part-time and full-time and by male-female break-up.

Table 4 shows the composition of workers by employment type for the period 1994-95 to 2005-06. It shows that the share of full-time workers for the overall unorganized manufacturing sector has declined from 77.38 percent in 1994-95 to 73.58 percent in 2005-06. This implies the share of part-time workers has increased from 22.62 percent to 26.42 percent during this period. The share is not uniform among the three layers of the unorganized manufacturing sector. The share of part-time workers was more for the OAMEs segment of unorganized manufacturing sector and this is true for throughout the study period. In 1994-95, the share of part-time workers stood at 27.11 percent for OAMEs, 5.58 percent for NDMEs and 9.41 percent for DMEs, which increased to 31.16 percent, 11.36 percent and 15.25 percent respectively for the OAMEs, NDMEs and DMEs segments in 2005-06.

There has been sharp decline in both full-time and part-time workers during 1994-95 to 2000-01, but the decline is higher for the full-time workers (101.5 thousand) compared to part-time

workers (22.5 thousands). The decline in full-time workers is largely contributed by the decline in OAMEs and NDMEs segments, while the DMEs segment has experienced improvement (Table 4). The decline in part-time workers is mainly contributed by the OAMEs segment, while the NDMEs and DMEs segments have experienced increase in part-time workers during this period. During 2000-01 to 2005-06 there has been increase in both full-time as well as part-time workers in all the segments of unorganized manufacturing sector. But, the increase in more in case of part-time workers compared to full-time workers (may not be in terms of absolute numbers, but in terms of growth rates) for the overall unorganized manufacturing sector as well as it all three sun-segments.

Table 4: Workers by Employment type in Unorganized Manufacturing Sector

	1994-95			2000-01			2005-06		
	Full-time	Part-time	Total	Full-time	Part-time	Total	Full-time	Part-time	Total
Composition of Workers (in Thousands)									
OAME	356.8	132.7	489.5	283.8	108.7	392.5	325.0	147.1	472.1
NDME	109.5	6.8	116.3	74.2	6.9	81.1	101.4	13.0	114.4
DME	15.4	1.6	17.0	22.4	2.8	25.2	38.9	7.0	45.9
All	481.9	140.9	622.8	380.4	118.4	498.8	465.4	167.1	632.5
Share of Full-time and Part-time Workers (in percent)									
OAME	72.89	27.11	100.00	72.31	27.69	100.00	68.84	31.16	100.00
NDME	94.15	5.85	100.00	91.49	8.51	100.00	88.64	11.36	100.00
DME	90.59	9.41	100.00	88.89	11.11	100.00	84.75	15.25	100.00
All	77.38	22.62	100.00	76.26	23.74	100.00	73.58	26.42	100.00
Increment/Decrement (in Thousands)									
	2000-01/1994-95			2005-06/2000-01			2005-06/1994-95		
OAME	-73.0	-24.0	-97.0	41.2	38.4	79.6	-31.8	14.4	-17.4
NDME	-35.3	0.1	-35.2	27.2	6.1	33.3	-8.1	6.2	-1.9
DME	7.0	1.2	8.2	16.5	4.2	20.7	23.5	5.4	28.9
All	-101.5	-22.5	-124.0	85.0	48.7	133.7	-16.5	26.2	9.7
Growth Rate (in percent)									
	1994-95/2000-01			2000-01/2005-06			1994-95/2005-06		
OAME	-3.74	-3.27	-3.61	2.75	6.24	3.76	-0.85	0.94	-0.33
NDME	-6.28	0.24	-5.83	6.45	13.51	7.12	-0.70	6.07	-0.15
DME	6.44	9.78	6.78	11.67	20.11	12.74	8.79	14.36	9.45
All	-3.87	-2.86	-3.63	4.12	7.13	4.86	-0.32	1.56	0.14

Source: Same as Table 2.

But going by the absolute numbers, a comparison of employment situation in 2005-06 with 1994-95 reveals that the number of full-time workers for the overall unorganized manufacturing sector as well as for OAMEs and NDMEs segments was lower in 2005-06 than those figures in 1994-95 (Table 4). Contrarily, the number of part-time workers was higher in 2005-06 than those figures in 1994-95. Only for the DMEs segment the number of both full-time and part-time workers was higher in 2005-06 than those figures in 1994-95. This implies that the size of increase in full-time workers during 2000-01 to 2005-06 was lower than the size of decline during 1994-95 to 2000-01, which resulted in overall decline in full-time workers for the overall unorganized manufacturing sector and its sub-sectors, except for DMEs segments during the entire study period (1994-95 to 2005-06).

Composition of Workers by Sex and Employment type

Figure 1 illustrates the composition of unorganized manufacturing workers for male and female separately for the period 2000-01 to 2005-06.⁴ It reveals that in 2000-01 about 71.85 percent of total unorganized manufacturing workers in Assam were male. The share of male workers has declined to 65.17 percent in 2005-06. This implies that the share of the female workers in unorganized manufacturing sector has increased from 28.15 percent to 34.83 percent during 2000-01 to 2005-06. The male-female composition of workers is not uniform among the three segments of unorganized manufacturing sector. The OAMEs segment accommodated the highest female unorganized manufacturing workers, followed by the DMEs segment. Between 2000-01 and 2005-06, the OAMEs and NDMEs segments have experienced increase in the share of female unorganized manufacturing workers, whereas the share has declined in the DMEs segment.

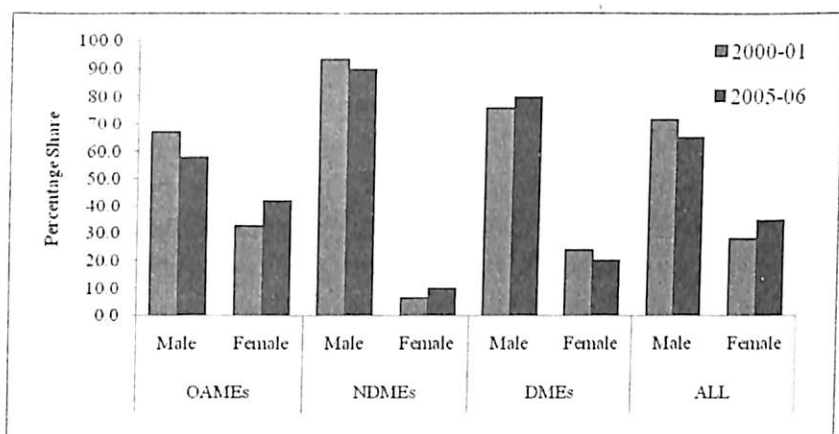


Figure 1: Composition of Workers by Sex in Unorganized Manufacturing Sector

Source: Same as Table 2.

Going by the absolute numbers, as Table 5 depicts, the size of male unorganized workers has increased from 358.4 thousand in 2000-01 to 412.1 thousand in 2005-06, while size of female unorganized workers has increased from 140.4 thousand to 220.3 thousand during the same period. Thus, between 2000-01 and 2005-06, there has been increment of about 53.74 thousand male unorganized workers and 79.94 thousand female unorganized workers, with the compound annual growth rate of 2.83 percent and 9.43 percent for the male and female category respectively. In the case of male workers, the highest increment in number of workers was in the NDMEs segment (27.04 thousand) followed by DMEs segment (17.56 thousand), while in terms of growth rate it was the DMEs segment (13.93 percent) followed by NDMEs segment (6.29 percent); the absolute increment/growth rate being very low for the OAMEs segment. In the female category, the OAMEs segment contributed the largest increment

in the number of workers (70.58 thousand), followed by NDMEs segment (6.18 thousand), but growth rate was highest in the NDMEs segment (16.48 percent) followed by OAMEs (9.13 percent) and DMEs (8.77 percent) segments.

Table 5 also illustrates the composition of workers by employment type for male and female separately. It is obvious that the share of part-time workers was high in the female category for the overall unorganized manufacturing sector as well as its three sub-sectors. Of the total female unorganized manufacturing workers, about 42.17 percent were part-time workers in 2000-01 and 35.13 percent in 2005-06. The corresponding figures for male unorganized manufacturing workers were 16.52 percent and 21.76 percent respectively. The decline in the share of female part-time workers was mainly due to decline in the share of female part-time workers in the OAMEs segment, while the share of female part-time workers in the NDMEs and DMEs segments has increased. On the other hand, the share of male part-time workers has increased in all the three segments of unorganized manufacturing.

In terms of absolute numbers, the size of male part-time workers has increased from 59.2 thousand in 2000-01 to 89.7 thousand in 2005-06, while size of female part-time workers has increased from 59.2 thousand to 77.4 thousand during the same period. All the three segments of unorganized manufacturing sector have experienced increase in part-time workers for both male and female category between 2000-01 and 2005-06. The size of full-time workers has also increased for the overall unorganized manufacturing sector in case of both male and female workers. There has been increment of about 23.26 thousand male full-time workers and 58.04 thousand female full-time workers between 2000-01 and 2005-06. Though, the overall unorganized manufacturing sector witnessed increase in number of male full-

time workers, but the OAMEs segment has experienced a decline of about 16.91 thousand male full-time workers. The NDMEs and DMEs segments, however, experienced significant increment in male full-time workers during the same period. Increment of female full-time workers has been observed among all the three segments of unorganized manufacturing sector, the largest increment being enjoyed by the OAMEs segment (58.04 thousand).

Table 5 : Workers by Sex and Employment type in Unorganized Manufacturing Sector

	Year	Male			Female		
		Full-time	Part-time	Total	Full-time	Part-time	Total
Composition of Workers (in Thousands)							
OAME	2000-01	211.5	52.1	263.6	72.4	56.5	128.9
	2005-06	194.6	78.1	272.6	130.4	69.0	199.5
NDME	2000-01	69.6	6.1	75.8	4.6	0.8	5.4
	2005-06	93.3	9.6	102.8	8.1	3.4	11.6
DME	2000-01	18.2	0.9	19.1	4.2	1.9	6.1
	2005-06	34.6	2.0	36.7	4.3	5.0	9.3
ALL	2000-01	299.2	59.2	358.4	81.2	59.2	140.4
	2005-06	322.5	89.7	412.1	142.9	77.4	220.3
Percentage Share of Full-time and Part-time Workers							
OAME	2000-01	80.24	19.76	100.00	56.17	43.83	100.00
	2005-06	71.36	28.64	100.00	65.40	34.60	100.00
NDME	2000-01	91.94	8.06	100.00	85.19	14.81	100.00
	2005-06	90.67	9.33	100.00	70.43	29.57	100.00
DME	2000-01	95.29	4.71	100.00	68.85	31.15	100.00
	2005-06	94.54	5.46	100.00	46.24	53.76	100.00
ALL	2000-01	83.48	16.52	100.00	57.83	42.17	100.00
	2005-06	78.24	21.76	100.00	64.87	35.13	100.00
Increment/Decrement (in Thousands) in 2005-06 over 2000-01							
OAME		-16.91	25.96	9.05	58.04	12.54	70.58
NDME		23.66	3.48	27.04	3.54	2.64	6.18
DME		16.42	1.14	17.56	0.11	3.08	3.19
ALL		23.26	30.48	53.74	61.70	18.25	79.94
Growth Rate (in percent) between 2000-01 and 2005-06							
OAME		-1.65	8.42	0.68	12.50	4.09	9.13
NDME		6.03	9.45	6.29	12.10	33.84	16.48
DME		13.72	17.78	13.93	0.54	21.23	8.77
ALL		1.51	8.66	2.83	11.97	5.52	9.43

Source: Same as Table 2.

To summarize, whatever the improvement in employment of the unorganized manufacturing sector of Assam has been observed in recent years (between 2000-01 and 2005-06), was largely contributed by the increase of part-time workers, especially female part-time workers. Though the size of both full-time and part-time workers has increased for both male and female category, the growth rate of employment is high for the female part-time workers. Thus, the recent increase in unorganized manufacturing employment in Assam has taken place mainly through casualization of workers within the unorganized manufacturing sector and also through feminization of workers.

Technology Indicators of Unorganized Manufacturing Sector

It is generally believed that the unorganized manufacturing sector uses inferior technology, which results in low productivity, low profit level and stagnation (Sahu, 2007). In this section we have discussed the technology indicators of the sector in terms of parameters such as capital-labour ratio, labour productivity and ratio of gross value added to fixed capital by enterprise types. The level and growth of these three indicators are reported in Table 6 and Table 7 respectively.

The capital-labour ratio (at constant 1993-94 prices) for the overall unorganized manufacturing sector stood at Rs. 4180 in 1994-95, which increased to Rs. 5688 in 2000-01 and then Rs. 8040 in 2005-06 (Table 6). The capital-labour ratio is highest for the DMEs segment, which is relatively capital intensive within the unorganized manufacturing sector, while it is lowest in the OAMEs segment, which is the tiniest segment of the unorganized manufacturing sector. The real capital-labour ratio of the overall unorganized manufacturing sector recorded an annual growth of 5.27 percent during 1994-95 to 2000-01, 7.17 percent during 2000-01 to 2005-06 and 6.13 percent during 1994-95 to 2005-06 (Table 7). All the sub-sectors of unorganized manufacturing sector have recorded significant growth

rate during the overall study period as well as the sub-periods, the highest growth being recorded in the DMEs segment.

Although we are aware about the fact that the partial productivity measures present only a partial picture of the efficiency in factor-use, here we have discussed the factor productivity of the unorganized manufacturing sector by using the partial factor productivity measures. The per-worker productivity (at constant 1993-94 prices) for the overall unorganized manufacturing sector has increased from Rs. 5874 in 1994-95 to Rs. 8808 in 2000-01 and then to Rs. 10231 in 2005-06. The per-worker productivity has increased in all the three segments of unorganized manufacturing sector, except for DMEs between 2000-01 and 2005-06. The annual growth in per-worker productivity (at constant 1993-94 prices) for the overall unorganized manufacturing sector has recorded at 6.99 percent during 1994-95 to 2000-01, which has slowed down to 3.04 percent during 2000-01 to 2005-06. For the entire period (1994-95 to 2005-06) the growth rate was 5.17 percent. All the three segments within the unorganized manufacturing sector have recorded growth in real per-worker productivity during the entire period and two sub-periods, except the DMEs segment during 2000-01 to 2005-06.

Table 6 : Technology Indicators of Assam's Unorganized Manufacturing sector

Enterprise Type	Year	Capital-Labour Ratio (Rs.)*	Per Worker Productivity (Rs.)*	Ratio of GVA to Fixed capital
OAME	1994-95	3163	4398	1.39
	2000-01	3982	6675	1.68
	2005-06	5392	7545	1.40
NDME	1994-95	7990	10720	1.34
	2000-01	11172	13473	1.21
	2005-06	13274	17595	1.33
DME	1994-95	7377	15207	2.06
	2000-01	14587	27001	1.85
	2005-06	22202	19502	0.88
All Manufacturing	1994-95	4180	5874	1.41
	2000-01	5688	8808	1.55
	2005-06	8040	10231	1.27

Note: * Values are at Constant (1993-94) Prices

Source: Same as Table 2

Table 7: Growth of Technology Indicators of Assam's Unorganized Manufacturing sector
(Figures are in percentage)

Enterprise Type	Year	Capital Labour Ratio*	Per Worker Productivity*	Ratio of GVA to Fixed capital
OAME	1994-95/2000-01	3.91	7.20	3.17
	2000-01/2005-06	6.25	2.48	-3.55
	1993-94/2005-06	4.97	5.03	0.06
NDME	1994-95/2000-01	5.74	3.88	-1.76
	2000-01/2005-06	3.51	5.48	1.91
	1993-94/2005-06	4.72	4.61	-0.11
DME	1994-95/2000-01	12.03	10.04	-1.78
	2000-01/2005-06	8.76	-6.30	-13.85
	1993-94/2005-06	10.53	2.29	-7.46
All Manufacturing	1994-95/2000-01	5.27	6.99	1.63
	2000-01/2005-06	7.17	3.04	-3.85
	1993-94/2005-06	6.13	5.17	-0.90

Note: * Figures are at Constant (1993-94) Prices

Source: Same as Table 2.

The ratio of gross value added to fixed capital has increased during 1994-95 to 2000-01 for the overall unorganized manufacturing sector and its OAMEs segment, while it has declined for NDMEs and DMEs segment during the same. On the other hand, during 2000-01 to 2005-06, the ratio has declined for the overall unorganized manufacturing sector as well as OAMEs and DMEs segments, but increased for NDMEs segment. Compared with the year 1994-95 the ratio of gross value added to fixed capital in 2005-06 was lower for the overall unorganized manufacturing sector as well as NDMEs and DMEs segments, but higher in OAMEs segment.

Conclusion

In this paper we have analyzed the employment potential of the unorganized manufacturing sector in Assam for the period 1994-95 to 2005-06. In terms of employment, the unorganized manufacturing sector occupies a place of great significance in

Assam. Within the unorganized manufacturing sector, the OAMEs segment plays a dominant position in terms of number of units and employment. Therefore, any policy towards industrialization in Assam should consign utmost focus to the unorganized manufacturing sector, and to the OAMEs segment within the unorganized manufacturing sector.

The finding of the paper is that, over the years, the performance of the unorganized manufacturing sector has been abysmal. During 1994-95 to 2000-01, many of the unorganized manufacturing units had closed down, especially in the OAMEs and NDMEs segments; whereas the DMEs, which are the non-household type modern enterprises, have enjoyed some improvements. Similarly, there has been significant decline in workers in the OAMEs and NDMEs segments of unorganized manufacturing sector, while the DMEs segment, being bigger in scale of operation, has considerably contributed in generating employment during this period. However, the sector has shown some sort of increase in employment during 2000-01 to 2005-06. All three segments within the sector have witnessed significant increase in employment during this period. However, the increase in employment during 2000-01 to 2005-06 was not sufficient to compensate the loss of employment during the previous period (1994-95 to 2000-01) in the OAMEs and NDMEs segments, resulting loss of employment in these two segments during the entire study period.

The most disturbing fact is that an overwhelming proportion of worker losing their jobs during 1994-95 to 2000-01 was full-time workers, especially in the OAMEs segment. But, a large proportion of the new jobs created during 2000-01 to 2005-06 were part-time workers, again in the OAMEs segment. Thus, there is a tendency for the proportion of part-time workers to increase in the unorganized manufacturing sector, and this is true for all

three segments of the sector. Adding to this, the share of female workers has increased in both part-time and full-time worker category, in all three segments of the sector, especially again in the OAMEs segment. Thus, it can be said that the recent increase in employment of unorganized manufacturing sector of Assam has taken place largely through informalization and feminization of workers. The level of productivity is found to be abysmally low in unorganized manufacturing sector of Assam. Within the unorganized manufacturing sector, the productivity level is lowest for OAMEs segment. Thus, to sum up, the unorganized manufacturing sector has got immense employment potential, but the sector suffered low level of productivity. As a result, the impending role of the sector in creating productive employment opportunities is doubtful. Therefore, it is important to reformulate the existing industrialization strategy in the states and provide special policy attention for increasing productivity through technological advancement of the unorganized manufacturing sector.

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1. As per the Economic Survey, Assam 2011-12, the manufacturing sector contributed only about 7.0 percent to Gross State Domestic Product in Assam during 2010-11 and during the same year the growth of the sector registered at 3.8 percent at constant (2004 -05) prices and 9.0 percent at current prices.
2. The NSS data are not available at yearly basis, rather at an interval of five years. Starting in 1958-1959 it has completed, till date, nine-rounds of survey of unorganized manufacturing industries (the other rounds are during 1968-1969, 1974-1975, 1978-1979, 1984-1985, 1989-1990, 1994-1995, 2000-2001 and 2005-06).

3. The unorganized manufacturing sector of India is divided into three sub-sectors: own account manufacturing enterprises (OAMEs), non-directory manufacturing establishments (NDMEs) and directory manufacturing establishments (DME). OAMEs are enterprises run without a hired worker on a fairly regular basis. NDMEs are establishments employing up to six workers, at least one of them being a hired worker employed on a fairly regular basis. DMEs are establishments employing six or more (but less than ten) workers, at least one of them being a hired worker.
4. For the year 1994-95, the composition of workers by employment type is not available for male and female differently in the NSS published report (NSSO 1998a, 1998b). Therefore, we are not able to carry out analysis for the year 1994-95.

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Problems of Construction Labourers in Guwahati

Ganga Rani Das

Construction workers are unorganized labourers. A construction labourer is a person who works in support of skilled workers on a construction site. Labourers can be found in all aspects of construction, including residential housing, commercial sites, tunnels, highway and demolition jobs. Largely an entry position, most unskilled people pursuing a career in the construction field begin as a construction labourer. Generally speaking, the job of a construction labourer is a physical one, regardless of the field. An ideal candidate will possess not only physical strength, but good balance, eye-hand coordination, and stamina, as labourers are often required to be the first workers on the job site and the last to leave, following clean up. Construction workers constitute one of the largest categories of workers in the unorganized sector. According to the survey carried out by the National Sample Survey organization in the year 1999-2000, the total employment in both organized and unorganized sector in the country was 39.7 crore, out of which 1.7 crore labourers are in construction sector. These construction labourers are engaged in huge industrial construction,

residential flat construction, city beautification works. These construction labourers, as a part of unorganized work force remain the most exploited ones even six decades after independence.

Construction labourers use only hammer, chisels, circular saw blade, reciprocal saw blade and concrete mixer. So they require great physical effort. The entire activity is mobile, seasonal, intermittent and mostly inter-connected. The completion period of projects range widely and calls for engagement of labourers from various trades, skills and professions. The duration of employment, quantum of work and arduousness differ from one extreme to another. Construction labourer is generally unskilled, and therefore the trade mostly attracts migrant agricultural labourers during off-season. The workers are usually socially backward and illiterate with low bargaining power. One of the major feature of construction industry is that it is prone to risks of accidents. Due to non-detection and non-reporting, accurate statistics of the number of such accidents is difficult to obtain.

Modernization and industrialization have paved a good way to the construction industry. Small towns and cities become more urbanized and the construction sector too receives a boost. Expanding and fast growing construction sector and shortage of greater employment opportunity elsewhere has attracted large number of workers to this sector. At present there are more than 20 million constructions workers in India. City like Guwahati alone has more than 7-8 thousand construction workers. Migration from different district of Assam and from other states in India has now become very common. Construction labourers are labourers who are migrated from different regions and states leaving their native villages in search of daily job. These people in general are nomadic in their lives and usually they do not return to their birth place or natives. They travel from one area of work to other area along

with their families and some of them live in an accommodation provided by the owner of the construction company. The present study is intended to analyze the extent of construction labourers' problems in Guwahati, Assam in which the construction business is booming.

Objective

The main objective of this paper is to find out the problems faced by the building constructions workers and study about different government schemes for the welfare of these workers.

Methodology

The research follows the qualitative research methodology. Six residential building construction sites in Guwahati locality were considered for the study. A questionnaire was prepared and direct personal interview technology was used to collect data from the construction labourers in Guwahati and from these sites 200 labourers were taken for the study. The entire survey took about two months (July-August 2012) to complete the data collection.

Major findings of the Study

1. Majority of construction labourers are living in tin shed (52%), plastic sheet shed (16%) and kuccha huts (32%).
2. A majority percentage of labourers (62%) are living in self-constructed temporary shed near construction site.
3. 72% of labourers are having temporary sheds and have no electricity provision.
4. The sanitation and hygiene of the construction site and temporary shed are very poor (85%).
5. Most of the labourers (90%) have to depend on hand pump.

6. Majority construction labourers (78%) have to take open bath as there is no adequate provision for bathrooms.
7. 72% of the builders do not pay medical cost incurred to the labourers.
8. 64% construction companies pay only Rs 200-250 per day to their labourers.
9. Majority of construction companies pay Rs 300-350 per day to the skilled labourers.
10. 15% construction companies are making provision of holidays to their labourers, while considerable percentages (85%) of companies do not provide holidays to their workers.
11. 15% of labourers' children are illiterate. They are staying either at home or wandering here and there in the site when their family members are engaged in work.

Discussion

The study indicates the problems of the construction labourers in Guwahati city in Assam. Majority of construction labourers migrated from different districts of Assam and other states of the country. The construction site have more than 40 - 50 labourers. The living condition of the labourers are very poor and the labourers are staying in tin shed, plastic shed and kuccha houses. Some builders are making provision of accommodation facilities to the labourers. The majority labourers have to build temporary huts by themselves, nearby the sites. The builders are not making any provision of electricity, sanitation facility to the labourer. The sanitation condition at the construction site and the labourer houses are found to be very poor. Majority of construction sites do not have any bathroom facility. Labourers have to depend on open

bath. Most of the builders do not pay medical costs incurred by the labourers. They do not have adequate accident relief equipments like helmets, hand gloves, shoes, safety belts, protection eye wear etc

The wage structure of the construction labourers is also found to be inadequate considering their heavy labour. Majority of the labourers are getting a wage between Rs 200-250 of the day. The study observed that differential wage system existed for the skilled and unskilled labourers. Leave facilities are not available for the workers. The working hours of the construction labourers varied considerably. Majority construction sites are making provision of 8-11 hour a day. The labourers never get healthy food from the construction site. Dal, roti, rice and vegetable are the regular food.

The labourers reported that the working relation with constructor and other staff was good. The wages were paid in time and nobody was forced to do extra work. Majority of the workers, who were new to this profession, reported their economic condition got better over the years due to joining construction work. Majority of the workers reported their children reading in government school and no aid was being availed from the employer in this context. They were spending 5% of their income on education of their children. The workers living away from the family sent almost all savings to their family and they had no local bank or post office accounts.

The government of India have been greatly concerned about the welfare of these workers and therefore, provisions of various acts have been extended to them. Out of them the important Acts are Building and Other Construction Workers Act, 1996 and Building and Other Construction Workers' Welfare Cess Act, 1996.

Building and Other Construction Workers Act, 1996 provides for regulating the employment and conditions of service of building

and other construction workers and provides for their safety, health and welfare measures and other matters connected therewith. The Building and Other Construction Workers' Welfare Cess Act, 1996 is an act to provide for levy and collection of a cess on the cost of construction incurred by employers with a view to augmenting the resources of the building and other construction workers.

But the present state of the implementation of the provisions of Building and Other Construction Workers Act, 1996 in Assam does not seem to be encouraging. According to the Act, agencies like labour commissioners and provident fund commissioners even at the state levels have significant roles to play in the execution; yet we did notice that these officers do not show much interest in these activities. In a similar way, the contract document prepared as per the labour laws are normally not implemented in true spirit by the contractor. I noticed that there was in most of the cases no provision of workmen's compensation insurance and making PF contribution. The provisions of facilities at the worksites for the workers are not up to the prescribed standards of the Act. They have not taken steps to form labourer camps on an excuse that there is no sufficient space for such camps near the worksites in the region. There was no chart showing workers' hours of work, nor was any provision of holidays for them. The state level labour agency itself does not utilize the powers it enjoys under the Act. It can take action against the contractor and enforce the terms of contract, but they lack will to execute the labour laws. It was found that the provision of labour laws and those of the contract do not correspond with each other. According to a number of the contractors, it is difficult to meet the obligation of labour wages and social security within the allocated margin by principal employer for overheads and profits.

It is true that there are various problems of construction workers especially in Assam, but it is not impossible to overcome these problems easily. Some suggestions are given below -

1. Every construction worker should be registered with labour department and this department should have all necessary information related to them.
2. Special groups should be formed to conduct skill enhancing and awareness generation campaign and they should be made responsible to contact all the registered workers.
3. Construction workers should be provided land with concession rate and subsidized building materials to construct their own accommodation.
4. NGO's or other social institutions should be encouraged to conduct social awareness programs to establish the dignity of manual labour in the society.
5. Some rules should be introduced to avoid tensions between local and outside workers.
6. Organize public medical camps where construction sites are located.
7. Constant inspection from the government is required to reduce the problems of construction labourers.
8. Support from the trade unions to the construction labourers should be ensured.
9. Ensure adequate insurance facilities for the construction labourers.
10. Encourage the construction labourers saving habit by initiating banking awareness.

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Impact of Violence on The Unorganized Labourers - A Study of Selected Districts of Assam

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Introduction :

Violence is defined by World Health Organisation (WHO) as the intentional use of physical force or power, threatened or actual, against a person, or against a group or community that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation. This definition associates intentionality with the committing of the act itself, irrespective of the outcome it produces.

There are various factors that contribute to the upsurging of violence of which, some of the major causes are enlisted below -

- 1) Poverty
- 2) Gender inequality
- 3) Alcohol consumption
- 4) Lack of nurturing relationship between parents and children
- 5) Political issues

6) Terrorism

Violence may be experienced in various forms having numerous implications. Sometimes violence may be related to personal-life problems while in other cases it may be related to work-place, society, and in extreme and indirect cases violence may be experienced in the form of terrorism, which affects the society at large.

The present study is concerned with the effect of violence on unorganized labourers in some select districts of Assam. So, for the present study only collective violence has been taken into consideration.

Objectives of the Study:

The primary objective of this paper is to find out the impact of violence on the labourers of Assam, especially working in the unorganized sector. The study also includes other objectives like:

1. To study the general scenario of violence in Assam.
2. To find out the impact of violence on the society in general.
3. To suggest measures both to the Government as well as the public in general to reduce or overcome the impact of violence.

Area of the Study :

For the purpose of the study two most violence prone districts of Assam from BTAD (Bodoland Territorial Autonomous Division) viz. Kokrajhar and Chirang and two comparatively less violence prone districts viz. Kamrup and Barpeta have been selected and from each district 25 labourers working in the unorganized sector have been randomly selected as per convenience.

Methodology:

- 1) **Research design:** Descriptive and Exploratory in nature.
- 2) **Sampling type:** The sampling type is multi-stage sampling. At first cluster sampling has been used for selecting four sample districts and then using Simple random and Convenience sampling, sample labourers have been drawn from the four districts.
- 3) **Sample size:** 100 labourers working in the unorganized sector. The sample distribution area-wise is shown as follows:

District	No. of Samples
Kokrajhar	25
Chirang	25
Kamrup	25
Barpeta	25
Total	100

- 4) **Research tools:** Personal discussion and structured schedule.
- 5) **Sources of data:** Both primary and secondary sources have been used for collection of data. Primary data have been collected through personal discussion and distribution of structured schedule among the labourers working in the four selected districts of Assam. Secondary data have been collected from books, internet, newspapers etc

Limitations of the Study:

Any research cannot be complete and perfect in every aspect. The present study suffers from the following limitations:

1. Due to paucity of time and money only a small area of Assam is surveyed, hence the sample may not be representative of the whole population.
2. Since most of the labourers included in the sample are uneducated, hence the information provided by them may be biased and inaccurate.
3. Most of the time the labourers hesitated to give their response.
4. The study includes unorganized labourers only.
5. There is paucity of information on the statistics related to scenario of violence in Assam.

Scenario of violence in Assam:

Assam has witnessed violence in many forms. Violence, especially armed violence, in Assam has been fuelled because of a number of issues say land distribution, immigration, ethnicity, religious conflict and political autonomy etc In addition to wars being waged by terrorist groups against the government, there are instances of violence on the civilians, conflicts within various communities, political parties etc Assam is quite prone to bandh which not only disrupts the economic activities but also affects the daily bread-earners seriously as they are left with no means of livelihood. Counter insurgency operations and inter-ethnic violence has displaced a large section of people, especially the poor, insecure and helpless.

It has been alleged that United Liberation Front of Assam (ULFA) has collected more than five billion rupees through extortion, abduction and kidnappings. (Maitra, 2002) Also, sources estimate that out of the Rs. 11.65 billion available in Assam

for rural development from 1992 to February 1998 less than Rs 4 billion went into legitimate schemes. (Sahni, 2000) In the recent ethnic violence which took place in BTAD area in the month of July 2012 it comes to light through the media that most of the victims were from the labourer class.

Impact of Violence on the Society in General :

Violence is the root cause of many evils in the society. It results in overall break-down of the social machinery and creates fear, panic, horror and insecurity in the minds of the people. The impact of violence on the society in general can be seen in the form of :

- 1) Disruption in economic activities,
- 2) Retards social growth,
- 3) Increases death toll and disabilities,
- 4) Loss of assets and displacement of people,
- 5) Unemployment,
- 6) Destruction of physical infrastructure and property,
- 7) Decline in business confidence,
- 8) Drainage of capital,
- 9) General climate of fear and insecurity,
- 10) Disruption of provision of services such as health and education etc,
- 11) Overall drain on the economy,
- 12) Decrease in tourism,
- 13) Increase in anti-social activities (unemployed people joining militant groups and indulging in drug trafficking),
- 14) Migration to other places,
- 15) Changed family structures (women headed households, child headed households, orphans etc),
- 16) Transportation bottlenecks etc

Specific Impact of Violence on Labourers:

The labourer class is a vulnerable section of the society and is extremely prone to various adverse impacts of violence. The impact is much more humiliating and intimidating for the unorganized labourer class. Having no scope for help, this class has witnessed various ill-effects of violence prevailing in the society. Violence may affect labourer class specifically in any of the following ways:

- 1) Unemployment,
- 2) Decrease in earnings,
- 3) Change in the nature of work,
- 4) Migration to other states or beyond the country boundaries,
- 5) Involvement in anti-social activities,
- 6) Suicidal attempts,
- 7) Engagement of all family members including minors in work,
- 8) Destruction of physical property and displacement,
- 9) Fear and insecurity,
- 10) Helplessness etc.

Data Analysis and Interpretation:

Table 1: Response of labourers with regard to their witness to violence

District	Sample size	Yes	In %	No	In %
Chirang	25	25	100	Nil	-
Kokrajhar	25	25	100	Nil	-
Barpeta	25	22	88	03	12
Kamrup	25	18	72	07	28

On the basis of Table 1, it is observed that all the labourers from Chirang and Kokrajhar districts have witnessed violence in one or the other form as these are some of the most violence prone districts of Assam. However in Kamrup and Barpeta district, only 72% and 88% of the labourers surveyed have witnessed violence as the impact of violence in these areas are comparatively less in comparison to Chirang and Kokrajhar district.

Table 2: Nature of violence faced by respondents

Violence	No. of respondents	In %
Caste/Ethnic violence	89	89
Terrorism	62	62
Religious conflict	25	25
Bandhs	89	89

On the basis of table 2, it is observed that most of the labourers (89 percent) have witnessed ethnic violence and frequent bandhs, followed by terrorism (62 percent) and religious conflict (25 percent).

Table 3: Respondent's opinion with regard to impact of violence on society in general

Purpose	No. of respondents	Respondents in %
Disrupts economic activities	77	77
Retards social growth	82	82
Disruption of educational activities	90	90
Transportation bottlenecks	100	100
Increase in criminal activities	87	87
Creates panic and horror in society	100	100
Increase in anti-social activities	93	93
Death toll rises	100	100
Others	-	-

The respondents surveyed have opined that the violence makes heavy impact on the society in general. According to 100% of the respondents the most dangerous impact of violence on the society is that violence creates panic and harms in society, increase the death toll and increases transport bottlenecks. Almost 90% of the respondents have opined that violence leads to disruption of educational activities of their children due to bandhs, increase in anti-social activities. Others opined that it retards social growth, increases criminal activities and disrupts economic activities.

93% of the respondents have given the opinion that during violence the labourers generally do not get work. Hence specially the youths get involved in various anti-social activities like theft, alcoholism etc 87% of the labourers are of the view that due to violence the criminal activities in the society also increase, which retards social growth.

77% of the labourers are of the view that due to violence various economic activities in the society have been disrupted to a great extent and it is the labourer class who have suffered the most.

Table 4: Respondent's opinion with regard to impact of violence on labourer class

Response	No. of Respondents	In percentage
Decrease in earnings	100	100
Migration to other places	45	45
Change in nature of work	36	36
Suicidal attempts	16	16
Involvement in anti-social activities	49	49
Engagement of all family members including minors at work	58	58
Death toll rises	90	90

According to Table 4, all the labourers agreed that there is a cent percent decrease in their earnings because of violence. They also agreed that violence leads to more deaths and they are the most vulnerable sections who are prone to such deaths. At the same time, there is a compulsion for all the family members to engage in work in order to maintain livelihood. Some labourers have also migrated to other states (sometimes across international boundaries, in oil-producing countries) in search of new work, better pay and better living conditions. Some discouraged labourers have also indulged in anti-social activities like gambling, drinking, theft etc or changed their nature of job. Some have become domestic helpers, drivers, gardeners etc. Some labourers even think of attempting suicides because of the sufferings that crop up as a result of such violence.

Recommendations:

Violence is a grave problem that has been destroying the peace of Assam. Steps may be taken for preventing its occurrence and also to assist and rehabilitate the victims, for a better society tomorrow. Some of the major recommendations in this respect are as follows:

1. Demilitarization of the area
2. Community based development programme which deals with local issues and concerns should be encouraged.
3. Assistance package by government for internally displaced people and allowing international observers such as United Nation High Commission for Refugees (UNHCR) and NGO's access to refugees and internally displaced people in the region
4. Reducing availability and usage of alcohol
5. Restricting fire arms by legislations

6. Forming associations or unions for safeguarding the interests of the unorganized labourers
7. Job-guarantee by government to violence victim labourers
8. Ethical behaviour of media in highlighting violent issues so that it is prevented and controlled
9. Educating the people, especially the labourer class free of cost and encouraging the people to avail the benefits of the same
10. Creating harmony and peace in the society by encouraging brotherhood through spiritual talks and lectures. Initiative in this regard should be taken by local NGO's, club and other social organizations
11. Encouraging saving habits among the labourer class by educating them on such issues and through financial inclusion

Conclusion :

It may be concluded by saying that violence is indeed an alarming problem in the state of Assam and it is affecting the labourer class very badly as they are poor, insecure, vulnerable and they lack the knowledge, farsightedness and capacity to tackle such problems. Hence, there should be a collective effort on the part of the society as a whole, including the government to put a check on violence and at the same time to adopt measures to overcome the crisis and its aftermaths. Labourers too need to redefine their role by enhancing knowledge, shedding ignorance, learning to save and getting educated. As we all know that prevention is better than cure and hence it can be said that it is better to prevent violence and its occurrence rather than to think of the remedy alone.

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Relevance of Workers Participation in Management : An Overview of Hindustan Paper Corporation, Nagaon Paper Mill

Arpita Sharma Nath

Introduction

Workers Participation in Management (WPM) crystallizes industrial democracy. Collective bargaining empowerment and workers participation in management also called 'participative management' are the manifestations of industrial democracy. The concept of WPM is a broad and complex one. Depending on the socio-economic environment and cultural conditions, the scope and contents of participation may change. For the peaceful evolution of the economic system on a democratic basis, it is essential that workers participation in management should be accepted as a fundamental principle and an urgent need. WPM bestows responsibilities to workers and accepts challenges. Through this the objectives of human resource development are achieved. Workers were regarded as a factor of production by the employer. Now, this opinion had changed and it is widely believed that workers are the resources or assets which can be drawn upon

and can be developed to increase their efficiency. WPM has developed a sense of belongingness among the workers towards their organization and they have started giving their 100 percent to the organization.

Objectives of the Study

The primary objectives of the present study are

1. To find out what kind of participation is being adopted in Nagaon Paper Mill and at what level.
2. To identify various committees operating in NPM as an extension of the concept of participative management.

Methodology

Both exploratory and conclusive type of research has been conducted. It is exploratory as the work entitled included a lot of preliminary investigation like making plant visits, meeting the workers at the shop level, enquiry regarding conduct of different kind of councils and committees, identifying the welfare measures for workers upliftment and the like. The research is also conclusive as the information and data gathered has helped in drawing inferences about the relevance of WPM in industrial undertakings. Both primary and secondary data have been used.

Primary data are collected from the General Manager Works, Deputy General Manager, HR & ES dept, Chief Safety and Vigilance Officer, Senior Manager of Planning and Development section and a few workers. However, secondary data is collected from Mill journals, monthly periodicals, annual production sheets of the firm, reference books, literatures etc The questionnaire method of survey has been adopted for appropriately recording the responses of the respondents. Structured questionnaire comprising of close end and open end questions were administered on 35 managerial personnel and 50 workers separately.

Levels of Participation

An overview of various levels of participation and whether they are implemented in Nagaon Paper Mill are examined below:

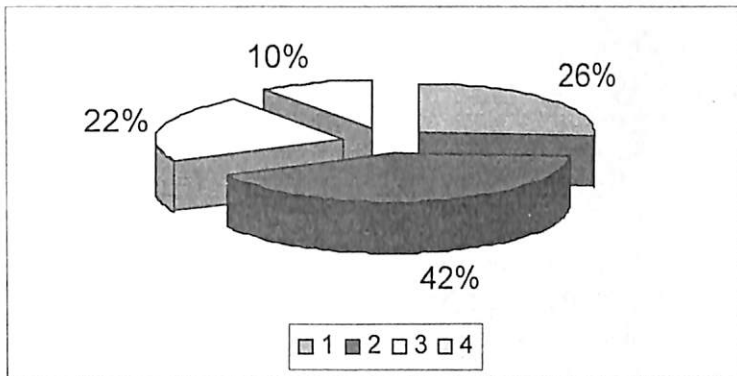
- ◆ Informative Participation- This implies to management's information sharing with workers regarding economic condition of the firms, state of the market, production and sales programme, balance sheet, expansion plans etc Here, the workers have no right of close scrutiny of the information provided and management has its prerogative to make decisions on issues concerned with the workers. Informative participation donot prevail in the NPM.
- ◆ Consultative Participation- Here, the workers are consulted on matters related to them only. This involves a high degree of sharing of views of the workers and giving them a chance to express their views on various issues concerning work, workplace, working conditions, financial status etc However, the acceptance and non-acceptance of these views depends on management. In this type of participation, the council of workers and management works as an advisory body only. Nonetheless, it provides an opportunity to the workers to express their views on matters involving their interest. This kind of participation is practised in the mill.
- ◆ Associative Participation- The role of workers council is not just advisory unlike participative participation. In a way, this is advanced and improved form of consultative participation. The management is under moral obligation to acknowledge, accept and implement the unanimous decision of the council. Among all the kinds of participation, associative participation is mostly practised in Nagaon Paper Mill.

- ◆ Administrative Participation- In this participation decisions already taken are implemented by the workers. Compared to the former three levels of participation, the degree of sharing authority and responsibility borne by workers is definitely more in this participation. Workers support this level of participation and look forward to it. Nagaon Paper Mill has adopted administrative participation in various departments.
- ◆ Decisive Participation- This is the highest form of participation where decisions are taken fast jointly on matters related to production, safety, welfare etc This is the ultimate level of workers participation in India.

Level of Workers' Participation adopted in
Nagaon Paper Mill

Nature of Responses	Number of Respondents	Percentage
Consultative Participation	13	26%
Associative Participation	21	42%
Administrative Participation	11	22%
Decisive Participation	05	10%
Total	50	100%

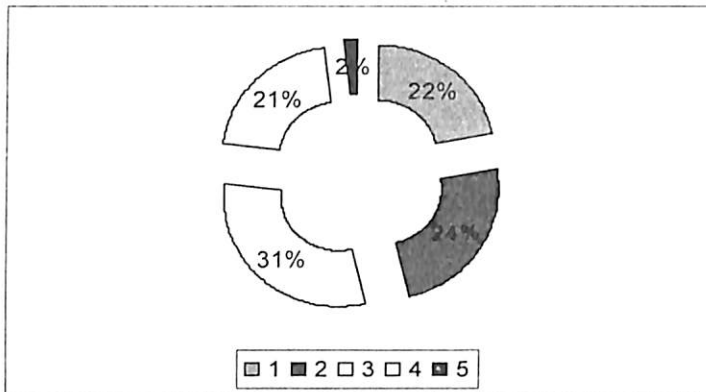
Source: Independent field survey



1 represent consultative participation, 2 represent associative participation, 3 represent administrative participation and 4 represent decisive participation.

Separate set of structured questionnaires are administered on managerial staff and workers. Among the workers, questionnaires are distributed only to the trade union members who have an influential and powerful play over general workers. Workers belonging to different departments are contacted and interviewed. Among a sample of 50 workers, 26% opined that consultative participation is mostly implemented by the management; 42% stated that associative participation is largely implemented by management; 22% feel that administrative participation is mostly adopted whereas a small proportion of 10% feel that decisive participation prevails in the Mill.

Form of Participation adopted in NPM



Source: Independent field survey

1 represents 'Discussion', 2 represents 'Suggestion Scheme', 3 represents 'Works Committee', 4 represents 'Joint Management Councils' and 5 represents 'Board Representation'.

Worker's opinions are taken over the form of participation supported and encouraged by the Mill authorities. Out of 50 workers belonging to various departments like paper mill section, commercial, safety and vigilance and finishing house, 22% stated that management invite discussions with worker's representatives whenever serious problems concerning the workers and mill arises. Group discussions are held and consensus is evolved. 24% of labourers feel that workers are made more involved in the industrial affairs through suggestion schemes. Here, constructive suggestions put by the workers are scrutinized and considered for implementation in industrial operations for better functioning. 31% of respondents opined that works committees are most common form of participation in the mill which aims at maintaining cordial and harmonious atmosphere between workers and management in NPM. 21% expressed that joint management council are common form of workers participation in NPM to maintain good working conditions, discipline, safety and overall employee job satisfaction. A meager 2% said that importance of sending workers representatives in Board of Directors is slowly increasing as an extension of the concept of workers participation in management.

Committees Operating in Nagaon Paper Mill

There are multiple committees operating in NPM as a means to recognize the importance of workers and employees in the organization and to provide them with minimum hygiene and health requirements. A brief outline of various committees are presented below-

Safety Committee- NPM has set up safety committees at various levels. The type and range of committees has been established depending on things such as nature of work undertaken, the number of employees, the location of work sites etc Safety

committees are of two types- Policy Committee and Executive and Operational Committee.

Communication Committee- Communication Committee holds a meeting once in a year various discussions are held on new products, new technology, new innovations, capacity expansion, proposal for capital projects etc

Shop Floor Committee- This committee deals with topics such as production maintenance, work environment, quality control, gas leakage, pulp draining, and some technical failures.

Canteen Management Committee- This is a statutory committee constituted under section 46 of Factories Act, 1948. It consists of three members from the union and three members from the management including a doctor.

House Allotment Committee- This is another committee operating in NPM that looks after allotment of quarters among its employees depending upon its designation/status as well as its availability. There are almost 1500 employees and quarters are of different categories like A, B, C, D.

Trade Union Committee- The trade union carries its operations, rules and regulations by following the provisions of Trade Union Act 1926 and registrar of Cooperative Societies Act.

Township Welfare and Amenities Committee- This committee consists of 14 members, 8 from management side and 6 from workers side. It is providing facilities like security, free banking facilities, education facilities of high quality at concessional rates inside the township, free medical facilities, clubs, sports complex, mini shopping complex, easy transportation facilities thrice a week.

Plant Level Committee- The main purpose of the Committee is to investigate the cause of disputes relating to wage differentials and to make job evaluation studies to settle disputes arising at the plant level.

Grievance Committee- It is a three tier system with time bound steps, each leading to the next. If the aggrieved employee is not satisfied with the first step then he/she refers the grievance to the second step and in case of further dissatisfaction refers the case to the third step.

Provident Fund Trustee Committee- The committee takes decision on safety of money, calculation and approval of loan amount, additional deductions from personal industrial accounts of the employees etc

Nagaon Paper Mill- Experiences

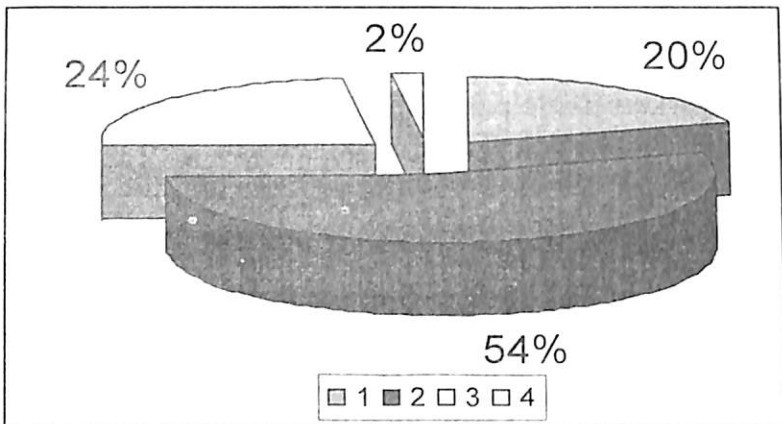
The scheme of Workers Participation in Management was introduced in Nagaon Paper Mill in 1996. Prior to that, there was no workers participation in the affairs of the management. Due to non cooperation of the executive heads of NPM to involve workers in the decision making process and the prevailing illiteracy and ignorance of workers on important issue of the Mill the scheme did not get much momentum. There was a 'dharna' which occurred at the gates of NPM just before the incorporation of the scheme. However, it did not affect production and the situation was soon handled by the plant committee and grievance committee of Nagaon Paper Mill (NPM). Slowly, with the increased literacy among the workers, conduct of on-the-job training programmes and willingness of executive managerial cadre, workers participation in management programmes got acceleration. After its implementation, there has been no strikes, lockouts, lay-offs etc

The information collected from the workers on personal ground through questionnaire also shows their loyalty and belongingness towards the organization has increased many fold and the productivity of the Mill has shown an upward trend.

Nature of Industrial Relations prevalent in Nagaon Paper Mill

Nature of Responses	Number of Respondents	Percentage
Very Good	10	20%
Good	27	54%
Satisfactory	12	24%
Poor	01	02%
Total	50	100%

Source: Independent field study



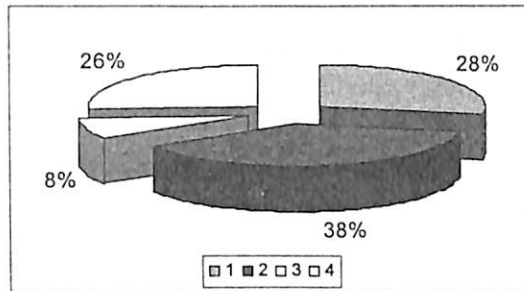
1 represents 'very good', 2 represent 'good', 3 represents 'satisfactory' and 4 represents 'poor'.

To get a true picture of the nature of industrial relations prevalent in Nagaon Paper Mill, the workers were met personally and their opinions regarding state of employee-employer relations in the industry was questioned. 20% expressed very good industrial relations; 54% perceived industrial relations as good; 24% opined that satisfactory industrial relations prevailed in the mill as against 02% who said that poor industrial relations existed in Nagaon Paper Mill.

Fairness and Justice towards workers

Nature of Responses	Number of Respondents	Percentage
Highly Satisfied	14	28%
Moderately Satisfied	19	38%
Dissatisfied	04	08%
Scope for improvement	13	26%
Total	50	100%

Source: Independent field study



1 represent highly satisfied, 2 represent moderately satisfied, 3 represent dissatisfied and 4 represent scope for improvement.

Workers were also asked regarding degree of fairness and justice extended towards workers in the mill. 28% said that they were highly satisfied with the fairness and justice extended to them by the mill; 38% expressed moderate satisfaction over the prevailing provisions on equity and fairness, whereas 8% expressed dissatisfaction on the above mentioned variables. 26% of respondents stated that irrespective of the current trend regarding fairness, justice and equity in the mill there is enough scope for improvement in the light of adoption of workers participation in management in NPM.

Conclusion

The rationale for workers participation in management lies in the fact that it instills among workers a sense of belongingness towards the organization and also a sense of commitment towards various decisions taken. WPM has brought about positive changes in the industrial climate as well as in overall productivity.

The worker's participation in management scheme has been introduced in Nagaon Paper Mill in 1996. And after its implementation, no strikes, lockouts, and dharna occurred and no loss of production due to conflict between management and workers since then. Rather, an upward trend of production has resulted and it has been maintaining its production above its installed capacity continuously after 2000-2001.

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Employee Relation Mechanism in Oil Sector : A Case Study of Oil India Limited

**Priyanka Borah
Deepjyoti Chakraborty**

The story of Oil India Limited (OIL) traces and symbolizes the development and growth of the Indian petroleum industry. From the discovery of crude oil in the far east of Digboi, Assam in 1889 to its present status as a fully integrated upstream petroleum company, OIL has come far, crossing many milestones.

Company's effective Human Resource practices and effective initiative has led to enhanced employee engagement and has resulted in very low level of attrition. In fact there has been "NIL" attrition of unionized employees during the preceding year 2010-2011. In OIL, various employee matters like compensation, allowances and benefits are framed arising out of collective bargaining with the recognized union.

Oil India Limited was awarded Greentech Human Resource Excellence Gold Award 2010 for outstanding achievement and innovation in employee relation strategies.

One of the remarkable achievements of Employee Relation Department is that it got certification to the ISO 9001:2008 Quality

Management System (QMS) requirements and accordingly received ISO certification on 27-08-2010.

Objectives of the Study :

1. To identify various voluntary welfare measures initiated by the company for maintaining good employee relations.
2. To investigate whether any initiative has been taken for fostering workers participation in the organization.

Methodology of the Study:

While preparing the study step has been taken to collect both primary and secondary data from field study and already published materials at the same time. Various departments related to Industrial Relations have been visited.

The sample of the study is 120 workers belonging to 4 different department's i.e; Training and Development Department, Employee Relation Department, Personnel Department and Administration Department- all of which fall under the Human Resource Department.

Judgmental and Convenience Sampling Technique has been adopted and the Research design is descriptive in nature.

Voluntary Welfare Measures Initiated by the Company :

Voluntary welfare measures initiated by the company are described below :

Encouraging employees in volunteering in CSR activities or other community service activities :

In OIL, the views of the representatives of the recognized union and officer's association are integrated into the management decision making process on CSR activities. Employees are encouraged to be actively associated with various organizations/ NGOs engaged in community development initiatives/projects including sports and cultural activities.

Involvement of Family:

OIL considers the family members of the employees as an important stakeholder as their role in maintaining the psycho-physical well-being of the employee is of prime importance. The company maintains various infra-structural facilities like Club, Community Halls, Stadium and Sporting facilities where family members of the employees can take part and get benefitted. Moreover official functions like annual sports day, departmental get together are also organized to make the family members involved.

Contribution to employee wellness:

Company employees are entitled for free medical treatment under "OIL employees Medical Attendance Rules" to maintain their physical well-being. There is counselling facility for psychological problems and de-addiction in case of alcoholic employees in which family members are also involved.

Work Life Balance:

Realizing that the success of the company sponsored WLB depends on employees' mindset and company culture, company has undertaken a number of initiatives to prepare the ground for changing mindset and thereby the work culture to enable people to achieve work life balance:

- i. OIL conducts program on Foundation Course on Learning Organisation (FOL) to realize its vision of 'Oil India is a Learning Organization, nurturing initiatives, innovations and aspirations with best practices' through a group of internal coaches with the objective to institutionalize the concept and practices of OIL.

- ii. The program "Jigyasha" focuses on knowing 'Myself & My Company'. One aspects of the program is about impact of emotions on self and others and how to manage emotions; in other words becoming 'Emotionally Intelligent' to enhance personal effectiveness in all front.
- iii. Towards achieving TOTAL CARE IN OIL," Worksite Fitness Program" has been initiated to ensure better health and lifestyle by virtue of relief from chronic ailments like pain, spondylitis, arthritis, blood pressure, diabetes etc and thus intangibly contributing towards mental alertness and overall well-being of the individual.
- iv. "OIL Health Awareness Day"- the OHA Program" conducted in the fields head quarter, pipeline services and other spheres as a pro-active measure for the total health benefit of the people of Oil India.

Participation in programs:

Programs	Duration	No. of Participation	Year
Foundation Course on Learning Organization	3 days	63 nos.	01/04/2010 To 31/03/2011
-Do-	3 days	65	01/04/2011 To 17/09/2011
-Do-	3 days	1366	Till Date
Jigyasha	3 days	20	01/04/2011 To 17/09/2011
Worksite Fitness Program	1 Hour	1400	Till Date

Source: Mr. Arun Jyoti Baruah, Manager, Employee Relation Department, Oil India Limited, Duliajan.

Periodic Health Check Up:

To ensure sound and productive workforce OIL emphasizes health issues on special priority. Periodic health check up is carried out as a proactive measure to serve this purpose. The periodic health check up in the last two financial years is as follows :

Financial Year	No. of Employees Benefited
2009-10	1742
2010-11	1896

Source : Mr. Arun Jyoti Baruah, Manager, Employee Relation Department, OIL, Duliajan.

Initiatives To Foster Worker Participation In Decision Making:

1. In Oil India Limited, there are a number of Joint Management Committees comprising of work persons who are officials of nominated by the recognized union as well as management representatives in order to foster workers participation in Management. These Committees are like:
 - i) Central Negotiation Committee
 - ii) Canteen Management Committee
 - iii) Housing Committee etc

Formal as well as Informal Forums and Number of Committees :

Following are the Formal Forums & Committees:

- i) Central Negotiation Committee
- ii) Canteen Management Committee
- iii) Housing Committee
- iv) Safety Committee
- v) Medical Committee
- vi) Grievance Management Committee

Welfare Measures :

The company has evolved a series of Comprehensive Welfare Policies which are dynamic in character and aims at achieving a state of happiness, well-being and prosperity of the employees and their families so that there is continuous intellectual and social growth and development,

The welfare measures catered for the employees are enlisted below:

a. Housing:

The company provides housing accommodation to its employees and their families at its establishments where company accommodation is available on very nominal house rent recovery. Where company accommodation is not available, company provides the facility of self-leased accommodation or payment of House Rent Allowance (HRA).

b. Financial Assistance to employees/ dependents:

Financial assistance to employees and their eligible dependents on account of Children's Education Allowance/ Merit Scholarship and outstation medical treatment of dependent children at the place of study are provided by the company. Additionally, company has in place children education loan facility for the benefit of employees and their eligible children.

c. Social Security Scheme:

Payment under Social Security Scheme, Group Personal Accident Policy Scheme, Employees' Compensation Act & EDLI (Employee Deposit Linked Insurance) to the nominee(s) / family members of employees in case of death during employment are provided by the company.

d. Medical Facility:

The Company provides excellent Medical facilities at their own OIL hospital and OIL empanelled hospitals in different parts of the country to the employees and their spouses, dependent children and eligible dependent parents as per company's medical attendance rules.

e. Medical Facilities to the retired employees & dependents of deceased employees:

The company extends health services to the retired employees, their spouses and eligible dependent parents of retired employees and spouse, dependent children and eligible dependent parents of employees under the company's post retirement medical benefit scheme.

f. Loans/ Advances :

With the objective to help workmen and their families lead a better life and also to help them in their hour of need, the company has very attractive loans/ advances schemes under which loans/ advances are extended at concessional rates for various purposes.

g. Incentive Under Revised Sports Policy of the Company:

OIL plays a proactive role for the development of various sports in the country by providing help and assistance to various sports organizations/ authorities like the Petroleum Sports Promotion Board (PSPB), AIPSSPB (All India Public Sector Sports Promotion Board), as well as other national federations, district associations, local sports bodies etc

h. Retiral Benefits :

The retiral benefits of provident fund, gratuity and pension are provided to the employees on separation/ retirement and to the eligible family member(s) in case of death of the employee.

i. Repatriation expenses :

The company pays repatriation expenses to the employees who retire from the company's services or is discharged on medical grounds and also to the family of deceased employee.

j. Workman's Club :

The company provides liberal assistance in maintaining Employees Club Set, its various establishments to provide recreational facilities and their families.

k. Cremation Ground :

A cremation ground at Duliajan is maintained by the company. Fire wood and gas for cremation is supplied free of cost to the employees and their dependents.

l. Community Centre :

Permanent large pendals of steel structures have been provided in OIL housing area where employees and their families congregate on various social functions on payment of very nominal fee.

m. Socio-Religious Assistance:

Material assistance on loan is extended to workmen and their families for socio-religious occasions by providing temporary water/gas/electricity, wash basin, C.I.sheets, timber, tarpaulins etc on payment of very nominal fee.

n. Dhobi Ghat:

For the purpose of general use of the employees & their families and local population, a dhobi ghat with 24 hrs water, gas and electrical connection has been provided at Duliajan and Moran.

o. Educational Facilities:

The company provides facilities for the education of its

employees children to the extent possible. In its operational areas in Assam there are 2 Higher Secondary Schools- a) Oil Higher Secondary School which is fully run by the comp, b) Kendriya vidyalaya and Delhi Public School where infrastructure has been provided by the company, and total 5 lower primary schools where maintenance of schools from time to time is provided by the company.

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Legislative Effort To Solve Problems of Industrial Labourers

Beauty Neog

Introduction :

Proper regulation of employer-employee relationship is a condition for progressive and purposeful development of society. In this connection, social and economic upliftment of the labourers is important for securing industrial peace, which is essential to increase national productivity.

According to section 2(s) of the Industrial Dispute Act 1947, 'workman' means

- i) Any persons (including an apprentice)
- ii) Employed in any industry
- iii) To do any
 - a) Skilled or unskilled manual, Supervisory clerical work.
 - b) For hire or reward
 - c) Whether the terms of employment be express or implied for the purposes of the Act
- iv) Includes any person who has been dismissed, discharged or retrenched, but does not include any person.
 - a) Who is subject to Army Act 1950, Air Force Act 1950 or Navy Act 1957.

- b) Who is employed in police service or as an officer or other employee of a prison.
- c) Who is mainly in a managerial or administrative capacity. Who is being employed in supervisory capacity draws wages exceeding Rs. 1600/- per mensem.

Workers are illiterate and poor and therefore unconscious of their rights. The socio-economic status of the workers is far below the status of their employer. As such they cannot exercise their free will in negotiating with the employer for employment. The employers taking advantage of the poor condition of the workers dictate their own terms and conditions with regard to wages, hours of work, leave etc The workers are left with no choice but to accept such terms because service is the sole means of earning their livelihood.

In Assam there are a number of industries in the state viz, tea, petroleum, plywood paper, Fertilizer, cement coal, sericulture, handloom and Handicraft, cottage tourism etc The establishment of Noonmati Refinery, Bongaigaon Refinery. Numaligarh Refinery Ltd, LPG bottling plants at Duliajan, North Guwahati, Silchar etc gives a new dimension in the industrial growth of Assam. However Assam could not flourish in industrial sector due to lack of capital security related vulnerability of the region, inadequate infra- structural facilities, dearth of technical skills.

Methodology :

The study is conducted through the collection of primary and secondary data. The primary data are collected through interview with the various people from tea garden in Assam and secondary data are collected from newspaper, handouts and journals. In addition to this, relevant materials are collected through internet as well.

Growth of Labour Legislation in India

Labour legislation in India grew with the growth of industry. In India a number of labour legislations have been enacted to promote the condition of labourers keeping in view the development of industry and national economy.

In India, the tea plantation industry in Assam was the first to attract legislative control. The method of recruitment of workers in this industry was full of hardships. Workers were not even allowed by the planters to leave the tea gardens.

Ultimately some philanthropic agencies like Servants of India Society, Social Service League and some social workers raised their voice against their problems. They were successful in mobilizing public opinion in support of their view point. Workers also started to form their own organizations to fight against exploitation at the hands of industrialists.

The Government too later on realized the gravity of the problem and had to intervene to settle the disputes in the interest of national economy and the welfare of the society at large. Several legislations were made over time.

In India labour legislation and industrial jurisprudence is based on certain principles like social justice, social security, social equity, international uniformity and national economy.

Article 39 in chapter IV of Directive Principles of state policy lays down specific directions for the state to secure the well being of the workers. State shall direct its policy towards securing:-

- a) That the citizens, men & women equally have the right to an adequate means of livelihood
- b) That the ownership and control of the material resources of the community also distributed as best to subserve the common good.
- c) That the operation of the economic system does not

result in the concentration of wealth and means of production in the common detriment.

- d) That there is equal pay for equal work for both, men and women.
- e) That the health and strength of workers, men and women and tender age of children are not abused and that citizens are not forced by economic necessity to enter avocations unsuited to their age or strength.
- f) That childhood and youth are protected against exploitation and against moral and material abandonment.

Several labour legislations have been enacted to promote the condition of the labourers keeping in view the development of infusing and national economy. Some of the important labour legislations are discussed below.

1. Workmen's Compensation Act, 1923

The Workmen's Compensation Act, 1923 was enacted with a view to provide for compensation to workmen incapacitated by an injury from accident arising out of and in the course of employment.

The liability of the employer to pay compensation is dependent upon the following four conditions :

1. Personal injury must have been caused to a workman ;
2. Such injury must have been caused by an accident ;
3. The accident must have arisen out of and in the course of employment ; and
4. The injury must have resulted either in death of the workman or in his total or partial disablement for a period exceeding three days.

Personal injury does not mean only physical or bodily injury but includes even a nervous shock, mental injury, heart diseases, strains which causes a chill.

The injury caused to a workman must be as a result of accident. If the accident is unexpected and without design on the part of the workman, it might be an accident.

Employer is not liable to pay compensation :

The employer is not liable to pay compensation to a workman:

- a) If the injury did not result in total or partial disablement for a period exceeding three days or
- b) In respect of any injury not resulting in death or permanent disablement caused by an accident which is directly attributable to.
- c) The workman having been at the time of accident under the influence of drink or drugs.
- d) The willful disobedience on the part of the workman to an order expressly given or to a rule framed for the purpose of securing the safety of a workman, or
- e) The willful removal or disregard by workman of any safety guard or safety device which are provided for securing the safety of workman.

Amount of Compensation :

- a. Death :- In case of death of an workman, an amount equal to 50% of the monthly wages of the deceased workman multiplied by the relevant factor, or an amount in between Rs. 80,000/- Rs. 2,75,000-/, whichever is more entitled by dependants (1998 amendment).
- b. Permanent total disablement :- In case of permanent

total disablement resulted from the injury an amount equal to 60% of the monthly wage multiplied by the relevant factor or an amount Rs. 90000/- rupees whichever is more.

- c. Permanent partial disablement :- In case of permanent partial disablement such percentage of the compensation is payable as specified on the basis of the loss of earning capacity caused by that injury.
- d. Temporary disablement whether total or partial :- In case of temporary disablement a half monthly payment of the sum equivalent to 25% of monthly wages of the workman to be paid.

Compensation payable in Certain Cases

Monthly wages of the workman injured		Amount of compensation for		Half monthly payment as compensation for temporary disablement
		Death	Prmnt. total Disablmnt.	
1		2	3	4
More than	But not more than			
Rs.	Rs.	Rs.	Rs.	Rs.
0	60	7,200	10,080	Half his monthly wages
60	90	9,720	14,608	36.00
90	120	11,520	16,128	42.00
120	150	13,500	18,900	48.75
150	200	16,800	23,520	60.00
200	300	18,000	25,200	80.50
300	400	19,200	26,880	100.00
500	600	21,600	30,240	135.00
600	700	23,100	32,340	148.75
700	800	27,000	33,600	160.00
800	900	27,000	37,800	168.75
900	1,000	30,000	42,000	175.00

2. The Factories Act, 1948

The Factories Act 1948 aims at regulating :-

- i) The working conditions providing provisions for health, safety and welfare of the workers.
- ii) The working hours by fixing the daily as well as weekly hours of the workers.
- iii) The annual leave with wages of the workers in the factories.
- iv) Measures in regard to employment of young person.

Measures Regarding Health and cleanness :

- i) Every factory shall be kept clean and free from effluvia arising from any drain privy or other nuisance, and in particular
- ii) The floor of every room shall be cleaned at least once in every week.

Over-crowding :- (Section 16) No room in any factory shall be over crowded to an extent injurious to the health of the workers. There shall be in every room of a factory at least 14.2 cubic feet of space for every worker.

Drinking Water :- (Sec 18) In every factory arrangement to provide and maintain a sufficient supply to wholesome drinking water at convenient places marked "drinking water" in a language understandable by majority workers should be there.

Safety measures :

i) *Fencing of machinery* :- (Sec - 21) Every moving parts of prime mover and every flywheel connected to prime mover whether they are in the engine house or not be securely fenced by safeguards.

ii) *Prohibition of employment of women & children near cotton openers* : (Sec 27) : Section 27 prohibits employment of any women or child in any part of a factory for pressing cotton in which a cotton-opener is at work.

Working Hours for adult :

Weekly working hours (Sec-51) No adult worker shall be required or allowed to work in a factory for more than 48 hours in a week.

Daily working hours (Sec 54) :- No adult worker shall be required or allowed to work for more than 9 hours in any day which may with the previous approval of the Chief Inspector be exceeded in order to facilitate the change of shifts.

Weekly holidays :- (Sec 52) If Sunday is working day for a worker, a substituted holiday must be made compulsory.

Night Shift is prohibited :- Employment of children and women between 7 p.m. to 6 a.m. is prohibited.

3. The Payment of Wages Act 1936

The Act was passed with two fold purpose - (1) First to ascertain the time of payment of wage (2) Secondly limiting the deductions from wage whether as fine or otherwise.

Wage period (Sec 4) :- The Act provides that the wage period in respect of which wages shall be payable shall not in any case exceed one month.

Time of payment of wage (Sec 5) :- If the number of persons employed is less than 1000 then wages shall be paid before the expiry of 7th and in other cases before the expiry of 10th day of the last day of the wage period.

Unauthorized deductions :- Employed persons shall be paid their wages in a particular form and at regular interval and without any unauthorized deductions.

4. The Minimum Wages Act 1948

The object of this Act is to prevent exploitation of the workers and for this purpose, it aims at fixation of minimum wages which employer must pay. Wage structure can be divided into three categories :-

- i) Minimum wage which provides bare subsistence of life.
- ii) Fair wage is a little above.
- iii) Living wage comes at a comfort levels.

The Act provides that the appropriate government may fix (Sec-3)

- i) A minimum rate of wages for time work
- ii) A minimum rate of wages for piece work.

5. The Payment of Bonus Act, 1965

Since both labour and capital contributed to the earnings of industrial concerns it was only fair that labourers should get some benefit if there was a surplus left after meeting prior and necessary charges against gross profit.

The Act imposes a statutory liability upon an employer of every establishment pay bonus to its employees.

- i) Payment of minimum & maximum bonus :- The minimum bonus payable is 8.33% (Sec-10) and maximum is 20% (sec-11) of an employees salary or wage in an accounting year.
- ii) Eligibility for bonus :- (Sec 8) Every employee who has worked in the establishment for not less than 30 days in that year is eligible for bonus.

6. The Industrial Disputes Act, 1947

The Industrial Disputes Act, 1947 is a legislation towards the end of economic & social justice. Dissatisfaction with the existing

economic condition is the root cause of industrial disputes. An individual dispute can become industrial dispute only when it is espoused by the Trade Union of workmen or by a substantial number of workmen employed in an industry.

Strike is a weapon which is used by workmen to safeguard their interest both economic and cultural. It is collective stoppage of work by workmen undertaken in order to bring pressure upon those who depend on the sale or use of the products of works. Strike is used for compelling employer to accept employee's terms and conditions of or affecting employment strike may be held for the following :

- a. Higher wages or less hours or often beneficial conditions of employment;
- b. To compel observation of collective agreements;
- c. To protest against discharge of or discrimination against employees or to secure employment of additional labour saving devices;
- d. Strike to procure discharge of fellow employees;
- e. To compel collective bargaining or
- f. To compel payment of stated claims.

No person employed in public utility service shall go on strike in breach of contract.

- a) Without giving to the employer notice of strike within six weeks before striking, or
- b) Within fourteen days of giving such notice, or
- c) Before the expiry of the date of strike specified.

7. The Trade Union Act, 1926

A trade union is an association formed primarily for the purpose of regulating the relation between workmen and employers

or between workmen and workmen or between employer and employer and also for imposing restrictive conditions on the conduct of any trade or business. As the individual by himself being in a weak bargaining position to negotiate with employers, the Trade Union enable the workers to act together.

The Act protects the legitimate rights of the leader & worker while fighting with the employers and also immunities available to the union leaders both from civil and criminal laws.

Industrial Law and Women

There are some important legislations covering the women involved in industrial activities, such as -

- i. Equal Remuneration Act, 1976
- ii. The Maternity Benefit Act, 1961
- iii. The Factories Act, 1948
- iv. Sexual Harassment at Workplace

Equal Remuneration Act, 1976

Article 39 specifically directs the state to secure equal pay for equal work for both men and women.

In matter of recruitment policy and condition of service such as promotions, training or transfer, the employer is not authorized to make discrimination against women only on the basis of sex.

Maternity Benefits Act, 1961

The maternity benefit Act is an Act to regulate the employment of women in certain establishment for certain periods before and after child-birth and to provide for maternity benefit and certain other benefits.

Employment of or work by, women prohibited during certain period (Sec 4) : Neither an employer shall knowingly

employ a women nor a women shall work in any establishment during six weeks immediately following the day of her delivery or miscarriage or medical termination of pregnancy.

Right to payment of maternity benefit (Sec 5) : Every women is entitled to and her employer shall be liable for the payment of maternity benefit at the rate of the average daily wages for the period of six weeks after the delivery and six weeks before the expected date of delivery.

Provided no woman shall be entitled to maternity benefit unless she has actually worked in the establishment of the employer from when she claims maternity-benefit, for a period of not less than 80 days in the twelve months immediately preceding the date of her expected delivery.

Provided the qualifying period of eighty days shall not apply to a woman who has immigrated into the state of Assam and was pregnant at the time of the immigration.

Payment of medical bonus of Rs. 250/- (Sec 8) : Every woman entitled to maternity benefits shall also be entitled to receive from her employer a medical bonus of two hundred and fifty rupees if no pre-natal confinement and post-natal care is provided for by the employer free of charge.

Leave for miscarriage (Sec 9) : In case of miscarriage or medical termination of pregnancy, a woman shall, on production of proof, be entitled to leave with wages at the rate of maternity benefit for a period of six week immediately following the day of her miscarriage.

Nursing breaks (Sec 11) : Every woman delivers of a child who returns to duty after such delivery, shall in addition to the interval for rest, be allowed in the course of the daily work two nursing break for nursing the child until the child attains the age of fifteen months.

Sexual harassment of working women at workplace

A study has revealed that 79% of women face sexual harassment at workplace and those in casual and contract jobs are 10 times more at risk. The Supreme Court laid down the guidelines and norms for due observance at all work places or the institutions, until a legislation is enacted for the purpose. The guidelines and norms are -

Duty of the employer : It shall be the duty of the employer or other responsible person in workplace to prevent or deter the commission of acts of sexual harassment and to provide the procedures for the resolution, settlement or prosecution of acts of sexual harassment by taking all steps required.

Definition : Sexual harassment includes :

- a. Physical contact and advances,
- b. A demand or request for sexual favours,
- c. Sexually coloured remarks,
- d. Showing pornography,
- e. Any other unwelcome physical, verbal or non-verbal conduct of sexual nature.

Preventive steps : All employers or persons in charge of work place whether in the public or private sector should take appropriate step to prevent sexual harassment.

Criminal Proceeding : Where such conduct amounts to specific offence under IPC or other law, the employer shall initiate appropriate action by making complaints with the appropriate authority.

Disciplinary Action : Where such conduct amounts to misconduct, disciplinary action should be initiated by the employer.

Complaint mechanism : Whether or not such conduct constitutes an offence under the law, an appropriate complaint mechanism should be created in the employer's organization for redress of the complaint made by the victim.

Employees should be allowed to raise issues of sexual harassment at worker's meeting and in other appropriate forum.

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