

An Optimum Strategy for Industrialization in a Landlocked and Subsistence Agriculture Economy : Assam — a Case Study.

*A Thesis submitted to the University of Gauhati for the Degree of
Doctor of Philosophy in Economics
in the Faculty of Arts.*



Sri Sanjib Kumar Borkakoti, M.A. (J.N.U.)

UGC Senior Research Fellow

Gauhati University

1991

An Optimum Strategy for Industrialization in a Landlocked and Subsistence Agriculture Economy : Assam — a Case Study.

*A Thesis submitted to the University of Gauhati for the Degree of
Doctor of Philosophy in Economics
in the Faculty of Arts.*



Sri Sanjib Kumar Borkakoti, M.A. (J.N.U.)
UGC Senior Research Fellow
Gauhati University

1991

Dr. P.C.Goswami M.A., B.L., Ph.D. (London)
IFCI Chair Professor (Retd.)
Department of Commerce
Gauhati University.

Suwagpur
Rehabari,
Guwahati-781 008

This is to certify that Sri Sanjib Kr. Borkakoti, UGC Senior Research Fellow, has prepared the present Ph.D. thesis entitled "An optimum strategy for industrialization in a land-locked and subsistence agriculture economy : Assam, a case study" under my supervision and guidance. He personally conducted the field investigation and collected relevant materials from different sources. All helps and assistance received were duly acknowledged.

Sri Borkakoti has fulfilled all the requirements under the Ph.D. regulations of the Gauhati University for submission of this thesis. The present thesis or no part thereof was submitted to any other university or institution for any degree or diploma.

Dated : Guwahati
the 20 August 1991

P. C. Goswami
20/8/91
(P. C. Goswami)

ACKNOWLEDGEMENT

In completing the present research work, I had to track an uncharted path. The nature of the study was such that it was, by and large, a pioneering work. In such an adventurous project I had the privilege of an able guidance as well as courage from my guide and eminent economist of Assam Dr. Prabhas Ch. Goswami. I am immensely grateful to him for all the pains he undertook for me.

At different points of time and in different modes I also received help and moral support from Prof. Parameswar Sarma, Dr. Ajit Kr. Neog, Smt. Punya Phukan and my father Sri Harendra Ch. Borkakoti. I must record my sincere thanks to all of them. I also thank the faculty members of the Department of Commerce, Gauhati University, specially Prof. Debdas Bharali and Dr. Nagen Das for their help and interest in my work. Sri Milan Chandra Nag, who typed this thesis, showed exemplary patience in incorporating repeated changes in data. I offer my thanks to his goodself too.

Lastly I offer my gratitude to the University Grants Commission for presenting me with a research fellowship which enabled me to complete the present work.

August 20'1991
Jalukbari
Guwahati - 781 014.

Sanjib Kr. Borkakoti
20.8.91
(Sanjib Kr. Borkakoti)

University Grants Commission



National Educational Test (Master's level) 1984

Sl. Number 969 Roll Number 570272

Certified that Shri/Smt./Km. Sanjib Kumar Borkakotti s/d/w of Sh. H. C. Borkakotti

has qualified at the National Educational Test (Master's level) in the subject Economics and, is eligible, if admitted to a university, to receive the Junior Research Fellowship of the University Grants Commission.

Dr. S. C. GOEL

Joint Secretary

University Grants Commission

Verified by: KB

Date of issue 21 AUG 1984

National Educational Testing,
University Grants Commission
New Delhi

CONTENTS

content	Page No.
Title of the Thesis	i
Certificate of Guide	ii
Acknowledgement	iii
Certificate of UGC	iv
Contents	v
List of Tables	x
 THE PRESENT STUDY	 1
0.1 Introduction 0.2 Objectives	
0.3 Hypotheses 0.4 Methodology	
0.5 Structure of the study.	
 CHAPTER I	
INTRODUCTION	9
1.1 Role and importance of industrialization in economic development.	
1.2 Problems of industrialization in under- developed economics.	
1.3 Under-developed economy of Assam.	
1.4 Pre-dominant agrarian character of Assam economy.	
 CHAPTER II	
CHARACTERISTICS OF A BACKWARD ECONOMY	28
2.1 Definition of a backward economy	
2.2 Natural resources	
2.3 High cost economy	
2.4 Scarcity of capital	
2.5 Labour and employment	
2.6 Technology and productivity	
2.7 Economic growth and standard of living	
2.8 Colonial exploitation	
2.9 Theoretical tool for present study	
 CHAPTER III	
PROBLEMS OF INDUSTRIAL DEVELOPMENT IN A BACKWARD ECONOMY:	37
3.1 Regressive forces	
3.2 Dearth of natural resources	
3.3 Sub-optimal use of natural resources	
3.4 Scarcity of capital and high-cost, dual eco- nomy.	
3.5 Low standard of living	
3.6 Labour and employment	

- 3.7 Factor productivity
- 3.8 Poor agrarian economy
- 3.9 Competition from foreign industries
- 3.10 Colonial character
- 3.11 Low productivity of capital
- 3.12 Lack of linkage effects

CHAPTER IV

STRATEGY FOR INDUSTRIALIZATION-HYPOTHESES

53

- 4.1 Hypotheses regarding strategy for industrialization
- 4.2 Hypothesis A
- 4.3 Hypothesis B
- 4.4 Hypothesis C
- 4.5 Hypothesis D
- 4.6 Hypothesis E

CHAPTER V

PROGRESS AND PROBLEMS OF INDUSTRIALIZATION IN ASSAM

94

- 5.1 Forces determining industrialization process
- 5.2 Basic needs of industries
- 5.3 Supply and demand constraints
- 5.4 Lack of skilled workers
- 5.5 Ancillary industries
- 5.6 Power shortage
- 5.7 Marketing of indigenous products
- 5.8 Subsistence agriculture
- 5.9 Lack of effective demand for industrial products
- 5.10 Importance of small scale industries
- 5.11 Thrust industries for Assam
- 5.12 Service industries
- 5.13 Inadequate finance, faulty subsidy policy and industrial sickness
- 5.14 Role and impact of industrial policy
- 5.15 Role of public sector corporation in industrialization
- 5.16 Public sector in Assam
- 5.17 Availability of finance
- 5.18 Suggested features of industrialization drive in Assam

CHAPTER VI

CAPITAL, LABOUR AND MARKET FOR INDUSTRIES

152

- 6.1 Need and source of capital
- 6.2 Capital formation in India: Rate of savings and investment
- 6.3 Savings and investment at national level
- 6.4 Level of Savings in Assam
- 6.5 Role of Labour in Industrialization
- 6.6 Pre-dominance of Labour-intensive technology in India.

- 6.7 Pre-dominance of Unskilled labour
- 6.8 State and characteristics of work-force in Assam
- 6.9 Appropriate technology and industry-mix to suit Assam
- 6.10 Problem of Small Market
- 6.11 Common Market strategy
- 6.12 Necessity of big market for capital goods industry.
- 6.13 Feasibility of common market for Assam

CHAPTER VII

IMPORTANCE OF TEA INDUSTRY FOR ASSAM 184

- 7.1 History of Tea industry in Assam
- 7.2 Production and yield rate of Assam Tea
- 7.3 Export of tea
- 7.4 Value-added tea
- 7.5 Profitability
- 7.6 Improvement of quality
- 7.7 Ancillary industries
- 7.8 Management
- 7.9 Optimum size of tea estate and economy of scale
- 7.10 Sound financial state
- 7.11 Head-quarters of tea estates
- 7.12 Grievances of the tea-gardens and their assessment

CHAPTER VIII

SCOPE OF AGRO-BASED INDUSTRIES IN ASSAM 203

- 8.1 Present position of Agro-based industries in Assam
- 8.2 Agricultural resources and their utilization in Assam
- 8.3 Agro-based industries feasible for Assam
- 8.4 Power shortage
- 8.5 Advantage of Agro-based industries
- 8.6 Problems of Raw-material procurement

CHAPTER IX

PETRO-CHEMICAL INDUSTRY: A POTENTIAL GROWTH FORCE FOR ASSAM. 224

- 9.1 Importance of petro-chemical industry
- 9.2 History of oil industry in Assam
- 9.3 Growth planning
- 9.4 Workings of a Petro-chemical complex
- 9.5 History of Petro-chemical industry in Assam
- 9.6 Product-mix of a petro-chemical complex
- 9.7 Under-utilization of raw materials in Assam
- 9.8 Polyester
- 9.9 Size and product planning for Petro-chemical complex
- 9.10 Labour and marketing

- 9.11 Drugs and pharmaceutical industry
- 9.12 Plastics
- 9.13 Recommendations of L.C.Jain Committee

CHAPTER X

STATUS AND SCOPE OF TEXTILE INDUSTRY IN ASSAM 245

- 10.1 History of Textile industry in Assam
- 10.2 Present state of Hand-looms
- 10.3 Silk
- 10.4 Dislocation of Silk Industry
- 10.5 Royal patronage
- 10.6 Present state of textile industry
- 10.7 Market demand and capacity generation
- 10.8 Modernization
- 10.9 Power-looms

CHAPTER XI

PRINTING PRESS INDUSTRY IN ASSAM 272

- 11.1 Pre-dominance of Printing Press
- 11.2 Safe Investment
- 11.3 Less Risk
- 11.4 Easy management
- 11.5 Labour
- 11.6 Promotion by government
- 11.7 Low investment
- 11.8 Marketing
- 11.9 Excess capacity
- 11.10 Linkage effects

CHAPTER XII

DRUGS AND PHARMACEUTICAL INDUSTRY 281

- 12.1 Scope of drugs and pharmaceutical industry in Assam
- 12.2 Bulk Drugs
- 12.3 Cold-storage
- 12.4 Comparative advantage
- 12.5 Labour
- 12.6 Medicinal Herbs
- 12.7 Ayurvedic drugs
- 12.8 Product-mix
- 12.9 Hazardous and sub-standard drugs
- 12.10 Drug prices
- 12.11 State of Drugs producing units in Assam
- 12.12 Relevance and importance of Drug industry for Assam

CHAPTER XIII

SUMMARY AND CONCLUSION 298

- 13.1 Industrialization for Economic Development
- 13.2 Assam as a case study
- 13.3 Problems of a Backward Economy
- 13.4 Problems of Capital and Technology
- 13.5 Political leadership
- 13.6 Infra-structure
- 13.7 Labour
- 13.8 Common-market for land-locked economies
- 13.9 Savings for capital formation
- 13.10 Supply and demand constraints
- 13.11 Pre-dominance of service Industries
- 13.12 Tea
- 13.13 Agro-based industries
- 13.14 petro-chemical industry
- 13.15 Textile industry
- 13.16 Promotional drive
- 13.17 Recommendations

SELECT BIBLIOGRAPHY 320

- A. Books B. Articles C. Reports & Surveys
- D. News-Papers & Periodicals E. Brochures

Appendix I

Names of Industrial Units Surveyed 332

Appendix II

Some possible down-stream industries for the proposed petro-chemical complex 334

LIST OF TABLES

Number	Table		Page No.
1.1	Percentage distribution of State Domestic Product of Assam by different sectors (at current prices)	...	15
1.2	Index of per capita income (at 1970-71 prices) in 1980-81	...	16
1.3	SDP Growth Rate (in percentage)	...	18
1.4	Key indicators showing Assam's backwardness compared to India as a whole.	...	19
1.5	Per capita Plan Outlay for Assam and all-India (in Rupees)	...	21
1.6	Per capita value added in factory sector (Amount in Rupees)	...	22
1.7	Per capita indices of industrialization of Assam and all-India.	...	23
4.1	Natural Resources and their uses in Assam.	...	66
5.1	Installed capacity and generation of power in power stations under ASEB as in 1989.	...	101
5.2	Percentage share in state income by different sectors in Assam (at current prices).	...	107
5.3	Credit-deposit ratio of scheduled commercial banks in Assam and All-India (percent).	...	115
6.1	Net domestic savings as percent of Net National Income at factor cost (both at current prices).	...	155
6.2	Gross Fixed Capital Formation as percentage of Gross Domestic product (both at current prices).	...	157
6.3	Percentage of savings of the different sectors in total savings - all India.	...	161

7.1	Number of Tea gardens in Assam, number of factories, area under cultivation, productions, yield rate and Employment.	...	185
7.2	Size-wise area and production of tea-estates - 1978.	...	195
8.1	Number of agro-industries in Assam registered as SSI Units (in 1985).	...	204
8.2	Annual availability of some forest resources in Assam.	...	208
8.3	Production of Agricultural Products/wastes in Assam.	...	209
8.4	Possible Agro-based industries in Assam.	...	210
9.1	Projected growth of Petro-chemical industry in India.	...	226
9.2	Petro-chemical products and their uses.	...	230
9.3	Oil refineries of Assam and capacity	...	233
9.4	MES for selected petro-chemical plants	...	236
9.5	Plastic industries in Assam in 1988	...	242
10.1	Spinning mills of Assam(Synthetic)	...	257
10.2	Proposed weaving capacity of synthetic Fabric.	...	258
10.3	Production of Cotton Textile (in million metres)	...	269
11.1	Investment requirement of some small scale industries.	...	276

THE PRESENT STUDY

0.1 Introduction

The present study is an attempt to find out an optimum strategy for industrialization in a landlocked and subsistence agriculture economy with Assam as a case study. This study assumes special importance in view of the role and increasing importance of industrialization in all economies. It has become all the more important to the developing countries. Because in view of increasing population growth and limitation of cultivable land, the agricultural sector in these countries has become increasingly unable to generate the requisite scope for employment. The problem is more acute in those countries or economies where the agriculture remains at a subsistence level. As only a very little amount of primary accumulation takes place in these economies, they cannot devise any way to uplift their agriculture from the subsistence level. It then becomes an imperative to provide employment to the people in activities other than agriculture. In this context industrialization has assumed great importance.

As we target our study at backward economies, we further narrow down the area to those economies which are cursed with the geographical constraint of land-lockedness too. This constraint further accentuates their problems necessitating the remedy of industrialization even more. Now the Indian province

of Assam is such an economy which is endowed with all the characteristics of our target group. Assam is a land-locked state ; her economy is pre-dominantly agrarian which continues to languish in a subsistence level. Thus Assam is a perfect sample of the type of backward economy we are planning to study. Hence we have selected Assam as a model case for our study.

0.2 Objectives

The objectives of the present study are the following:

- (1) Theorization of backward economy which is landlocked and which has a subsistence agriculture as its mainstay.
- (2) Exploration of the problems and prospects of industrialization in such an economy.
- (3) Formulating a strategy for industrialization for such an economy.
- (4) Studying the economy of Assam in this frame-work in order to find out the existing bottle-necks and difficulties, and to suggest measures for industrialization of the state of Assam.

0.3 Hypotheses

In course of the present study, efforts will be made to test the following hypotheses:

- (1) Industrialization of a backward economy is not dependent solely on natural resources, but mainly on political leadership.

(2) Infra-structural facilities must precede presence of industrialization in backward regions.

(3) Unless industrialization provides employment to local people, the region cannot derive the benefit.

(4) Strategy for development of industries in a land-locked strategically important region of a country must be based on self-reliance with regard to raw material and technical personnel.

(5) Assam is a land-locked region and her economy is basically a subsistence agriculture economy.

The last hypothesis has been necessitated because of selection of Assam as a model case for our study.

0.4 Methodology

While assessing the prospects of the economy of Assam, we have to identify and survey the resources. A raw material planning and formulation of an appropriate industry-mix come next. In determination of the industry-mix we have considered the factor endowments, comparative advantages, and the need for regional self-sufficiency. However we have not delved deep into these matters. Because this itself is an area for individual research.

We have dealt with the problem area after dividing it into several sub-areas. For instance we have studied the geographical condition factor, governmental assistances and facilities, infra-structural development, capital mobilization, entrepreneurship development, appropriate technology as well as the productivity factor. The employment issue has also been studied in the social settings. A massive industrialization programme through ancillarization has been offered as a remedy to the unemployment problem. Development of industrial complexes, especially an industrial town-ship has been suggested. Attention has also been drawn to the question of state intervention.

Result of these studies by way of resolution of different questions pertaining to the above issues can be said to have contributed towards formulation of an overall strategy for industrialization. Thus the present study, in its entirety, can be presented as a strategy for industrialization. And as it has taken into account almost all the facets of industrialization it can be accepted as an optimum strategy.

In making this study we had to procure different data pertaining to the industries developed so far in Assam. As these industries are very few and scattered all over the state it was not possible to reach all of them. So we had to rely mostly on secondary data as available from government sources as well as

individual research papers. However we have studied a few industries in random which should compensate for our reliance on secondary data. But we cannot claim to have achieved much of a success in making our study a pure data-based work. It was purported to be a subjective analysis of the policies and decisions in industrial economy of Assam and it should be accepted accordingly.

We have discussed a few industries of Assam in this study. These include tea and petro-chemical industry among the others. These two have been selected as they are the most developed industries in the otherwise under-developed industrial scenario of Assam. This also brings out the dual economy character of Assam, which is a salient feature of the backward economies in general. Studies on textile industry and agro-based industries have been made in our quest for thrust sector. In all these industries we have not gone deep into their functioning. Because that is beyond the scope of the present study. We only intend to find a general idea of the selected few industries which are strategically important for Assam, which can give a thrust to her weak industrial economy. In the process we have fulfilled the fourth objective of the present study. The first three objectives have been fulfilled in our initial chapters of theoretical analysis.

0.5 Structure of the study

This thesis has been divided into thirteen chapters. The first five chapters deal with the theoretical model. Efforts have been made here to formulate a theoretical framework of industrialization for the sort of economy under consideration. This part is the theoretical derivation of the present study. In the next seven chapters, the economy of Assam has been analysed, Some selected industries having great bearing on Assam's industrialization and some industries having good prospects in Assam are also analysed. In the last chapter the study has been summarized and conclusions given.

Chapterwise, the first chapter is an introduction to the whole study. It details the role and importance of industrialization and proceeds on to discuss the problems faced by backward economies in the process of industrialization. It gives a geographical and historical background of Assam, which is taken as a model for the study. Assam's land-lockedness and subsistence agriculture economy are discussed with the help of different economic indicators. The second chapter details the characteristics of a backward economy as seen by us. It also suggests a comprehensive definitions of backward economy. The third chapter discusses the problems faced by a backward economy in the context of its characteristics as submitted in the earlier

chapter. The fourth chapter tests the hypotheses which we have already mentioned. Assam being our model for the study, data pertaining to her economy have been used to test these hypotheses. These hypotheses, being accepted, constitute part of our suggested strategy for industrialization in the target area. The fifth chapter discusses the progress and problems of industrialization in backward economies in general and Assam in specific. The entire gamut of industrialization covering man, machine, material, marketing, money and management are discussed thread-bare. This chapter supplements the strategies as formulated in the previous chapter.

Hereafter the study of Assam economy is started in selected areas. Chapter six deals with the state of capital formation and condition of labour market in Assam. These two decide the level of technology in the industries. Then the marketing aspect is also analyzed and scope for its expansion is explored. Chapter seven discusses the tea industry of Assam, one of the most developed industries in Assam and examines different aspects of this industry. Chapter eight, nine and ten discuss respectively agro-based industries, petro-chemical industries and textile industries - the three industries which have been suggested as thrust industries for an industrialization drive in the state. In the chapters eight and nine, possible product-mix are also discussed. In case of chapter ten, the discussion has brought the past

history of the textile industry in Assam as it is the oldest industry of Assam and thus a little bit of looking back is not out of place. Chapters eleven and twelve discuss the printing press industry and drugs and pharmaceutical industry. The first is brought under study because we have observed that there has been a tendency among the entrepreneurs of Assam to consider this as the only possible industry which they can hopefully set up. The second is a sunrise industry for Assam with enormous scope of ancillarization. Also it is mostly a down-stream industry of petro-chemical industry.

It is not possible to study each and every industry. So we have confined ourselves to the study of the thrust industries, the oldest industries, the most developed industries, the most common industry and an industry with good prospects in Assam. Lastly the chapter thirteen summarizes the entire study and gives the findings in a nut-shell. A select bibliography is given as an annexure. No separate bibliography is given to the chapters.

CHAPTER I

INTRODUCTION

1.1 Role and importance of industrialization in economic development

Industrialization has been accepted all over the globe as an essential requisite for any society to develop. With the passage of time the needs of people have increased. That entails the necessity of a wide spectrum of industries. Though eventually all industries cater to the needs of a consumerist society, the consumer goods necessitate a whole host of capital goods industries including the machine making industries. Then basic industries like steel etc. are also required. Infrastructure industries which are the foundation of any industrial economy mean a wide range of capital intensive establishments.

In addition to the consumerist requirements, industries also serve agriculture. Even an economy, of which the main-stay is agriculture, requires sufficient number of industries which supply inputs for agriculture. Thus it simply cannot be over-emphasized that industry has become a part and parcel of any economy.

The twentieth century has been polarization of the world political powers. Development of different national economies have proceeded on varied rates. Political and economic forces have acted on each other. Disproportionate growth, which again has been determined by different factors like natural endowments, comparative advantage, entrepreneurship, political atmosphere and socio-cultural background, has varying impact on different economies due to

differences in rates of growth and their effects on different sectors. Some countries have enriched themselves as reflected in their higher national products, higher per capita consumption etc. At the same time, some countries have fallen into the murky world of poverty; many people of such countries do not get a square meal a day. Then there are countries where both these phenomena co-exist. Luxurious life in urban centres go side by side with painful life of the slum dwellers and famine-struck rural masses.

In such a back-drop, we ought to think of industrialization as an essential step for development. In the same breath, the academicians and theoreticians may be enjoined upon to undertake a guide's role. This study has been propelled by such consideration. It is expected that the discussions made herein will be beneficial for the administrators and policy makers. While we cannot claim to have the last say in this context, we venture to say that some points forwarded herein deserve due attention of the people concerned.

1.2 problems of industrialization in under-developed economies

An important feature of the modern industrialization process is that it is an alien process for most of the developing countries. While it was an organic process in U.K. where industrial revolution took place, the developing countries do not find it so. It is a matter of acquiring socio-economic values required for an industrial society as well as of developing socio-economic institutions for

this new development in their economy. Sometime these changes do not go in tandem with the actual industrial programme, causing social tensions and thereby halting the programme itself. An early or late change may have different kind of ill-effects on the country's industrialization programme.

Thus any strategy of industrialization must necessarily take into account such issues. Industrialization is not a worked out formula that can be implanted or made to take root in any place. It is necessarily an inter-disciplinary process. A whole range of institutional set up including education, health, culture and so on have to be developed sufficiently for any orderly transition of an underdeveloped economy to an industrially developed state.

A supportive evidence of this hypothesis may be the case of Japan. This small island state has worked wonder in the history of industrialization in spite of being a relative late comer and despite its constraint of lack of natural resources.¹ The enormous dynamism as well as the near frictionless transition can to a great extent be traced to the unique social change it underwent. The society retained the essence and spirit of its traditional culture and norms intact. Whether it is the famous tea-ritual or the spiritual ideology of Zen-Buddhism as embedded in their every day-to-day activity or the monarchical system of ruling, the Japanese retain almost every old tradition albeit with necessary modifications

¹Allen G.C., A short economic history of modern Japan, 1962

as and when necessary to make it applicable in the modern times. Industrial economists who tend to think industrialization process in abstraction should take note of such socially important issues.

This piece of work "An optimum strategy for industrialization in a land locked and subsistence agricultural economy: Assam - a case study" is intended as a treatise on strategy for industrialization in underdeveloped countries albeit only the ones which are land locked and have agriculture as their mainstay, that too in its pristine state.

The fact that the study takes an Indian state-Assam, for its case study should not lessen its importance in a wider and international context. Many countries of Latin America, Africa and Asia face conditions prevalent in Assam.

The conditions prevailing in a third world country proffers many problems to think of a ready-made and uniform solution. Heterogeneity of the parameters even inside a country makes it doubly difficult. There simply seems to be no way out of the trap woven by a web of problems - low income, colonial structure of the economy, poor infra-structure, dearth of entrepreneurship, socio-cultural norms that simply does not tally with the dynamic and innovative spirit industrialization calls for, political structure headed by people impervious to the socio-economic needs of masses. Thus a plethora of problems make one stumble in every step.

In view of the enormity of the problems, it is beyond one's might to undertake a complete assessment. So we intend to study only one part - only those economies which are obstructed by their land lockedness. It can be anyone's guess that they are the worst sufferers of the lot. This entitles them for first and utmost attention. To make it precise, we survey these economies as long as their mainstay is agriculture and that too in a subsistence level.

It should be admitted that the economic backwardness of the state of Assam has motivated us in the whole endeavour. This state is also taken as a representative one in this study.

1.3 Under-developed economy of Assam

Assam is a province of Indian Republic. It is situated in the north-eastern part of the country. The entire state is surrounded by land. To the north there is Bhutan and Arunachal Pradesh. To the east there is Manipur and Nagaland. Mizoram is to the south, Bangladesh, Meghalaya and West Bengal constitute the western border. Thus the state has no sea access. This has also a historical legacy. For a brief period during the British rule Assam acquired sea-access. It happened in 1905 when Lord Curzon partitioned Bengal and annexed the Eastern part of it to Assam. The new province came to be known as 'Eastern Bengal and Assam'. However Assam did not derive any benefit from the sea-access as industry and trade were at a low ebb in those times. Anyway, following vigorous protests against the

partition of Bengal & re-organization of Assam, the status-quo was restored in 1912.² And Assam again became land-locked. However it was not always like this. There are records in the history that in the ancient times the geography of Assam was stretched upto the bay of Bengal.³ But this historical era was far long ago to have left any indelible effect on the socio-economic status of the province. Thus for all practical purposes we can consider the state to have been landlocked always.

People of Assam have always depended on agriculture for livelihood. During the period of Ahom rule (1225-1825), the subjects had to pay body-labour to the rulers; in return they got some land which they had to cultivate themselves to eke out a living. And it was a subsistence living. The situation has not changed in the modern times. In 1971, 77.7% of the workforce of Assam were engaged in agriculture.⁴ It is not only too high above the percentage prevailing in the developed countries, it is even above the all-India rate of 72.6%. Though more than three quarters of the people are engaged in agriculture, their productivity and hence

² Political History of Assam, Vol I, (ed) H.K. Barpujari, 1977

³ Edward Gait, A History of Assam, 3rd edn. 1984, p.10

⁴ Report of the Task Force on Economic Development of Assam, 1988. The figure is for 1971. But this can be accepted for present times also. In the earlier 2 decades the ratio fell by only 1.3 percentage point i.e. from 79% in 1951 to 77.7% in 1971.

income is very low. As shown in table 1.1, in 1983-84 agriculture accounted for 46.4% of SDP at current prices.⁵ Then there is the fact that this sector contains within it a well developed section. That is tea which became a conclave economy. This highly rich section does not represent the typical picture of the agriculture sector and is monopolised by a few capitalists. Therefore this

Table 1.1

Percentage distribution of State Domestic Product of Assam by different sectors (at current prices)

Year	Agriculture	Fishing, Forestry	Mining, Manu- facturing, construction, Electricity, Gas etc.	Transport, communica- tion & Trade.	Finance & Real Estate, Community & Personal Services.
1982-83	46.5	4.5	23.7	14.1	11.2
1983-84	46.4	3.4	24.5	13.7	12.0
1984-85	43.2	3.2	25.2	16.6	11.8
1985-86	42.1	3.4	25.5	16.7	12.3
1986-87	40.4	3.0	24.2	19.9	12.5

Source : Compiled from the data in statistical Handbook, Assam, 1987.

⁵ Also this is a declining trend. In 1986-87, agriculture contributed further less-only 40.4% of SDP. Share of agriculture in SDP at 1970-71 prices were respectively 51.6% and 44.9% in 1983-84 and 1986-87 (Deptt. of Economics and statistics, Assam).

section can in fact be left out of the reckoning in consideration of the congested agriculture sector. As tea constitutes a significant part of the state's agricultural income, the working population engaged in agriculture actually contribute far less to the SDP. This brings out the subsistence nature of it. In any case the 77% of the workforce engaged in agriculture contributed only 40.4% of SDP at current prices in 1986-87.

The pre-dominantly agricultural economy of Assam cannot register sufficient progress unless its secondary and tertiary sectors well compensate the dismal income state. But these two sectors are small and in infantile condition. It is seen from table 1.1 that mining, manufacturing and construction activities accounted for 24.2% of SDP in 1986-87. Commerce, transport and communication accounted for 19.9%. But this part of SDP does not generate any investment in any of the sectors to improve productivity and income. Because this sector is dominated by the non-local entrepreneurs who prefer to take out the surplus generated herein.

Table 1.2

Index of per capita income (at 1970 - 71 prices)
in 1980-81

Punjab	Haryana	Maharashtra	J & K	A.P.	Orissa	Assam	All-India
178	150	145	96	84	71	78	100

Source : Report of the Task Force in Economic Development of Assam, Vol. I, Guwahati, 1988.

The backwardness of the state is well-reflected in her per capita income index. From table 1.2 it is seen that Assam's per capita income index is not only well below that of the richer states as well as the all-India figure, it is also below the states like Andhra Pradesh, Jammu & Kashmir and only marginally above Orissa, a state ill-famous for starvation deaths. But unlike the other states which have either improved their lot over the period or at least remained stagnant, Assam has ~~been~~ seen her per capita income consistently falling over time. Index of p.c. income was 103 in 1960-61 at 1970-71 prices whence it became 85 in 1970-71 to fall further to 78 in 1980-81. Here the all India p.c. income in 1980-81 is taken as base level.⁶ As seen in table 1.4, the per capita income was only Rs. 569.70 in Assam in 1984-85 against the all-India figure Rs. 782.60 at 1970-71 prices.

The changes that occur in the national economic scene almost bypass this backward state. It is seen from table 1.3 that Assam's SDP growth rate almost always remained below half the All-India rates. Only during the sixth plan the SDP growth rate moved close to the All-India rate. In the second as well as fifth plan,

⁶ Report of the Task Force on Economic Development of Assam, Guwahati, 1988. While all-India p.c. income at 1970-71 prices has increased from Rs. 632.80 in 1970-71 to Rs. 761.00 in 1983-84, Assam saw her p.c. income rise only marginally from Rs. 534.70 to Rs. 586.10. (Economic - Survey, Assam, 1985-86).

Table 1.3
SDP Growth Rate (in percentage)

	First Plan 1951-52 to 1955-56	Second plan 1956-57 to 1960-61	Third Plan 1961-62 to 1965-66	Fourth Plan 1969-70 to 1973-74	Fifth Plan 1974-75 to 1977-78	Sixth Plan 1980-81 to 1984-85
Assam	4.9	(-) 5.3	2.8	0.3	(-) 0.7	7.1
All-India	8.2	9.7	8.6	5.9	15.3	7.4

Source : Report of the Task Force on Economic Development of Assam, Vol. I. The 1st to 3rd plan figures are at 1948-49 prices and thereafter at 1970-71 prices.

the growth rate became negative. This brings out the state and condition of the economy very well.

In table 1.4 some important economic indicators are given which bring out the backwardness of Assam economy vis-a-vis the national economy of India. The population of Assam is more rural-based than in India as a whole. 91.2% of the population live in villages in Assam against 76.7% in all-India. The agriculture, the prime occupation of the work-force of Assam is played by the problem of fragmentation. The average size of operational holding in Assam is only 1.4 hectares against 2 hectares of all-India. Because of poor income of the people, use of package input for raising agricultural productivity remains low. Fertilizer consumption per hectare of gross cropped area is only 5.4 kgs. in Assam against 44.5 kgs. in all-

Table 1.4

Key indicators showing Assam's backwardness compared to India as a whole.

Sl. no.	Indicator	Ref. year	Unit	Assam	India
1.	Per capita income (at constant 1970-71 prices)	1984-85	Rupees	569.70	782.60
2.	Per capita Plan outlay	7th Plan	"	925.00	1165.00
3.	Average size of operational holding	1976-77	Hectare	1.4	2.0
4.	Fertilizer consumption	1983-84	Kg. per hect. of gross cropped area	5.4	44.5
5.	Per capita electricity consumption	31.3.85	Kwh.	39.92	154.24
6.	Factory employment per 1000 of population	1980-81	persons	5.55	9.28
7.	Hospital per 1000 sq. km.	Jan' 83	Nos.	1.4	2.1
8.	Road length per 100 sq. km.	31.3.83	K.M.	41.35	47.27
9.	Road length per lakh population	31.3.83	K.M.	199.03	6837.82
10.	Population per bank office	26.9.85	,000 persons	23	14
11.	Per capita bank deposits	31.12.84	Rupees	427	933
12.	Per capita bank advance	31.7.84	"	148	613
13.	Credit deposit ratio	30.6.84	Percent	46.8	68.0
14.	Rural population in total population.	1981	"	91.2	76.7
15.	Literacy rate	1981	"	28.1	36.2

Source : 1. Reserve Bank of India Occasional Paper, June 1985.

2. Statistical Hand book Assam, 1987.

3. Basic statistics of N.E. Region, 1987.

4. Das H.N., A new paradigm of development : Regional imbalance and Assam, seminar paper, Guwahati, 1985.

India. The state is not well-serviced by the scheduled commercial banks. One branch has to cater to 23,000 people against 14,000 people for all-India. Per capita deposit is less than half the national rate and per capita bank advance is even less than a quarter of the national rate. Credit-deposit ratio in 1984 was only 46.8% in Assam against 68% all-India.

The state lags behind the rest of the country in infra-structural development. In 1985, per capita electricity consumption was only 39.92 kwh. in Assam against 154.24 kwh. for all-India. In 1983, road length per one lakh population was only 199.03 K.M. in Assam against 6,837.82 K.M. in all-India. Even public utility services like health, is also poor. In every 1,000 sq. KM. of Assam there are 1.4 nos. of hospitals against 2.1 in India. All these problems have restrained the growth of industrial sector. That is why number of factory workers per 1,000 population is only 5.55 in Assam against 9.28 all-India.

The problems of the Assam economy have been further compounded by the fact that the per capita plan outlay for Assam is considerably less than all-India. This is increasing the disparity in economic progress. As seen in table 1.5, except during the second and the third plans, the per capita plan outlay of Assam has always been lower than all-India. And the gap between them is consistently widening. This difference has started to become quite significant since the fifth plan i.e. from the mid-seventies. This difference was

41% of the p.c. plan outlay for Assam in fifth plan. However it decreased to 16.9% in the sixth plan to again increase to 25.9% in the seventh plan. This is indicative of the neglect and discriminatory treatment meted out to backward regions like Assam.

The experience of neglect and discriminatory attitude by the developed regions is a common feature of the backward regions. It comes in almost every sphere. For instance Assam has a share of mere 2.1% in the country's total central investment of Rs. 42,000 crores. Her share in the total number of letters of intent and industrial licenses granted in the six years since 1981 was only 0.92% and 1.16%.⁷ Thus there is severe inadequacy of government support and patronage for the process of industrialization.

Table 1.5

Per capita Plan outlay for Assam and all-India
(in Rupees)

Plan	Assam	All-India	Difference
First Plan (1951-56)	29	38	9
Second Plan(1956-61)	57	51	-6
Third plan (1961-66)	103	94	-9
Annual Plans(1966-69)	61	68	7
Fourth plan(1969-74)	136	145	9
Fifth plan (1974-78)	190	268	78
Sixth plan(1980 -85)	762	891	129
Seventh plan(1985-90)	925	1165	240

Sources: (1) Planning Commission.
(2) Basic Statistics of N.E.Region.

⁷Ibid.,

As a result of neglect by the planners and policy makers of India, Assam remained in a lower level of industrialization. And her position among the states of India in industrialization gradually deteriorated. In terms of per capita value added in the factory sector Assam stood 4th among the states in 1960-61. In 1970-71 she fell to the position of 12th and in 1980-81 16th. As seen in table 1.6.

Table 1.6

Per capita value added in factory sector
(Amount in Rupees)

	1960-61	1970-71	1980-81
Assam	26	28	60
India	23	58	178
Rank of Assam among the states	4th	12th	16th

Source : Gupta D., Inter-state industrial disparities in India - the changing scene, RBI Occasional Paper, June 1985.

this per capita value added was higher in Assam than all-India in 1960-61. But thereafter it has been lower than all-India. The rate of increase of the per capita value added in Assam is much smaller than in India. As a result, the share of Assam in total value added in the factory sector of India went on falling. From 3% in 1960-61, it fell to 1.4% in 1970-71 and still further to 1% in 1980-81.⁸

⁸Gupta D., Inter-state industrial disparities in India - the changing scene, RBI Occasional paper, June 1985

The most disturbing thing is that it has been found that the regional disparity as a whole in India has been decreasing.⁹ But different indices of industrialization point out, as seen in table 1.7, that the backwardness of Assam is increasing. This means that Assam is on her way of becoming one of the most backward states of India. It is seen from table 1.7 that the per capita productive capital is increasing at arithmetic progression in Assam, while it is increasing at geometric progression in India as a whole. Factory employment per 1000 of population has increased from 7.21 in 1962 to 9.28 in 1980-81 in India, while it has remained almost constant in Assam.

Table 1.7

Per capita indices of industrialization of
Assam and all-India.

Per capita Indices of industrialization	Assam			All-India		
	1962	1970	1980-81	1962	1970	1980-81
Per capita value of output.	79.07	116.34	279.74	92.18	206.98	751.99
Per capita value added by manufacture	21.24	27.72	52.54	24.61	51.25	157.09
Per capita productive capital	78.10	167.90	280.26	75.88	200.49	600.88
Factory employment per 1000 of population	5.46	5.21	5.55	7.21	7.86	9.28

Source : Gupta D., Inter-state industrial disparities in India - the changing scene, RBI Occasional Paper, June 1985

⁹Ibid.,

It is true that Assam has a highly developed oil industry. But this industry is owned and controlled by the central government. Only a little fraction of the oil income accrues to the state exchequer. All decision making and management of this industry is a privilege of the central government of India. The latter enjoys a substantial benefit from this exclusive right; the oil companies are the highest profit earning public sector companies of India. Such a major chunk of the economy has remained wholly outside the purview of the state. That has impelled many economists to call for its exclusion from the calculation of SDP. If that is done the SDP of Assam will greatly diminish. But even if that is not done the reality is already that. So the exact economic condition of the state is much worse than that denoted by the statistical figures.

1.4 Pre-dominant agrarian character of Assam economy

Agriculture constitutes a large part of the economy of Assam. As seen in table 1.1, agriculture contributed 40.4% of SDP in 1986-87. This sector engages 77.7% of the work-force. Thus it is evident that their productivity is low resulting in a low level of output. Additionally the annual floods destroy a big amount of foodgrains in the field. The state has to import foodgrains in order to supplement the insufficient supply from internal sources. The total amount of foodgrain imported by the state per annum is 1.2 million tonnes.¹⁰

¹⁰ Report of the task force on economic development of Assam, Guwahati, 1988

This import is financed by export of other primary goods. So the primary sector is just subsisting. There can be no capital formation under this condition. So there is no internal force that can stop the vicious circle of low income and backwardness. A thrust must necessarily come from outside. Now, what sort of thrust this has to be will be examined in our study and that is the main theme of this research. However in the present study we have taken up only a specific sector i.e. industry. We are not covering the whole economy in our investigation as it would be too wide an area. However our suggestions as regards to industrial sector will have bearings on agricultural sector too as the two sectors are inter-dependent and inter-linked.

Even otherwise for a backward and subsistence agriculture economy no industrialization programme will pay if undertaken without concern or connection with other sectors. Because a backward economy means backward in its resource generation and development. So other sectors including the primary sector has necessarily to prosper to feed and nourish the industrial sector. There must be an intersectoral approach in the whole thing. That will help the sectors sustain each other's growth.

This inter-sectoral approach is to be reflected in the planning of the production structure of different sectors. The different products have different input requirements. The product mix of any sector should be so devised so as to utilize the maximum possible inputs from the other sectors that are domestically available.

Thus one sector will sustain the other. This not only solves the supply problem but also generates demand. To be specific, the industries in regions like Assam should be dominated by agro-based industries - that will ensure higher use of agricultural sector. The agricultural sector will have added income so as to be able to improve itself. Also the industries should take care to include in its product mix those items which are consumed or invested in agriculture sector. This will give a ready captive market to the industrial sector and also help the agriculture to modernize itself with the new equipments, implements and inputs.

Assam suffers from a lot of handicap in the matter of economic development. It is a peasant economy. The majority of the farmers are small peasants earning a hand-to-mouth living. The land is fragmented and divided in innumerable small holdings. As most of the farmers are small and marginal farmers, there is little hope of primary accumulation of capital from the agricultural sector. Only radical steps like collectivization and intensive farming could change this state of affairs. But because of their peculiar character the peasants do not seem to be prepared to undertake the task of any radical change.¹¹ The low income state of the peasants also acts as an impediment in the expansion of the market for industrial products. Thus the entire Assam economy is working at a low

¹¹ S.K. Borkakoti "Peasant Movement & Peasant Organisation" in P.C. Goswami (ed.) "Agriculture in Assam", 1989.

level equilibrium. It is an imperative that this is broken and a new high level equilibrium is attained. By the sheer logic of static condition a massive force has to come from outside to do the job. But in order that the new equilibrium becomes a dynamic equilibrium an equally strong force has to be generated within the system. This can be done by activating the economy, by mobilizing the economic forces into self sustaining as well as demand generating activities.

The present economy has led to still another important problem. That is the dearth of entrepreneurship. The peasant economic milieu is such that there is no motivation, urge and circumstantial pressure ~~to~~ move into enterprises in new and unexplored fields.¹² The total absence of social mobility historically in this peasant economy kept the people glued to low ambition lifestyle. However since the independence of the country, the things have changed to some extent. The partial collapse of the wall of social hierarchy that earlier prevented social mobility now has helped it. Expansion of education and administrative system opened up new vistas. But more than any others the increasing pressure of population that drove the people of the state to launch a massive agitation during 1979-85 brought a sea-change. The middle-class people are now increasingly taking up risk taking ventures. The quality of entrepreneurship has greatly improved in the eighties.

¹²Ibid.

CHAPTER II

CHARACTERISTICS OF A BACKWARD ECONOMY

2.1 Definition of a backward economy

We venture to theorize a backward economy as an economy whose forces of production are in an underdeveloped condition, means of production belong to the pristine age, natural resources are sub-optimally used, economic growth rate is low and less than population growth rate, per capita income and consumption are below poverty line, occupational pattern is biased towards primary sector, capital is scarce and whatever is available is blocked in unproductive portfolios, productivity of factors of production are abysmally low, division of labour is low and underdeveloped, market forces are imperfect, monetization of the economy is very little, human capital formation is poor, distorted production and marketing create a high-cost economy and so on. This is our perception of a backward economy.

We would venture to say that the presence of all these characteristics would make for a fully backward economy. Otherwise presence or absence of them alongwith their strength would determine the degree of backwardness. And it is worthwhile to note here that most of these economies have a legacy of colonial extortions and de-accumulation of capital.

It is a truism to say that whatever conditions the developed countries in the present time are in, they all have experienced numerous stages in finally reaching the same. They

have successfully controlled or checked the back-pulling forces from their economic systems. So an analysis of the factors of their opulence can also very well be a suitable method of finding out the causative factors of backwardness. However that would be an indirect approach. But a wide study may find supportive evidences with the help of such a secondary approach too.

2.2 Natural resources

In general it is seen that a backward economy either lacks in natural resources or under-utilizes them. However the former is not a general case. Because, as it happens, such countries are driven to find out alternate avenues to acquire the requisite consumer goods for their people. This necessity confers sufficient dynamism as well as aggressiveness in the nature of their populace making them successful traders in international sphere. And if the geo-climatic conditions are favourable, they may even emerge as a strong economic entity. Japan is the best example of such a case. This country, which lacks natural resources to a serious proportion, has become one of the richest countries of the world. It all started with the world-trade undertaken by the Japanese who were guided by their erstwhile emperor Meiji.

However for an economy burdened with the problems

similar to those Japan faced, but which is without the sea-access and tormented under the equatorial Sun, one cannot foretell such a rosy future. The climatic condition of an area may lessen the productivity of its populace while the land-locked nature in all its probability would preclude a successful trade pattern. In such a case the dearth of resources would be a handicap.

Since lack of natural resources has contributed to the backwardness of some countries, we can count it as one of the causes of backwardness and also a characteristic of a backward economy. The countries which could surmount this problem did so with the help of other beneficial factors mitigating the effect of dearth of natural resources.

2.3 High cost economy

Sub-optimal use of natural resources is another characteristic of a backward economy. A backward economy has an imperfect market structure. Also the commercialization and monetization of these economies are very poor. These make for low effective demand. Foreign trade in such under-developed economies also cannot help by way of increasing demand. So a low effective demand leads to a situation where utilization of natural resources continues to be below optimum level for painfully long periods. In a market economy every

commodity fetches a price. So higher the exploitation of natural resources, larger the income of an economy. As the natural resources are not exploited to the optimum level, the income of these economies tend to be low. Also below optimum level operation makes for higher cost of production. So the prices of these commodities tend to be high. As these are used as inputs of different industries, all the commodities tend to be costlier. The ultimate result is a high-cost economy. This is a very prominent characteristic of the backward economies.

2.4 Scarcity of capital

As we see, in the working of a backward economy, there is a trap, a vicious circle. Its conditions prevent it from coming out of them. Under-optimal use of natural resources lead to low income which precludes the possibility of investment in higher utilization and exploitation of these resources. A common characteristic of all backward economies is therefore scarcity of capital. It is true the primary producing economies create some capital. But that is very insignificant. And in a milieu of high-cost economy the value of additional capital generation almost invariably tends to fall every year. So much so that many economies face de-accumulation of capital. The primary accumulation of capital is solely controlled by the feudal land-lords or feudalistic

merchants. This capital is at the most invested in speculative trade, landed property and luxury consumption. Of these three, the first increases the total quantum of capital accumulation. But the same remaining blocked in unproductive portfolio, mere self-reproduction or augmentation does not have any bearing on the economy at all. The second, landed property, hoards the capital and keeps it idle. The third, luxury consumption, creates demand for luxury goods, thereby generating employment. But these being carefully preserved skill of limited urban artisans or monopoly technology of big company or corporations, the profit is cornered by a microscopic minority. Multinational corporations account for a large share of the global market of luxury goods. So development of demand for these commodities generally do not generate any worthwhile opportunity within the host country at all.

2.5 Labour and employment

In such a bleak environ, the labour force hardly finds employment for themselves. There is unemployment in a severe form in the backward economies. In the absence of development of Secondary and tertiary sector, distribution of labour force is heavily biased towards primary sector.

2.6 Technology and productivity

In view of capital scarcity, these economies are burdened with age-old means of production. Agriculture in most

such countries date back to the days of ploughs driven by animal power. In the production of non-agricultural commodities too, the conditions are similar. It is old technology everywhere. Of course reasons are not very far to see. There is no capital to invest. There are huge stocks of labour force which do not call for sophisticated technology as with depressed wage rate, it is more profitable to have the old and prevailing labour intensive technology.

In view of the traditional nature of technology, the output per unit factor of production is very low. Return on land, labour and capital are all abysmally low. However the feudal mode of production confers some special privileges upon the owners of land and capital who have opportunities for very high income through renting or share cropping of land and speculative investment of capital. It is only when they are engaged in non-agricultural commodity production that returns tend to fall, given the old technology of production. So either production is dissuaded or it is the high value luxury goods production that is resorted to by these people. The latter has been mentioned already. It cannot be considered as a general case. So we may conclude that the productivity of factors of production is very low.

It is a simple corollary from the above that division of labour is extremely insufficient. With the ready

availability of labour and also in excess of demand, the unemployed people face a hard time. They have to equip themselves with numerous skills to get a break in this buyers' market. This implies that division of labour is lagging far behind. Because, higher the division, more the specialization in skills of labour. The low skill-formation amounts to low human capital formation.

2.7 Economic growth and standard of living

In such a set up it is only natural that growth rate of national income is very low. These economies almost remain stagnant. Though hard to believe, it is true that some such economies register negative growth rates. That happens when famines strike them, when regressive socio-political atmosphere stops even the little economic activities, when colonial overlords extract resources without quid-pro-quo.

A stagnant or slow-moving national income when labour force is burgeoning inevitably leads to continuous fall in per capita income. To maintain the current expenses, such a stagnant economy has to draw heavily on the reserve capital. But when the nation lives in subsistence level with hardly any reserve capital to draw from, per capita consumption also fall. When we remember that the base of their economy was already low with majority people in soul-saving condition, we see that most economies touch or go below the poverty

line very fast.

2.8 Colonial exploitation

A question that might appear in the minds of people would be: these economies were in such technological state, such mode of production from the time of yore; then why now only that they are plunging head long into the murky world of poverty? The answer should be found in the era of imperialism and colonialism. In the past three centuries a few powerful countries subjugated and colonized almost the entire world. The economies of the colonized countries were shattered and their primary accumulation appropriated by the ruling nations. This broke the equilibrium of those erstwhile self-sufficient economies. A new equilibrium which is yet to arrive, cannot but be in a very low level, of course unless special deliberate efforts are made to that end.

2.9 Theoretical tool for present study

All the above characteristics as well as the definition of a backward economy are our suggestions only. These have been our observation of backwardness in theoretical level. These can also be termed as our abstraction from the reality. This theorization of backwardness would help in our present study as well as others who intend to work in this area. The criteria of backwardness put forward in this chapter are our assumptions in

this regard. In subsequent chapters, we would examine the economy of Assam on these criteria.

...

CHAPTER III
PROBLEMS OF INDUSTRIAL DEVELOPMENT
IN A BACKWARD ECONOMY

3.1 Regressive forces

A backward economy faces many a hurdles as and when it sets into the path of industrialization. These problems are due to the regressive forces built in the system. The characteristics of a backward economy are such that they have certain inherent difficulties and the process of industrialization or economic development as such face many problems.

In the preceding chapter we have put forward a definition of such an economy. Before proceeding to introduce a general theory of the problems of industrial developments, we would analyse the impact of these characteristic impediments in solo.

3.2 Dearth of natural resources

Dearth of natural resources is certainly the foremost hurdle. Natural resource is a treasure that an economy can trade off for its vital requirements, for generating new resources. While there can be some way out for countries blessed with sea-access or suitable geo-climatic conditions, an economy beset with problems of landlocked nature and a subsistence agriculture simply do not have any base or means to improve its position. There is no endogenous remedy of it; only some exogenous inputs like foreign aid or grant can make a dent on this state of affairs.

It may be argued that whatever domestic resources is mopped up can very well be used to develop some amount of industrialization.

But such an effort is very likely to give rise to a dual economy as the little development would help only a microscopic minority. The ensuing socio-political tension would not allow it to maintain an equilibrium state. And if it is wanted to be done with an egalitarian outlook then there would not be any development worth the name as the absolute quantum of resources made available to any planned unit would be grossly insufficient. There are so many things to do. Infrastructure development, technical manpower development, acquisition of capital equipment and raw materials, marketing of products and so on.

3.3 Sub-optimal use of natural resources

And in case an economy is not poor in natural resources, we may justifiably expect it to be without the above-mentioned problems. However there may still be one more problem viz. sub-optimal use of natural resources. This leads to a high cost economy. Both these can be cured. The remedy lies in deliberate policy of investment in capital goods industry. As shown by Strumillin, the long-term growth is biased to the investment in capital goods. For that the economy has to curb consumption and invest the resources so available. But with a high marginal propensity to consume it is no simple task. And when there is a subsistence agriculture, average consumption would already be very low. Political considerations do not allow the governments to depress the consumption level further lower. It is also not possible to increase exploitation of natural resources by increased.

exports as these commodities suffer from inelastic demand. Some economies are further burdened with the overlordship of multinational companies or foreign companies. This occurs when out of desperate move to set on the hitherto absent process of exploitation of natural resources, the backward economy leases out its resource filled areas to such companies in return for paltry sums or insignificant royalty. Such companies do not bother to plough back the ensuing profit,; all the foreign exchange earned goes out of the country.

Some countries facing such problems have tried to correct the distortion by nationalizing such companies. But these are exception rather than rule. Moreover, the inevitable consequence of hostility from different international fora - not excluding foreign governments who are sufficiently convinced by the affected company of the 'wrong' doing, calls for an earnest desire and commitment on the part of the government of a backward country to advance their causes. Such firm commitment is generally lacking. A prominent characteristic of a backward economy being high illiteracy and lesser international exposure, the leaders of such countries lack the power, knowledge and education to inspire its own citizens. The age-old conditions of poverty and struggle leave scars of complexes in the minds of the people. They are over-awed by the high-profile corporate world or international opinion. Also it is a sad plight of such countries that

in many a case, it is the feudal lords or collaborators with foreign interests who happen to be the rulers. They do not have interests in undoing the conditions. A benevolent dictator or a team of people with deep perceptions and long-term vision are capable of doing the job. The former being a by-gone concept, the latter is the only hope in the present world context. Moreover, there has been only one Meiji till now in the world. So a Jawaharlal Nehru or a V.I. Lenin equipped with a select team is the only answer of a backward country.¹

3.4 Scarcity of capital and high-cost, dual economy

Lack or sub-optimal use of natural resources brings the inevitable problem i.e. scarcity of capital. It is not helped by poor international trade. In such circumstances the economy faces the hurdle - how to mobilize capital to invest for generating capacities in the industries or even more important how to lay the foundation required for an industrial economy i.e. the entire infra-structure which includes transport, power, water-supply, communications etc. A backward economy lying in an age-old slumber has to start from the scratch in every sphere. Those with colonial past may have had some rough structure which used to serve the purpose of the colonial over-lords of extracting raw

¹ Jawaharlal Nehru was the person who set India in the path of industrialization by his matured decision to opt for higher stress on capital goods industry. He had mobilized world opinion to aid India in this endeavour and avoided the temptation of the easy solution-allowing monopoly private ventures. V.I. Lenin also shaped Russia from a similar base.

materials. But to make the same appropriate for an industrialization programme, it must be refurbished and up-graded at a considerable capital cost. Failing that the production of any industry, if at all it is possible, will have to do with well obsolete technology, and thereby a low productivity and high cost of production. And a high cost economy cannot survive too long in a poor economy which a backward economy is invariably in. A high-cost economy would give birth to a dual economy and set a continuous process of widening the economic disparity. The pauperization takes place as the high cost economy is supported by the poor masses who were already below the poverty line. Given the monopolistic pattern of industrial ownership, the mark-up put over and above the cost of production is disproportionately high. So when the people at large purchase the products of these industries they have to pay through their noses. Because, the prices of these products are disproportionately high when compared to people's income generated from a subsistence agriculture or employment in the incipient industrial sector. This process of pauperization of the masses when a microscopic minority enrich themselves, widen the income disparity. Common people donot get to buy products of foreign industry priced at competitive level due to protection offered to domestic industries. The disproportionately rich monopoly capitalists under this circumstance think of increasing returns on capital by introducing sophisticated and high-productivity technology. So pockets of highly

developed industries may develop in such cases. And we get a dual economy.

Thus, in the prevailing conditions, industrialization cannot but lead eventually to a dual economy. In addition to being a lopsided development, a dual economy, because of its in-built tension and self-pauperization element,² cannot lay claim to have achieved any worthy industrialization when we consider the net value of it in a micro-level and long-term perspective. So we would prefer to say that a dual economy with pocket(s) of sophisticated industries is not a case of industrial development.

3.5 Low standard of living

The life and living of people in a backward economy deteriorate steadily and incessantly. When there is no or very little educational facilities, the majority people remain illiterate. Superstition and regressive outlook prevail in their thinking. The few people who are educated, far-sighted and exposed to the broad world outside, are continually opposed by their brethren in

²It is our conjecture that a dual economy would necessarily have a trend of deceleration. In such an economy the per capita income gradually and steadily falls due to increase of labour force and for that matter the have-nots. The absolute increase in income that takes place due to and solely in the sophisticated industrial sector, is grossly insufficient for offsetting the production loss in agriculture and/or traditional industries; and if more, it is way below the population growth rate which is again not checked in a milieu of backwardness and high illiteracy. So we get a net picture of pauperization.

undertaking any innovative and reformative ventures which would bring prosperity, increase incomes and improve the living conditions.

Having to depend on human power for agricultural operations, people want high number of offsprings. Lack of alternative mode of enjoyment also increases the frequency of sexual intercourses between couples which, in the absence of preventive measures (or lack of knowledge of the same) inevitably means a ritual of annual reproduction. Almost nil female education, higher importance for male offspring and numerous such reasons only add strength to this eventuality. This all means a population explosion. Increasing medical facilities, rising longevity and falling death rate have further accentuated the problem.

When production increase is so minimal, additional capacity generation insignificant, the people face a deteriorating employment situation and a falling per capita income. Lack of or little investment (as there is severe dearth of capital) ensures these two results.

3.6 Labour and unemployment

Increasing unemployment should have helped industrialization by posing as a reserve industrial labour force. But it does not happen in real case. The unemployed generally do not consider him/herself unemployed. He/she is absorbed by an over-saturated agricultural sector adding to the disguised unemployment. In the urban

context the unemployed would enter the tertiary sector. But the latter too having been saturated long back there would be tension and eventually introduction of more middle-men in the entire structure. Or the unemployed ones would become parasitic elements and deviants from the established social norms. This trend again makes potential investors from outside suspicious of socio-cultural instability and an incⁿogⁿenial environment. This may be cured by an educational campaign preceding or accompanying any industrialization programme. As the promoters or entrepreneurs (who themselves are in short supply) are not prepared to undertake the expense of it which increase their cost of production and thereby cut into the profit, it is a responsibility on the part of the state. Any government has to keep note of this and other such sociological factors. The economics of industrialization cannot be discussed without such social issues.

The agricultural and for that matter the rural unemployed migrate to the urban centres at their first conveniences. So both the problems can be transferred to the same plane for a solution. But to bring a long-term solution, it is better not to take villages to the town, rather take the town to the village. Housing, civil amenities, congestion and many such problems of the urban centres necessitate that rural to urban migration is checked and rural centres developed to urban places. Moreover the prevalence of deviation from social norms among the rural unemployed is less than their urban counterparts because of greater social affinity

and bindings, dominance of community over individual life, and lesser frustration and ~~des~~peration owing to the fact that the unemployment is disguised; this makes for a more convenient work atmosphere and industrial relations if the unskilled work force can be suitably trained.

3.7 Factor productivity

With the labour force mainly engaged in the primary sector, any development in the secondary sector has to be necessarily accompanied by a training or re-orientation programme. However that does not impart the requisite skills to the labourers sufficiently. So the working of the plants and factories of any upcoming industry is not generally a smooth sail. A whole host of technicians and supervisors also have to ~~be~~ developed and that too from an unskilled population. Obviously, the new breed of technical personnels do not have the finer skills. And that makes for a low productivity. The maintenance of the machinery and equipment by these inefficient personnel also tend to be inefficient; consequently the productivity of the machinery and equipments also become less than their optimum value. Apart from this human factor, insufficient infra-structural facilities compel sub-optimal utilization of the machinery and equipment. A whole host of factors thus create circumstances where the factor productivity becomes abysmally low. So the investments in such an economy do not produce the output they should have. The capital-

output ratio of a backward economy invariably becomes very high.

3.8 Poor agrarian economy

That a pre-dominantly agricultural economy cannot check its population explosion is best illustrated by the example of Bangladesh. This country which had 56.7% of GDP coming from agricultural value added in 1967-68,³ had a population density of 1,179 per sq. mile in 1967.⁴ Percent increase of population during 1951-61 was 30%.⁵ But this population tends to remain in agriculture itself owing to low level of urbanization. Thus out of total labour force, 85.3% was engaged in agriculture in 1961.⁶ But the share in labour force is proportionately higher than agriculture's share in G.D.P. And this is in spite of the fact that the cropping intensity in 1961-62 was as high as 130.8% (in 1970-71 it rose to 144.5%).⁷ This is explained by low yield rates. In case of rice, the main crop, the yield rate was among the lowest in the world. In 1968, paddy yield per hectare was 1740 kg. per hectare.⁸ The case of Jute, the principal cash crop was no?

³ Agriculture and Related industries in Pakistan, F.Kahnert, M.Stier and others, OECD, 1970. Table IV-I.

⁴ Bangladesh Economy, K.Dutta, R.Dasgupta, A.Chatterjee, (N.Delhi) 1973, p.37

⁵ Ibid., p.38

⁶ Ibid., p.78

⁷ Ibid., p.82-83

⁸ Ibid., p.91

different. In 1961-62 it was 16.4 maunds per acre and in 1967-68, 13.9 maunds per acre.⁹ The causes of this condition was dependence on weather (which fluctuated heavily) in the absence of investment on irrigation and river control, lack of good seeds and other inputs as well as policy inadequacies. For instance with an established comparative advantage in Jute, there should have been sufficient stress on its proper development as a principal revenue and foreign exchange earner. Of course now the conditions have changed. Bangladesh is at present the top exporter of Jute and jute products. But it took a very long time to come up. May be political¹⁰ situation was not congenial. This will underscore the importance of political situation for economic development.

The observation that the agricultural stagnation did not lead to rural urban migration seems to counter our stand on this issue, as mentioned earlier in this chapter. But this lack of mobility of labourers ensures a virtual stagnation in such an economy. The dual economy that emerges in a similarly placed economy is absent in Bangladesh. So the little beneficial effect by way of commercialization of agriculture to feed the growing urban population and consequent rise in the income level of rural

⁹ Ibid., p.98

¹⁰ In 1987-88, she exported 4.23 lakh tonnes of jute and allied fibre products in a total world export of 9.89 lakh tonnes. Though India produces more jute than Bangladesh, domestic consumption being higher, India exported only 2.4 lakh tonnes. (Food & Agriculture Organisation quoted in Data Bank '89 Economic Times)

agriculturists is also missing. Thus the pre-1971 Bangladesh is a typical example of a stagnant backward economy. Agriculture which constituted nearly half of the economy was overwhelmingly of a peasant character.

3.9 Competition from foreign industries

While it is true that there has been some changes in the independent Bangladesh, the main characteristics of the economy remains almost the same. The erstwhile middle class has been substituted by a new and local one. The supplier of their consumer goods have changed from the then West-Pakistan to general western developed countries. The question as to why domestic industries have not developed can perhaps be found in the agrarian character of the economy. Since urbanization and infra-structure development were in infantile stage, it was only natural that the void was filled by multi-national companies. Availability of a big coastal line also has benefited the latter. Earlier also when it was East-Pakistan, import from West-Pakistan took place through sea-route only.

The way out from this complex situation may be a deliberate investment policy which will have to be supported by economic austerity measures (to mop up the capital requirement). Government of Bangladesh cannot expect foreign capital in such an attempt as the latter would not prefer to dig their own grave; multinational companies have a close nexus with the foreign

donor countries. Now the problem is that any such austerity programme would not be politically expeditious : specially in the volatile situation that Bangladesh has so far been in. So it is a vicious circle.

However in our model of land locked economy, this problem is to some extent mitigated. The landlocked nature make the landed cost of foreign consumer goods not much attractive always. So domestic industries can compete with the foreign company with no or little tariff support.

3.10 Colonial character

A problem facing the backward economies is that if they are a region of a comparatively better developed country viz. a country whose economic condition is better than its backward region under consideration, then the plight of the latter is no better than a colonial state whose wealth is being plundered by its overlord. The region faces some sort of unequal trading pattern, its exports to the other parts of the country is insufficiently paid for or not paid for at all i.e. there takes place exports without quid-pro-quo. Thus there is a net transfer of wealth. An estimate by Mahbubul Haq, of the net transfer of real wealth, says it is 20 crore rupees per annum. Dr. Aminul Islam calculates it as Rs. 50 crores per annum and that too at shadow prices.¹¹ These can be compared with the drain of wealth from

¹¹ Bangladesh Economy, pp. 31-32

India to Britain. Thus a colonised country and backward region are more or less similar regarding economic situation.

Coming back to our model case study i.e. Assam, we see that the credit deposit ratio of all the all India scheduled commercial banks except one, the Indian Overseas Bank, are very low and well below the national average.¹² Though the right on the principal remains with the individual savers of the state, the state is deprived of the investments and consequent growth, and additional income generation. These go to the developed regions of the country. Thus the latter plays the part of colonial exploiter(through the centrally owned banks and financial institutions) within the sovereign country itself. A glaring example of this deprivation process is the functioning of Unit Trust of India in Assam. This public sector financial institution raises quite a big savings annually in Assam. Of this not a single rupee is invested in this region.¹³

3.11 Low productivity of capital

Backward economies face another peculiar problem. Where they have gone in for industrialization with sophisticated machinery, the capital-output ratios are seen to be very high, indeed much

¹²Economic Development of Assam, P.C.Goswami (1988), pp.364-365

¹³It has been disclosed to us by a former official of UTI.

higher than those of developed countries. Erstwhile East-Pakistan and West-Pakistan both had capital-output ratios, higher than even in Japan almost in all industries except Chemicals (that too only East Pakistan.)¹⁴ It appears that capital output ratio declines over stages of development. The present Indian economy is also an illustrative example. In machine tools industry its capital intensity is much higher than in developed countries. Reason of this phenomena may be the obsession of the industrialists to enjoy the economy of operation as well as sophistication of the machinery as well as the products. This may again be an effect of the growing consumerism in the backward economies under the sponsorship of the multinational companies and monopoly business houses. There is no attempt at improvement of older indigenous technology or even adaption and innovation based on the imported technology. Result is that in the presence of machinery of different vintages huge amounts of unutilized capacity develop which eventually result in an absurdly high capital-output ratio. Low productivity of capital is thus another reason.

3.12 Lack of linkage effects

A secondary problem resulting from this phenomenon is that the economy cannot expect to derive the forward or backward linkages. The pre-dominant technology being that of the latest vintage, the linkage industries have to be necessarily with the most

¹⁴ Bangladesh Economy, p.68

sophisticated technology. For a developing country or economy it is beyond its capacity to have sophisticated technology for a wide spectrum of industries. This necessarily implies siphoning off of a great amount of money in getting the intermediate products used as inputs for the industry under question. Also the value added in the downstream industries accrue to the foreign country or economy which has established these industries. In any case this continual up-grading of technology by consistent importing has brought the foreign trade to such an impasse where however great the export endeavours be, import of machinery, intermediate products etc. alongwith innumerable other justifiable imports make for an ever-expanding deficit in balance of trade. In fact the import in trade accounts, of which not an insignificant part arises from debt servicing, royalty and dividend payment and imports appended to machinery or technology imports etc. necessitate foreign loan and aid etc. The latter in most instances are formally or informally tied ones, which also lead to further and avoidable imports. Thus every little inefficiency on the part of planners as well as industrialists costs the economy very dear and it gets trapped in a perpetual import syndrome.

CHAPTER IV

STRATEGY FOR INDUSTRIALIZATION-HYPOTHESES.

4.1 Hypotheses regarding strategy for industrialization

There have been offered a many strategies for industrialization. We deem it fit to analyse the relative importance of only some important factors. These have been capsuled into four hypothesis. There is a fifth hypothesis pertaining to Assam, the case study. In order to analyse the role and importance of different factors of industrialization, we test these hypotheses. These are:

- (A) Industrialization of a backward economy is not dependent solely on natural resources, but mainly on political leadership.
- (B) Infra-structural facilities must precede expansion of industrialization in backward regions.
- (C) Unless industrialization provides employment to local people, the region cannot derive the benefit.
- (D) Strategy for development of industries in a land locked region must be based on self-reliance with regard to raw material and technical personnel.
- (E) Assam is a landlocked region and her economy is basically a subsistence agriculture economy.

The last hypothesis has been necessitated by the fact that we have used information and data pertaining to Assam as that of a

representative unit in our plan of study. However we have already proved this hypothesis in the first chapter 'Introduction.' So no separate examination will be done here again. Also it is to be noted that the hypotheses 'A' and 'D' are mutually exclusive. They are complementary to each other.

4.2 Hypothesis A

In an earlier chapter, it was pointed out that the paucity of natural resources hinder the process of industrialization. However we also quoted elsewhere the instance of Japan as an illustrious exception. Though Japan is not a land-locked state, it has the other constraints of our representative unit. In any case it will do us good to test the relative importance of political atmosphere and leadership in the context of industrialization. Political factor in economic events has become a regular phenomena with far reaching effects. Ranging from the grocery shop, the level goes high up to the starwar level. The former depicts the interference by small-time local politicians who embark on image building campaign through these ventures. The relationship between politics and economic activity goes up to the lofty height of starwar programme. Ronald Reagan, the most popular President in the history of United States took upon himself to see his country to a great powerful state from where it could dictate terms upon the rest of humanity. Though the quantity and quality differ vastly among U.S.A. and U.S.S.R., the two super-powers, in terms of their nuclear arsenal, it is an established fact that none can deter the other from perpetrating a

retaliatory second strike in case one chooses to use the nuclear option eventually. So the cowboy here Reagan planned an imaginative war state where his country would scale up to the technological level of legendary star-war concept. If successful, the programme would hopefully attain a power for the United States where it can pre-empt a retaliatory second strike.

Now what is the ultimate meaning of all these ? It is simply a matter of market control. A more powerful United States will have under her control a larger section of the humanity, a greater area of land mass, a higher amount of income and hence a larger market for her products. The whole thing boils down to economic power and prowess. That the two super powers are so concerned about one another's burgeoning powers is nothing but their fear of losing one's market share in the world trade to the other.

This basically economic confrontation has led to serious political problems leading to the emergence of a neutral group by the name and style of Non-Aligned Movement. This group again has its base in its requirement of an economic co-operation. The South-South Co-operation is thus an economic survival programme. That their efforts necessitate approval in the highest level i.e. heads of the state summit only underscore its magnitude and seriousness.

That the so-called socialism is nothing more than a group name for the soviet power block and that they are simply an economic group is brightly illustrated by the Ethiopian example.

This African country hit the international headlines as well as the conscience of many world celebrities in early eighties following a BBC news coverage on the famine stricken country. It required a Bob Geldoff to launch hectic public programmes in order to collect donations for the Ethiopian hungry millions. An underdeveloped country like India and even one of its backward regions, Assam - the representative unit of our study, also donated according to their might. But the big brother of the socialist power block, the Soviet Russia had before this helped this country only to celebrate a ten year anniversary of socialism. It was only after the BBC focussed on the hunger, after the people from the other power block started pouring donations that Cremlin woke up to the problem. That the international political ideologies are only words to be mouthed and without conviction was nakedly illustrated by this incident.

How political factors can play havoc with a country's economy can best be illustrated by the case of South African frontline states. The latter, which face the wrath of the apartheid regime of South Africa, suffer severe consequences in their domestic polity and economy. They are intimidated into remaining subservient to South Africa who lord over them, having the passage of trade for them and also being equipped with enormous military prowess. Things are in such conditions that even a prominent state like Zimbabwe, which happens to be a leader of Non-Aligned Movement, has had to receive air-protection from Indian forces for her narrow strip of land that gives her sea-access.

And of course, if we widen the term of reference by deleting the condition of land-locked, we cannot have a better example than Japan to show how political leadership can help to get over deficiencies in natural resources and set an economy onto the path of industrialization. Emperor Meiji was such a statesman who has had no equal so far on this earth. When he had climbed into the throne, Japan was in a dilapidated and anarchic condition. He set the political conditions right and stable. He utilized the community base for the aim of economic reform; the feudal set-up was re-organized and converted into an economic system from its earlier military essence. The surplus generated from agriculture, which had been appropriated by the royalty earlier now began to contribute into industrial capital. Primary accumulation by international trading, infant protection for home-industries etc. were his prime concern; and they paid off in the long run.

And Japan has now entered the international economic-political decision makers' group. The emergence of Japan in the economic scene in a grand manner has preceded its political power build up. In electronics and automobile industry Japan has worked wonders. Sheer design and cost-economics have enabled her to make a serious onslaught on the world market. It took on the well-entrenched producers in such a way that it surpassed all of them; when a desperate United States imposed a 100% plus tariff on the Japanese super conductors, the country of the rising Sun rose to the occasion and innovated new process to cut cost by almost half. These flourishing

trade and industry income have enriched the state coffer of Japan. The country now holds the pride of place in international Monetary Fund, World Bank and Asian Development Bank etc. The top ten largest commercial banks of the world are now all Japanese. Of late the Japanese are purchasing real estates in the U.S.A.

Thus in a situation where the economic power of this small island country is only ascending, it is little wonder that her currency Yen is appreciating against the major currencies of the world. Her main rival in the international trade - United States has been in the receiving end in this process. The American dollar is falling in value. In January, 1988 it touched an all-time low value of 120 Yen per dollar. Eventually the downslide could be checked only by intervention of Japanese Banks who purchased dollars in bulk.

This meteoric rise of this small island country in the international economic scene may be ascribed to a farsighted plan by her former ruler Meiji who changed the whole political set-up from feudal lethargy, to a vigorous economic activity regime. He converted the landed classes as well as the parasitic warrior classes to different economic producer-marketer groups. The present success story of Japan goes back to these plans. But for Meiji's firm political leadership Japan would have remained in the feudal slumber that most other Asian countries are still in. The legendary ruler that Meiji was, drove out the foreign traders from his soil and brought the shipping and international trading into indigenous hands. It was a leeway for

the economy, a scope for primary accumulation of capital. This invaluable source of capital generation still remains outside domestic control in most third world countries. A nearby example would be Bangladesh which hardly has a shipping facility of her own. This is all the more unfortunate for this country as the entire trading of hers is done through sea route which means an enormous and regular outgo of precious foreign exchange.

But the story did not end there. A primary capital accumulation does not solve the problem, nor it ensures against going in for speculative trade remaining shy of industrial insecurity. In Japan it was not to be. The merchant capital had to eventually find its way into industry. This is an achievement by itself and can be expected only in dictatorial or enlightened leadership. Either way Japan had this. And if any proof was required of it, the second world war was the proof. It required an atom bomb to cool the Japanese heels. But the consequent volte face of the Japanese in their antagonistic attitude to the Americans surprised the humanity, United States, the country instrumental in subjugating Japan in Nagasaki and Hiroshima received military base and even an weapon test facility in a Japanese island in the Eighties. But it was only to be expected of a clever Japanese politics. They realized that there was no permanent enmity, but only permanent interest. They saw futility in maintaining an antagonism vis-a-vis the United States. They preferred to become a military satellite country for the United States in return for access into the American market. And the result is there to see for every one. To-day

Japan has crossed United States in terms of economic strength. In Asian Development Bank, Japan's share of contribution is far higher than United States' which has fetched Japan the honour of permanent presidency of the bank. But the last word on Japan has not been said yet. We know that it is only a logical transition from economic to military power either. Japan has already earned the distinction of being the third largest military spender, behind only the two super powers with an actual expense of \$45 billion in fiscal 1988.¹ So in no time Japan would snatch away what she has given United States thus far. Thus Japan may be on her way to super powerdom.

All this go to prove how a political leadership can be of vital importance to a country's economic prosperity. Japan is the star example of a resource less country succeeding in economic growth. The Japan story supports our hypothesis. In this context one can also allude to the case of Switzerland; this country also is deficient in natural resources, but that has not restrained it from becoming one of the richest countries in the world.

Coming down to a still lesser dimension unit i.e. lesser than a country, we see an illustration of the problem of lack of political leadership in our backward state of Assam. According to an expert, the state has a reserve of more than 6 billion tonnes of oil and oil equivalent natural gas. Of this 5 billion tonnes

¹Business world, Match 15-28, 1989.

still remain to be discovered. The North-East as a whole has a total of 10 billion tonnes of oil and oil equivalent gas that still remain undiscovered. All this has made an expert to declare that "North-East India is floating on oil!"²

But this land which floats on oil doesnot boast of a single big size refinery, nor a petro-chemical complex worth the name. The Barauni oil refinery, a large size unit for those days was established in another state on the basis of crude oil supply from Assam. The latter was consoled with a toy refinery at Guwahati when the following generations took up the cudgel to expose this gross injustice. The students boycotted classes and went to the streets some years later to get still another small size refinery at Bongaigaon. Thus both these refineries have been established only to pacify the public demand and as a means of consolation. Before the advent of a regional party in mid eighties there was no political drive on the part of Assam legislators to take up the economic cause of the state. The rank and file of the ruling party have all along remained busy in group politics. Another important factor of their lack of interest in economic issues was the lack of their interest in middle-class proponents of regional development. Unlike in other states and regions, Assam politicians almost by passed the urban bourgeoisie in the matter of electioneering for votes.

²Dr. R.C.Fuloria, an expert of Oil India Limited so said in a paper presented at an oil conference organised by 'Urja' in New Delhi on January 11, 1988. (News item of Assam Tribune, Guwahati, January 4, 1988)

Immigrants from Nepal and erstwhile East Pakistan who were settled in the riverine areas of Assam, constituted the vote bank for the ruling party in the state of Assam. Both the groups were illiterate people who voted en-bloc for the ruling party out of several considerations - gratitude for their benefactor, insecurity in an alien socio-cultural milieu, feudal system of dictating voting pattern etc. Anyway this vote security enabled the ruling party to ignore the employment problem of urban middle class. So the cause of industrialization did not need to be pursued. The politicians did not have to learn how to clamour for industrial license, quota etc. almost a part of duty of their counterparts from other states.

This thesis of ours find further justification in the changed political atmosphere in the state. The regional party government that captured power in mid-eighties has depended on the Asamese middle class for its ascent to power. This has made them sensitive to the aspirations of this class. Unemployment being the foremost problem of this class, the government has had to plead the case of industrialization in the state as a possible source of employment. They know that the agricultural sector cannot offer requisite employment avenue in the present scheme of the things. The population density in Assam is abnormally high at 254 per sq. km. compared to an all India figure of 216 in 1981.³

³Basic statistics of North Eastern Region, 1987, p.8

If the thinly populated hill areas are excluded, it would be higher still. A peasant economy with this high ratio and especially with a topography full of hills and rivers clearly illustrates the state of over-saturation in agricultural sector. Among the agricultural workers, as high as 68% were found surplus in Assam in 1976 against an all-India average of 63%.⁴ This precludes any hope of satisfying the middle class job aspiration in this sector. Because even if the state went in for a massive drive for capitalistic farming, supposing she could somehow bring about the requisite institutional change as well as make available the financial and other inputs necessary, it could at the most do away with the disguised unemployment in the agricultural sector; it could not be expected to make a dent on the general unemployment problem. And that is why the new regime has had to put stress on industrialization in their own political interest. Their emphasis on industries is seen in the new industrial policy they effected in 1986. This new policy for the first time went the whole hog to support the industrial entrepreneurs. It offers 50% power subsidy, 25% land subsidy and even 50% drawal of power subsidy to the SSI units. It is also conspicuous that only this policy offers the long due relief on Assam Finance Tax, which is brought down from an erstwhile 12% to 4% to be at par with 4% central sales tax. This level of taxation being in vogue in other

⁴Lal, D., Supply price and surplus labour, Some Indian Evidence, in World Development, 1976, Vol. 4. Nos. 10/11, London.

neighbouring states including West Bengal for a long time, the middle class entrepreneur traders and industrialists had been facing acute competition in marketing of their products. It was only the new government that saw to it that this handicap was removed.

Such examples substantiate our thesis that the attempt for industrialization has found political patronage only recently in Assam. The earlier lack of patronage coincided with a continued industrial backwardness. The present political patronage, to be fruitful in terms of actual industrialization, should be followed up by increased capacity generation or at least higher capacity sanction in general, or higher capacity sanction in some important industries. In this respect we consider some relevant data below.

Since the regional party government came into power in 1985 10,545 small industries were set up upto the end of 1987. Number of tiny industries established were 8,532. The government identified 69,545 entrepreneurs and prepared 17,104 project reports.⁵ The Assam Finance Corporation sanctioned a record total Rs. 7.53 crore loans in 1986-87 which was almost double the previous high of Rs. 4.07 crore in 1981-82.⁶

⁵ Assam Tribune, February 1, 1988

⁶ Assam Tribune, March 22, 1988.

In the six years since 1981, the total letters of intent and industrial licenses granted to Assam by the central government constituted only 0.92% and 1.16% respectively of all India figure. The state accounts for only 2.1% of the total central investment.⁷ This is certainly a discredit of the earlier regimes of Assam. It can be noted that even in 1982 i.e. 35 years after independence, there were only 50 large and medium industries in Assam. Of these only 14 were owned by state and central governments. The rest 36 were either in private or co-operative sector.⁸ However the pace of industrialization picked up a little in the decade of eighties. Because in 1985-86 there were 94 large and medium industries in Assam.⁹ All these point to the near absence of any drive for industrialization till eighties.

From these statistics it is abundantly clear that the former regime had not done much towards development of the state economy as has been done by the new regime in a short span of time. Also the central government has not been fair to this state in giving license etc. This proves the hypothesis that only political leadership can redeem the fate of an economy. As has been reflected in the data pertaining to number of project reports as well as industrial registrations, the previously shy entrepreneurs have now launched on a fast track. But Assam had always

⁷ Task Force on Economic Development of Assam, Guwahati, 1988.

⁸ Directorate of Industries, Assam.

⁹ Economic Development of Assam, P.C.Goswami, 1988, p.194

boasted of natural resources like mineral oil and natural gas, limestone, clay, iron ore, fullers earth, feldspar, base metal and coal etc. Even then there was almost no industry in Assam.

Table 4.1
Natural Resources and their uses in Assam

Sl. No.	Natural Resource	Estimated Reserve in Assam.	possible Uses	Uses made so far and production.
1.	Coal	266.262 million tonnes	Steel Industry in coke production Raw material in fertilizer production Portland cement Briquette production. Fuel in Thermal Electricity production. ¹⁰ Metallurgical coke, sodium carbonate, Drugs, Dyes, Perfumes, Carboric Acid etc. Battery Carbon.	Steel Industry outside Assam Total production was only 9.22 lakh tonnes (1987)
2.	Crude Oil	6 billion tonnes. But conservative estimate is only of 92.07 million tonnes (Indian Mineral Year Book (1982) OIL places it at 1 billion tonnes. (see chapter IX)	Refinery gas petroleum Naptha or straight run Gasoline Petroleum coke, Fertilizer, Methylene Alcohol, Formaldehyde, Carbon Black, Aromatic Hydro Carbon, Synthetic Resin and Plastic, Synthetic Fibres, Synthetic Rubber, Hydrogen Cyanide, Carbon Di-Sulphide, Chloromethane, Mono-de-and triethanal amines, Phenol, hexamine, Nitric Acid and allied chemicals, Hydrogen, Acetylene.	49.69 lakh tonnes (1987) production of petrol, HSD, Kerosene, Carbon wax, Naptha etc. in the refineries including one at Barauni. On the basis of DMT produced in Bongaigaon Refinery synthetic fibre, polyester filament etc. have been coming up.

¹⁰ Though the Assam Coal is of inferior quality, introduction of fluid bed combustion technique in the thermal power station may make it acceptable. (Study by M.N. Dastur & Co. Ltd., quoted in Economic Times, March 26, 1989).

Continued Table

Sl. No.	Natural Resource	Estimated Reserve in Assam.	Feasible Uses	Uses made so far and Production.
3.	Natural Gas	23 billion cubic metres	Same as in crude oil	2.215 billion cubic metres is produced per annum. But of this 800 m.c.m. is flared away. The rest is used by tea gardens and Namrup Thermal Power Station as fuel, in production of LPG, condensate, Methanol, Urea, Formaldehyde etc.
4.	Lime Stone	1054 million tonnes	Cement, Lime Burning, Sugar, Paper (These two after beneficiation), Glass, Ceramic Rubber, Paints, Explosives, Rock wool manufacturing.	2.10 lakh tonnes (1987) Bokajan Cement Plant uses Kaliajan Lime-stone.
5.	Iron Ore	17.6 million tonnes.	Iron	Nil
6.	Fire clay	2.1 million tonnes	Refractory Porcelain Insulator, Filter and Pigment in paper, Paint, Rubber, pesticide, Tiles, etc.	Nil
7.	Kaoline	0.58 million tonnes	Paper, Ceramic, Porcelain.	Nil
8.	Fuller's Earth	17 million tonnes,		Nil
9.	Feldspar	0.02 million tonnes.		Nil

Sources : Geological Survey of India; Geology Deptt. of Govt of Assam Surveys; The Economy of Assam, P.K.Dhar, 1987; Report of Task Force on Economic Development of Assam, 1988; Data Bank '89, Economic Times, Calcutta.

From the enormity of natural resource quantity that pertain to the state of Assam and the negligible exploitations of it, we can see how the presence of these resources has not necessarily led to an all-round development. This also supports our hypothesis that the presence of natural resource by itself would not do and that the more important thing is the political leadership in these issues. The most glaring instance of lack of political drive to cash in on the natural resources is the regular flaring of natural gas. The daily flared gas quantity is worth Rs. 10 lakhs.¹¹ i.e. Rs. 36.5 crores per annum.

But more serious than the monetary value of the wasted gas is the fact that at the present rate of flaring up, the natural gas reserve will be exhausted in 10 years. That better shows the worth of the flared gas.

In a past period, how an important industry of Assam viz. textile suffered for lack of political support from the British after having flourished and prospered under the Ahom regime and before is narrated elaborately in a separate chapter on Textile Industry in Assam. That Chapter lucidly proves the importance of political factor.¹²

¹¹Report of the Task Force on Economic Development of Assam, 1988

¹²See Chapter XII of this thesis "Scope of Textile Industry in Assam".

Coming to micro level, how the political leverage influences the destiny and performance of an economic unit is well illustrated by the James Finlay and Company Ltd.

This scottish Company took advantage of the British imperialism to extend its operations of India way back in 1870. The company had been doing good business in cotton manufacturing and trading in the flourishing capitalist market of North West Europe. Indeed in the 1870's they were making an annual profit of over \$150,000.¹³ However in the wake of decline in Cotton trade in the 1880's they had to shift to other areas. In their new Indian venture, they had entered the familiar grounds of cotton textile alongwith some insurance agency and export import trades. Next they expanded the agency of insurance and ship and took up management of tea plantations. Over time they took several tea companies for management so as to control as much as 30% of total production of 10 largest tea companies in 1922. They maintained it during the interwar and post war period too. In 1938 also their production share was 31%. Their share in tea trading profit in 1922 and 1938 were respectively 31% and 36% of all the 10 largest tea groups.¹⁴

¹³ Merchant Capital and the End of Empire : James Finlay, Merchant Adventurer, by Roger Jaffery, Economic and Political Weekly, February 13, 1982, p. 241.

¹⁴ Ibid., p. 242

Now this meteoric rise of theirs in the Indian economy must be ascribed to their imperial connections. The tea companies were given land on preferential terms whereby they came to occupy a very large part of the total land area of the country. In south India the Kanan Devan Hills produce Co. owned an area equivalent to a small district. The area was nearly 30,000 acres. These companies kept much more land than required for plantation. As these lands were poorly drained or otherwise left as uncultivated fallow land, there was not much difficulty in annexing them. In 1920's the total land the tea companies kept under their occupation was three times more than the amount of land they actually cultivated in.¹⁵ These extra land were used for housing the labourers; the latter cultivated these lands to supplement their meagre income in the job. Thus the extra land helps the plantation owners in keeping the wages low. Though in those times the land was not so scarce a commodity. Over time it became one. Thus the conferring of property right on land to the tea companies, which have well survived and rather flourished in modern times, has deprived the local people of their historic right over the land.

All this speak about the exploitation by the imperial traders of their privileged position to snatch away the legitimate right of the natives. The latter were coerced into a below subsistence level of living by measures taken in connivance with the administration. As shown above, the planters were granted land areas far

¹⁵ Ibid., p.243

above the cropping requirement, which were used by the plantation labourers to supplement their meagre income. Thus the administration helped the tea planters in their exploitative policies.

Though it took a long time even after independence for the Indian Government to restrict operations of foreign companies, the latter started getting disturbed with the advent of nationalism from the inter-war period itself. Many big European managing agencies started disinvesting. There were higher and higher holdings by the Indian now in these agencies. The tea companies began to move out to East Africa. By 1934 'African Highlands Produce,' a company of the Finlay group, controlled about 40% of Kenya's tea cropping area.¹⁶ However some of them existed and flourished in India also as the foreign Exchange Regulation Act of 1973 restricting the operations of foreign companies, was still a long time to come. When it came, many companies preferred to disinvest fully rather than remain with the stipulated below 40% holding. In this context it is noteworthy that the influence of the foreign tea companies was still very big enabling them to raise the ceiling to 70% specially for them.¹⁷ However they preferred to call it a day in order to shift over to some new areas having good further prospects. The Finlay group in 1976 sold all their tea interests in Assam to a new company Tata Finlay where

¹⁶ Ibid., p.246

¹⁷ Ibid., p.247

they now held 20% share only.

Now this continued existence well after independence and a phased transfer to Indian capitalists has helped the plantations maintain their age-old structure. They all continue to have mode of production befitting a mediaval period. The labourers continue to live in an exploited condition, there being no scope for upward mobility in social or economic spheres. Thus the imperial legacy has had its bearing on the present day economy. The plantation owners, assured of a high profit rate did not find incentive to go in for other areas. Thus the industrial growth in the tea growing areas continue to draw a blank. It is noteworthy that the erstwhile hinterlands only were chosen for tea plantations. Though communication facilities were established, they were just sufficient to maintain the plantation interests. The regions continued to languish under backwardness. And this situation still prevail. The profits from the tea gardens are not locally ploughed back, but diverted to developed areas like Bombay (in case of Tata Co., etc.) Calcutta (in case of Assam Frontier Co.etc.) and so on.

As an illustration of this exploitation, in Kerala, the employment in tea estates declined in the period between 1950 and 1978. But this period saw an increase in crop area as well as in productions. While land productivity rose by 120% over the period, labour productivity rose by 175%, which explains labour saving. However there has been no proportionate rise

in their wages in conformity with the productivity rise. While money wage rose a little, real wage fell in the period. (Size of the tea estates in the South being smaller, labour input per hectre has remained stagnant in 1970's showing that there is no further scope of rise in labour productivity, that the labour is already working in fullest capacity, that further improvement must be on land). We also see that whereas a labourer earned an average Rs.3,000/- per annum (excluding fringe benefits), according to an RBI study, the tea estate employees earning more than Rs.3,000/- per month received an average Rs.62,962/- per annum in 1977-78. This disparity and exploitation is simply hard to believe.¹⁸

That the planters consider the estates only as a source of extracting the largest possible profit without any care for investment in improvements is shown by their dividend policy. Tea plantations (including a major tea company from Kerala) top the 20 industrial groups in dividend-net profit ratio. In 1980-81 it was 52%. In 1981-82, in spite of a 76% fall in net profits, the ratio rose to 163%.¹⁹ Thus they were drawing on reserves. It is really surprising how after that, the planters gather courage enough to seek higher and higher incentives. Though the labour force of the tea industry is of a huge size, they too cannot take up the cudgel against the management as they are mostly illiterate and devoid of any imaginative leadership.

¹⁸ Tharian George K, Quick Profits over Larger Production, EPW, March 24, 1984, p.495

¹⁹ Business standard, March 18, 1983

So we accept the hypothesis that industrialization of a backward economy is not dependent solely on natural resources, but mainly on political leadership.

4.3 Hypothesis B

Infra-structure is a basic necessity for growth of industries. Infra-structure means the basic amenities required by the industries or for that matter any modern institution. For instance no organization or institution can do without proper transport facility, adequate communication facility etc. The modern day mechanisms all depend on a high degree of division of labour. That means wide dispersal of different inter-related industries or intra-industry operations. So without adequate communication facility the production process cannot go on. Therefore such facilities are pre-requisites for industrial development.

A most important requirement of the industries is power. Without power no wheel can rotate which is the very symbol of industrial revolution. So to give momentum to the very base of the industry power is an imperative. If there is no power only tiny home based units manufacturing handicraft items can be run, but not a single modern industry. So power which is a basic infra-structural element has to be pre-available before setting on the path of industrialization.

However there is an exception to this. There are some agro-based industries which can do without or with little power. Because these industries are mostly labour intensive. There is no complex operation through machinery involved here. One such instance is sericulture. The silk production industry is an

agro-based industry which is done entirely by labour. No wonder the silk industry flourished in Assam in the ancient times. During British era, silk earned the distinction of being the top export item.²⁰ It is a truism to say that the infra-structure was grossly insufficient in those days compared to now when the state and also the country are having to import silk from China. Improvement in infra-structure has not helped in improvement of this industry. Or in other words the industry was earlier doing well even in poor infra-structural conditions. Such instances seem to negate the contention that infra-structure is a pre-requisite for industrial development. But then those industries are rather designated as handicrafts due to their mode of production, so their conditions do not make for the general industrial norms. Therefore we can discount their negation of the importance of infra-structure for industrialization.

The Assam State Electricity Board (ASEB) has an installed capacity of generating 484.4 MW of electricity as on March 1987. However the actual generation is around 220 MW. This is less than the demand of 340 MW during the peak period which is between 5 p.m. to 10 p.m. in a day. This deficit is made up by import from Meghalaya and Loktak in Manipur. But during the off peak-period the demand is less than the generation. It is noteworthy that the industries are generally run in day shift which is therefore, during off peak period. So there is still scope

²⁰ See Chapter on Textile.

for more industrial connections from the state power grid. No wonder the plant load factor (PLF) of ASEB was as low as 29.6% in 1984-85.²¹ However it would not be possible to raise power production by ASEB as things stand now. Because almost the entire power produced is thermal power, thus necessitating more fuel, to be imported from outside the state, if the power production is to be increased. ASEB has incurred an accumulated loss of Rs. 935 crores till March 1989.²² So for any rise in the power output it will have to resort to cheap hydal power.

This means that with a little bit of planning and rationalization of power distribution the production and PLF can be raised. But for that the demand has to increase in off peak-period. That demand is deficient in off-peak period which is the normal industrial hour shows that industries have not exploited the available power in Assam. Because the peak demand of electricity starts only from 5 P.M. i.e. in the evening. But the work-hour of the industries is 8 A.M. to 4 P.M., which is outside the peak period. This demolishes the common belief that industries have not come up here for lack of power. However we cannot yet conclude that this proves the insignificance of power availability as a factor in industrialization. Because

²¹ Assam Tribune, 20.3.1988; Report of Task Force in Economic Development of Assam, Guwahati, 1988.

²² Report of the Committee on clause seven of Assam Accord, Planning Commission, Govt. of India.

though there is surplus power available in off peak period the tendency of ASEB officials is to dissuade or at least procrastinate new applicants for power connections; they might be apprehensive that the peak demand for power will rise with new connections. A programme of new industrial connection on the condition of tight power rationing in peak hours have never been tried. So the new entrepreneurs are not getting connections. Therefore the potential power surplus in off peak period has been non-existent for them.

The industries have otherwise also suffered due to nature of functioning by ASEB. The per unit cost of production of ASEB as on March 1987 is Rs. 2.12 which is perhaps the highest in the country. Low PLF and excess manpower have contributed to it. Employees per MW generated is 71 in ASEB against all India average of 27. The transmission system also is too old; frequent disruption occurs in it. This is another reason of power loss. All these conditions have to be improved.²³ The infra-structural backwardness of Assam is proved by the fact that the installed power capacity per 1000 population was only 17.5 KW in Assam against all-India 57.3 KW in 1984-85.²⁴ According to an estimate, total installed capacity in Assam as on March 1987, is 507.67 MW. Of this as much as 482.4 MW is thermal power. Only 2 MW is hydel power and 23.27 MW is diesel-based. This is

²³ Report of the Task Force on Economic Development of Assam, Guwahati, 1988.

²⁴ Report of the committee on clause seven of Assam Accord, Planning Commission, Govt. of India.

very odd as Assam abounds in hydal power potential. Also the thermal power is costlier than hydal. There is a strong case for ammending this situation and increase hydal power.²⁵ It is also notable that private power generation capacity with diesel power generating sets has reached as much as 23.27 MW. The rest 484.4 MW capacity belongs to A.S.E.B.

Another important infrastructural facility is the Railways. The North-East Frontier Railway established in 1958 looks after the Railway network in the state. Though the railway history of the state is more than a century old, it is yet very under-developed.²⁶ Though this railway serves as many as nine states (Assam, Arunachal Pradesh, Bihar, West Bengal, Manipur, Nagaland, Mizoram, Meghalaya and Tripura), it accounts for only 6.3% of the country's total route kilometre. There is only a single track coming to Assam and North-East and that too used to be a meter-gauge line till very recently. Naturally political bandhs and floods etc. can easily disrupt the entire network very easily. The political troubles due to Bodo agitation have halted entire railway traffic for a quarter of a total time. Disruption caused by floods even exceeds that on some segments.²⁷

²⁵ Basic Statistics of North Eastern Region, 1987, p.82

²⁶ In 1881 a private tea company 'Assam Railway & Trading Co.' had laid a 65 Km long meter gauge rail line for transporting tea. The story of N.E. Railway, Assam Tribune, April 15, 1989.

²⁷ Ibid.,

Next, coming to road links we see a similar picture. As on 31st March 1983 Assam had 32,466 kms which is 2.09% of all India road length of 15,54,204 Kms. This is a bit less than Assam's share of area and population in the country, which are respectively 2.39% and 2.91%. Though almost matching in quantitative terms, qualitatively the roads of Assam remain mostly under-developed. Because, the percentage of surfaced road to total road length was 24.41% in Assam against all India 47.04%.²⁸ It is not necessary to emphasize that surfaced road is a must for proper vehicular transport. Carriage of raw material and finished products to and from the industrial plants cannot be done by unsurfaced road. Thus road links has been an impeding factor for the cause of industrialization in Assam.

It can be noted that transport and communication is basically a central government activity. The railways trunk roads, etc. are all looked after and maintained by the central government. As seen in our above discussion, Assam has been treated very badly in this sector. It is not possible for her to correct this neglect by the centre by investing in these areas on her own. Because she cannot expect to mobilize the requisite resources.

The government of Assam has not been able to invest sufficient fund on transport and communication. The total outlay in the

²⁸ Basic Road Statistics of India 1982-83, Transport Research Division, Ministry of Shipping & Transport.

three consecutive years were as follows:²⁹

1984-85	---	Rs. 26.69 crores
1985-86	---	Rs. 39.29 crores
1986-87	---	Rs. 42.87 crores

Though there is a rising trend in these outlays, the amount are very small, so the state has not been able to develop the transport and communication properly.

From the above analysis it is abundantly clear that infra-structural facilities have remained under-developed in Assam. So the industrial entrepreneurs have been constrained by lack of congenial atmosphere for industrialization. But a similar backward state Orissa is doing well in terms of industrial development. Because there the public sector organization IDCO is seriously looking after the infrastructural development. So "industrial infra-structure by and large is a pre-condition for industrial growth."³⁰ However it should be noted here that we have discussed only physical infra-structure here. The financial infra-structure is discussed in the chapter 'Capital, Labour and Market for Industries.'

²⁹ Annual Financial Statement 1986-87, Govt. of Assam.

³⁰ Industrial Development in a backward region, S.C. Patnaik, 1988, p. 138.

Industrial development in India during the early part of this century was very low . That too was ascribed to the inadequate infra-structural facilities which was deemed a pre-requisite. "The supply constraints which inhibited a higher rate of industrial growth in India could not have been broken except by massive social overhead investment if no scope could be found for the full application of the available resources, it was because the infra-structure was lacking." ³¹

So we accept the hypothesis that infrastructural facilities must precede expansion of industrialization in backward regions.

³¹Industrialization in India, R.K.Ray, 1979, p.343

4.4 Hypothesis C

In the exuberance of setting on the path of industrialization, the newly industrializing nations or economies often tend to overlook an important issue. That is the employment angle.

The employment issue has close political implications. A socialist or democratic country, which profess to look after the welfare of the citizens as the supreme objective, would go in for more labour intensive projects. So their industries would have high employment. Sometimes they choose capital intensive projects. But gradually the employment in these ventures add on to convert them to labour intensive ones. These happen through addition of work staff in administrative wings. It has happened in Indian Railway. This organization when started initially had a good technological level to begin with. Of course the engines Indian Railway opted for was first generation ones when the western countries had gone for the second generation ones. But considering that was more than a century ago that should not have left any serious effect on the capital-labour ratio. But presently the Indian Railway boasts of being one of the biggest employer company in the world. In Assam, Assam State Electricity Board (ASEB) has earned a very dubious distinction. Its employment is totally disproportionate to its production level. As mentioned earlier, employee per MW of power generated is as high as 71 against an all India average of 27 which itself is a high one.³² Such a high employment ratio

³² Report of the Task Force on Economic Development of Assam, Guwahati, 1988.

cannot be defended on any ground. It must have taken place through political decision to add on to the employment strength.

The Coal India Ltd., (CIL) faces the unenviable situation of an enormous labour force. It is trying now to decrease the workforce by offering attractive retirement package. In view of enormous expenses on labour it is beyond the company's capacity to invest in latest modern machinery like longwall machinery which are used in underground mining. It has been calculated that out of a total of 7,00,000 strong workforce of CIL, as many as 50,000 are redundant.³³

Contrary to the prevalence of labour-intensive technologies in developing countries like India, the western developed countries have introduced sophisticated capital intensive technology in their industries. A high degree of automation is a common feature among industries in developed countries. Therefore these industries can absorb very few persons. So unemployment is rising in these countries. This has compelled countries like United States of America to give regular unemployment bonus to the idle citizens. Increasing social crimes in these countries can also be attributed, to some extent, to this unemployment problem.

Now what are the impact of low employment on macro economic level? The labourers as a class constitutes a major part of the

33

The company has launched a golden handshake scheme to retire these employees. The target for 1989-90 is 5,000. *Economic Times*, August 23, 1989.

population. So they account for a very considerable part of the national income. As the industrial labourers are basically urban dwellers they have a high propensity to consume industrial consumer goods. It is said, "Labourers spend what they earn, capitalists earn what they spend,"³⁴ So, the labourers as a class gives rise to higher demand for industrial products. So, for industries to gather strength, there have to be a local labourer class in the economy. Therefore the industries in an area has to employ local population to the extent possible. Otherwise the industries themselves will suffer from demand problems and their existence itself will be at stake. The industries from developing countries cannot also expect to rely solely on export market like their counterparts in developed countries. Because the former lack the requisite competitiveness for their products which are generally of higher costs and lower quality than the goods produced by sophisticated industries of developed countries.

Of course this is not to say that the industries will have to employ larger and larger number of people as labourer. Because viability of the industry is the first consideration. But it would not be prudent for the industry to go in for full automation. A backward economy with its surplus labour force has comparative advantage in labour intensive products. So any industry in a backward economy should first explore the possibility of establishing labour intensive ventures.

³⁴ Passinetti, Luigi L., Growth and Income Distribution : Essays in Economic Theory, Cambridge, 1974.

Employment of local labourers in an industry enables the growth of savings and consequent investment in trade and industry. An industry can therefore contribute to the process of further industrialization and economic development of the place, it is located in, through linkage effects.

To the contrary, if employment is pre-dominantly non-local, then their income is mostly taken out of the region. Also the region loses the scope of deriving benefit from entrepreneurial effort of these labours had they been local. The industrial labourers learn new skills which help themselves and their fellow people in venturing into some manufacturing ventures of themselves. The region loses the benefit of this technical skill. However to facilitate the process of recruitment of local employees, the major industries like tea, plywood etc. would have to shift their head-quarters or at least the recruitment work to inside the state from outside as of now.

A small scale unit in drug and pharmaceutical industry in Guwahati, when surveyed by us informed that they have 14 employees whose wage and salary come to around Rs. 35,000 per month. Most of these employees are non-local as the skilled workers are not available yet in Assam. So in a year more than Rs. 4 lakhs goes out of Assam just in wages and salary of this one unit. There are many such industries which have yet to develop a strong technical manpower pool. Such industries include plastics, Electronics, Chemicals etc. However in three industrial units surveyed in the present study, it was observed that they employed non-local

labourers as they were preferred on grounds of loyalty, discipline etc. Anyway, with increasing pace of industrialization, it can be imagined that a fairly high amount is going out of the state through these technical hands. In 1979 there were as many as 85,455 workers in registered factories in Assam. Of these 12,345 were in government run factories and 73,110 in non-government units.³⁵ It is quite likely that a significant number of these non-government factory workers are non-local. That means a huge outgo of resources to outside the state. Moreover, not only the labourers, even the entrepreneurs themselves take out the surplus generated in the industrial units, in cases when they are non-local. Owners of plywood and tea industries are such examples. It is note-worthy that the factory employment figure is very low compared to the total population figure of 199 lakhs. But then small factory workers account for quite a bit of income especially by the standard of a backward economy. The wage and salary per person employed in these factories (mostly tea) was Rs. 3,000 in 1978-79. Although it was exactly half of the all-India figure Rs. 6,000 it was fairly high for Assam.³⁶ Because per capita state domestic product in Assam was only Rs. 1,242 in 1980-81.³⁷

Most of the time the local labourers happen to be untrained, inexperienced and unskilled. So employment of these people may sound very risky. This apprehension of the industrial employers

³⁵ Directorate of Economics & Statistics, Assam.

³⁶ Ibid.,

³⁷ Ibid.,

has been mentioned earlier. But after systematic in-house training they can become skilled and expert. The Tata Company TISCO had achieved the great feat of raising their labours' productivity from 5.52 tonnes in 1918-23 to 36.32 tonnes in 1935-39.³⁸ The glass industry of India which started with Japanese and Austrian workers could indigenise the entire work force by 1932.³⁹ These show that a previous unskilled and illiterate group of people can be converted into skilled and efficient labourers if systematic efforts are made to that end. When Tata started TISCO they had to pioneer many activities including the labour training facilities. In Independent India the situation is a lot more better than in those days. There are many state run technical institutions. A backward region can now start from a higher base and with greater comfort.

So we accept the hypothesis that unless industrialization provides employment to local people, the region cannot derive the benefit.

³⁸ Industrialization in India, R.K.Ray, 1979, p.226

³⁹ Ibid., p225

4.5 Hypothesis D

Raw material procurement is a problem factor for landlocked regions. Assam is a typical example of this. Her condition can be compared to that of Nepal. Nepal gets all her supplies through India. She imports through the Calcutta port. The goods are allowed to be passed through India and enter Nepal at some fixed transit points. As per the international law a country gets this access. However due to some political developments (which include Nepal's import of weapons from China) Indo-Nepal relationship got strained in 1989. Several transit points were closed down and exports of essential commodities from India to Nepal were regulated. Now in these instances India has not violated the international law because the Calcutta port is still allowed to be used and two transit points are still open which suffice as India's responsibility to Nepal as per international law. But pure legalistic fulfilment has not been enough for Nepal. This proves that for a landlocked region the international rule for passage through other country is not enough. The seriousness of it is underscored by the fact that Nepal is a tiny and backward country. So, for a bigger and more developed country the law would be even more inappropriate. There is a case for more liberalization of this transit rule; however that must not jeopardize the economic and political interest of the passage country. Given the conflict of interests of land-locked country and passage country, as seen in case of Nepal and India, we would suggest that the land-locked countries should normally go in for such industries which do not much depend on outside supply of raw material.

Industries based on locally available raw material should get highest priority. The second priority should be to those industries which can utilize raw materials of the adjacent countries having trade relations. These countries in the interest of export may not stop flow of these raw materials. Thirdly, a strategy can be formulated for establishing joint venture industries in collaboration with the passage country. The passage country would normally not like to see her joint ventures suffer from lack of raw material and is therefore expected to ensure regular flow of it.

Fourthly, a regular buffer stock of the most essential raw materials may be raised. It would give a leeway for the country in case of any political problem with the passage country and the ensuing traffic blockade. However, in this case due to the cost of inventory the cost of production would go up and the country would either have to subsidize the industry or impose tariff on imports of substitute commodities.

Fifthly, the landlocked country can form a common market with passage country. This will open up enormous scope for her. We have discussed details of this in a separate chapter. But the point is that if the passage country is friendly enough to form common market, she would not prohibit entry in the very first place.

In case of regions within a country, the problem is not so severe. But there are other problems. The traffic may be disrupted by natural calamities like flood, which is a regular pheno-

-mena in Assam, Floods in elsewhere along the route, like U.P. and Bihar as happened in the mid-eighties, can also disrupt traffic. Domestic political trouble in an adjacent state through which the traffic comes, may also disrupt flow of goods. Assam used to suffer whenever there was long bandh given by Gorkha National Liberation Front (GNLF) in demand of autonomy for Darjeeling region. Later on the problem shifted to inside the state. The AASU and AAGSP sponsored long bandhs in the state of Assam to fight their battle against immigrants. There have been many movements against industrial and general economic backwardness too. All these lead to suspension of any kind of traffic within the state. The Bodos of Assam have been demanding a separate homeland. In pursuance of their demands they also organized road-blockades to exert economic pressure on Assam, and for that matter on all states of North East India. Many goods containing trucks and trains were damaged. The Lipton Company lost one truck full of tea. Such uncertainties compelled the insurance companies to withdraw coverage of goods transited through this route. Such bandhs stopped inflow and outflow of goods completely for some period of the other during any year.

Though we have talked of many options all of them are not feasible.

The formation of common market is possible only in a friendly atmosphere. The same holds true for setting joint ventures of utilizing raw materials of the passage country. The cost of building up a buffer stock of raw materials would also be

exorbitant. So the Hobson's choice is to develop those industries for which the country has own raw material.

Regarding technical personnel we have already accepted the hypothesis that the industry should provide employment for local people if the local economy has to derive the benefit of further industrialization and demand growth for industrial products. That means the industries must over time develop own pool of technical personnel even if it has to begin with outside technicians.

So we accept the hypothesis that the strategy for industrialization in a landlocked region must be based on self-reliance with regard to raw material and technical personnel.

4.6 Hypothesis E.

We have discussed it in details in the introductory chapter as well as during the discussion on hypothesis B; and on the strength of those observations we accept the hypothesis that Assam is a landlocked region and her economy is basically a subsistence agriculture economy.

We have examined five hypothesis and found all of them acceptable and true. On the basis of this we would recommend these hypothesis as part of our suggested strategy **for** industrialization in a landlocked, backward and subsistence agriculture economy.

...

CHAPTER - V

PROGRESS AND PROBLEMS OF INDUSTRIALIZATION IN ASSAM.

5.1 Forces determining industrialization process

When it comes to formulating strategy for industrialization, there cannot be any hard and fast rules. The process of industrialization depends on many economic and non-economic variables including social and political ones. Their interactions create a situation where these forces nullify or strengthen one another. In such a backdrop a definitive policy of strengthening one particular factor at the cost of others may turn out to be counter productive. So the policy makers have to be extra careful in their work.

Then we have to think of the local factors. Situations and conditions vary from region to region. A uniform policy cannot hold good for all of them. The backward regions have their own peculiar circumstances that have to be taken into account in formulating the policy for industrialization.

Even when all these local and special forces are taken into consideration, there is still one more dimension to be reckoned with. That is time. Because all set of conditions and factors are bound to change over time. Thus in brief, space and time, the ~~two~~ major factors in relativity physics come into force in Economics also. We shall not delve further deep into this topic because that is outside our purview.

5.2 Basic needs of industries

Next we would broadly categorize different requirement of industries under six heads - man, machine, material, money, market and management. These six 'M's constitute the main wheels of industries and development. Three of these factors are also discussed in the chapter on capital, labour and market in details. In the present chapter we allude to only the general problems. We know that man works on the material with the aid of the machine. This process is the value addition process which is the essence of any industry. So policies that have any bearing on industries and industrialization must consider these three basic factors at the same time. They have to be approached in an inter-disciplinary and integral manner.

5.3 Supply and demand constraints

A backward subsistence agriculture economy suffers from low productivity. Due to poor resource base not much development can take place. In the atmosphere of low level of urbanization and commercialization these economies do not see much development and very little diversification takes place. As a consequence demand for industrial good remains low. Again due to poor availability of agricultural products in such an economy the industries suffer from lack of raw materials. Thus industries suffer from both supply and demand constraints.

However in the context of Assam the supply constraint does not seem to be much strong. As we have shown in the chapter on agro-based industry there are scope for numerous, agro-based industries here. The only troubles for Assam may therefore be in the demand front. In order to remove that impediment the agricultural productivity and per capita income in that sphere have to be greatly improved. In 1985-86, yield rate of rice in Assam was only 1155 kgs per hectare against 1568 kgs. in all-India and 3199 kgs in Punjab.¹ This happens in case of several agricultural products. However there are exceptions like tea. But the profit generated in tea is taken out of the state. Eventually we find that the per capita income in Assam is only Rs.569.70 against all-India Rs. 782.60 in 1984-85 at 1970-71 prices.² It may not be possible to raise the per capita income and hence demand for industrial goods within the state in the short run. So market outside the state has to be explored.

Establishment of some big industries in the state also may not lead to further industrialization by the spread effects. This has been seen in Orissa, where modern manufacturing plants at

¹Deptt. of Economics and Statistics, Ministry of Agriculture, Govt. of India.

²Das H.N., A new Paradigm of development; regional imbalance and Assam, seminar paper, Guwahati, 1985.

Rourkela, Talcher, Koraput, Hirakud etc. have not led to industrialization elsewhere in the state. Instead there has been spread effect for distant places outside the state.³ In Assam also very little industrialization has taken place on the basis of tea and oil industry. Bihar, one of the richest states of India in minerals cannot boast of many big industries. This fact has to be kept in mind when taking up any industrialization bid, and appropriate planning has to be done to materialize the spread effect.

5.4 Lack of skilled workers

Any industrialization programme calls for a huge reserve of skilled and unskilled workers. These workers can come from the group of under and unemployed people from agricultural sector. A subsistence agriculture economy would be having a huge number of such people. As on 31st December 1986, there were 7,41,851 educated unemployed in Assam in the live register of employment exchanges, who were unskilled and without any degree.⁴ With proper measures these can be converted to a reserve pool of industrial workers. So the lack of labourers should not pose as a problem in the process of industrialization in Assam. But then there is a catch. The sophisticated and modern industries require

³Patnaik S.C. , Industrial development in a backward region; dynamics of policy, N.Delhi 1988, p.61

⁴Statistical Hand book Assam, 1987.

more of skilled workers. Even for other industries quite a significant proportion of the workers required are skilled ones. Thus skill is an imperative for a great number of industrial workers. Now the economy which used to have a subsistence agriculture as its mainstay or a region which is backward does not generally have many skilled workers. So skill have to be imparted to the workers. They have to be trained on newer and newer techniques of production. However even before that, programmes would have to be taken up to motivate those workers who are presently underemployed in agriculture, in industrial work culture. Vocational training centres, Polytechniques, engineering institutes, industrial training institutes can be set up to teach industrial skills to the local youths and workers. Course structure of these should be as per demand for specialization in the local industries. The supply and demand of skilled workers would then match.

Some people may argue that the industries can be run even by workers brought from outside the state. But in such a case the local labour force remains idle and thus they derive no benefit in spite of jobs having been created in their own region. Also the outside workforce would remit their income to their home state. So their income would be spent in their own states. Thus the state where the industry has been established is deprived of the multiplier effect that would have taken place if the money was spent there. The economy loses a potential growth force. So

the domestic workforce should be trained and recruited into industry.

5.5 Ancillary industries

Whenever a big industry is set up, the ancillarization may not take place unless due attention is paid at the planning stage itself. The Rourkela steel plant (RSP) buys annually spare, stores, raw material and other things worth Rs. 150 crores. But only goods worth Rs. 10-12 crores are bought from within the state.⁵ Thus Orissa has lost a big market to outside. With proper plan ancillary industries could have been developed within the state to supply these items. In Assam also the tea industry can help develop numerous ancillary industries. The 4.5 lakh workers employed in the tea gardens of Assams as daily wage labourers need a huge quantity of clothes, umbrellas, cane baskets, hawai chappals etc. The tea processing factories need motors, CTC machines, flat trays, belts etc. For nourishment and care of the tea bushes sprinkler system, pesticides etc. are required. But out of so many things, only the CTC machines are produced within the state. Rest all come from outside the state.

Whenever there is a serious attempt for industrialization in an economy, some service and foot-loose industries have necessarily to come up there. Because these are pre-requisites

⁵Patnaik S.C., Op. cit., p. 64

for the industrialization process. These are Printing, Carriage, Hotel etc. As Assam is on the verge of a major industrialization drive, these industries have seen enormous expansion in recent times. This is seen in case of printing, which has been discussed in a separate chapter exclusively. This industry has already faced overcapacity in the state. Rather than allow such unplanned mushrooming growth, the requisite service industries which have not yet been established can be systematically planned as ancillary industries of the large & medium industries which are going to be set up in the state.

5.6 Power Shortage

Power shortage is a very big and common problem for industrialization. The wheels of industry cannot move without power. Assam is constrained by the problem of scarcity of power. The major problems in the power supply of the state occurs due to malfunctioning of the 240 MW Bongaigaon Thermal Power Station (BTPS) which accounts for 47% of installed capacity of Assam State Electricity Board. The BTPS used coal brought from Raniganj in Bihar and whenever the railway movements are restricted due to floods, bandhs, non-availability of wagons etc. severe shortage of coal arises. In such times it cannot produce even 100 MW. Actually the output of four power stations of ASEB at Namrup, Lakwa, Chandrapur and Bongaigaon generate only 157 MW on average.⁶

⁶Economic Times, April 22, 1990

The rest of the power required by the state is imported from North-Eastern Electric Power Corporation (NEEPCO), Meghalaya State Electricity Board (MSEB) and National Hydel Power Corporation (NHPC). As the peak demand in Assam is 360 MW, the import is about 200 MW which is more than the domestic production.

Table 5.1

Installed capacity and generation of power in power stations under ASEB as in 1989

A. Existing

Sl.No.	Power Station	Installed Capacity	Actual Generation in normal times
1.	Namrup Thermal Power Station (NTPS)	133.5 MW	60-70 MW
2.	Lakwa Thermal Power Station (LTPS)	60 MW	22-24 MW
3.	Chandrapur Thermal Power Station (CTPS)	60 MW	30 MW
4.	Bongaigaon Thermal Power Station (BTPS)	240 MW	120 MW
Present Total		493.5 MW	232-244 MW

B. Proposed

5.	Amguri Gas based Power Project	360 MW
6.	Karbi-Langpi Hydro-Electric Project.	100 MW

Sources: (i) Assam Tribune, July 21, 1989.

(ii) Economic Times, August 10, 1989.

As seen in table 5.1, the maximum output of power in the state is 244 MW. But there were instances of the production going down to as little as 94 MW which happened in May 1989. This created a severe power crisis. Even in normal times the power stations of Assam produced less than half the installed capacity. The May '89 output was even less than 20% of the installed capacity. This happened due to break-down of machinery of the power stations. The then chairman of ASEB himself attributed the break-down to "lack of planned maintenance of machinery by ASEB," (Assam Tribune news item, July 21, 1989).

Thus the power scenario of Assam leaves much to be desired. Though ASEB is going to establish a 360 MW gas-based power project at Amguri, the situation cannot improve until the engineers and technical workers of ASEB improve their maintenance skill and regularity of feed-stock supply is assured. The proposed 100 MW Karbi-Langpi Hydro-Electric project is an illustration of gross inefficiency and mismanagement of ASEB. There has been inordinate delay in completion of this project leading to cost over-run.

Strong action should be taken right from the planning stage to avert a possible under-utilization of capacities due to power shortage. The power intensive industries should be made to have their own captive power plants. The industrial policy of Assam, 1986 offered subsidy on generating sets. The Industrial Policy of Assam, 1991 has raised it to 50% of the cost with a ceiling of Rs.10

lakhs. This includes devices for non-conventional energy also. However in our view, the power intensive industries should be discouraged as much as possible and industries consuming less energy should be encouraged. But in all industries energy saving mechanism should be incorporated compulsorily. Incentives should be offered to the industries to go in for such technologies. Wherever possible waste energies should be recycled to the manufacturing process thereby increasing the degree of exploitation of energy. Industries should be encouraged to rotate their shift so as not to let demand rise abnormally in any shift. Some of the normal day-working factories should be encouraged to change to night operation intermittently.

5.7 Marketing of indigenous products

Marketing is the most weak point of industries in a backward region. These industries often have very high quality products. However products of such local or regional (or domestic) industries cannot always match the products of industries working in national (or international) level. The producers from backward region/country find that the producers operating in national/international level have been monopolizing the market with their trade-marks well entrenched. To get over the strong consumer loyalty to such brands is a difficult proposition. It is also not possible to impose any regulation in the open market. But the government of the backward region or country may offer incentives

to the traders so as to deal in the local/domestic products. This incentive may be in the shape of tax relaxation for dealers of local/domestic products. However to earn such preferential treatment, the local producers must prove their products to be at least equally good as the established brands. They must also ensure uninterrupted production and supply of their products to the customers so that no scarcity occurs of the product in question. If all these conditions can be met with, a quantitative stipulation for dealing a minimum proportion of locally/domestically produced goods can also be imposed upon the traders. It would then be a bounded duty of the government also to ensure regularity of government purchase of these products. Given that the other conditions like quality, quantitative standard etc. are satisfied, the producers from the state or the region should be given preference in purchase by the state government, local administration and others. Over and above that the local producers should get some price preference. Because due to larger cost of transportation, higher rates of wages of skilled labour etc, cost of production is much higher in backward regions. However, to mitigate these, one can argue for transport and wage subsidy as well.

5.8 Subsistence Agriculture

Subsistence agriculture of an economy acts as a back-pulling force for its industrialization process. This happens

because in such an economy capital formation is very poor, whereas capital is the basic pre-requisite of the industries. Agriculture suffers from low productivity. So the income of the people dependent on agriculture is very low. There are also the problems of under and unemployed people in the rural sector who also depend on agricultural sector to derive subsistence. So the agriculture simply cannot generate any surplus. Thus capital formation is almost nil. This is a handicap faced by all subsistence agriculture economy. For instance, the tardy growth of industries in Orissa has been ascribed to the backward agriculture of the state.⁷ On the other hand we have seen a far greater degree of industrialization in states like Punjab and Andhra Pradesh. Because these states are benefitted from the boon of green revolution. The revolution set in by Norman Borlaug created history in these places. productivity and consequently income in the agricultural sector zoomed. This led to primary accumulation of capital. These capital financed innumerable small scale industries in Punjab. In case of Andhra Pradesh these capital was initially invested in Film industry. But later on here also industry could attract the capital. Thus in these two states improved agriculture has acted as the industrial growth force. This growth force is lacking in those areas where agriculture remains in a subsistence condition. Therefore prominent economist like

⁷Patnaik S.C., Op.cit, p. 64

Sukhomoy Chakravarty also opined, "Strengthening the productive base of backward states requires a major attempt at raising their agricultural productivity per hectare."⁸ Economists from Assam also have echoed similar sentiments. Veteran economist M.N.Goswami has opined, "..... a vicious circle has developed to retard the economic development of the North-Eastern Region as a whole. Inefficient and stagnant agriculture is delaying industrial growth while sick and inefficient industries are retarding agricultural development by increasing the pressure of population on land."⁹

5.9 Lack of effective demand for industrial products

The subsistence agriculture economy impedes industrial growth in keeping demand low. This happens like this: in a subsistence agriculture economy, the productivity and hence income of the people are low. As these economies are agrarian economies, agriculture constitutes a major part of the state domestic product. In such a state, if the income from agriculture remains low the total income of the state also remain proportionately low. Hence the per capita income of the people also remain low. With

⁸Chakravarty S., Development Planning: The Indian Experience, 1987, p.50

⁹Goswami M.N., in forward to 'Agriculture in Assam' (ed.) P.C. Goswami, Guwahati, 1989, p. xi

a low per capita income people cannot afford to buy industrial goods like consumer goods. So the per capita income condition has to improve. However that by itself will not guarantee increase in effective demand for industrial product. Redistribution of the income is equally necessary. However it is not possible to implement such programmes in a mixed economy like India to the fullest extent as was done in China. So while for a socialist state redistribution of income alone can help increase the demand for industrial products, in mixed economies like India growth and redistribution will have to be resorted to together. The case is even stronger for Assam with the major portion of the state economy being generated in the primary sector, as seen from the table 5.2.

Table 5.2

Percentage share in State income by
different sectors in Assam
(at current prices)

Sectors	1950-51	1960-61	1970-71	1980-81	1985-86
1. Primary	66.4	54.7	57.4	58.4	56.8
2. Secondary	17.1	19.6	18.5	18.7	14.2
3. Tertiary	16.5	25.7	24.1	22.7	29.0

Source : Statistical Handbook of Assam, 1982, 1987.

It is seen from the table that the primary sector has always contributed more than half the SDP. Pure agricultural activities

alone contributed 42.1% of SDP in 1985-86.¹⁰ As much as 77.7% of the state's workforce are engaged in agriculture which under-scores the extreme low income condition of the people engaged in this largest sector of the economy. So unless agricultural bottlenecks are removed and income of the workforce engaged in agriculture is increased, industrialization will remain a far cry in such subsistence agriculture economies.

5.10 Importance of Small Scale Industries.

In the gamut of industrialization, Small Scale Industries (SSI) occupy a distinctive status because of its flexibility and wide appeal. SSI's can be established almost in every product area as well as geographical region. Comparatively lower investment, technological flexibility, easiness to change product mix at short notice etc. are its special attraction. These appeal to the entrepreneurs and they mostly go in for small scale units when they set up industries.

"Development of modern SSI units has been one of the most significant feature of industrial development in India. Between 1973-74 and 1984-85, the number of registered and unregistered small scale units has increased by over 300 per-cent (threefold) from about 4 lakh to nearly 13 lakhs units. The value of their investment at current prices has increased by 700 percent

¹⁰ Statistical Handbook, Assam, 1987.

(seven-fold) from Rs. 7,200 crores to Rs. 50,520 crores and employment in these establishment has increased by 250 percent (doubled) from about 40 lakhs to 90 lakhs persons. The modern SSI sector now produces over 5,000 items and accounts for 26.30 percent of the GNP of India. It is estimated that the SSI sector turns out about 50 percent of the total industrial production of the country."¹¹

The tempo of growth of the SSI sector in India continues unabated. Their total number of units increased to 14.76 lakhs in 1986-87 and thereafter to 15.92 lakhs in 1987-88, registering a growth of 7.9%. The increase in production was even higher and it stood at Rs. 72,880 crores in 1987-88 (at 1984-85 prices). Employment increased by 5.5% from 101.4 lakh persons in 1986-87 to 107 lakh persons in 1987-88.¹²

From the above it is seen that the rate of growth of employment in the SSI sector has been lower than the growth of number of units as well as investment. It is true of both the earlier period 1973-74 to 1984-85 and the latest years. This points to a consistent rise in the capital intensity of this sector.

¹¹Goswami P.C., Role of small scale industries in economic development of North East India, 2nd annual IFCI lecture, Guwahati 1986.

¹²Report on Currency and Finance, Reserve Bank of India, 1987-88, Vol. I.

However the employment is increasing in absolute number consistently. On employment aspect SSI sector is more relevant than large & medium scale sector for backward regions like Assam. Because the capital investment per head is much lower in the SSI sector than in large & medium scale sector. So employment generation capacity of the SSI units is larger. So, as per our hypothesis, that backward areas should think of employment aspect more while going in for industrialization, we accept the SSI sector as the key to development of Assam.

However, the growth of small scale industries has been very slow in Assam. Even in 1971-72 there were only 911 SSI units in the urban areas of the state. From the mid-seventies this sector started experiencing growth. In March 1978 the total number of registered SSI units in the state stood at 7562. This number rose to 12,056 in March 1981. These units employed 62,000 persons.¹³ Number of newly set up registered SSI units were 773 in 1985-86 and 952 in 1986-87.¹⁴ The department of industries established industrial estates in twelve places of Assam i.e. Guwahati, Dhekiajuli, Tinsukia, Badarpur, Nalbari, Sibsagar, Nagaon, Jorhat, New Bongaigaon, Lahowal, Bihpuria and Bokajan. Till 1986-87, total 255 nos. of sheds were constructed. Out of them 215 nos. of sheds were allotted to 209 SSI units, who occupied as many nos. of

¹³ Dhar P.K., The Economy of Assam, Bijni 1988, pp. 118-119.

¹⁴ Statistical Handbook of Assam, 1987.

sheds. However it was found that only 161 nos. of sheds were actually functioning.¹⁵ The government also set up 7 growth centres at Barpeta, Goalpara, Duliajan, Kalapahar, Bonda, Lila-bari and Sariharjan, Total 24 nos. of sheds were constructed in these centres. 17 of them were occupied. But in 1986-87 only 10 of them were functioning.¹⁶ All these point to the fact that even the facilities offered by the government have not been fully utilized. There may be many reasons for this. Lack of entrepreneurship, wrong location of industrial estates and growth centres, failure of the government officers to evoke interest among the entrepreneurs, and inadequate facilities etc. are some of them.

5.11 Thrust industries for Assam

Assam should give stress on establishing industries in some particular areas where the state can have comparative advantage. Both large scale as well as small scale units can be set up in these areas. On the basis of our survey, we have identified the following industries as the thrust industries for Assam:

1. Textile based industries.
2. Agro based industries.
3. Petro-chemical based industries.

¹⁵ Ibid.

¹⁶ Ibid.

The state has definite cost ~~and~~ advantage and abundance of raw material for the above industries. The first two will generate enormous employment opportunity directly, while the third will do it through ancillary development. Textile and agro-based industries can be developed with low capital-intensity and in private sector. Their surplus generation capacity would not be very high. The capital-intensive petro-chemical industries ~~have to have~~ the involvement of public sector. As both raw material and production process are costly as well as prices administered, petro-chemical industries also cannot generate high surplus. But they will also generate employment through ancillaries.

As these industries will require many technical personnel and skilled workers, a pool of industrial workers will have to be created from among the agricultural and urban unemployed, ~~who~~ are in plenty in the state. Industrial training institutions will have to be set up throughout the state. Sophisticated technology centres like Petroleum Technology Centre, Chemical Research Institute, Textile Design Centre etc. will have to be set up so that the products of the thrust industries can keep pace with international standards.

It is heartening to note that the state already has a commendable base in the thrust areas. As in March 1981, the state had 1,162 textile based units, 2,286 agro-based units and 1,163 chemical based units in small scale sector.¹⁷ In the large and

¹⁷ Goswami P.C. , Op.cit.

medium scale sector there were 17 agro-based, 10 petro-chemical based and 3 textile based units among total 64 large & medium industries of the state in March 1980.¹⁸

5.12 Service Industries

The service industries continue to occupy a major place among the state's industries. Printing, transport operation, repair services, storage & ware housing etc. are such industries. According to one estimate, there were 209 nos. of SSI units in Assam in 1971, in the category of Repair & Services.¹⁹ Such industries bear lower risks than other industries. Therefore the banks and financial institutions give greater weight to these industries in their investment portfolios. The road transport operation, which is not even recognized as an industry by the state industry department, accounts for as much as 51% of total assistance offered by Industrial Development Bank of India (IDBI) in Assam.²⁰ Such risk averting nature of the financial institutions is giving rise to a lop-sided growth of service industries. The banks want quick, sure and adequate return which is ensured by the transport business. It is notable that transport operations

¹⁸ Dhar P.K., Op.cit.

¹⁹ All-India Report on the census of Small Scale Units, Vol.II (1977), Govt. of India.

²⁰ Industrial Development Bank of India, quoted in Goswami P.C., Op. cit, p.13.

are always compulsorily insured, whereas industries are not. But one must accept that transport is basically a tertiary sector occupation. So its development cannot exactly add to industrialization.

5.13 Inadequate finance, faulty Subsidy policy and Industrial Sickness

The small scale industries of Assam face acute fund problem. The banks and financial institutions have been unfair to Assam and North-East in offering credits. The number of SSI units in Assam rose to 13,435 in March 1982, which was 1.66% of total number of SSI units in India 8,07,629. But outstanding advances received by these units from the public sector banks were only Rs. 20.57 crores. Which was a mere 0.66% of the total all-India Rs. 3122.54 crores.²¹

The inadequate finance from the scheduled commercial banks is also seen from the lower credit-deposit ratio maintained by them in case of Assam. From the table 5.3 it is seen that the ratio

²¹Small Scale Industries in India - Handbook of Statistics, 1982, Ministry of Industry, Govt. of India.

Table 5.3

Credit-deposit ratio of scheduled commercial Banks
in Assam and all - India (Percent)

Year & Time	Assam	All-India
1982 December	41.1	68.3
1983 "	42.3	67.1
1984 "	50.4	68.7
1985 "	52.36	65.6
1986 "	51.39	63.02
1987 "	51.6	61.0

Source: (1) Basic Statistics of N.E. Region 1987

(2) Report on Currency and Finance 1987-88,
Vol. I, Reserve Bank of India.

for Assam has been consistently lower than in India. However the silver lining of the situation is that the difference between Assam and all-India is gradually falling.

Another point to be noted here is that the capital subsidy scheme of the government has hardly helped the entrepreneurs. Almost all industrialists we interviewed said that either they have not received the subsidy or received very late and after considerable palm-greasing. This means the subsidy had not served the purpose of venture capital financing, because only those entrepreneurs who have well settled in their respective industries seemed to be able to acquire the subsidy. The same is the case with seed money. We found instances of applications

lying for 4-5 years with the department of industry for even small amounts. Another argument against the subsidy is that it promotes opportunism among the industrialists. They acquire all these benefits and then manipulate their accounts to show the unit suffering sickness. Many successful industries in Guwahati have resorted to this. Also many so-called entrepreneurs establish industries and acquire the concessional finance in order to divert to trade and else where. This is also adding to sickness. No wonder as many as 60.6% of industrial units in Assam were sick in 1982. This is against a national average of 9.7%.²² This point to not only the delinquency of the bureaucrats in proper monitoring of the industries but also to a possible connivance of some of them with the manipulating entrepreneurs.

As in June 1987, as many as 3542 SSI units of Assam were sick. They comprised 2.24% of total 158226 nos. of sick SSI units of India. However there is a silver lining in this problem. The total amount outstanding of sick SSI units of Assam were only Rs. 12.66 crores, a mere 0.82% of the total such outstanding amount by sick SSI units in India.²³ This generates a hope that the situation can be corrected.

²² Industrial sickness, Gopal Bardoloi in P.C.Goswami (ed.) "Problem and prospects of Industrialization", p.144

²³ Report on Currency and Finance, 1987-88, Vol. I, Reserve Bank of India.

The problem of sickness has attacked the large & medium scale industries of Assam even more seriously. As in June 1987, six such industrial units of Assam were sick with Rs. 3 crores outstanding. Another 34 units were declared as weak with 50% erosion of their net worth. Net outstanding of these units were Rs. 47.17 crores. So total 40 large & medium industries of Assam were either sick or weak with outstanding of Rs. 50.17 crores. In this case also it is seen that share of outstanding of Assam in national total of Rs. 4195.63 crores is only 1.2% whereas the percentage of sick and weak units are 2.34% of national total of 1712.²⁴ Thus in both SSI and large & medium scale industries of Assam, the degree of sickness is less than that in the country as a whole.

In the light of above findings we think that the sick and weak conditions of Assam industries can be corrected if timely and adequate finance are made available to these. It is not subsidy and concessional finance but timely and adequate finance that is necessary. Increasing the credit-deposit ratio by the scheduled commercial banks is utmost necessary.

Regarding the scheme of subsidy, it should serve its actual purpose of neutralizing the spatial cost disadvantage between developed areas and backward areas. Also it should be received by only genuine potential entrepreneurs, not dishonest

²⁴Ibid.

entrepreneurs. So both subsidy and seed money should be sanctioned on selective basis. However any industry in non-traditional area, industries using new technologies certified by reputed institutions like IIT or RRL etc., and industries in our suggested thrust areas (textile, agro-based, petro-chemical) should be offered all concessional finance. But the service industries should be excluded from such concessional facilities. Licenses for them should be restricted to the minimum. For some industries like printing, licenses should remain closed for about 5 years considering the glut in the market. A specific time-limit should be fixed for sanction of money and grants to curb bureaucratic red-tapism. The money saved through the above cuts should be invested in developing the infra-structural facilities and public utility services, required for industrialization.

5.14 Role and impact of industrial policy

The government of India has from time to time introduced some industrial policies. These are supposed to help speed up the process of industrialization as well as ensure the welfare aspect therein.

The first industrial policy resolution was adopted in 1948. This reserved the entire infrastructure industries for the public sector. Though that was with a good motive there was no point in not giving private sector a share in this .

Naturally the most developed regions could attract the scarce resources of the government first. As a result the backward regions suffered.

The industries (Development and Regulation) Act, 1951 "aimed at providing the government with control over location, expansion and setting up of private industrial undertakings; this was intended as a lever for guiding the private sector in the desired directions. Balanced regional development, protection for small and cottage industries, and prevention of monopoly growth were the policy objectives. The act provided for setting up of several committees..... to regulate industrial development in conformity with the plan and perspectives.. The licensing procedure instead of helping industrialization, hindered it. There were lot of pre-emptions of capacity. Big business houses based in the metropolitan cities extracted more than one license for the same product.....very few of these licenses were converted into capacity..... Thus in totality the licensing procedure was a serious obstacle to the industrialization process in India²⁵

The industrial policy resolution of 1956 sought to reduce economic disparity through economic growth, larger share for

²⁵ Industrial Policy and its implications on industrialization of the backward regions, S.K.Borkakoti in P.C.Goswami (ed.) Problem and Prospects of Industrialization, pp. 63-64.

public sector and development of co-operative sector. It talked about ancillaryization as a medium of development of backward areas. However ancillary industries are developing very slowly. In Assam till 1981-82 there were 34 SSI units functioning as ancillaries. But only 3 of these were officially declared as such and the rest were "simply supplying their products to large units."²⁶

The Industrial Licensing Policy of 1970 exempted project upto investment of Rs. one crore from license requirement. But the real thrust for economic decentralization came through the industrial policy statement of 1977. This policy increased the number of industries reserved for small scale and cottage industries from 150 to more than 500. It proposed district industry centres in every district in order to help small and rural entrepreneurs.

The 1977 policy said that henceforth no more license should be issued to new industrial units within certain limits of metropolitan cities. This was targeted at taking the industries to interior and backward places. Industries wanting to shift to such locations were assured of assistance. The Industrial policy statement of 1980 retained all these features.

²⁶ Industrial Development in Assam, by S. Borbora in P.C. Goswami (ed) Problems and Prospects of Industrialization, p.98.

From this discussion we see that the backward areas have recently received some attention from the policy makers. Till the 1977 statement the policy view on backward areas was not coherent and concrete. Naturally the backward areas suffered for a long time. The policy shift from the late seventies has been reflected in the increasing rate of industrialization since early eighties. We have seen already that the number of SSI units in the country increased from 4 lakh in 1973-74 to 15.92 lakhs in 1987-88.

Assam formulated her first industrial policy during the first five year plan period. However it was not a comprehensive policy nor there was any resolution. It was embedded in the general policy followed by the government which was for encouragement of small industries in the private sector by providing different requisite facilities.²⁷

The first comprehensive industrial policy of the state was announced in March, 1969.²⁸ It resolved to assist the individual entrepreneurs in setting up industries. It offered facilities like free project reports for SSI units, subsidized project

²⁷ T.L.Baruah, Industrial policy of Assam, Assam Tribune, August 15, 1988

²⁸ Ibid.

reports for medium & large units, developed land and/or shed to the industries at industrial estates, concession in sales tax on raw materials, concession in power tariff. It suggested the industries to employ local people. It also assured marketing facility for local industrial products. These included a 15% price preference to local products. The Assam Preferential Stores Purchase Rule, 1972, was adopted subsequently.

That Assam could not maintain an equal pace of growth in industrialization with the rest of the country in the first three five year plans as well as annual plans is evident from the fact that her share in the national total of net manufacturing industries output went on falling from 2.35% in 1960-61 to 1.68% in 1965-66 to 1.62% in 1968-69.²⁹

The 1969 policy also was not properly implemented. Though the APSP rule 1972 was a good follow-up action, no central organisation for purchase of local SSI products was set up. The sales-tax act was not amended ; So industries could not avail the sales-tax exemptions. Likewise other incentives also remained in paper only.

A new industrial policy was announced in 1982, which retained many incentives offered by the previous policy. This policy sought to set up single window clearance (the facility of awarding different government permissions at one place) in Assam

²⁹ Dhar P.K., Op.cit., p. 106.

Industrial Development Corporation Ltd. (AIDC) and Assam Small Industries Development Corporation Ltd. (ASIDC) for large & medium and small industries respectively. They were named 'Udyog Vikash.' While AIDC set up the 'Udyog Vikash' for awarding about 25% of the requisite industrial permission/sanction etc. to the entrepreneurs, ASIDC did not set up this institution. Even the 'Udyog Vikash' set up at AIDC also suffered from too much of centralization of administration. The local District Industry Centres (DIC) had little authority with them. So the single window clearance scheme failed totally. Implementation of other proposals also were not good. For instance only 3 units could get concessional power tariff approved as stipulated by the policy.³⁰ This seemed more of a political decision than an administrative one.

Neither the 1969 policy nor the 1982 policy did make attempt to make employment of local people compulsory. Some of the incentives of the 1982 policy were not quite well-planned. For instance this policy offered incentive to Air-craft industries, which was an item of central list.³¹ The 'Udyog Vikash' also could not meet the expectation for lack of implementing agencies.³²

After a regional party, Assam Gana Parishad formed government in Assam, a new industrial policy was announced in 1986.

³⁰Baruah T.L., Op.cit.

³¹Industrial Policy of Assam, 1982, Govt. of Assam.

³²Baruah T.L., Op.cit.

This policy has for the first time selected the thrust areas for giving more attention. Agro and forest based industries, petroleum and other mineral based industries have been specially marked. In the line of Orissa separate infrastructure development corporation has been proposed. Actually this proposal was mooted by the earlier regime itself, but no work was done. It has also made 100% employment of local people in SSI's compulsory.³³

The 1986 policy offers many fiscal benefits to industrial entrepreneurs. The state finance tax has been reduced to make at par with central sales tax. Stamp duty has been exempted for tiny units and halved for SSI's Interest subsidy over 8%, 50% subsidy on power drawal upto limit of Rs. 20,000 are other incentives.

The 'Udyog Vikash' of AIDC and DIC's have been rechristened as 'Udyog Sahayak' with greater power. However they remain almost same in functions.³⁴

The works under the new industrial policy can be said to be somewhat better than earlier. While 'Udyog Vikash' had issued only 33 eligibility certificates to industrial units in four

³³Industrial Policy of Assam, 1986, Govt. of Assam.

³⁴Ibid.

years(from 1983 to 1986), the different 'Udyog Sahayak's at AIDC, Directorate of Industries and 17 DIC's issued as many as 209 eligibility certificates in just one year, 1987-88. During this year Rs. 25.29 lakhs were sanctioned to 33 medium and large units as incentives while SSI's received Rs. 9.56 lakhs. Growth rate of the small-scale sector shot up to 44.3% in 1987-88 from 16.8% in 1985-86 and 21.7% in 1986-87.³⁵

In 1991, another Industrial Policy was announced. This policy has enhanced the rates of allowable purchase of equity share for the assisted SSI units upto 15% of the issued capital subject to a maximum of Rs. 15 lakhs. This was earlier 10%. The resource-starved SSI sector of Assam have received a shot in the arms with the new policy exempting them from sales-tax on raw material and finished products for seven years from date of commissioning, against five years earlier. The sick units will now be regularly monitored by a government agency and requisite assistances will be offered on financial and managerial sides.

The power subsidy for the industries also has been raised to a maximum of Rs. 30 lakhs and the period to five years from date of commissioning. Generating sets would be subsidized to the extent of 50% with a ceiling of Rs. 10 lakhs. New industries

³⁵ Baruah T.L., Op.cit.; Economic Times, February 5, 1990.

with investment over Rs. 3 crores in districts where there was no large and medium industries earlier will qualify for an additional state capital subsidy of 5% to the ceiling of Rs.10 lakhs. Another generous offer to the industries is the development subsidy at 10% of fixed capital to a ceiling of Rs.3 lakhs to mitigate the multifarious costs on deeds, drawal of power lines, installation of pollution control measure, procurement of know-how etc.³⁶

5.15 Role of Public Sector Corporations in Industrialization

In India, public sector has been assigned a prime role in the industrialization process. This is because a backward economy cannot afford to squander the scarce resources in an unplanned way and leave in the hands of profit-motivated private sector. Welfare policy prevailed in the decision to give public sector a greater status. Also the development of socio-economic infrastructure and the core industries entailed a large investment. This was not forthcoming from the private sector as there is no direct return to the investor from such investments. Even when the private sector entered these areas their operation remained confined to their limited self interest. This is the reason why the government felt the necessity to nationalize the twenty private commercial banks; they changed their entire complexion after nationalization. Now the banks are needed to lend at least

³⁶ New Industrial Policy, Editorial of Assam Tribune, 10.4.91.

40% of their credits to the priority sector.

However here we will discuss only those public sector organisations which have been established specifically for industrial development, specially in backward areas.

For industrial development in any backward area, a very intensive effort is necessary. Such areas lag behind other areas in terms of infra-structural facilities. This necessitates huge investment in development of infra-structural facilities before launching any industrial venture. Sometime the raw material has to be procured from outside. Then there is the need of training an adequate number of skilled hands in addition to technical experts. Over and above, the market has to be developed or at least covered with a wide network. All these imperatives make investment in a backward area unattractive to a private entrepreneur. So the state has to come forward to establish, promote and sponsor industries.

In this context we would better analyse the experience of Orissa, another industrially backward state of the country with such public sector corporations which were established to take up the job of industrialization in the state. Of different bodies the important are - IPICOL, IDCOL, IDCO and ORITO.

Industrial Promotion and Investment Corporation of Orissa Ltd. (IPICOL) was established in 1973-74 with a view to aid and

accelerate the industrialization in the state. Its objective was to promote large and medium industries which private sector could not do on their own. It was also designed to offer single window service of different aspects pertaining to the establishment process of an industry. It has been doing commendable service in this regard. Till the end of June, 1986, as many as 110 units assisted by IPICOL have gone into production. Out of these 17 are in joint sector and 10 are in joint ventures. Of the 110 units not more than 10 units are in small scale and 7 units are in large scale, remaining units being in medium scale. Thus at the end of June, 1986 as many as 78 units were under implementation. Of these 11 are large scale units. This shows that the corporation is steadily increasing its plan and ambition. It has promoted/assisted 5 non-resident Indian projects.³⁷

All these show the extensive scale of operation of this corporation. This is certainly doing better than what the industrial corporations of Assam are doing. That is why many prominent and leading industrialists of Assam have opted for IPICOL and Orissa in preference to AIDC and Assam for their new units.³⁸ Reasons of this are not so much the attraction of Orissa as much as the apathy and dysfunctioning of the Directorate of

³⁷ Patnaik S.C., Op.cit., pp. 49-51.

³⁸ Important examples are H.P. Barooah, Chiranjit Chaliha and Girish Das.

Industries, Assam. Contrary to this, the entrepreneurs receive a red-carpet welcome in Orissa.

However there are bitter things to learn also from the IPICOL experience. As per a study at least 30 out of the 110 units which had gone into production had either gone completely sick or shown serious symptoms of sickness or were on the roads to sickness.³⁹ However officially only 11 units were declared as sick.⁴⁰ The difference in the two estimates arise from the fact that the official acknowledgement of sickness comes only after the unit is closed for commercial production.

The financial management of IPICOL also is not praiseworthy. In 1984-85 it showed a net deficit of Rs. 13.35 lakhs. Due to default by the units under it, it could collect only Rs. 240.23 lakhs interest in 1985-86 out of total due Rs. 759.58 lakhs. There was fear of IPICOL itself defaulting in its interest payment to IDBI which refinances the commercial loans of IPICOL. The latter therefore drew on its equity reserve.⁴¹ This is certainly an indication of sickness in the organization itself. The administrative structure of the corporation also is said to be faulty and top-heavy. The pre-industrial survey

³⁹ Patnaik S.C., Op.cit, p.53

⁴⁰ Ibid., p. 52

⁴¹ Ibid., p. 56

reports and feasibility reports are also not deemed upto the mark. In fact the sickness of quite a few projects under IPICOL is ascribed to the faulty project reports, their unrealistic assumptions.⁴² There is no way to ensure high quality of these reports as of now. A casual approach is said to operate in project appraisal process. All these point to the dire necessity of improving the performances by the managerial and technical staff of the corporation. Otherwise the quantitative success achieved by it would soon be marred by fast qualitative degeneration that has already set in.⁴³ As the principal nodal agency for industrialization in the state IPICOL cannot afford that.

It is note-worthy that though IPICOL had been established way back in 1973-74, it was only in the eighties that works really picked up. Till 1980, hardly 19 projects with IPICOL assistance were under production.⁴⁴ The vigorous pace of work that were set since 1981 can be ascribed to the diversification thrust of the sixth plan. Also the industrial policy of 1980 of Orissa

⁴²Ibid., p.134

⁴³Prominent economist like Baidya Nath Mishra, Deputy Chairman of State Planning Board of Orissa has termed the achievement of IPICOL as 'game of numbers.'

⁴⁴Patnaik S.C., Op.cit., p.38

gave a push to it. IPICOL found its role expanded. Thus it was political drive that set IPICOL on the fast lane. It also vindicates our hypothesis on importance of political leadership.

This change of pace was helped by the setting up of the Industrial Infra-structure Development Corporation (IDCO) in 1981. A backward region is very poor in infra-structure and communication facilities. During the sixth plan this corporation built about 440 industrial sheds in 44 industrial estates and developed nearly 1800 acres of land.⁴⁵

As seen earlier the number of joint ventures sponsored by IPICOL is not very high. A policy move to relax inhibition towards setting up more and more joint sector industries would certainly help in the cause of industrialization.

It goes without saying that co-ordination among these corporations is a basic pre-requisite, IPICOL cannot deliver the goods without smooth functioning of IDCO. Close co-ordination and rapport among these development bodies is an imperative.

Besides IPICOL the other major government organization for Industrial Development is Industrial Development Corporation Ltd. (IDCOL). This organization had in fact come up earlier, in

⁴⁵ Ibid., p.39

1962. Prior to coming of IPICOL, IDCOL had done intensive works and promoted many industries. However it had one favourable factor. It would acquire the workshop of Hirakund Dam Project as well as the assets of Kalinga Iron Works. These helped and acted as base for IDCOL. It established many new industries around these places. Then it invested in other private and joint sector industries. In these efforts the state government behaved quite patronizingly. IDCOL received the lion's share of the state's plan outlay for industries.

IDCOL has been making profits continuously for last several years. It has 10 operating units under direct control, 2 under subsidiary companies and 3 under joint sector companies. Net turnover of its own units crossed Rs. 140 crores in financial year ending March 1989. The oldest unit Kalinga Iron Works recorded 124% capacity utilization. With such success, IDCOL now has ambitious expansion plans for the nineties.⁴⁶

IDCOL and IPICOL have come together or helped each other when required. The Talcher Plant promoted by IPICOL received adequate support from IDCOL also.

Another organization closely associated with the industrialization of Orissa is ORITO. This is a subsidiary of IDBI. ORITO gives consultancy service to the entrepreneurs, prepares feasibility

⁴⁶ Economic Times, September 3, 1989.

lity reports and pursues environmental as well as financial sanctions for them. Thus ORITO aids in the entrepreneurial efforts. This organization can therefore be termed as a super-entrepreneur. But the expertise available with it is less than adequate as in the case of IPICOL. Moreover the projects formulation should take into account the changing socio-political scene also. This calls for induction of inter disciplinary approach in its consultancy service. It has tremendous scope of aligning the industrial developments in socially and environmentally beneficial directions. The corporation requires statutory power in this regard in order to prevent haphazard and unplanned industrialization which would bring a long term bad ^a impact on the society and environment. It can be made obligatory to route every project proposed in the state through this organization. However prior to that a thorough over-hauling of the organizational structure would be necessary.

5.16 Public Sector in Assam

The government of Assam also has established several organizations with a view to promote and help industries in the state. Names of these organizations are given below along with years of formation.

1. Assam Industrial Development Corporation Ltd. (AIDC), 1965
2. Assam Small Industries Development Corporation Ltd. (ASIDC), 1962.

3. Assam Financial Corporation Ltd. (AFC), 1954
4. Assam Hills Small Industries Development Corporation Ltd. (AHSIDC), 1968
5. Assam State Textile Corporation Ltd. (ASTC), 1980
6. Assam Electronics Development Corporation Ltd. (AMTRON), 1984
7. Assam Tea Corporation Ltd. (ATC), 1972
8. Assam Agro-Industries Development Corporation Ltd. (AAIDC), 1967
9. Assam Mineral Development Corporation Ltd. (AMDC), 1964
10. Assam Khadi and Village Industries Board (KVIB), 1955
11. Assam Powerloom Development Corporation Ltd., 1990

Apart from these there are the following which help in marketing of products.

1. Assam Government Marketing Corporation Ltd. (AGMC), 1959.
2. Assam State Co-operative Marketing and Consumers' Federation Ltd. (STATEFED), 1975

For infra-structural development and supply of basic inputs the following organizations exist in Assam.

1. Assam State Electricity Board (ASEB), 1975.
2. Assam Gas Company Ltd. (AGC), 1962
3. Assam State Warehousing Corporation Ltd., (ASWC), 1958

Of all these bodies the most important for industrialization is Assam Industrial Development Corporation Ltd. (AIDC). AIDC was established as a patron organisation to promote and develop industries in the state. It undertakes promotional activities like identification of possible industries, preparation of techno-economic feasibility reports for prospective entrepreneurs, development of industrial areas and training of entrepreneurs. The corporation offers seed capital, equity participation and term loan finance to medium & large scale industries. It has been entrusted with the work of rehabilitation of sick industries also. Working with an authorised capital of Rs. 30 crores, it has mobilized capital amounting to Rs. 490 crores. During 1981-89, it promoted 61 medium scale industries and assisted them with term loan totalling Rs. 44.35 crores. Out of them, 19 are hotels and tourism complexes, 7 roller flour mills, 6 powerloom complexes, and so on. Total 30 industries have already been commissioned. Under seed capital scheme the corporation has assisted 17 industries with Rs. 107 lakhs. Under equity participation scheme 28 industries have received Rs. 163 lakhs.⁴⁷

There are also several industries promoted by AIDC through its subsidiary companies. These companies are:

1. Assam Polytex Ltd. , 1985.
2. Assam Syntex Ltd., 1985.

⁴⁷ Assam Industrial Development Corporation Ltd., Silver Jubilee Souvenir, 1990.

3. Assam Petro-chemicals Ltd., 1971
4. Industrial Paper (Assam) Ltd., 1986
5. Cachar Sugar Mills Ltd. , 1972
6. Fertichem Ltd. , 1974
7. Assam Conductors & Tubes Ltd. , 1964
8. Prag-Bosimi Synthetics Ltd., 1989
9. Chemical Unit of Associated Industries (Assam) Ltd., 1959.
10. Usha Assam Galva Ltd., 1989
11. Assam Weaving & Manufacturing Co. Ltd., 1989.
12. North Eastern Tobacco Company Ltd. , 1984

While some of these are already running, others are in the planning stage. Of the above industries Assam Petro-chemicals Ltd. was the first project from Assam where public issue was made. It produces Methanol, Formal-de-hide, UF Moulding Powder, Glue (concentrated & non-concentrated) etc. Fertichem Ltd. produces NPK granulated fertilizer. Assam Polytex Ltd. and Assam Syntex Ltd. manufacture polyester viscose blended yarn. Assam Weaving & Manufacturing Co. Ltd. is a powerloom based weaving complex. Industrial Paper (Assam) Ltd. is a proposed integrated pulp & paper mill, which would produce extensible sack kraft paper and multi-wall paper sacks. It would use jute fibre to manufacture the sack craft paper and is the first such project in the world. Prag- Bosimi Synthetics Ltd. would manufacture Polyester Filament yarn. Usha Assam Galva Ltd. is a project

for GP/GC sheets. Other such projects in the planning stage are an one million tonne cement plant, a Textile Process Plant and such on.

AIDC functions as Udyog Sahayak or one-window clearing place for industrial license/sanction etc. for the large & medium industries. The corporation engaged Tata Economic Consultancy Services for identification of large & medium industries which are feasible for Assam. The TECS has identified 30 such industries.⁴⁸ It is praise-worthy that AIDC has realized its own shortcomings in preparation of feasibility report and brought in expertise from outside to compensate for that.

The responsibility of infra-structure development for the industries also has been entrusted upon AIDC. It selected several sites in the state for development. They are:

1. Malinee Beel, Silchar.
2. Numaligarh, Bokakhat.
3. Dalgaon, Darrang district.
4. Danguapara, Nalbari district.
5. Tea township, Amingaon, Guwahati.
6. Changsari, Kamrup district.

works in Silchar has been completed. The projects of Bokakhat and Amingaon are in implementation stage. The rest are yet to take off. A large part of the Changsari plot has been found to be unsuitable and AIDC is planning to return it to the government.

⁴⁸ Ibid.

The industrial policy of Assam, 1986 had entrusted AIDC with the responsibility of equity participation in the assisted SSI units to the extent of 10% and with a ceiling of Rs.10 lakhs. We have already mentioned the achievements of AIDC in this regard. The 1991 industrial policy has further increased the role of AIDC. Now it can participate upto 15% of the issued capital and to a ceiling of Rs. 15 lakhs. It is hoped that AIDC will contribute to the industrialization process in the state more with a greater involvement.

In total there are 44 public sector undertakings under the state government in Assam. These state public undertakings have a total investment of Rs. 1,048.85 crores. The biggest among them are Assam State Electricity Board (ASEB) and Assam State Transport Corporation (ASTC). They engage respectively 23,000 and 11,000 workers. But rather than help in growth, these enormous work-force are working as a drag on the growth and functioning of the two corporations. In 1987-88 they incurred loss of Rs. 134.71 crores and Rs. 3.4 crores respectively. As on 31 March 1988 they recorded cumulative loss of Rs. 560 crores and Rs. 37.36 crores respectively. During the period 1981-82 to 1987-88 the 44 state undertakings of Assam incurred a net loss of Rs. 657 crores, the biggest part of it being incurred by ASEB.⁴⁹ With the erosion

⁴⁹ Economic Times, June 22, 1988 and November 22, 1988.

of more than 50% of the net worth of the undertakings in the state public sector, the latter as a whole can be termed as weak. The weak condition of these units can be ascribed to idle workforce, financial mismanagement, administrative interference in production management, poor man-power resource base resulting in inefficient management, and most important the wide-spread corruption. Unless these ills are removed the public sector cannot make a dent in the underdeveloped state of industrialization in Assam.

Among the central public sector undertakings (CPSU) the prominent are Oil India Ltd. (OIL), Indian Oil Corporation Ltd. (IOC), Oil & Natural Gas Commission (ONGC), Hindustan Paper Corporation Ltd. (HPC) and Hindustan Fertilizer Corporation Ltd. (HFC). Apart from these corporations, several others also have their units in Assam. Most of these central public sector undertakings are oil & petro-chemical based industries.

The OIL became a CPSU only in 1981. Before that it was a joint sector venture between Burmah Oil Company Ltd. (BOC), Assam Oil Company Ltd. (AOC), its wholly owned subsidiary and the Government of India. BOC/AOC had restricted their operations to Assam only. However OIL extended itself to other parts of the country like Rajasthan, Mahanadi Basin, Bay of Bengal (at North East coast) and Arunachal Pradesh. But majority activities of OIL are those in Assam. In 1982, it set up an LPG plant at

Duliajan of 60,000 tonnes per annum capacity. In 1988-89, the production of LPG was 25,493 tonnes. OIL has established itself as one among the top ten profit making corporations of India. However its profits go to the central exchequer only, which amounts to nearly Rs. 250 crores per annum.⁵⁰ Assam receives no pecuniary benefit from the operations of OIL in Assam.

The Indian Oil Corporation Ltd. (IOCI) owns most of the Oil refineries of India. It has three refineries in Assam respectively at Digboi, Guwahati and Bongaigaon. Another CPSU, Oil & Natural Gas Commission is engaged in crude oil production. Actually ONGC produces more crude oil than OIL in Assam. In national level also production of ONGC greatly surpasses OIL. In 1986-87 ONGC produced 27.86 million tonnes of crude oil in entire India against a bare 2.62 million tonnes by OIL.⁵¹

The Hindustan Paper Corporation Ltd. (HPC) runs two paper mills in Assam, one each in Cachar and Nagaon. The Nagaon Paper Mill situated at Jagiroad is the biggest paper mill in entire Asia. However that makes it consume bamboo, the main raw material also in a huge quantity. In an earlier study,⁵² we had pointed

⁵⁰ OIL, A Corporate Profile, Oil India Ltd., Duliajan, 1990.

⁵¹ Freedom Forty-Story of Oil, Ministry of Petroleum & Natural Gas, New Delhi, 1988.

⁵² Borkakoti S.K., Industrial Policy and its implication on Industrialization of the backward regions, in Problems and Prospects of Industrialization (ed.) by P.C.Goswami, 1987.

out the necessity of captive cultivation of bamboo by the mill. The mill authority did not take any such steps and is now facing acute problems due to rise in prices of bamboo in Karbi Anglong, where from 80% of its bamboo come.⁵³ Both the Nagaon and Cachar mills have capacity of 1,00,000 tonnes per annum. In 1989-90, they achieved capacity utilization of 70% and 47% respectively.⁵⁴ Thus the Cachar unit is not running properly. Lack of adequate power supply is one main reason of that. Productivity of Nagaon unit can be improved further by installing balancing equipment including fluidised boiler. Several paper dealers told us that the papers produced at Jagiroad were not even and homogeneous. The management must improve the functioning of the mill. There is no reason why it cannot achieve the feat of Hindustan Newsprint Ltd. in Kerala, another HPC unit, whose capacity utilization exceeds 100%. With investment of Rs. 310.7 crores and Rs. 384.89 crores respectively, the Cachar and Nagaon mills have already accumulated a total loss of Rs. 380 crores.⁵⁵ Thus the two mills have already become weak industries proving our earlier fear to such end.⁵⁶

⁵³ Assam Tribune, April 9, 1988.

⁵⁴ Economic Times, May 25, 1990.

⁵⁵ Economic Times, May 3, 1990.

⁵⁶ S.K. Borkakoti, Op.cit.

The Hindustan Fertilizer Corporation Ltd. (HFC) owns and operates a fertilizer complex at Namrup, set up earlier by erstwhile Fertilizer Corporation of India (FCI) in 1969. Since then there have been two major expansions, Namrup II in 1976 and Namrup III in 1987. The total investment in the three plants is Rs. 400.16 crores. Production capacity is 3,48,600 tonnes of Nitrogen per annum.⁵⁷ However the production is not up to the mark. In 1987-88 it was only 1,54,878 tonnes achieving capacity utilization of only 44.4%.⁵⁸ The low capacity utilization can be ascribed to the problems of inadequate availability of raw material, obsolete and old design machinery and inefficient management. The factory suffers from locational disadvantage also. Since the machineries are mostly imported, non-availability of the spares in time increases unproductive hours.

In power sector, North Eastern Electric Power Corporation Ltd. (NEEPCO) has established a hydel project at Kapili. It has plans to set up another 270 MW combined cycle power station at Kathalguri.

The Coal India Ltd. (CIL) operates several mines in upper Assam. Of late their open cast mining in Ledo and Margherita area has caused great public resentment. Increased deforestation

⁵⁷ Hindustan Fertilizer Corporation Ltd., Namrup Fertilizer Complex, Namrup.

⁵⁸ Assam Tribune, February 3, 1988

has led to decreased rainfall in these areas. Agricultural lands in the surrounding areas have lost fertility due to deposition of contaminated soil. The natural water sources also have been contaminated. Sulphur content in these waters has risen dangerously. This shows that while the profit from the the CPSU's have gone to the central exchequer, the state has had to bear with the evil effects. Effluent from Namrup fertilizer factory also has contaminated the water of nearby Dilli river. Quality and yield rate of nearby tea gardens have also fallen. Discharges of toxic and coloured effluents, including mercury, from the paper mills into the nearby rivers and water sources have endangered human existence itself.⁵⁹

All these indicate that the CPSU's functioning in Assam have been highly detrimental to interests of Assam. Against that Assam has not been compensated. In 1985-86 income accrued to Assam from her oilfields were only Rs. 65 crores whereas the central exchequer received more than Rs. 1250 crores.⁶⁰ It is no use having some industries just in name. The existing CPSU's in Assam have little or marginal effect on the economy of Assam. It must not recur in case of any ~~would~~ be unit in future.

⁵⁹ Assam Pollution Control Board, Guwahati, quoted in Economic Times, May 13, 1989.

⁶⁰ Sharma A.K., Who owns Oil and Gas in Assam, Assam Tribune, August 20, 1986.

5.17 Availability of Finance

As stated earlier, the scheme of subsidies, seed money and concessional finance should be made very selective. Because resources are scarce for a state like Assam. It cannot afford to spend such precious resources in non-priority areas like service industries while manufacturing industries in the thrust areas remain underdeveloped. Concessional finance is supposed to help the entrepreneurs minimise their risk. But the risk is far less in service industries than in manufacturing industries. So these facilities should as far as possible be restricted to the industries in the thrust areas i.e. agro-based, textile and petro-chemical based industries as well as to other manufacturing industries using local raw material. Industries using new technologies and industries assuring high employment generation for the local populace also can be offered concessional finance.

Regarding the flow of finance from the scheduled commercial banks, availability and timely disbursement should be ensured. More than concessional rate, it is timely and adequate availability of finance that matter for the industries. Delay and inadequacy create problems like time and cost over-run leading to sickness. Flow of finance from the scheduled commercial banks should be abundant for backward areas like Assam. But as seen in table 5.3, the credit-deposit ratio of the scheduled commercial

banks was only 51.6% in Assam in December 1987 against all-India 61% . In order that Assam can make up for her backwardness, the rate of investment and economic growth should be higher here than all-India. So the credit-deposit ratio of the banks should be necessarily higher in Assam than in India as a whole. We recommend the target ratio as 80% for Assam. However it should be in phases so that the economy of Assam can absorb the increased flow of money. To the possible argument that all these money would go outside the state to purchase capital goods, we propose that it can be checked by developing the capital goods industries in Assam. Already Assam is a leader in the production of tea machinery. There is no reason why machinery for agro-based industries, textile machinery including power-looms etc. cannot be produced here.

A strong case for the increased flow of bank finance to Assam is the low level of primary accumulation of capital in the state. Thus there is a scarcity of capital. Next, the commercial lendings stipulates the entrepreneurs to manage their affairs in professional manner which is lacking when the finance is available at concessional rates. The concessional rates tantamount to concession for inefficiency and loss. However we are not pleading a case for stoppage of all concessional finance except to non-thrust, non-manufacturing industries. Third, with the plentiful scope for industries in the presently backward areas the

investment by the lending institutions should earn good returns.

But the trend is not a welcoming one. The total investment by the all India Financial Institutions in Assam till 31 March 1987 was only Rs. 263.65 crores which is only 0.9% of all-India total of Rs. 29,153.43 crores (both disbursements) . The percentage of sanctioned amount was even less 0.76%. The per capita assistance sanctioned for Assam was only Rs.151.92 against all-India Rs. 574.97. The sanction for Assam in 1986-87 was only Rs. 50.94 crores which was only 0.68% of the total Rs.7466.8 crores.⁶¹

The credit deposit ratio of these institutions as on June 1985 was only 53.3% for Assam, when developed states like Maharashtra, Tamil Nadu, and even Orissa secured 90.8%, 98.6% and 92.8% respectively.⁶²

Of the state level financial institutions, Assam Financial Corporation (AFC) is the most important. It came into being in 1954. Its jurisdiction covers Meghalaya, Manipur and Tripura also, in addition to Assam. However most of its activities are in Assam. Till 31st March 1987 it sanctioned loan of Rs.3264.67 lakhs to Assam which is 91.08% of its total loan sanction.

⁶¹Baruah T.L., Flow of Finance to Industries, Assam Tribune, May 4, 1988.

⁶²Ibid.

Activities of AFC is increasing gradually. In 1986-87 it sanctioned loans worth Rs. 753 lakhs against previous high of Rs. 407 lakhs in 1981-82.⁶³

The loan sanction increased even further to Rs. 12.91 crores in 1988-89. Out of this, Rs. 11.76 crores were sanctioned to 632 units in Assam. The cumulative sanctioned loans of AFC increased to Rs. 58.36 crores in 31st March 1989. These were extended to 2,968 units, out of which 2,801 were in the small-scale sector.⁶⁴ Thus AFC has pre-dominantly helped small scale industries. The increasing amount of loan sanctions over the years also suggests the comparatively greater efforts made by the Asom Gana Parishad government in the second half of eighties.

However as we said earlier in the case of all India Financial institutions, AFC also offered excessive patronage to service industries as well as tertiary sector. This happened because AFC offered loans under the refinance schemes of these national financial institutions. So naturally the pattern of financing became similar. Maximum loans of AFC have been given to road transport operators. In total 271 RTO's were given loan of Rs. 447.81 lakhs;

⁶³ Baruah T.L.,
AFC: A catalyst for industrial growth, Assam Tribune, March 22, 1988.

⁶⁴ Economic Times, August 1, 1989.

this was 15.28% of the total loan sanctioned upto 31 March 1987.

However the major beneficiaries of AFC were the Plywood industries and the saw-mill units. Till 31st March 1986 total 85 such industries were financed by AFC.⁶⁵ Though as a commercial organization AFC did well to finance such forest-based industries of the state, actually Plywood industry has done enormous harm to the state economy. All over the globe deforestation has created problems for people. Scientists attribute the increased floods in Assam also to the denudation of forests in the state. In such a case plywood and saw mills should be totally excluded from all financial benefit. Expansion of the existing units also should not be allowed unless department of forest, pollution control board etc. give clearance for the same. The industrial policy should categorically declare it so that a clear guideline is set for financial organizations like AFC.

The portfolio investment of AFC need to be re-examined and an attempt be made to concentrate in the thrust areas we have specified e.g. textile, agro-based and petro-chemical industry.

Regarding the loan procedure, the corporation has simplified it to a great extent. Now the entrepreneurs need not register mortgage deed. The branch manager and regional managers have

⁶⁵Baruah T.L., Op.cit.

been authorized to sanction loan upto Rs. 50,000 and Rs.2,00,000 respectively. An equipment finance scheme for existing units has been started to give loan upto Rs. 60 lakhs for purchase of additional machinery or equipment.⁶⁶

However the operation of AFC need to be expanded greatly. Though it is doing well the coverage should be widened. For that the capital base has to be enlarged. Presently it has authorized share capital of Rs. 10 crores and paid up share capital of Rs. 5.22 crores only. The corporation is raising fund through issue of bond. In 1986-87 such fund was Rs. 260 lakhs which was about one third of its total sanction in that year. IDBI refinances its loans to a considerable extent. In 1986-87 it was Rs. 343 lakhs. But that can be increased still further.⁶⁷

5.18 Suggested features of industrialization drive in Assam

An industrial programme drawn out for Assam long back pointed out several features to be included in an industrialization strategy.⁶⁸

These were roughly as follows:

- (a) Assam being a boarder area calls for urgent development.

⁶⁶ Ibid.

⁶⁷ Ibid.

⁶⁸ Industrial programme for the fourth plan for Assam, NCAER, New Delhi 1966, pp. 5-7.

- (b) The prime need of Assam is of spreading scientific and technological outlook among people. Vocational training is one side of the planning. Another is to develop small scale industries with involvement of local entrepreneurs, local capital and local labour; this would be an autonomous factor in the growth of local resources.
- (c) Large scale ventures should be in those areas where the state has advantage of natural resources as well as where there are great linkage effects to facilitate further industrial growth.
- (d) The need based consumer goods industries which have good need locally can be set up in small scale sector.
- (e) The resource based industries, if they have wide market outside the state and if they can stand in market competitions, should be established in large scale sector.
- (f) Growth of Small Scale Industries depend on agricultural productivity. If agriculture growth rate is less than the population growth rate, per capita availability of agricultural produce falls. The surplus available for industrial purposes also falls. However in case of large industries, their growth will depend

on change in all-India supply and demand.

- (g) Administrative units smaller than district may be given full-fledged industries office if the district is too large or industrially important.
- (h) There is scope of developing entrepreneurship among the non-tribal section of the population.
- (i) Delays in the preparation of suitable detailed project reports, delays in acquiring land, non-extension of power line in time and many other such reasons have delayed the implementation of industrial projects in Assam.
- (j) In priority, the local resource based industries come first. Next come the industries "which serve as important inputs for the development of primary and other sectors of the economy".⁶⁹
- (k) "The small industries in Assam have to cater largely to local demand for consumer products. Hence a special survey to assess the requirement of consumer products in each district, both by types and quantities, has to be undertaken."⁷⁰

⁶⁹Ibid., p.18

⁷⁰Ibid., pp. 21-22.

CHAPTER VI
CAPITAL, LABOUR AND MARKET FOR INDUSTRIES

6.1 Need and source of capital

Capital is one of the basic factors of production. Actually it is a produced means of production. But it determines the quantity, quality and many other dimensions of the production process. For instance capital influences the choice of technology. The technology again determines the mode of production and the quality of the products. Thus capital determines the quality. Savings, a major source of capital again determines the investment amount and thus capacity of production. So capital also determines the quantity of production. A whole host of parameters involved with the production process thus hinge upon the capital factor.

Industrialization and for that matter all sorts of economic development call for investment of capital. So capital accumulation is a top-priority in the economic agenda for any economy.

This necessity of capital accumulation is all the more important for the type of economy which in our representative model is the landlocked and subsistence agriculture economies. These economies perform at an abysmally low level equilibrium. To break this equilibrium and to generate growth forces so as to lift it to a higher level equilibrium, a massive investment programme is necessary. Such investment programmes generate economic forces that encourage more and more

investment in different sectors. However for all investments capital have to be accumulated.

However, generation of the required capital i.e. the process of capital formation is not very simple. Because to generate capital present consumption has to be sacrificed. Nurkse said, ".... society does not apply the whole of its current productive activity to the needs and desire of immediate consumption, but directs a part of it to the making of capital goods, tools and instruments, machines and transport facilities, plant and equipment - all the various forms of real capital that can so greatly increase the efficacy of productive effort..... The essence of the process, then, is the diversion of a part of society's currently available resources to the purpose of increasing the stock of capital goods, so as to make possible an expansion of consumable output in the future."¹

The source of capital accumulation is savings. Thus the problem of capital accumulation finally boils down to that of savings. So in any discussion of capital accumulation, the behaviour of savings has to be analysed. Because in the ultimate analysis the key to the capital problem lies here.

¹Nurkse R., Problems of Capital Formation in underdeveloped countries. p.2

However, there is one more source of capital accumulation. But this is not so prominent and so significant like the source of savings. It is foreign aid and foreign borrowing. It accounted for 5.7% of total investible resources in the sixth plan.² The remaining 94.3% of the resources came from savings. That is why we have identified the problem of capital accumulation with the problem of savings.

6.2 Capital formation in India: Rate of savings and Investment

We should therefore do well to analyse the savings scenario of the national economy. It is not possible to do this exercise for the Assam economy as data are not available. Moreover there has been no census in this state. So in any case no up-to-date picture could have been obtained. Therefore we opt for the next best alternative - Indian context. The average picture of Indian economy is however far better than Assam's on counts of agricultural or general economic conditions.

²The Sixth Plan (1980-85)

Table 6.1

Net Domestic Savings as percent of Net National
Income at factor cost.

(both at current prices)

Year	Percent
1950 - 51	5.7
1955 - 56	9.7
1960 - 61	8.7
1965 - 66	11.6
1968 - 69	10.7
1973 - 74	14.1
1978 - 79	22.2
1979 - 80	19.5
1981 - 82	14.9
1982 - 83	12.5
1983 - 84	12.9
1984 - 85	12.2
1985 - 86	15.0
1986 - 87	14.4

Source : Compiled from Report on Currency and Finance,
Reserve Bank of India

From the data it is seen that the aggregate savings ratio considerably increased in India in the late seventies. It rose from 5.7% in 1950-51 to 22.2% in 1978-79. This is a

considerable achievement even by international standard. Between 1968-69 and 1978-79 the ratio more than doubled. Such rise was possible because of a steep rise in marginal savings ratio which increased from 16.8% during the third five year plan to 39.4% in 1978-79. It acquires added importance in view of the fact that the non-monetised sector accounts for as much as 20% of India's GDP. Also population growth rate has increased from 1.35% in 1941-51 to 2.1% in 1970-81.³

However the savings ratio fell down considerably in the decade of eighties. From the peak of 22.2% in 1978-79 it fell to as low as 12.2% in 1984-85. This fall must be due to a steep fall in the marginal savings ratio. In the eighties a consumerist culture set in India. With the opening up of the Indian economy to the international economy as part of the conditions set by the International Monetary Fund (IMF), a massive innovation took place all over. Specially there took place an automobile revolution. All these brought down the savings ratio.

For economic development this savings should be converted into capital by way of investment. But the capital

³ Aggregate savings of the Indian Economy, P.K.Mitra, New Delhi, 1986. pp. 29-31

formation has not been of an equal order. There is reason for that. Some capital is consumed by way of depreciation; then there is capital losses or destruction. So gross fixed capital formation should be necessarily higher than the net investment; and it is the latter which equals the net savings. But in the context of investment we should consider the gross fixed capital formation in order to get a full picture of the capital scenario. It rose from the level of 9% of GDP in 1950-51 to 19.7% in 1978-79.

Table 6.2

Gross Fixed Capital Formation as percentage
of Gross Domestic Product
(both at current prices)

Year	Percent
1970 - 71	15.66
1975 - 76	17.88
1978 - 79	19.7
1979 - 80	19.33
1982 - 83	20.14
1984 - 85	19.54
1986 - 87	21.65

Source: Compiled from Report on Currency and Finance, 1981-82 and 1987-88.

This shows that there has not been a very extra-ordinary change in the investment scene, as is generally made out to be. The gap between the net domestic savings ratio and gross fixed capital formation is accounted for by several factors. Non-monetised capital formation in the rural sector and foreign savings are two of them. Another reason of the rise in the investment rate in the 70's was the higher inventory in food-grains. Even if the excessive high growth years are left out of consideration, the average annual rate of inventory investment in the decade turns out to be 2.5%.⁴ And that is 1 percentage point higher than the earlier decade.

Thus as a whole there has not been a sea-change in the investment scene over the decades. And if we estimate the gross fixed capital formation at constant price (1970-71 prices), it was found to rise from 11% of GDP in 1950-51 to about 18% of GDP in the end of 1970's. This seems sensible. Because the rate of growth of national income has remained almost constant at 3.5% per annum during this entire period.⁵

There is an important point to be noted here. While the net domestic savings as percent of national income started to fall after 1978-79, the gross fixed capital formation as

⁴Capital Formation and Saving in India 1950-51 to 1979-80, Report of the working group on savings, RBI, 1982.pp.44-48.

⁵Ibid

percent of GDP almost remained constant. It is because the consumption of fixed capital is rising, which is a disturbing phenomenon. Fixed capital consumption now absorbs almost one-half of the gross domestic saving.⁶ Little wonder, the gross fixed capital formation as percentage of GDP almost consistently stand 50% higher than the net domestic savings as percent of net national income.

However one point deserves attention here. It is true the savings and investment rates have not changed much over the years. But when seen in absolute value they are not very insignificant. Savings and investment in the region of 18-22% of GDP are quite respectable. Against this backdrop the 3.5% annual growth of national income calls for examination of investment portfolio etc.⁷

6.3 Savings & Investment at national level

As mentioned earlier the foodgrain inventory is very high in India. Even excluding the excessive years it stood at an average 2.5% of GDP in the 1970's. Then there is the investment in high capital intensive projects like power generation, transmission and distribution. At the end of 1977-78 nearly 44% of total fixed capital in the entire

⁶ Reserve Bank of India, Annual Report 1988-89, p.4

⁷ Capital Formation and Saving in India, op. cit

factory sector came under this head. And at that time this power sector had a fixed capital to value added ratio of nearly 10 against a less than 2.5 in the entire factory sector as a whole. Such investment therefore checks national income growth.⁸ Additionally there are other factors like inefficient capital use, under-utilization of capacity etc. Also there is the inventory build-up in the government offices because of installation of computer, automatic copier and such other devices.

Thus contrary to common belief the savings-investments in India did not start from too low a base in percentage of GDP. Then there have been further rise in these. But due to many factors, returns have been less than proportionate. Thus the incremental capital output ratio (ICOR) has become very high.

Now if we went to analyse whether this All-India experience can be repeated in Assam's case we have to first examine the sectoral savings in all-India scene.

⁸Ibid.,

Table 6.3
Percentage of Savings of the Different Sectors in
Total Savings - All India.

Year	Public Sector	Domestic Corpora- te sect- tor	Household Sector		Total House- hold saving	Total Domest- ic Savi- ng
			Finan- cial assets (a)	Phy- sical assets. (b)		
1950 - 51	17.7	6.5	3.5	72.3	75.8	100
1955 - 56	11.5	6.2	39.7	42.6	82.3	100
1960 - 61	20.5	9.3	31.8	38.4	70.2	100
1965 - 66	27.5	4.3	34.5	33.6	68.1	100
1968 - 69	19.6	1.9	25.2	53.3	78.5	100
1973 - 74	18.6	5.3	39.1	37.0	76.1	100
1978 - 79	19.3	1.7	37.3	41.7	79.0	100

Source: P.K.Mitra, Op.cit., p.34. He computes the data from
RBI occasional papers, June, 1980.

It is seen that the public sector accounts for about one fifth and the household sector about four-fifth of the savings. The share of domestic corporate sector is minimal. Now in the context of Assam and for that matter any backward region the public sector is almost non-existent or very weak. In fact by the dictates of industrial policy of India, Assam should have received considerable attention as a backward area. But that was not to be. So the public sector savings would be negligible

here. In the absence of infrastructure and other facilities the domestic corporate sector also has not developed much. So the sole hope lies on household sector.

6.4 Level of Savings in Assam

But the income conditions of people in Assam is worse than all-India. In 1980-81, the per capita state domestic product of Assam was Rs. 1,242.30 against all-India Rs.1,557.00 (both at current price)⁹. Then even as late as 1981 only 10.3% of Assam's population (projected) are urban against all-India 23.3%.¹⁰ This is important because in India as much as 81.73% of total savings accrue in urban area (in 1976-77). Rural savings in India has fallen from 25.54% in 1950-51 to 18.27% in 1976-77.¹¹ With a slow pace of urbanization Assam therefore cannot hope to change her poor savings situation very soon. Her population is pre-dominantly rural. She is lacking in a bulging urban population who could generate a lot of household savings. These generally come through the income of salaried class as well as the private business in unorganized sector which are mostly run by the household sector.

⁹ Statistical Handbook, Assam 1981; Basic statistics of North Eastern Region 1987.

¹⁰ Basic Statistics of N.E. Region 1987

¹¹ P.K.Mitra, op.cit., pp. 52-53

A rough idea of the comparative position of Assam in monetary savings can be sought from the amount of bank advances. Because the latter tending to be a proportionate figure for investment would also be proportionate to the savings amount. In December 1985, the advances of the scheduled commercial banks in the state stood at Rs. 507.31 crores.¹² It turns out to be 10.62% of the SDP of Rs. 4,777.3 crores for 1985-86.¹³ How pathetic is Assam's condition can be easily seen from the fact that at the same time the total bank advances in all-India stood at Rs. 56,325.94 crores. And that was 28.78% of net national product of Rs. 1,95,707 crores.¹⁴

A cause of the low savings in Assam may be the all-pervasive poverty in the state. According to a report, as much as 73.67% of the population in Assam lived under the poverty line in 1970-71.¹⁵ The poverty line was considered at monthly income level of Rs. 48 for Assam against Rs. 40 for all-India since cost of living was 20% higher in Assam. And the more disturbing phenomenon was that while 77.38% of rural population lived under poverty line, in urban Assam also as much as 40.14% population were poor.

¹² Basic Statistics of N.E. Region 1987.

¹³ Statistical Handbook, Assam, 1987.

¹⁴ Basic Statistics of N.E. Region, 1987.

¹⁵ Fifth five year plan Draft, Vol III, Planning and Development Department, Assam p.1

A reason behind the activeness of the household sector in India as a whole is the increasing availability and penetration of financial instruments. The financial intermediation ratio increased from 0.33 in 1955-56 to 0.78 in 1976-77.¹⁶ However Assam does not have such a wide availability of bank etc. On 31st March 1987 Assam had total 981 bank branches while there were 53,265 branches in all India (on 30.6.86).¹⁷ Against the all-India average of 0.13 lakh persons per branch, a branch in Assam has to cover 0.2 lakh persons.¹⁸ However that generates some hope that increasing the number of financial institutions will bring a change in the savings scene. Presently there has not been much effort by banks in Assam to encourage investment and thereby more income which will generate more savings. The credit deposit ratio of scheduled commercial banks languished at a mere 51.39% (on Dec. 1986) against all India 63.02%.¹⁹

However even a better banking net work also would not drastically change the household savings in Assam because of her wide-spread poverty and pre-dominant rural character. Therefore the solution will have to be explored in the public sector. So, for any major industrialization drive the capital

¹⁶ P.K.Mitra, op.cit, pp. 52-53

¹⁷ Basic Statistics of N.E.Region 1987

¹⁸ Ibid.

¹⁹ Ibid.

will necessarily have to be supplied by the government. In the long run a private corporate sector can also be expected to come up if a group of entrepreneurs emerges from the scanty urban population. However in the near future the onus of supplying industrial capital will squarely lie on the public sector.

6.5 Role of Labour in Industrialization

In the context of industrialization, labour is an important factor to reckon with. No wheel of industry can rotate without labour. Labour is an elementary input in economic production unit. Land, labour and capital are the three major elements. Labour constitutes part of the variable expenditure of any production venture. Thus labour dominates and rules the general production decisions as well as determines a major part of the cost of production. Often the economic viability of a unit depends on the quality and role of the labour force.

Labour force consists of two categories - skilled and unskilled. The proportion of these two in industry depends on the technique of production. The more sophisticated and capital intensive industries need higher proportion of skilled worker compared to unskilled workers than a less sophisticated industry. The labour intensive technology calls for greater use of unskilled labours.

6.6 Pre-dominance of Labour-intensive technology in India

Historically India has been subjected to the fate of having to do with labour intensive technology. There are many reasons for that. First, the colonial legacy left India with some industries. But most of these were simply mineral extraction industry using labour intensive techniques. Second, India is a highly populous country. So the political decisions and welfare economics have impelled the planners to go for labour intensive techniques so as to give employment to the bulging work force. Of course the second five year plan was an exception. Following the Mahalanobis model, it gave top priority to capital good sector and encouraged capital intensive technology. But subsequent plans took the strategy of balanced growth of the economy and development of labour intensive industries as employment growth became an imperative. Third, the country started from a depleted economic state at the time of independence. For diverse reasons she has been unable to strengthen her resource position significantly. Dependence on external borrowing is going up every year.²⁰ Thus there is resource crunch that rules out proliferation of capital intensive projects. Also the import content of

²⁰ As on March end, 1989, India's total outstanding foreign medium and long term debt stands at about Rs.76,000 crores or over \$50 billion. If short term liabilities are included the debt exceeds Rs. 82,000 crores. This makes India world's fourth biggest debtor after Brazil, Mexico and Argentina. (ET, March 13, 1989).

the capital intensive industries is very high, thereby necessitating greater expense of precious foreign exchange. Fourth, the avowed socialistic pattern of society as professed in the constitution of India calls for dispersal of industries in the small sector rather than concentration in a few hands and places. This lowering of scale of production necessitates recourse to simpler and less capital intensive technology; capital intensive projects would need higher scale of production and they even would not break even at this low volume production. Fifth, the rising population pressure on land has created underemployment and disguised employment in the rural agricultural sector. So there is need to generate self employment by motivating these surplus labour force to absorb themselves in rural industries. These rural industries have to be necessarily small and unsophisticated ones. Because they face infrastructural problem, financial difficulty, marketing hazards, lack of easy availability of know-how etc.

As a result there is predominance of labour intensive technology in different projects and ventures of India. This suggests that there is greater strength of unskilled labour in the country's numerous industrial plants

6.7 Pre-dominance of Unskilled Labour

So in any analysis of industries and industrialization, availability and performance of unskilled labour assume

importance. That is, in the context of Indian industries, the pool of unskilled labour plays a key role.

Coming to the specific, a backward region has further problems. We find such a case in Rajasthan. A case study deals with the tribal workers of Udaipur City in Rajasthan.²¹ This region is a land locked one. The population is backward. The tribal people from among whom these industrial labourers come live in a subsistence agriculture economy. So the place in which the study was done has characteristics similar to that of our case-study.

The Rajasthan study finds that the poor economic condition of the people has made them go for employment in industrial units. Even though the living condition did not improve after coming to the industrial township compared to their village life, the tribal people flocked to the industries. There they work hard and as casual labourer, because with their state of illiteracy or low literacy it is not possible for them to get well paid job. They did not learn any skill while in village so as to get skilled worker's job. So they became temporary and unskilled worker. While so becoming, they tend a hope that after sometime they will

²¹ Tribal workers in an industrial setting, G.D.Kabra, 1987. The study covers 160 tribal workers who work in different type and size of industries. These workers came from the nearby villages of the city.

become permanent and that they would be able to learn some skill so as to get themselves promoted. It has been observed that industries like yarn and chemical have more such scope than mineral industries. This means that where there is greater value addition in the manufacturing process there is greater scope for promotion. Because there is greater value addition in yarn or chemical industry, the pay structure also is good in comparison to mineral industry. The overwhelmingly unskilled nature of tribal workers is evident from the paltry number of tribal workers in the yarn or chemical industries, which need mostly skilled worker. In two yarn industries employing between 750 to 800 workers, tribal workers number only 36 and 15. A 25 year old chemical industry has only 13 tribal in its 448 strong workforce. These findings suggest that the sophisticated value-added industries necessitating skilled workers do not depend on tribal workers. So in case such industry is to be set up in a pre-dominantly tribal or for that matter backward area first there will have to be skill training arrangement.

Generally all the large scale industries are sophisticated industries. So the share of tribal workers tend to be low in large industries as a whole. And it is found true in the Rajasthan study. It reports that many large scale industries employ only 2 to 4% tribal workers. From this study it is found that the large scale industries do not get a smooth

sail in the backward areas as far as their labour requirement is concerned. Two such examples in North-East India are Tuli Paper & Pulp Mill in Nagaland and Parasuram Cements Ltd. at Tezu in Arunachal Pradesh. Both of them depend on labourers from outside their respective states.

Against that the small scale industries do not face problem. These industries are based on low volume, simple technology production. They need unskilled workers at low wage rate. The poor marginal farmers and landless agricultural workers from the villages accept these jobs though the conditions do not improve much for them. But they find the work hours lessened than in agricultural operations in village and a greater degree of regularity of work. That was why in this study the tribal workers were found to constitute more than half of total workforce in many small scale industries.

A very distinctive feature of the tribal workers is their low level of politicization.²² They seldom partake of trade union activities.²³ Also they live as a separate social group among the workers. This may have created scopes for

²² Not a single tribal was found to be member of any political party.

²³ 60% of the tribals studied had no trade union membership. It may have been due to their temporary, casual status. But of the members, only 2 were found to be regular attendants of union meetings.

exploitation by the management. This may also be a reason for low level of employment of the tribals in large scale industries. But these two traits work in favour of regular working of industrial production. So the tribal workers were found to gradually endear themselves to the management. Now this satisfaction is of high importance for the entrepreneurs in backward areas. They cannot afford to lose production due to labour unrest or a labour absenteeism. On both the counts tribal workers have proved to be of strategic importance. This augurs well for the cause of industrialization in tribal or backward people dominated regions.

The findings of the Rajasthan study is very relevant for Assam. Assam is a land locked and subsistence agriculture economy. 10.9% of her population were tribal in 1971 against all India 6.9%. Even a large chunk of the remaining population lives like the tribals i.e. they depend on the nature for their livelihood, as the agricultural sector engages 76.6% of the state's working force.²⁴ With people from such background, any large scale unit to come up in the state should enjoy good industrial relation.²⁵

²⁴ Economic Survey, Assam 1985-86

²⁵ In 1982 there were industrial disputes in 6 units only. In 1983 also situation was equally satisfactory in Assam. In 1984, 22 units had disputes. But that too is not so high. (Ibid).

6.8 State and Characteristics of work-force in Assam

As per 1971 census, Assamese population had a literacy rate of 28.1% against all-India 29.5%. So on that count, the people here are not less eager to innovations and industrial enterprises than elsewhere in the country. 28% of the population are workers. The work-force is pre-dominantly male. Female workers constitute only 8% of the total.²⁶

With rise in population and expansion of education the number of educated unemployed is increasing rapidly. As on end of March, 1986, the total unemployment figure stood at 6.46 lakhs. This indicates the availability of requisite work-force for any industrialization programme. It can also be noted that as much as 53% of total job seekers are educated.²⁷ Therefore with some training, all the requisite skilled personnel required for industries can be had from within the state.

For vocational and industrial training, Assam has 11 Industrial Training Institutes (I.T.I) and 233 apprenticeship training centres. But they are not utilizing their capacity fully. In 1985, 2822 students were on the roll of the I.T.I's though their total capacity was 3713. Again out of 233 apprenticeship training centres, only 182 had training facilities.²⁸

²⁶ Economic Survey, Assam, 1985-86

²⁷ Ibid

²⁸ Ibid.

These under-capacity utilization of training facilities indicates lack of absorption facility for the successful trainees. Therefore it can be said that Assam no more poses scarcity of skilled and semi-skilled labourer for industries.

6.9 Appropriate technology and industry-mix to suit Assam

In the context of availability of abundant unskilled and semi-skilled labourers and lack of sufficient investible savings, it may be suggested that Assam should go in for industries with labour-intensive technology. These require less investment and absorb more work force. Large-scale industries being capital intensive are not suggestible unless they are set up in the public sector. The public sector can mobilize requisite resources and also arrange for in-house training of its personnel. For the private-sector we would recommend only small-scale industries with tested labour-intensive technologies.

Naturally these small scale-industries have to be based on local resources. Considering the massive availability of agricultural resources, agro-based industries can be set up in Assam. These require small investment and can engage local labourers. The Regional Research Laboratory of Jorhat has come up with many technological innovations suitable for adoption by agro-based industries.

Textile is another area where many local people can be absorbed. Weaving is a traditional expertise among the Assamese

people. So the powerloom-based weaving complexes can be a suitable industry in view of its low overhead cost.

6.10 Problem of Small Market

A backward economy generally suffers from smallness of the market for most of its products. And market is the most important factor for sustenance of the pace of industrialization. But that growth force is unfortunately absent in backward areas. The landlocked economies find it even worse. And when the agriculture is at subsistence level the income condition of the masses happen to be very low. This atmosphere is not conducive to development of demand for industrial goods. So the industries have to look beyond its frontiers. For instance Assam sells most of her tea, plywood and crude oil as well as petroleum products outside the state and in case of tea even outside the country. However that may not always be possible. For an independent country the export to another country has many aspects - political, social and financial - the hard currency requirement which may not be available with her. For a region within a country the problem is less severe. Technically there should be no problem at all as all regions within a country constitute a single market. But in many developed countries the regions have their independent fiscal and other administrative policies which bars or facilitates outside sellers. The problem is worse for a backward region vis-a-vis developed

regions. The latter with their better infrastructural facilities enjoy cost competitiveness as the backward regions. These backward regions face economic and political barrier even when dealing with region within the same country.

However if the backward region can produce unique and special products, it will develop a monopoly market in other parts of the country and abroad too. In case of Assam, tea, plywood, petroleum, muga-silk and endi-silk are such products. But raw material problem and natural limitations may thwart expansion drive as in case of muga-silk and endi-silk. Also a general industrialization programme targetted at economic development and employment generation cannot remain restricted to unique and special products. So development of new market outside the region is an imperative for the industrialization programme.

6.11 Common Market strategy

Thus a common ailment faces the backward regions both intra and internationally. Therefore it may be possible for both type of economies to try some like remedies. One such measure is development of common market.

The concept of common market has been popularized by the success of European Economic Community (E.E.C.) common market. The EEC has in its fold twelve countries. Initially it began

with just six countries in the year 1957. Over the years it has gained strength and now it accounts for as much as 40% of international trade. This includes trade among the member countries. If that is excluded their share still becomes 23%. From this it is seen that the formation of the community has led to a high trade among the member countries to as much as 17% of the whole international trade. Without the existence of the community each country would have had to compete with the all other countries of the world to get share of other member country's imports. Their mutual trade would have been certainly lower. Also their total trade vis-a-vis the rest of the world would have been lower than present 23% level. It is seen from the fact that when the membership of EEC had increased from six to nine in 1973, India found her sugar export to EEC checked. She was allotted a quota of 25,000 tonnes. This was done to safeguard the interest of the new members of the community. Because of these quota which gradually assumed greater significance, India finds her exports to EEC almost stagnant while imports continue to rise. India's import increased from Rs. 1,008.14 crores in 1976-77 to Rs. 2,732.01 crores while exports marginally increased from Rs. 1,395.30 crores to Rs. 1,464.69 crores.²⁹

²⁹Yojana, April 1-15, 1982.

Other such common markets are European Free Trade Association (EFTA), Council for Mutual Economic Assistance (COMECON), Association of South-East Asian Nations (ASEAN), Latin American Free Trade Association (LAFTA), Central American Common Market (CACM).

EFTA consists of those European Countries which are politically antagonistic to EEC member countries. But it has not prospered well as the economically stronger countries including England are members of EEC. The COMECON member countries consist of East European and socialist countries. India enjoys a special status in her trade with these countries, because of her good rapport with the socialist block. The ASEAN member countries have close liaison with the United States. So India does not find much favour with ASEAN. All these show that the common markets pose political problems and barriers for the non-members. But the member-countries benefit in the process. Newly industrializing countries may find membership of a common market an adequate insurance for assured market.

6.12 Necessity of big market for capital goods industry

It is well known that industrialization through emphasis on capital goods helps faster growth than industrializations through consumer goods. Because the capital goods gives rise to consumer goods industry automatically since the products of

capital goods have to find market. This leads to development of capacity in consumer goods industry. But if one starts with consumer goods, then capital goods industry may not develop and these may be continued to be imported. So growthwise capital goods industry is preferable. In this context also common markets assume importance. Because they offer a greater market which is very essential for capital goods industry. A backward economy may not offer the required market for the capital goods within the frontier. And the developed countries being entrenched in the world market as capital goods producer, a newly industrializing country needs some protections for her industry. That is possible within the protective barrier of a common market which is sufficiently large to offer a reasonable size market. This facilitates production at optimum level.

This discussion about the necessity of big market for capital goods industry will have relevance in the present study if we can put up a case for such industries in Assam. Earlier in this chapter we discussed the scarcity of capital and low savings in Assam and hence the advisability of setting up small scale industries. But we also said that the public sector with its enormous resource mobilization capacity could go in for large industries. There may also be a consortium approach by the private sector. In view of the massive industrialization potential, there is enormous scope for capital goods industries in

Assam. In fact Assam has already earned a distinguished position in manufacturing of tea processing machinery. Recently a plant has been started for manufacturing printing machinery. Assam can go in for manufacture of a wide range of machinery required for agro-based industries as well as textile industries. These two types of industries have been identified as thrust industries by the present study alongwith petro-chemical industry. There is a strong case for going in for vertical integration in these areas. We have excluded the machinery industry for petro-chemical industries, as there may not be other market for it near and around Assam for different reasons. But agro-based industries have good potential in other North-Eastern states as well. And textile industry, specially powerlooms are coming up every where. So the market of boarder countries like Bangladesh, Nepal, Bhutan and Burma can also be tapped.

The Latin American common market LAFTA had developed in 1961 with such an objective. Initially there were seven members which increased to eleven numbers by 1970. However this group was not successful in attaining a big common market. Initially they had agreed to reduce duties and tariffs by 8%. However it did not take place and was reduced to 2.9% in further negotiations. One of the reason to this opposition was the realization that the main beneficiaries of any tariff lowering will be the multinational firms who maintain production facility all over Latin America and will be able to expand more rapidly

than others to avail this new market. There was also strong disparity among the members in the level of economic development and their sizes. Argentina had GDP per Capita in manufacturing eighteen times that of Bolivia. Such situation made the less developed countries fear of domination by the stronger ones and made them cautious. Another reason of the interregional trade was the higher prices of Latin American manufactures compared to produces from outside countries. So a country preferred to import from outside than from another Latin American country. Another negative factor has been the change of governments in Brazil and Argentina following the formation of the group. The new military rulers were oblivious to inter-regional co-operation. They wanted to export outside the continent as much as they could and tried to do as much industrialization as they could. Military rivalry and fear of one another's low cost propelled these countries further on this path.³⁰

6.13 Feasibility of common market for Assam

It is a moot point whether the concept of common market is applicable to a region within a country. Common market, as it stands now, denotes only a group of independent and sovereign countries which decide to lift trade barrier among them. But it is our conjecture that the common market concept can be

³⁰ Industrialization in a Latin American Common Market, An ECIL study prepared by Martin Carnoy, Brookings Institution; pp. 13-27

very well extended to regions within a country. In that case the member regions will maintain uniform fiscal measures. For instance Assam and other north-eastern states have different taxation rates. Also there are price-preferences and subsidies in different degrees. Thus profitability varies in different states. So a commodity which is profitably sold in one state, may face unsurmountable fiscal barrier in another. A common market strategy may remove these constraints and help create a big market for the commodities.

Question is how can landlocked region like Assam form a common market with other region ? She may do it together with other North-East Indian states, as well as West Bengal. The whole North-East except Tripura had used to be one state. Rising ethnic - based political aspirations have played havoc on the economic integrity of the region. While the political aspect is beyond our purview we would recommend the formation of a common market here. Inclusion of West Bengal may be gainfully considered. It is because this region would then acquire sea access which would make a dent on the constraint of landlockedness.

In the formation of a common market due importance will have to be given to the industrial requirement of the individual states. Assam may benefit by an entry into other North-Eastern states; but may suffer if clubbed together with

West Bengal as the latter happens to be well advanced in industrialization. Under such circumstances, a well devised list of commodities may be prepared where different items suit different member states and act as complementary to the others. However there may remain necessity of production of already installed capacity in some other items in which the respective states do not enjoy the highest cost competitiveness. In such cases the states concerned would find not only no market in other states but also lose the domestic markets to other states. Under such circumstance the commodities in question may be kept outside the purview of the common market. So we would recommend that only a few commodities should be considered for the common market to start with. These may be selected after detailed cost analysis, which is beyond the purview of the present study. However the common market may devise plans for their industrialization in a manner beneficial to all member states. They can develop a complementarity in their industrial product-mix. For instance if Assam produces machinery for textile and agro-based industries, Manipur can go in for electronics assembly industry. The latter with a pure, pollution - free atmosphere and large number of technically skilled personnel can comfortably develop the electronics assembly industry.³¹ If each member region thus

³¹The literacy rate in Manipur in 1981 was 41.35% against all-India 36.23%. Enrolment in 25 Technical and Industrial Schools were 1,068 in September 1985 and 560 in the only Polytechnic. (Basic statistics of N.E. Region, 1987)

concentrates on the products it has edge over others, the common market as a whole would become a formidable entity in transaction and trade with outside regions. The chambers of commerce and industries of the member regions can get together to negotiate with outside regions. This would give a considerable bargaining power to the common market as a whole. However the lesson to be remembered here as learnt from the LAFTA case is that there should be a safeguard against possible dissention by any member state following change of her government. An enlightened bureaucracy and actively participating industrial & trade associations may ensure that.

...

CHAPTER VII

IMPORTANCE OF TEA INDUSTRY FOR ASSAM

7.1 History of Tea industry in Assam

The history of tea industry in Assam goes back to 1820 when Robert Bruce discovered wild growth of tea shrubs in Assam. His brother Charles Bruce made an agreement with a Singpho Chief and collected Specimen of that tea. However certain Lieutenant Charlton also is a claimant of the status of discoverer of Assam tea. But it was not until 1834 that the idea of commercial cultivation of tea took firm root; in that year Lord Bentinck, the then governor general of India constituted a Tea Committee to explore this possibility. With a nod from the committee the tea cultivation was started commercially in 1835, the first produce of which was auctioned in London in January 1839. The successful cultivation of tea in the Brahmaputra valley led to its cultivation in Darjeeling in 1850, Cachar and Sylhet in 1856 and the Dooars in 1862. Thus Assam has led the history of tea industry in India.¹

To facilitate tea cultivation, the then British government gave land to the entrepreneurs under grants and lease on very easy terms. In 1895, lands totalling 85,000 hectares were

¹ E.T. Tea, An Economic Times Survey of Tea Industry 1990

given away to as many as 684 tea estates in Assam. However these gardens occupied a greater area of 3,67,000 hectares, the additional land being used for purposes other than cultivation. Out of these gardens, 485 were in Brahmaputra valley with 62,000 hectares of land under tea cultivation and 199 were in Cachar with 23,000 hectares of land under cultivation. The total area under tea in Assam as a whole increased to 1,36,000 hectares in 1928 and number of gardens to 815. While in the Brahmaputra valley the number of gardens increased to 639 and area under cultivation to 1,13,000 hectares, there were amalgamations among several Cachar gardens reducing their total number to 176. The gardens in the Brahmaputra valley also occupied 1,07,000 hectares more lands for non-cultivation purposes and the total land occupied by the tea estates of Assam increased to 5,27,000 hectares. This trend of indiscriminate expansion stopped only after independence. In 1951 the number of tea gardens in Assam stood at 1001 with 1,56,000 hectares of land under tea cultivation. The total area occupied by the gardens was 5,97,000 hectares.² At one time, to be precise in 1938-39, the number of gardens had reached 1120. During that period, 4,86,250 labourers were engaged in the tea gardens of Assam on a daily basis.³

² Assam Land Revenue Manual, Vol.I; World Agricultural Census, 1970-71.

³ Administrative Reports of Assam, 1938-39

Table 7.1

Number of Tea gardens in Assam, number of factories area under cultivation, Productions, yield rate and Employment.

	1970	1975	1979	1982	1985
No. of gardens	752	757	769	793	844
No. of Factories	587	589	586	575	576
Area under cultivation (thousand hectares)	180	189	195	211	216
Production (Million Kgs.)	212	263	284	299	353
Yield rate (Kgs. per hectare)	1178	1393	1452	1415	1631
Daily labour employed (thousand)	394	402	450	462	484

Sources: (1) Economic Survey of Assam 1981-82
(2) Statistical Hand Book, Assam, 1987

The tea gardens have generated considerable employment. As in 1985, about 4.84 labourers were engaged in the tea gardens on a daily basis. Also it is seen that the employment has been steadily rising. In 1970 it was 3.94 lakhs, whence it increased to 4.02 lakhs in 1975, then to 4.5 lakhs in 1979 and to 4.62 lakhs in 1982. This rising trend is a positive characteristic of the tea industry in Assam

7.2 Production and yield rate of Assam Tea

In tea, Assam occupies the most important place in India. In a total crop of 674.21 million kgs. in 1987, Assam contributed 368.6 million kgs i.e. 54.74%. Of this, the Brahmaputra Valley contributed 333.4 m. kgs and Cachar contributed 35.2 m. kgs. This 1987 tea production was a record output which was 49.6 million kgs higher over the 1986 output. Of this increase in productions the Brahmaputra Valley alone accounted for 30.13 m. kgs.⁴ The Indian tea productions increased even further in 1988 to reach 701 million kgs. Of this, Assam produced 372 million kgs.⁵

In 1985, the Brahmaputra valley had 1,82,342 hectares of land under tea in a total of 632 tea estates. This shows the area-wise dominance also of this valley in the Indian tea cultivation, which covered an area of 3,90,978 hectares in 1987. And in entire Assam there are total 844 estates covering 2,16,117 hectares as in 1985.

This valley region has an yield rate also above the national average. In 1947 it was 963 kgs. per hectare, nearly 150 kgs. above the all-India rate. In 1985 it rose to 1750 kgs

⁴ Tea Industry, a special feature of Business standard, February 1989.

⁵ E.T.Tea, An Economic Times Survey of Tea Industry 1990; Economic Times September 23, 1989.

whereas the all-India rate in 1987 was 1641 kgs. However this yield rate does not compare well with that of the south Indian states which had an average of 1,894 kgs in 1986. Tamil Nadu plantations boast of the highest yield rate in the world at 2,346 kgs. Karnataka also does well with 2,147 kgs. But the fact remains that Assam teas command better prices as tea grown in Assam are of very high quality. Rainfall and soil are the two determinants of tea quality. The alluvial soil of the Brahmaputra Valley is rich in lime, potash and magnesium required for luxuriant growth of tea plants. However the lands should be well-drained for tea cultivation. Tea cannot be grown in water-logged and flooded areas. So tea is cultivated only in high lands and on slopes of the Monadnocks on the two banks of the river Brahmaputra. The valley has more than the minimum required rainfall of 80" per annum. There is sunshine for average six hours daily. No wonder while the auction in the south fetched an average price of Rs. 22.08 per kg in 1987, the Assam tea crop as a whole could be valued at an average Rs. 25 per kg.

7.3 Export of tea

International reputation of Assam tea is really enviable. India had entered the London tea auction in 1839 with Assam tea. In 1989, to commemorate the 150 years of Assam tea in London market a special auction was held with the choicest tea from Assam. Assam tea has given considerable price edge to Indian export.

In 1986 India exported 203 million kgs. against the top exporter Sri Lanka's 207 million kgs. But the Indian tea was valued at \$ 460.6 million whereas Sri Lanka earned only \$ 328.1 million. Thus though volumewise India's share in international market was 20.9%, her share in value terms was 36.16%; and Sri Lanka earned only 25.7% in value on her 21.3% volume-wise share. (In 1987 India surpassed Sri Lanka to export 203 m. kg. against the latter's 201 m.kg.⁶ In 1988, India even bettered it to export 222 m.kg.⁷)

7.4 Value - added tea

The tea industry holds enormous potentiality for this state. In recent years there has been a shift in the export market in favour of value added tea. This is reflected in the rise in price of packet tea and tea bags. Between 1977-78 and 1987-88 the unit value of packet tea rose from Rs. 20.60 to Rs. 34.30. The same for tea bags rose from Rs. 47.5 to Rs. 66.1. But unfortunately India's export of the former decreased from 25.2 million tonnes to 23.9 million tonnes, whereas in the latter there was a small rise from 0.39 million tonnes to 0.54 million tonnes.⁸

⁶Business world, December 7-20, 1988, p.59.

⁷Tea, Economic Times Special Feature April 1989.

⁸All these tea data here are from 'The Industry', a special feature of Business standard, February, 1989.

Thus India has not been able to cash in on the boom in the value added tea market abroad. In the domestic market, the Unilever group of companies i.e. Lipton India and Brooke Bond dominate with a combined market share of about 95%.⁹ However the vigorous entry of Tata in this area with polypacks has given them a respectable share in this 130 m.kg. market in 1988.¹⁰ The total size of the domestic tea market in 1988 was around 479 million tonnes.¹¹ The packaged tea thus had a share of about 27% of this. But there were times when this share was higher than 50%. So we see that the potential in this area whether inside or outside the country remains grossly under-exploited. However the situation is slowly changing. The three seasons ending December 1988 saw regular 3 to 4 percent growth per annum in package tea. The pouch tea grew at an even higher 7 to 8 percent. Some credits for this certainly goes to the innovative effort by Tatas. This had enthused many tea gardens to take to packaging. Big names like Macneil and Magor also have entered the field. A favourable factor has been the narrowing of the vast gap between the prices of loose tea and packaged tea owing to superior packing techniques and better distribution channels.¹²

⁹ Business World, October 12-25, 1988, p.70

¹⁰ Business World, May 10-23, 1989, p.73

¹¹ Data Bank '89, Economic Times, Calcutta.

¹² Economic Times, April 20, 1989.

7.5 Profitability

The importance of the tea industry, however, is underscored by the fact that except in the year 1986, which saw a drop in production of all tea growing countries, Indian tea output has been steadily rising. This industry has been earning good profits. In 1986-87, the 10 best tea companies registered an average profit after tax to net worth ratio of over 20%, whereas the all industry figure was a mere 9.8%.¹³ So the tea industry is endowed with considerable potential. And it is really heartening to know that this industry is now almost wholly owned by the Indians. There are only 3 major foreign owners - Unilever, Inchcape and Gordon Fox. Together they account for 56.75 million Kg. which is less than 10% of the country's total production. In the Macneil & Magor, the biggest group of tea companies in the world, the controlling authority is now an Indian for the company's Indian operations. So compared to the earlier years when the entire profit used to be taken out there is now scope for investment of the same within the country and some part of it in modernizing the tea industry itself.

13

Business World, December 7-20, 1988, p.59

7.6 Improvement of quality:

The industry holds scope for further improvement in quality and productivity. The results of research conducted by Tea Research Association has increased the yield of member estates. In seventies this increase was 400 kg.per hectare. In eighties the member estates have had 65% higher yield than non member estates.¹⁴ Research work done in Sri Lanka has shown that tea grown in warm conditions contain higher flavour inhibitors. This explains the secret of the aroma of Darjeeling tea. But this also gives hints as to how to improve the flavour of Assam tea. A massive afforestation campaign which will bring under control the present ecological disturbance will somewhat depress the temperature. This in fact is an imperative as the increasing deforestation has raised average temperature which should tell upon tea quality. Of course there are other culturing and processing details that have to be taken care of for qualitative improvement.¹⁵

7.7 Ancillary industries:

Centering around the tea industry many ancillary industries can develop and flourish. The tea industry needs a lot of

¹⁴ Tea Industry, a special feature of Business Standard, February, 1989, p.31

¹⁵ Improving quality of tea, by V.Agnihothrudu in the Hindu Survey of Indian Agriculture, 1988, pp.78-79

machinery every year. The size of this machinery market has been estimated to be of Rs.40 crores per annum.¹⁶ As the land under tea cultivation cannot be increased any more due to abnormally high pressure on land from increasing population, the productivity and qualitative value of tea have to be raised. This is an imperative as the country has set a target of 1200 m kg. production by the turn of this century. In this respect technological innovation may help. So there is scope for introduction of more sophisticated equipments and machinery in tea industry. This means that the size of the tea machinery market can greatly increase. This possibility increases further if the case for semi-automation of the tea harvesting can be established. This necessity has appeared in the wake of increasing scarcity of labourers. With increasing urbanization and wide-spread upward social mobilization, the tea garden labourers are gradually abandoning this vocation and their families can no more be counted upon to carry on with the legacy. As per an estimate a tea garden loses upto 200 kgs of production per hectare during peak season due to labour shortage.¹⁷ However that cannot be an argument for mechanization and labour displacement as the loss is not significant in a yield of 1750 kgs

¹⁶ Tea Industry, a special feature of Business Standard, p.58

¹⁷ Tea, Economic Times Special feature, April 1989, p.37

per hectare. But there is certainly a case for increasing the production capacity of the labourers by equipping them with some semi-mechanized harvesting tool. There is scope for research on this area.

7.8 Management

The management of tea industry leaves much to be desired. The defaulters were mainly the indigenous owners who were steadily increasing in number and proportion. These owners who operated on small-scale lack centralized efficient management style that characterized the European owners. This was the reason why many of the former had to close shop during the 1952-53 crisis. The number of tea estates in Assam came down from 999 in 1950 to 786 in 1953. Of these 786 as many as 173 were estates of below 100 acres size; they together accounted for a mere 0.65% of total output.¹⁸ The fact that the state now has even lesser number of tea estates can be ascribed to this problem. But this also gives a clue as to how to rejuvenate the ailing small estates. Effective measures may be taken to amalgamate or co-operativize the small estates, so as to achieve economy of scale. One estimate has given the optimum size of a tea estate to be in the range of 800-1000 acres with employment of 1,000-1,500 workers.¹⁹

¹⁸The Economic Development of Assam, P.C.Goswami, Second Edition, 1988, pp. 164, 308

¹⁹Ibid., p.165.

7.9 Optimum size of tea estate and economy of scale

As per our thinking the minimum size of a tea estate should be 200 hectares (or 500 acres). This is seen from the following table.

Table 7.2

Size-wise area and production of tea estates - 1978

Size class of Estates	Total area covered(as on 31 March, 1978) (in hectares)	Total production(during 1978) (in '000 kgs)
Upto 8.09 hectares (20 acres)	9,524 (2.6)	171 (0.03)
Above 8.09 hectares & upto 50 hectares	8,015 (2.2)	6,200 (1.2)
50 - 100 hectares	12,797 (3.5)	12,884 (2.4)
100 - 200 hectares	46,344 (12.7)	61,582 (11.4)
200 - 400 hectares	1,29,022 (35.3)	1,97,563 (36.6)
Above 400 hectares	1,59,380 (43.7)	2,60,970 (48.4)
Total	3,65,081 (100.0)	5,39,370 (100.0)

Source: : Report of Committee on Financing of tea industry, RBI, Bombay, 1981, pp. 10-11.

Note : (i) The figures in brackets are percentage to total

(ii) The total production arrived at here may not be exactly country's total production due to error in coverage.

In the above table it is seen that the total production of the tea estates in a size class is less than proportionate to their total area covered in the case of size classes upto 200 hectares. On the other hand for the estates above 200 hectares the production is more than proportionate to the area covered.

Another point to be noted from the above table is that as the size class goes up their share in total production picks up consistently at a higher rate. This means that any size class enjoys better economy of scale than the classes smaller to it. A Tea Board study shows a correlation between size of the holdings and the productivity.²⁰ The policy recommendation of it would be to go for as much bigger size one can go for even if the 200 hectares mark cannot be reached. In this context it can be noted that the tea estates of the Brahmaputra valley has an average size of 288.5 hectares.²¹ This is better than all-India level of 30.7 hectares. This may be the secret of better performance by Assam in all-India context. However things can really improve only if the smaller ones among these tea estates are amalgamated. In 1985 only 163 estates of the valley had acreage of above 400 hectares

²⁰ Report of the Committee on Financing of tea industry, RBI, Bombay, 1981.

²¹ Calculated from 1985 figures for Assam and 1978 figures for India.

each.²² Some may say that performance of public sector Assam Tea Corporation with 15 gardens under it does not make the attempts for consolidation look attractive. This corporation has accumulated loss of Rs. 25 crores upto Dec. 31, 1987. But then 7 of the 15 gardens were acquired sick.²³

Though it is not a problem now, which is a boom period, tea may face slackness in demand periodically. In such time adequate attention should be paid to develop the dairy and sugar industry. According to an estimate in a cup of tea the two ingredients milk and sugar account for 30% and 43% of the material cost while the tea powder itself costs only 19%. Remaining 8% is accounted for by fuel.²⁴ This means economy in these other factors of production can cushion any rise in tea price.

7.10 Sound financial state

Finally, this industry has got the scheduled commercial banks involved with itself. Their outstanding credit rose from Rs.108.39 crores in December 1974 to Rs.219.24 crores in December 1979.²⁵ Such rate

²² Tea, Business Standard Special feature, Feb 1989, p.44

²³ Government Statement in Assam Assembly, Assam Tribune, May 17, 1989.

²⁴ Tea, Economic Times Special feature, April 1989, p.41

²⁵ Report of the Committee on Financing of Tea Industry, RBI, Bombay, 1981, pp. 24-25.

of growth is really encouraging.

Among the tea producing areas the north-eastern region (Brahmaputra Valley, Cachar, Tripura) has been maintaining good financial health. It is evident from the fact that while other regions were drawing credit above the limit this region has not fully utilized the limit. Anyway its 61.6% share in outstanding, which is lower than its 66.5% share in limit, proves its dominant status.²⁶

7.11 Head-quarters of tea estates

Another point worth noting here is that of location of head-quarters of the tea companies. They are located in metropolitan cities whereas the gardens are located far away. In any financial dealing with bank lot of communications have to be made with factory office at garden for information and other technoeconomic appraisal work. This delays the banking operations which affects the tea company in turn. To remove such inconvenience the head office should be nearer the garden. This lends support to the popular demand of Assam to shift the head office of the state's tea companies from outside the state. However at the same time the leading banks should also establish well-equipped branches near tea garden areas like Upper Assam and should delegate adequate discretionary power to these branch managers.

²⁶Ibid, p. 26

Besides the interests of the tea estates, there is a strong case for the transfer of the head-quarters on the interest of the tea producing areas also. If the head-quarters of the tea-estates of Assam are shifted to within Assam, then only local youths of Assam can hopefully be employed in these tea estates. Because recruitment of personnel in the tea estates are done by their head-offices. In our earlier hypothesis also it was shown that a region could benefit from the industries within that region only if it employed people from that region. Also an industrial concern contributes a considerable sum to the public exchequer by way of taxes etc. It is also an unfair state of affairs that while the state of Assam is offering facilities to the tea estates, the revenue from those estates are being received by other states, where their head-quarters are situated.

7.12 Grievances of the Tea gardens and their assessment

All the gardens surveyed in the present study opined that the tea industry is highly taxed. In 1977, when the tea industry had experienced a boom after 20 years of depression, all the state governments where tea were grown raised the agricultural income tax to an unprecedented 75%. This raised the tax incidence on the income of tea industry to 65% as compared to 50% for other industries.²⁷ In 1990, the agricultural income tax was increased to 83% in Assam taking the tax incidence to 67%. Further, a levy of

²⁷ Economic Times, September 23, 1989.

50 paise on each kg. of green leaf was imposed. Also the rent of tea bearing lands were increased five fold.²⁸

However all these grievances sound a bit too much. Because as we have pointed out in the present study, the tea gardens have occupied plenty of cultivable land of Assam. According to an estimate, 10% of the cultivable land of Assam remains under the occupation of the tea industry.²⁹ Needless to mention, over and above this, a major chunk of the land earmarked as 'waste' also remains in the occupation of the tea gardens. They are also encroaching upon the adjacent lands.³⁰ Not only this, some gardens are cultivating in their reserve lands too, but not showing it in their returns. In one instance it was found that the actual area under cultivation was about 50% more than the recorded area.³¹

Also, the tea industry cannot be said to have contributed a very significant amount to the state exchequer by way of revenue. Because even with an annual turnover exceeding Rs. 1000 crores, the tea industry brings a revenue of barely above Rs. 3 crores.

²⁸ Economic Times, February 11, 1990 and April 16, 1990.

²⁹ Economic Times, July 30, 1990.

³⁰ At least seven tea gardens of the Charaideo sub-division in Sibsagar district encroached upon 289.57 hectares of government land and cultivated tea there. (Economic Times, March 25, 1990).

³¹ Ibid.

Another Rs. 3.5 crores are received by way of the state's share in income-tax etc. which accrue to the central government.³² Also the tea industry ploughed back very little to their gardens. Between 1971 and 1981, they invested Rs. 158 crores in the gardens of Assam which means an average annual investment of Rs. 15.8 crores only.³³ This has created a belief that the tea garden owners are interested in taking out the profit to invest elsewhere. Such resentment among the members of the public, especially the youth community, has made the owners and managers of tea gardens in the state targets of attack, even in the literal sense. Mr. Surrendra Paul, Chairman of Assam Frontier Tea Ltd. as well as Mr. D. Choudhury, Chairman of Assam Branch of Tea Association were assassinated by the members of United Liberation Front of Asom (ULFA). The latter also suggested that the tea industry in Assam sets up a welfare corpus of about Rs. 100 crores to undertake developmental works in the state.³⁴ All these have made the tea garden owners sit up. Not only their previous resentment over high taxation stopped, they also started to volunteer funds for welfare activities. The Macneil and Magor Col. Ltd. has taken a lead in this respect. They are now setting up a

³² News letter of states, All India Radio, Januray 13, 1988.

³³ Economic Times, June 26, 1990.

³⁴ Ibid.

school near Tezpur on the pattern of Doon school, at an estimated cost of Rs. 20 crores.³⁵ They have also instituted an annual literary award of Rs. 1 lakh and established a Football Academy at their Monabari tea estate. This change of heart is a welcome sign and should go a great length in assuaging the hurt feelings of the people of the state.

³⁵Economic Times, July 2, 1990.

CHAPTER - VIII

SCOPE OF AGRO-BASED INDUSTRIES IN ASSAM

8.1 Present position of Agro-based industries in Assam

Agro-based industries has a long history in Assam, dating back to 4th century B.C. Camphor, perfume and such other commodities were produced in Assam in those days. In the late medieval period, sugarcane crushing and mustard oil pressing were the major agro-based industries.¹ However the actual development of agro-based industries started in early nineteenth century, when the British traders started investing in tea in Assam. Factories had to be established to process the tea leaves. The tea processing industry has developed greatly and is now the biggest agro-based industry of the state. In 1985 there were as many as 576 tea processing factories in Assam.²

With the development of urbanization and increase in number of population engaged in occupation other than agriculture, other agro-based industries like rice, mill, wheat mill, edible oil processing mill etc. came up in the state. There were 2,989 licensed units of rice mills in 1985-86 with a capacity of 22.7 lakh tonnes per annum.³ Number of other agro-based industries are given

¹ Baishya P., Agro Industries in Assam, in Agriculture in Assam (ed.) by P.C. Goswami, Guwahati, 1989.

² Statistical Hand Book Assam, 1987

³ Baishya P. , Op.cit.

in table 8.1. However they are only small-scale industries . It is seen from the table that wheat & flour mills, edible oil mills and bakery units comprise the majority of the industries. There were respectively 334, 276 and 222 nos. of units of them.

Table 8.1

Number of agro-industries in Assam registered as SSI units (in 1985)

Name of industry	Nos. of Units.
1. Wheat & flour Mills	334
2. Edible oil Mills	276
3. pulse Grinding	20
4. Spices Grinding	69
5. Beaten rice preparation	31
6. Khandsari	2
7. Bakery	222
8. Confectionary & Candy	44
9. Fruit Processing	6
10. Citronella	29
11. Jute Processing	5
12. Cattle feed Processing	2

Source: Baishya P. Agro industries in Assam, in Agriculture in Assam (ed.) by P.C.Goswami, Guwahati, 1989.

The other agro-based industries were pulse grinding, spice grinding, beaten rice preparation, khandsari, confectionary & candy, fruit-processing, citronella, jute processing and cattle feed processing.

In the medium & large scale sector, there is one jute mill at Silghat and two Sugar mills at Barua Bamun gaon (Dergaon) and Chargola (Cachar) respectively. There was yet another sugar mill at Biswanath Chariali, but it became sick and closed. In these two industries i.e. sugar and jute, there is sufficient scope for expansion of capacity in the state. In jute, two smaller mills have come up in the private sector too.

It is worth mention here that the development of agro-industries in Assam so far have been in the traditional items. Non-traditional commodities are almost absent in the product-mix. However of late a few such industries also have come up. For instance, caffeine, citronella oil, Agar(perfume), Match, water and fire resistant board, plywood etc. are now produced within the state. Out of them Match and Plywood production units are found in medium & large scale, while the rest are produced in small - scale sector. There are also many saw mills in Assam. Actually the saw mills, the match factory as well as the plywood production units are forest-based industries. However we have included the forest-based industries also generally under agro-based industries in the present study. The tables 8.2 and 8.3 give the

annual availability of different forest resources as well as agricultural products of Assam.

8.2 Agricultural resources and their utilization in Assam.

Assam and for that matter the entire North-East India abounds in natural resources. The plentiful resources remain grossly under-utilized. A major reason for that might be the absence of user industries of the products which might be made of these resources. However this is also not entirely true. Because on that count the starch industry should have been well developed as the state has several paper mills as well as jute mills. However the erst-while sick condition of Ashok Paper Mills (Jogighopa) and Silghat Jute Mills may have kept the demand low. With the re-opening of the jute mill at Silghat and regular running of Jagiroad Paper Mill, Cachar Paper Mills, Brahmaputra Paper Mills(kalapahar) as well as the nearby Tuli Paper and Pulp Mill in Nagaland, the starch market should pick up.

The region produces enormous quantity of agro-residues also. These are rich in chemical products. One such product, Caffeine, is being made from tea-waste. There are three caffeine extraction units in Assam viz. Assam Pharma (Jorhat), Assam Caffeine (North-Guwahati) and Ahimsa Chemicals (Malbari). The first of them is lying sick due to managerial inadequacy. But the other two are doing exceedingly well. In fact the M/s Assam Caffeine has bagged national productivity awards too. Success of these

units proves the possibility of establishing industries which do not have local market. Because the market of this industry lies outside the state. The pharmaceutical industry has not developed here so as to generate a market. But since the item is an import substitution item it commands good market outside the state. Also being located at the heart of tea producing area, the industry does not face problem of raw material which otherwise has little use.

Another highly abundant agro-residue is bagasse which happens to be a by-product of sugar industry. It has high non-fibrous cell content. This precious commodity is not being exploited which is a sad thing for the cause of industrialization. May be these down-stream industries have not been developed as the main industry viz sugar continues to be sick. A reason for that is said to be inadequate availability of sugarcane. Extension of sugar cultivation as well as captive cultivation may be the only answer. If the sugar industry is revitalized it can help develop several down-stream industries. The sugar mill at Barua Bamun gaon has a distillery unit which produces 'Toofan' brand of wine. Such industries can be established in bigger scale too.

As rice happens to be staple food of the people of the state, paddy occupies a pride of the place among agricultural commodities. There are many by-products and wastes available in

this crop e.g. rice straw, rice husk, rice bran etc. All these are sources of valuable chemicals like Silicon, Furfurnol, Alcohol, Mono-sacharides etc. These profer an unlimited scope of industries throughout the state. The spatial dispersal as well as decentralization of the industries, can be truly achieved here. The abundant raw material available gives these industries a sure footing for a long time to come.

Table 8.2

Annual availability of some forest resources in Assam.

Forest resource	Annual availability
Bamboo	1.35 lakh tonnes
Sawn Timber	21,205 Cubic metres
Plywood class Timber	3,000 " "
Pulp Wood	91,636 " "
Poles	8,000 " "
Match Wood & Pulp Wood	7,497 " "
Fire Wood	1,13,000 " "

Source : Thiyagarajan V., Development of small scale industries in the N.E.region, Paper of the seminar on 'Small Industries Development,' Guwahati , 1985.

Table 8.3

Production of Agricultural Products/Wastes in Assam

Agricultural Commodity		Annual Production in Assam in 1985-86	
Nal, Khagari, Bhutan Grass	-	5,50,000 tonnes	
Rice	-	28,46,600	"
Maize	-	12,100	"
Small Millets	-	5,100	"
Wheat	-	1,00,500	"
Sesamum seed	-	7,400	"
Castor seed	-	1,000	"
Rapeseed & Mustard	-	1,37,700	"
Linseed	-	4,000	"
Tobacco	-	2,900	"
Sugarcane	-	19,71,400	"
Jute	-	11.78 Lakh Bales (of 180 kgs)	
Cotton	-	2,000 Bales (of 170 kgs.)	
Tapioca	-	9,400 tonnes	
Sweet Potato	-	27,400	"
Potato	-	3,08,800	"
Areca nut	-	64,300	"
Chillies	-	6,300	"
Coconut	-	57 million nuts	
Orange	-	17,000 tonnes (in 1980)	
Pineapple	-	34,000	" "
Banana	-	2,60,000	" "
Papaya	-	40,800	" "
Tea	-	371.75 million kg. (in 1988)	

Sources : (1) Statistical Handbook Assam, 1987

(2) North Eastern Council, Publication no. 14, 1981

(3) Souvenir, Institution of Engineers (India), Guwahati, 29th Annual General Meeting, January 9-10, 1988.

8.3 Agro-based industries feasible for Assam

We have prepared below a list of Agricultural crops or waste materials which can be utilized for industrialization. The possible products are mentioned along with their uses and process of production.

Table 8.4
Possible Agro-based industries in Assam

SL. No.	Agricultural commodity/Agro-wastes	Possible industrial products	Uses of the product.	Process of production
1	2	3	4	5
1.	Rice-husk	(i) Silicon	Manufacturing of photo-voltaic cells.	Pyrolysis of rice-husk, Chlorination and then carbon-reduction.
		(ii) Sodium Silicate	Mfg. of soaps, detergents, silica gel and adhesives.	Ash of rice husk gives silica which reacts with Sodium Hydroxide.
		(iii) Furfural	Mfg. of Furans etc., solvent in refining of lubricating oil, mfg. of resin, Bonding agent, decolourizer, Distillation medium in Butadiene mfg.	Rice-husk is hydrolysed to Pentoses chiefly xylose. Three water molecules are eliminated. Fractional distillation of the aqueous product gives Furfural.

1	2	3	4	5
		(iv) Oxalic acid	A very highly demanded organic acid.	Rice husk is treated with nitric acid. The acid digest is crystallized to give oxalic acid.
		(v) Artificial Coal	A solid compressed fuel in the form of briquettes. It gives less smoke and low ash containing.	Briquettes are made at high pressure.
		(vi) Active carbon	Decolourization, Absorption of gas, Refining of vegetable oil, Water treatment, Acid purification.	
2.	Rice-straw	(i) Water and fire resistant paper board	Light weight board, Use in walls, partition, false ceiling, roof.	Pulp of the straw is beaten with sizing material, then sheets are formed and dried.
		(ii) Pentose	Chemical industry	Hydrolysis with Sulphuric Acid.
		(iii) Cattle feed	High Feeding value	Digestibility is increased by treating dry straw with Ammonia and water or soaking in Sodium hydroxide.
		(iv) Ethyl Alcohol	Widely used in Chemical Industry.	Rice straw reacts with SO_3 and water under heat and pressure giving cellulose. It is hydrolysed, then fermented. Dissolved lignin is removed.

1	2	3	4	5
		(v) Mono Sa- charides	Chemical Industry	Treatment with Lithium Chloride in Hydro-Chloric Acid followed by hydrolysis.
3.	Rice-bran	Rice-bran Oil	High quality edible oil can be used by Vanasapti industry.	Oil is extracted using food grade Hexane as sol- vent.
4.	Bamboo	(i) Artificial Coal	See Rice husk	Bamboo chips are used.
		(ii) Moulded plugs	Used in paper industry.	Bamboo dust is used.
		(iii) Viscose Rayon	Textile industry	
		(iv) Paper	Printing	Bamboos are crushed, made pulp of, flattened and dried.
5.	Bon Tulsi	(i) Eugenol	Perfume, Cosmetic, Con- fectionary, soap and Pharmaceutical industry for adding scent.	The vegetable matter is boiled in water to get ocl- mum oil. It is treated with sodium hydroxide, extracted by Ether, then acidified. Phenols are separated and fractionated.
		(ii) Vanillin	- Do -	Isomerization of eugenol followed by oxidation gives vanillin.

1	2	3	4	5
		(iii) Citral	Perfume, Cosmetic, Confectionary, soap and pharmaceutical industry for adding scent.	Ocimum oil is shaken with sodium bi-sulphite, then washed by alcohol and ether.
		(iv) Geraniol	- Do -	Treatment of Ocimum oil
		(v) Citronellol	- Do -	Fractional Distillation.
		(vi) Linalool	- Do -	Fractional Distillation.
6.	Jute	(i) Caplon Blanket	Good Quality Thermal insulation like woolen.	Jute fibres given alkali treatment. Blended with poly propylene fibre.
		(ii) Carpet	Good quality but cheaper than wollenised carpet.	Wollenised jute yarn is used.
		(iii) Jute Covered Yarns	Decorative yarn for packaging, bags, handicrafts.	Jute yarn is fully or partially covered by silk, rayon, polyester, HDPE, poly-propylene or Cotton Yarns.
		(iv) Carpet Pile Yarn	Good quality carpet making.	Polypropylene is blended with jute to improve bulk and smoothness. Texturized with alkali.
		(v) Blending with pineapple leaf fibre.	Spinning finer Yarn for making various articles.	

1	2	3	4	5
	(iii) Compost Manure	Fertilizer		Decaffeinated tea waste is used.
14. Wood	(i) Newsprint	Printing		Hard wood is used.
	(ii) Particle Board	Table top, partition ceiling etc.		Chips of wood used. Heat and pressure convert it. A sinder used.
	(iii) Ethyle Alcohol	Widely used in chemical industries.		Wood chips hemicellulose hydrolyzate consumes D-Xylose and produces ethyl alcohol when Candida XF217 is added.
	(iv) Sal-seed oil			Seed of Sal tree is used
	(v) Vanillin	Perfume, flavour ice-cream and pharmaceutical industry.		Spruce wood heated with Nitrobenzene in 2N Sodium hydroxide. Lignin of the Spruce wood reacts to give vanillin etc.
	(vi) Agar	Valuable perfume retainer.		Extracted from the roots of Sashi tree.
	(vii) Match	Domestic use		Timber of Simalu tree is used.
	(viii) Katha	Used with Pan (betel leave).		Extracted from Khoir tree.
	(ix) Cutch	Dyeing, Medicine		- Do -

1	2	3	4	5
12.	Saw-dust	(i) Furfural	See Rice-husk.	
		(ii) Oxalic Acid	See Rice-husk.	
		(iii) Artificial Coal	See Rice-husk.	
		(iv) Glucose and Mono-sacharides.	Widely used	Hard wood saw-dust is hydrolysed with Sulphuric Acid.

13.	Sugar-cane	(i) Sugar	Food item	
		(ii) Paper and News-print	Printing	Bagasse, a by-product of Sugar is used.
		(iii) Furfural	See Rice-husk	- Do -
		(iv) Citric Acid	Chemical Industry	- Do -
		(v) Ethyle Alcohol	Large Industrial uses.	Molasses, by-products of sugar, is used for alcohol extraction (For process, see Rice-straw).
		(vi) Molasses	Food Item.	

14.	Fruits	(i) Juice, Jellies, Marmallades	Eatable	Fruits like Mango, Pine-apple, orange etc. are used
-----	--------	---------------------------------	---------	---

1	2	3	4	5
	(ii) Tinned Fruit	Eatable		
	(iii) Ethyle Alcohol	Wide Industrial use	Jackfruit is used	
15. Ipecac	Emetine	Treatment of Amoebic dysentary Expectorant.	One of the alkaloids extracted from roots of Ipecac.	
16. Lemon Grass	(i) Citral	Used in Synthesis of Vitamin A.	Citral is isolated from Lemon grass Oil	
	(ii) Lemon grass Oil	Cosmetics & Pharmaceutical.		
17. Dioscorea Tubers	Dioscorea	Synthesis of various cortisones & steroids		
18. Sweet Potato	Starch	See Maize		
19. Tapioca	Starch	See Maize		
20. Ginger	Ginger Oleoresin			

1	2	3	4	5
21.	Maize	(i) Starch	Paper, Textile, Jute industry, production of Dextroze, Glucose, sweetener like Fructose, Polyethers, Xanthan Gum, Starch Xanthate, Absorbant polymers etc.	After grinding, husk and gluten are separated. The starch slurry is dewatered to give starch or converted to Glucose etc.
		(ii) Maize	Good edible oil	
		(iii) Cattle feed.		
22.	Citronella oil	Citronella oil	Aromatic product	Distillation of citronella grass
23.	Nol. Khagari, Bhutan grass.	Paper	Printing	Grass is converted to pulp, then flattened and dried.
24.	Mustard, Sesamum, Rapeseed etc.	Edible oil	Food item	Seeds are crushed to extract oil which is then refined.
25.	Castor seed, Linseed	Castor oil, Linseed oil	These are non-edible oils used in Pharmaceutical, Chemicals seed oil industry etc.	Seeds are crushed to extract oil.

Source : Seminar on 'Development of Agro-based Chemical Industries in the N.E. Region', Souvenir and papers, Institution of Engineers (India), Guwahati, January 9-10, 1988.

As seen in table 8.4 many industries, mostly chemical, can be developed in Assam based on agricultural and forest resources. These products have demand almost anywhere in the world. So there is no demand problem in the context of these industries. However there are other issues to be taken into consideration. For instance the selection of sites for these industries is a very important matter. Because there will have to be guaranteed availability of raw material. The industries have necessarily to be located near such places where the agricultural products or wastes are available in plenty. It is true that the agro-based industries are less capital-intensive than other industries and can be easily established in rural areas also. But the marketing requirement necessitates a centralized network which can undertake the work of collection of the products, standardization, branding and marketing of them. It is actually a bounden duty of the government bodies like Assam Agro-Industries Development Corporation Ltd.

8.4 Power shortage

In several industries power poses problem as they happen to be power intensive industries. In such a case, Goswami suggests setting up of hydel power plants near the location of the industry.⁴ This may be a captive plant, if the cost economics

⁴The Economic Development of Assam, P.C.Goswami, 2nd edition 1988, p. 188

permit that. In that case the plant will necessarily have to be a mini plant which means there may be many such units all over the state. Because the river Brahmaputra and its tributaries span the entire length and breath of the state. However a better option would be the setting up of medium capacity power plants which would cater to a cluster of industries around each of them.

8.5 Advantage of Agro-based industries

Some experts opine that though Assam is rich in other resources like minerals, it is however only the agricultural resources which can be commercially exploited without much time lag.⁵ We also accept this opinion. Because in most other industries, specially in mineral industries a massive infrastructure base has to be made which is almost totally absent in Assam except for in case of petroleum. Also capital intensive ventures are not feasible for a poor economy like Assam. The Agro-based industries will have lower capital-labour ratio which means there will be greater employment opportunity here for the same level of investment compared to other industries. The technology involved may therefore be simple and unsophisticated. This means they can be easily duplicated at rural level.

⁵ 'Keynote Address' D.N.Barua, souvenir of 29th Annual General meeting of Institution of Engineers (India), Guwahati, January 9-10, 1988.

Thus these industries offer an enormous scope for rural industrialization. This will generate employment for the unemployed and under-employed work force in agricultural sector.

There is an additional attraction for the agro-based industries. Generally in industries like mineral etc. the raw material extraction and transportation lead to massive pollution. Numerous atmospheric pollutants like sulphur oxide etc. are emitted in the production process also. These assail the eco-system and result in climatic problems. Vegetation as well as the inhabitations of the locality suffer from numerous ailments due to these pollution and the ensuing climate change. But against such horrible affairs associated with mineral etc. industries, agro-based industries offer a better picture. They use agricultural products or residues. Their acquisition is a part of the agricultural farming which is part of the eco-system. Rather the use of agro-wastes removes the farmers' problem of how to dispose them.

8.6 Problems of Raw-material procurement

Though the state abounds in agricultural raw materials, there is a problem in their collection. Many of the areas in the state continue to be inaccessible and hazardous which hinder the acquisition of agro-products. For instance though the state has a rich forest of Sal tree spanning an area of 1200 square miles, their seeds are not collected. It has not been possible as

Sal forest is dense and the penetration into the deep forest for the purpose of seed collection is risky and dangerous. So the Sal seeds which is a rich source of oil continue to be wasted. However, a little bit of planned way of acting upon can remove the difficulty and make the sal seed collection possible. Because other states are doing this work splendidly. The Orissa government collect about 2 lakh tonnes of sal seeds per annum through their forest corporation of tribals.⁶

It is not only collection but the subsequent transportation also that pose a problem. The transport network of the state continues to be ravaged by flood every year. So the link among the different places of Assam remain completely cut off for a certain period of the year. Some of the places do not have any transport and communication facility worth the name. So it is natural that though raw material are there, a large part of it cannot be made available immediately.

This problem will cost these commodities dear which are seasonal and hence perishable after a short time span. Their problem can be solved by introduction of many small cold storages throughout the state. In the case of other commodities the user industries can build up a buffer stock or raw material inventory for tidying up the lean supply caused by flood

⁶Ibid.

disruption.

In case of some agricultural items we are ignoring their low availability. One such instance is sugarcane. Assam produces less than 2 million tonnes of sugarcane per annum which is less than 1% of the all-India production of 210 million tonnes. A well formulated scheme for extension of this crop is an imperative. Because in addition to increasing sugar production, there is scope for wide range of chemical industries to be developed. Alcohol, which can be produced from mollasses, have many derivative chemicals. Chemicals like acetal dehyde, acetic acid, acetic anhydride, acetone, ethyle acetate, polyethylene and synthetic rubber can be produced from alcohol. Thus a sugar mill can be a nucleus for a big industrial complex.⁷

⁷ 'Broad banding of Sugar industry,' H.N.Kaul, Economic Times, April 10, 1989.

CHAPTER IX

PETRO-CHEMICAL INDUSTRY : A POTENTIAL GROWTH FORCE FOR ASSAM:

9.1 Importance of petro-chemical industry

India has been a regular importer of bulk quantities of petro-chemical products along with petroleum. These two items have always kept the country's import bill high. She imports huge quantity of crude oil and partly refined petroleum products. These are imported from members of OPEC countries like Iran, Iraq, Saudi Arabia, Kuwait, U.A.E, etc. as well as non-OPEC countries like U.S.S.R. The oil price shock of 1973 made the country sit up and think for alternatives. As an aftermath, the indigenous petroleum production and exploration picked up. This has had effect not only on the rising trend of petroleum import but also that of petro-chemicals. With the former becoming a prominent import substitution industry the latter also earned a like-wise status. So petro-chemical industry has developed at a quick and unprecedented pace recently.

The production of petroleum products by the Indian refineries has increased from 17.2 million tonnes in 1970 to 45 million tonnes in 1987. However at the same time imports are also increasing. From Rs. 136 crores in 1970-71, the value of imports of petroleum crude and partly refined petroleum products has increased to Rs. 4,083 crores in 1987-88.¹ The reason behind this abnormal rise is the rise in petroleum price in 1973 and then in late eighties.

¹Indian Economy: Basic statistics, Reserve Bank of India, 1988.

However the domestic crude oil production is less than the production by the refineries as these refineries refine imported crude oil too. The country produced 30.5 million tonnes of crude oil in 1987 out of which Assam produced 5.3 million tonnes.²

9.2 History of Oil industry in Assam

Search of oil in India began with search in Assam for the same. In 1866 Mr. Goodenough of McKillop Steward Co. drilled a well at Jeypore in Assam and struck oil. In 1882 Assam Railway and Trading Company (ARTC) acquired the necessary permission for oil exploration. Oil was struck at Digboi in 1889 under the aegis of this company.³

After independence oil exploration was started in Assam on a big scale. The Naharkatia and Moran oil fields were discovered in 1953 and 1956. After that it was a continuous process of discoveries over a wide area in upper Assam.

The Digboi oil refinery, established way back in 1889 is the oldest working refinery in the world. Later two more refineries were set up in Assam in Guwahati and Bongaigaon. However the main chunk of the crude oil produced in the state were taken

²(1)Freedom Forty-Story of oil, Oil India Ltd., and (2) Utilization of Hydrocarbon Potential of N.E.India, S.Chaliha, Assam Tribune, 15.2.88.

³Freedom Forty-Story of oil, Oil India Ltd..

out to be refined at Barauni. A 1400 kms long fully automated cross country oil pipeline system was commissioned in 1962 to take crude oil from Naharkatiya to Barauni. In 1982, Oil India Ltd. set up an LPG plant at Duliajan with a capacity of 55,000 tonnes per annum.⁴

In fact Assam occupies such a place of pride in the history of oil industry in India that a National Oil Museum is going to be established in Guwahati. Some premier oil technology research centres are also being planned for Assam.

9.3 Growth planning

The government of India envisages the growth of the petrochemical industry in India by 1995 as given below.

Table 9.1

Projected Growth of Petro-chemical industry in India.

Projects planned	Investment required
1. Three nos. of Crakers and Ole-fenic complexes @ Rs. 1500 crores each	Rs. 4,500 crores
2. Two nos. of Aromatic Complexes @ Rs. 900 crores each	Rs. 1,800 crores
3. Three nos. of Linear Alkyle Benzene plants @ Rs. 750 crores each	Rs. 2,250 crores
For Eight plants	Total: Rs.8,550 crores.

Source : Business World, April 12-25, 1989.

⁴OIL a corporate profile, Oil India Ltd.,

There will have to be almost equal follow-up investment because of rising demand in the following 5 years, taking the total to touch Rs. 20,000 crores. And with smaller projects the total investment rises to Rs. 25,000 crores by 2000 A.D. What will be the exact figure considering cost over-run due to inflation is anybody's guess.⁵

Now one of these gigantic cracker complex is to be set up in Assam. Already Assam Industrial Development Corporation has been given the letter of intent for the same. With the follow-up investment and other smaller ancillaries the total investment in the petro-chemical industry in the state because of this complex would come to near about Rs. 5,000 crores.⁶ This would mean that about one-sixth of the total investment envisaged for the whole country would be spent in Assam only. So petro-chemical industry is the most important industry of Assam both in size and importance. In Gujarat also, the petro-chemicals industry radically transformed the state economy. This is why

⁵Business world, April 12-25, 1989.

⁶Investment proposed for the petro-chemical complex is Rs.2188.30 crores. It would have a break-even point of only 40.3%. The internal rate of return projected is 23.32%. Also the project would pay back in just 5.01 years in spite of higher capital expenditure because of different gas separation units for OIL and ONGC. All these prove the high feasibility of the project. Regarding downstream industries, it has been estimated that as many as 3,000 polymer based and plastic units can be set up in SSI sector. (Economic Times, October 31, 1989) The government of India has already sanctioned Rs. 2,000 crores for the complex. (Assam Tribune, 28 January, 1991). It will have 32 down-stream projects too. (Assam Tribune, 15 February 1991).

we think this industry deserves a special place in any plan for industrialization of Assam.

9.4 Workings of a Petro-chemical complex

Now what are the functions of the petro-chemical complexes ? A cracker plant cracks or fractionate different olefins ethylene, propylene and butadiene. Of these ethylene is the most important. The feedstock of a cracker plant is naptha, liquefied petroleum gas (LPG) and natural gas. The former two can be had from petroleum refineries.

In aromatic complex, naptha and LPG are the feed stock, Benzene, toluene and xylene are the products. From xylene, purified terephthalic acid (PTA) and dimetheryl terephthalate (DMT) are produced which are used in production of polyester fibres and yarns.

Linear alkyl benzene (LAB) plant produces this chemical from kerosene. N-paraffins extracted from kerosene is reacted with benzene to produce LAB, which is an ingredient for detergent industry.

9.5 History of Petro-chemical industry in Assam

Assam has raw material for all the three varieties of petro-chemical plants. However till now the developments in this area has been very poor. There is not a single cracker or LAB unit here. During the establishment of Bongaigaon Refinery & Petro-chemicals

Ltd. (BRPL), there were popular demands for a naptha cracker unit. However it was not sanctioned. A small aromatic plant was commissioned in 1985 to produce ortho xylene and DMT. The production capacities are respectively 6,000 tonnes per annum (tpa) and 45,000 tpa, 33,000 tpa of DMT is being processed to produce 30,000 tonnes polyester staple fibre per annum which is used in spinning mills to spin polyester and other blended yarns. Ortho-xylene can be feed-stock for production of Phthalic Anhydride, which is used in the Paints industry. But presently the ortho-xylene is being sold as it is. There is a strong case for its conversion into pthalic anhydride so that the paints industry can develop in the state.

There is another small petro-chemical complex in Assam, Known as Assam Petro-chemicals Ltd. (APL), it is situated at Namrup, APL was commissioned in 1976. Its total investment is Rs. 11.75 crores.

APL produces Methanol, Formalin and petrolites. The production capacity of methanol is 7,000 tpa. Production in 1985-86 was 5,857 tonnes.⁷ This is a good achievement at 83.7% capacity utilization. But there is sufficient scope for expansion in the production capacity itself. Because the BRPL itself uses 20,000 tpa of methanol in its DMT plant.⁸ The APL has been quick to realize this and a Rs. 30 crores expansion plan has been started. On its completion the capacity will rise to 30,000 tpa.⁹

⁷ Assam Petro-chemicals Ltd. Brochure.

⁸ Bongaigaon Refinery & Petro-chemicals Ltd. Brochure.

⁹ Assam Petro-chemicals Ltd. Brochure.

9.6 Product-mix of a Petro-chemical complex

Let us now see what are the scope and possible uses of the important products in petro-chemical complexes. It goes without saying that Assam can have each and every product manufactured here since she has raw material for all of them.

Table 9.2
Petro-chemical products and their uses.

Raw material	Product	Uses	Comment
Kerosene	i) Linear alkyl benzene	Detergents	
	ii) Alphaolefins	Detergents	also derived from ethylene.
Natural Gas	i) Urea	Fertilizer	It is produced via ammonia
	ii) Methanol	DMT and many others.	
	iii) Formaldehyde	Chemical	Methanol is used
	iv) Acetic Acid	- Do -	- Do -
L P G & Naptha & Natural Gas	i) Ethylene	DMT, PTA etc.	
	ii) Low density polyethylene	Packaging material, bags.	Ethylene is used as feed stock.
	iii) High density polyethylene	Woven sacks, pipes, blow, injection mould.	- Do -
	iv) Linear low density poly-ethylene.	Wires, cables	- Do -

contd----Table.

<u>Raw material</u>	<u>Product</u>	<u>Uses</u>	<u>Comment</u>
L P G & Naptha & Natural Gas.	v) Polystyrene	Cassettes, Tape recorder casing	Ethylene is first converted to Ethyl Benzene
	vi) AS, ABS, Resins	Fridge lining, Helmet, Baggage material.	- Do -
	vii) Synthetic Rubber(SBR)	Tyres, Tubes	- Do -
	viii) Polyvinyl Chloride (PVC)	Pipes, conduits, wires,	Ethylene is made of Ethy- lene Dichlo- ride.
	ix) Alphaolefins	Detergent	Polyvinyl alcohol is made of ethylene.
	x) Polypropylene	Bopp film to wrap food, cigarette.	Propylene is used.
	xi) Synthetic Rubber (NBR)	Tyre, Tube	Propylene is used.
	xii) Acrylic fibre	Textile	- Do -
	xiii) Butadiene	Synthetic rubber	Butylene and butadienes used.
	xiv) Methylene tertiary butyle ether	Chemical	
	xv) Maleic anhydride	Resins	- Do -
	xvi) Butyl rubber	Tyre, Tube	- Do -
	xvii) Carbon black	Tyre, Tube	- Do -
	xviii) Polyurethanes	Thermal insula- tion, foot-wear, foam cushion.	- Do -
	xix) Paraxylene	DMT, PTA	Xylene is used.
	xx) Ortho-xylene	Paints, etc.	- Do -

contd----Table.

<u>Raw material</u>	<u>Product</u>	<u>Uses</u>	<u>Comment.</u>
	xxi) Benzene	Chemical	
	xxii) Phenol	Chemical	Benzene is used
	xxiii) Nylon 66	Tyre, rope, conveyor belt.	- Do -
	xxiv) Nylon 6	Nylon tyre cord	- Do -
	xxv) Toluene	Chemical	
	xxvi) Acetyline black	Dry cell battery	Ethylene is used

Source : D.V. Kapur Committee Report, quoted in Business World,
April 12-25, 1989.

In this context it can be noted that urea is a petro-chemical product but it is generally considered in a different category i.e. fertilizer which has an independent status. Assam has a large fertilizer plant at Namrup which produces ammonia.

9.7 Under-utilization of raw materials in Assam

With the enormous reserves of Oil and Gas in Assam and North-East as a whole all these industries can flourish like anything. According to an estimate the region can produce 10 million tonnes crude oil per annum by 2000 A.D. It will be at reserve to production ratio of 15:1 on the basis of proven resource of 1 billion tonnes. The natural gas production may reach 20 million standard cubic metres a day by 2000 A.D.¹⁰ That would mean a

¹⁰ Utilization of hydrocarbon potential of N.E. India, S. Chaliha, Assam Tribune, 15.2.88.

plenty of industries in petro-chemicals if the gas and crude oil products are to be gainfully exploited. It is a sad commentary of present state that natural gas is being flared away at the rate of 2 million cubic metres per day in Assam out of present production level of 6.7 million cubic metres. This is worth Rs. 11.5 lakh per day.¹¹

The crude refining capacity also is very small in Assam. Some expansion plans are on the anvil to cater to the urgent requirement. But as seen below, the expansion will be very marginal.

Table 9.3
Oil refineries of Assam and capacity

Sl. No.	Refinery	Refining capacity
1.	Guwahati	0.8 million tonnes.
2.	Digbel	0.5 " "
3.	Bongaigaon	1.0 " "
Total		2.3 million tonnes

A fourth refinery is being planned at Numaligarh in joint sector with a capacity of 3 million tonnes per annum. With it the total crude refining capacity of the Assam refineries will become 5.3 million tonnes. Thus entire crude oil production in the state as

¹¹Economic Times 6.5.89.

of now will be locally refined. But considering the augmentation plan of crude oil to 10 million tonnes per annum, only half of the Crude Oil production envisaged for near future will be locally refined. This gives scope for developing some more petro-chemical industries. In this context one cannot but feel that the decision of diverting crude from Assam to Barauni for refining has long deprived this state of the scope of industrial development. While the total refining capacity of the 3 refineries of Assam coming to total 2.3 million tonnes, Barauni alone refines 5 million tonnes.¹² Even with the proposed fourth refinery the total refining capacity will just become equal to Barauni's. While the 12 existing refineries of India process 48 million tonnes crude (including imported crude) at an average of 4 million tonnes per annum,¹³ the three existing Assam refineries even with local crude has an average capacity of just 0.77 million tonnes each. All this smack of political manipulations and deliberate deprivation of Assam of industrialization.

The country's first cracker complex, Maharashtra Gas Cracker Complex (MGCC) belonging to Indian Petro-chemicals Corporation Ltd. (IPCL) is almost ready. This Rs. 1,390 crore project will save Rs. 600 crores of foreign exchange for the country. It can be noted that this complex has necessitated laying of pipe line of 172 km. length to transport natural gas.¹⁴

¹²Petro-chemicals on the fast track, P.K.Barua, Assam Tribune,

¹³Economic Times, 30.5.89

5.10.88.

¹⁴Economic Times, 3.4.89.

In fact for every cracker complex outside Assam such long pipe line will be necessary as natural gas will have to be transported from Bombay high. It is unavoidable as Bombay cannot give space for establishing the complexes; it is too congested and populous. But in Assam the complex can easily be set up in and around the gas producing area which will do away with the need of laying long pipelines. So Assam enjoys definite cost advantage in respect of any petro-chemical complex.

9.8 Polyester

Also there is a strong case for expansion of polyester staple fibre production capacity of BRPL from the present 30,000 tonnes per annum to a minimum 60,000 tpa. Because according to the J.J. Mehta Committee report, the minimum economic size (MES) of a PSF plant is now 60,000 tpa.¹⁵

9.9 Size and product planning for Petro-chemical complex

In the formulation of any petro-chemical project, this minimum economic size aspect must be stringently followed. Because in the forthcoming capacity generation all around the country cost competitiveness will be the first imperative. The would be entrepreneurs should take note of that. Or else they may find themselves pushed out of a buyer's market which is what the present seller's market will convert into by 2000 A.D. We are giving

¹⁵Economic Times, 17.4.89.

below the MES for some major petro-chemical items.

Table 9.4
MES for selected petro-chemical plants

Plant	Capacity (^{'000} tonnes)	Plant	Capacity (^{'000} tonnes)
Polyester staple Fibre	60	Polypropelene	100
polyester Filament Yarn	25	PVC & VCM	100
Nilon Filament	15	DMT	100
Acrylic Fibre	20	PTA	200
LDPE	100	Caprolactum	100
LLDPE	80	LAB	80
HDPE (Slurry process)	100	Naptha gas Cracker	300
MDPE (Swing process)	160	Butyl rubber	25
Polyester Film	5	Alphaolefine	100
BOPP Film	5	Phthalic anhydride	20
Styrene	80	MEG	100

Source : J.J.Mehta Committee report, quoted in Economic Times, 17.4.89.

From the above it is seen that the DMT production capacity of BRPL is also uneconomic with the present 45,000 tpa. It needs to be raised to 1,00,000 tpa. However it can be mentioned that at the time of installing these plants they were as per the prevailing MES. However things have changed. In the fast changing technological scene in the industrial world this is generally expected.

So it is better to start with big plants and preferably with capacity way above the prevailing MES. That is why the giant petro-chemical complexes have become the need of the hour. If we want to be internationally cost competitive, the big projects are must. The export market consideration is a must if the industry wants to flourish. Because though there is a severe shortage of petro-chemical products now, with the commissioning of the planned capacities the market may very well see a glut. That will necessitate the export market. There it will face producers from U.S., Latin America, South Korea as well as Japan. To compete with them our plants must be of equivalent size and technological standard.

In the formulation of product mix also one needs to be careful. The thermo plastics like LDPE, LLDPE, HDPE, PVC, Styrene are all high volume items. Then there are the engineering plastics like acrylo-nitrile butadiene styrene (ABS), poly tetrafluoroethylene (PTFE), polyamide (nylon), polycarbonate (PC), polyethylene terephthalate (PET), poly butylene terephthalate (PBT) etc. All these are high technology products. But they are low volume items. They will not only give boost to the engineering industry but also give good margin. In an export thrust the engineering plastics may be a better proposition. Because they are substitutes of engineering raw materials like steel, Aluminium, Copper, and brass. With gradual depletion and increase in cost of these conventional raw materials, engineering industry is switching to

plastics raw material. Naturally the value added is higher in respect of these compared to thermo-plastics.

9.10 Labour and marketing

The general problems like skilled manpower, marketing etc. do not need to bother the state. Because these giant petro-chemical complexes have an all India purview. They will necessarily have to draw manpower and other resources from national pool. The marketing etc. will have to be on national level. For instance the products of Indian Petro-chemicals Corporation Ltd. (IPCL) are sold all over India, not simply in Gujarat, where main production units of IPCL are situated. No state or region can fully offer a complete market for the entire range of products of these petro-chemical complexes. Let us consider for instance the synthetic rubbers - Butyl rubber, styrene butadiene rubber, Nitrile butadiene rubber ; also the nylons - nylon-6, Nylon-66. All these products are used in manufacturing of tyre and tube etc. They will find market with the tyre manufacturers like Dunlop, Ceat, Appollo, Vikrant etc. A small number of tyre manufacturers dominate the tyre industry of the country. While small capacities may be generated in and around the super petro-chemical projects the major consumers will be these big units. But with so many new petro-chemical units coming up, the state may have to create internal demand by promoting tyre industry in Assam. However Assam has a good market in the several automobile

associations as well as Assam State Transport Corporation. Development of an internal market is an imperative also as some tyre producers like CEAT are themselves going to produce styrene Butadiene rubber. We must remain prepared for the fall out of these developments also.

9.11 Drugs and Pharmaceutical industry

Another important branch of petro-chemical products besides fertilizer, thermoplastics, engineering plastics and aromatic compounds is pharmaceutical chemicals. Considering the importance of this area we have analysed this industry separately elsewhere. From the discussion there it becomes apparent that the region suffers from inadequacy of bulk drugs and raw materials. With the establishment of petro-chemical complex this need will be satisfied. In selecting product mix these items also should be incorporated. These products cannot be produced by the drugs and pharmaceuticals industry on its own. But once petro-chemicals complexes are established these can be produced easily.

Of different pharmaceutical raw materials chlorinated petro-chemicals are notable. Because they have diverse alternative uses as well. For instance chloroform is used in refrigerent gas, bulk drugs and adhesive for plastics. Carbon tetrachloride is used in refrigerent gas, pesticide, chlorinated rubber, ibuprofen mfg. cleaning and degreasing work. Methylene chloride is used in

photographic film, 6 APA, ampicillin, cahelexing, flexible urethane foam, paint removers, pesticides etc.¹⁶

9.12 Plastics

Among the different downstream industries, the plastics are the ones which can be integrated into the mother industry. So for the cause of industrialization of Assam, we would recommend some special emphasis on plastic industries. In fact Sri Abid Hussain, the then member of Planning Commission also has identified Plastics alongwith Electronics as the thrust area for Assam.

Assam has had 71 plastic conversion units in small scale sector and 2 in medium scale sector in 1988.¹⁷ The North Eastern region as a whole has 97 units.¹⁸ Thus the development has been mainly concentrated in Assam. It is a welcome trend as the entrepreneurs have got acquainted with the industry and would now be prepared for bigger investments when the giant cracker complex is established. Presently the plastic industry is suffering from raw material problem. They purchase it from Assam Small Industries Development Corporation (ASIDC) as well as from private firm.¹⁹

¹⁶The Hindu Survey of Indian Industry 1987, p. 93

¹⁷plastic industries in Assam, A.K.Baruah, Assam Tribune 25.4.89

¹⁸plastic industry:Prospects & Promises, R.K.Baruah, Assam Tribune, 8.4.89

¹⁹Ibid.

But they cannot supply it satisfactorily. It is understandable as at present the country itself depends on imports. Once the plastics are made available locally it is sure to see a big spectrum of industries to develop in the state. Another problem besetting the infant plastic industry of Assam is inadequate availability of dye and mould. These items are also now imported. When so many crackers will come up in the country, these items can be expected to be produced within the country. The state can also explore whether such a unit can be established here in Assam in the joint sector with reputed private firm from outside the state. As it will be an import substitution product requisite license should not be a problem.

Another requirement for the industry is training of skilled manpower. We have said earlier that it should not pose a problem for the cracker complex which would be a national level industry. But it is always preferable to have the technical hands from the local area. Additionally for the success of the cracker complex also the small downstream units have to prosper. And these smaller units may not be able to command resource person from outside the state as the mother industry would. They should have a pool of technical workers handy. So it would be suggestible to establish a Plastic Technology Training Institute. As one centre would not be adequate to train personnel for so many units the institute may have several extension centres.

Table 9.5

Plastic industries in Assam in 1988

Product	No. of industries	Product	No. of industries
1. LDPE/HDPE/HMHDPE/PP-Film, Tube, Bags	28	8. PVC conduct pipes	2
2. Blow moulding-Jerrycane container, bottle etc.	9	9. Fibre glass items, chair, table, flower tub.	1
3. Injection moulding household, bucket, basket, soap case etc.	5	10. Plastic novelties, card etc.	1
4. Urea, Formal dehyde products, plastics, plates, electrical accessories.	6	11. Drinking straw, Ball-pen refill	1
5. HDPE Woven sacks	3	12. Polythene laminated jute bag	3
6. Plastic Rope/Yarn/Monofilament yarn	3	13. Polythene tube from waste	1
7. PVC Pipe & fittings	4	14. Poly Eurethane Foam.	1
		15. Tubewell Strainer	3

All Total : - 71

Source : Plastic Industries in Assam, A.K.Baruah, Assam Tribune, 25.4.89.

We think plastic and petro-chemical industry as a whole holds the key to economic transformation of the state. If properly planned and executed this industry can remove the entire unemployment problem from the state at one stroke. The unemployment and underemployed workforce presently absorbed in agriculture sector can be taken out and gainfully employed in the petro-chemical

based industries. A massive campaign would be necessary to achieve that. To begin with, the establishment of Plastic Technology Training Institute is a must. The state government can also set up one or two industrial towns specifically for petrochemical or more specifically for plastic industry. The concept of a Udyognagar as spelt out by the Task Force for economic development of Assam can be the model of this township. As the petro-chemical industry would be having an export angle, proper transport facility linking the township with nearest sea port like Calcutta and Paradip may never be too costly. The Inland Container Depot (ICD) at Amingaon in Guwahati is a good step in this direction. Expenditure on infrastructure can be justified also by the fact that the Assam unit of cracker complex would be saving on pipelines which is an essential requisite for such units elsewhere.

9.13 Recommendations of L.C.Jain Committee

The committee on clause seven of Assam accord headed by L.C.Jain submitted its report in April 1990. This report too laid emphasis on the need of development of oil and gas industries in Assam. In addition to the proposed oil refinery and the proposed petro-chemical complex, the committee also recommended an integrated gas pipeline as well as an aromatic complex. The gas pipeline would "facilitate transportation and distribution of associated gas from oil fields of ONGC and OIL (otherwise being flared) and free gas from OIL's field."²⁰ However the implement-

²⁰ Report of the Committee on clause seven of Assam Accord, Planning Commission, Govt. of India, April 1990.

ation of the gas pipeline would depend on simultaneous implementation of (i) the 540 MW gas-based power project at Amguri by Assam State Electricity Board and (ii) the free gas development project by OIL.

The naphtha produced from Assam crude has a distinctive feature. It can be utilized both for olefinic or cracker complex as well as aromatic complex. It has been estimated that 2 to 3 lakh tonnes of Benzene Toluene and 0.7 to 1.1 lakh tonnes of Xylene can be produced from the surplus Assam Naphtha.²¹ That is why the committee recommended one aromatic complex too for Assam. However it would be feasible only after the proposed Numaligarh oil refinery is completed because the above estimate was arrived at only after taking into account the capacity of the proposed refinery.

²¹Ibid.

CHAPTER-X

STATUS AND SCOPE OF TEXTILE INDUSTRY IN ASSAM

10.1 History of Textile industry in Assam

Textile is an industry that has got enormous prospects for Assam. The state has a glorious history spanning several milleniums in this line. Even an ancient epic like 'Ramayana' has references to this land in this context. In Kiskindhya-kanda, this state was refered to as the country of 'Cocoon rearers'. Later in fourth century A.D., Kautilya certified the variety of fibrous garment 'Patromā' produced here as the best. In seventh century A.D. choicest pieces of silk fabrics and commodities having silk components constituted part of the royal gifts from the Assamese king Bhaskarvarman to his ally and the famous Indian emperor Harshavardhan. Thus Assam has had a proud and long history of textile industry. And that too in its high value products like silk, which has remained a special luxury item in Indian society so much so that it finds place in a holy book like Rig Veda which mentions about Urna, a variety of silk.¹

Compared to that past, the present state is really very dismal. The production of Mulberry silk in Assam in 1978-79 was 16,000 kgs out of an all-India total of 34,52,000 kg.² Thus the

¹Development of Handloom Industry : Organization, Production, Marketing, N.C.Das 1986(Deep & Deep, N.Delhi) pp. 17, 18, 22.

²Silkman's companion, 1980, Central Silk Board, Govt. of India, pp. 13-14.

leader of the past now produces a bare 0.46% of the country's total production. Of course there is no quantitative statistics of production available for those years of the past. But the very monopoly status as mentioned in the epics and other books of those times abundantly makes it clear that Assam had been the leader in the least if not the only producer of silk and silk fabrics.

The region boasted of full vertical integration in the industry. Starting from cocoon rearing and spinning of yarn, it went on to encompass operations like weaving and processing also. Prevalance of surnames Tanti (weaver), Katoni (spinning worker), Gunakatiya (embroider of silver/gold wires), Jugi (cocoon rearers) etc. proves existence of skilled workers for those operations. The dying industry of the region was famous for its fast and dazzling colours. It was fully indigenous. Material used were not only lac and indigo (called 'Rundye' in Assam), but also prepared from roots, leaves and tree-barks. Babla (Acacia Arabica), Khayer (Acacia Catechu), Supari (Areca catechu), Lac (Coccus Lacca) and Kusum (Carthamus Tinctorious) are some of those ingredients.³

That this historical tradition has been fully internalized by the people of Assam can be seen from the allusions to

³ N.C.Das (1986) p.21.

textile and its production operations in the local festival songs. The spring festival Rangali Bihu has among its different norms one of presenting decorated cotton towels to the near and dear ones; the Bihu dances and songs focus on young male's search for life-partner who excels in textile operations; the female counterpart in a dance sequence would enact the textile operations albeit with a touch of erotic exposition.

10.2 Present state of Hand-loom

No wonder that the state boasts of the highest number of looms in India - 6.94 lakhs i.e. 16.4% of the national total. It employs 12 lakh people directly and indirectly. In keeping with the tradition, women constitutes 90% of these weavers.⁴ But all these are just maintaining a tradition. In the absence of sufficient support as well as proper planning, the industry has remained beyond the touch of modernization. As many as 75% of the looms are ordinary throw shuttle looms.⁵ Annual production per loom remains an abysmally low figure of 92.32 square metres and per weaver production at an even lower figure of 81.59 square metres.⁶

⁴Ibid. pp. 7-8

⁵Ibid. , p. 47.

⁶Survey report on seri-culture and Handloom in Assam: Directorate of Seri-culture and Weaving, 1980, p.58

This shows that rather than taking off from a position of historical leadership and to progress alongwith the technological break-through achieved all over the globe, the textile scene in the state was pervaded with a regressive atmosphere. Total handloom production in the state in 1980 was only 75.72 million metres.⁷ However, in the eighties, the state made considerable progress in the handloom sector. The 59 weavers extension service units and 17 handloom production centres produced 726.5 and 30 million meters of cloth respectively in 1985-86.⁸

That, in the context of textile, one can give only handloom production figure speaks amply about the state of the affairs. Assam has only a single composite textile mill, the Assam Polyester Co-operative Society Ltd. at Rangia. The Chaprduar Cotton Mills is only a spinning mill. The Jagiroad Spun Mills Ltd. also do spinning only of Endi Silk and other blended yarn. The few powerlooms that some entrepreneurs installed in the 70's also remained almost defunct. The co-operative marketing network ARTFED kept some of these powerlooms alive for some time, specially those in three co-operative units at Nalbari and Silchar. But this too did not last long. So the powerloom sector is also without any output. Thus the

⁷ N.C.Das, Op.cit., p. 136

⁸ Directorate of Handloom & Textile, Assam, quoted in Statistical Hand Book, Assam, 1987.

state has only the age-old handloom sector in the name of textile.

10.3 Silk

That the textile industry in the state has not risen from above the handloom level in spite of a rich heritage as well as mass availability of weaving skill well sums up the stagnating condition of Assam's economy. In fact the deterioration in the comparative developments in silk industry, the major component in the state's handloom sector, vis-a-vis the all-India developments denotes a regressive state of affairs.

In silk, as we have seen, the state had a leadership from the time of yore. That established its geo-social suitability in this industry. That even in such ancient days the region could take its produce to far abroad proves that infra-structural backwardness cannot but be an alibi of the unwilling custodians of the state economy. Surely the infra-structural facilities cannot also be said to be too poor now when compared with the period of British rule; in that case the fact that Muga used to be staple item of the East India Company in its trade with Europe and others in the 18th and 19th century takes away any scope of defending the present conditions on the plea of infra-structural backwardness.⁹

⁹Gait Edward, A History of Assam, pp. 271-272

From the above, we think that textile industry is an area which has remained undeveloped for reasons other than the two main handicaps of the state i.e. her land-locked nature and subsistence agriculture economy. We have to explore the cause of textile's under-development in reasons outside this locational and people's occupational factors.

10.4 Dislocation of Silk Industry

In an earlier chapter¹⁰ and while exploring the effect of political factor on industrialization of a backward area, we saw how the British had helped their brethren to consolidate their rights on Assam's land at the expense of the sons of the soil; the tea estates grabbed all vacant land of Assam leaving no scope for future expansion of cultivation area.

The population of feed trees for insects from which silk is procured require sufficient amount of land. The gradually increasing scarcity of land has naturally led to a situation where the rearers of the silk worms are increasingly switching over to other vocations. An eminent seri-culture expert has viewed tea industry as a deterrent for the growth of silk and and ramie industry in North East India, specially in Upper Assam.¹¹

¹⁰ See the Chapter "Strategy for Industrialization - Hypotheses" in the present study.

¹¹ Choudhury S.N. (1984), p. 207.

In view of the above and in the light of our finding that the revenue contribution of tea industry to the state exchequer was only Rs. 6.5 crores per annum,¹² we suggest that the opportunity cost of the land under the tea plantations has been very high. Of course there are questions pertaining to suitability of this land for alternative uses like seri-culture farming. But there could be a possibility that an alternative use of the tea estates for plantation of feed trees for silk worm would have fetched the state exchequer a higher revenue, and the people more employment and income in addition to a greater social stability.

A direct assault of the British government on the Assam silk industry was its imposition of a levy on the muga feed plant Som (*Machilus Odoratissima*).¹³ It may sound contradictory to their own trading in this monopoly product of Assam. However if we remember that the British turned to administrators from traders and that they traded many such oriental products in the western markets before uprooting the production base of those very products to promote their own factory-made products we no longer remain perplexed. They did not have any long term interest in the Muga industry. A vibrant muga industry would have certainly posed hindrance to the marketing of British textile products. Also, the creation of unemployment among the Cocoon rearers would

¹²See Chapter on tea in the present study.

¹³Gogoi, Jeevan Kr., Asomor Muga Silpa (1980), p.2.

help raising some surplus labour force that the British would need for different purposes. The poor peasants who had reared the Som trees but were unable to pay the new levy, destroyed these trees. This in our opinion is the dark age of the muga industry of Assam. Lot of domesticated as well as wild muga seeds were destroyed alongwith these Som trees. This loss is irreparable because these seeds were found in Assam only. Even in Karnataka, where also tea gardens were set up, Som trees and muga seeds could not be cultured. The regression that started as an aftermath of these brutalities still haunt the muga industry. The effect of these dislocations continue to be reflected in the fluctuations of the muga productions. From an average annual production of around 0.54 lakh kgs in the 40's and early 50's it rose to around 0.91 lakh kgs during 1955-59. Then it fell to around 0.53 lakh kgs in early 60's only to rise again to around 0.71 lakh kgs. in 1966-73. The period 1974-80 saw a low of 0.41 lakh kgs, the year 1978 recording the lowest of 0.24 lakh kgs.¹⁴ Thereafter the Muga production again increased, reaching 0.55 lakh kgs. in 1984-85.¹⁵ Now, as some people may suspect, this fluctuation has not taken place because of biological factor or environmental pollution. Because in that case the fall in the production would

¹⁴Prepared from the data given in Das N.C. (1986), pp. 233-4.

¹⁵Directorate of Handloom & Textiles, Assam.

have been continuous and irreversible. The fluctuation is a pointer to the fact that a serious dislocation had taken place from which recovery has not yet been possible.

The dimension and seriousness of the dislocation suffered by the Assam Silk Industry during the British regime can also be guessed from a comparative look on the patronage it received from and during the Ahom regime.

10.5 Royal Patronage

The Ahom kings patronized and actually sponsored the silk industry. A separate weaving department was maintained to look after the interests and activities of the weavers. Weavers supplying the Royalty and the Nobles with clothes received rentfree land from the king for maintenance. Commitment to the indigenous clothes was so high that once three high officials dared to return a present coming from a person no less than the king, because the present happened to be a set of garments styled in the Moghul fashion. In the early 17th century, a minister called Momai Tamuli Barbarua made it compulsory for every able-bodied female to spin a certain quantity of hanks of yarn before sunset. There was also a convention that every Assamese household must deposit a quarter of a seer of silk yarn to the royal treasury every year. Little wonder, the Assamese ladies wove super-fine fabrics. It is said that a whole length of Chadar could be hidden inside one's

palms and that it could be dried within minutes even in shades. The rulers brought specialists and experts from outside the state; these included weavers too. Thus new styles and designs were introduced, which proved the dynamic and innovative nature of the Ahom rulers, a basic pre-requisite for industrial sponsors. They introduced the 'Riha', a speciality of the Tai-Ahom people, in Assam.¹⁶

The growth of Sualkuchi as an important silk centre of the country may also be attributed to the organization and settlement there of the weavers by an Ahom king. King Pratap Singha organized the weavers from the southern and other parts of the state at Sualkuchi. This concentration of weavers at this single place gave them sufficient support, so as to continue with the profession long after the original patrons disappeared from the scene and in spite of a bleak scenario that engulfed the industry thereafter. As per a sample study done in 1978, 79% of the total households in the villages depended on weaving as their principal source of income.¹⁷

The degree of involvement of the Ahom rulers in the industry is best illustrated by the example of queen Sarveswari Devi, consort of king Siva Singha (1739-44 A.D.). The queen taught spinning

¹⁶ Das N.C. (1980) p.p. 30-32, 34.

¹⁷ Ibid., pp. 33, 45

to the girls. She collected patterns and specimens of brocades and flower designs for brocades in vogue in different parts of India for their reproduction by the Assamese weavers. Such high level patronage and specially in such dedicated manner is rare anywhere in the world.¹⁸

10.6 Present state of textile industry.

After this historical analysis, let us turn to see how the things stand as of now. We already said that whatever clothes were produced in Assam, were produced in the handloom sector only. Because the mill sector has not yet developed. The present handloom production and other details have already been given. That includes entire production of silk clothes too in the state because they are being produced in handlooms only.

Everywhere else in India the modern textile industry began by producing cotton textile. Then they started to switch over to man-made fibres in order to produce synthetic clothes. However in Assam, since the modern textile industry did not develop till now, a quantum jump will be made straight from handloom to synthetic textile. Moreover, a major factor has emerged of late in the state's economic scene so as to compel any cost-benefit analysis to turn heavily in favour of promoting the textile industry with a new and aggressive fervour as

¹⁸ 'Studies in the History of Assam,' by Dr. S.K. Bhuyan, p.70

well as on a modern footing. This is the new production plans of Bongaigaon Refinery & Petrochemicals Ltd. (BRPL). This unit has commissioned two very important plants to produce Dimethyl Terephthalate (DMT) and polyester staple fibre (PSF). PSF - a downstream product of DMT - is the raw material for spinning industry. BRPL has a capacity of 30,000 tonnes per annum of PSF. This amount of PSF can run 20 spinning mills of 25,000 spindless each. The next downstream unit that can be based on these spinning mills is either (a) 20,000 powerlooms or (b) 10,000 powerlooms and 1,00,000 handlooms. To process the products of this huge weaving industry, 10 processing houses with 2 lakh meters processing capacity per day will be required. A next downstream industry possible on these products is garments making. As many as 50 large size garment making factories are possible with the clothes produced.¹⁹ Thus a huge textile industry can be developed on the basis of BRPL

¹⁹ This estimate, which is based on BRPL brochures, is tentative and may differ depending on technology choice and other investment details, Dr. S.N.Chowdhury in his 'Mulberry Silk Industry' (Shillong, 1984) says that 12 spinning units of 25,000 spindles each is sufficient; these will produce 21.50 metric tonnes of blended yarn per year. He also opines, "Assuming that the existing handlooms, semi-automatic looms of the power looms will consume 7,850 metric tonnes per year, another 7,500 power looms will be needed to process the balance 13,560 tonnes of yarn". p. 229.

output.

Already several spinning mills for spinning of synthetic yarns have been commissioned and several others are being planned. Their names and details are given in table 10.1.

Table 10.1
Spinning mills of Assam (Synthetic)

S1. No.	Name of mills	Existing/ Proposed	Spindles	Production per day
1.	Assam State Textile Corporation.	Existing	15,232	5000 kg.
2.	Assam Syntex Ltd.	-do-	17,280	5500 kg.
3.	Assam Polytex Ltd.	-do-	16,184	5000 kg.
4.	Assam Polyster Co-op. Society Ltd.	-do-	25,000	7000 kg.
5.	Golaghat Co-op. Society Ltd.	Proposed	25,000	7000 kg.
6.	Baitamari Co-op Society Ltd.	-do-	25,000	7000 kg.
7.	Assam Weavers Co-op.	-do-	25,000	7000 kg.
8.	Assam Polyester Textile (Pvt.)	-do-	25,000	7000 kg.

The list shows that the total spindlage is yet not sufficient to take care of the entire production of Polyester Staple fibre of BRPL. In weaving of the synthetic fabric also, the capacity generated or planned so far is quite dismal, as seen in table 10.2

Table 10.2

Proposed weaving capacity of Synthetic Fabric

Sl. No.	Name of Mill/Owner and Place	No. of Looms	Project cost.	Production proposed per day.
1.	Assam Weaving and Manufacturing Co. Ltd. (Katimari Village, Nagaon)	Installed 48 Proposed 250	Rs. 2.4 crores	N.A.
2.	Assam State Textile Corp. Ltd., (Neapara No. 2 village, Bijni)	N.A.	Rs. 12.25 crores. (with process house)	10,000 metres
3.	Bongaigaon Consumers' Co-operative Stores Ltd. (Baitamari Village, Goalpara)	48	Rs. 2 crores	6,500 metres
4.	Assam Co-operative Textile Industries Ltd. (Guwahati)	48	Rs. 2 crores	6,500 "
5.	Assam Polyester Co-operative Society Ltd. (Rangia)	250	Rs. 10.7 crores	N.A.
6.	Lohit Ch. Gogoi (Amguri, Jorhat)	N.A.	Rs. 1.5 "	N.A.
7.	Sachin Saharia (Chandrapur)	N.A.	Rs. 1.5 "	N.A.
8.	Lt. Col. B.K. Barooah (Sibsagar)	N.A.	Rs. 1.5 "	N.A.
9.	Assam Polytext Ltd. (Paschim Nagaon Village, Jagiroad)	N.A.	N.A.	N.A.
10.	Assam Powerloom Development Corp. Ltd. (Kalapahar, Guwahati; Hengrabari Guwahati; Kalibor, Nagaon)	N.A.	N.A.	N.A.

Sources: (1) Assam Industrial Development Corporation Brochure.
 (2) Assam Co-operative Textile Industries Ltd. Brochure.
 (3) Assam Tribune, Guwahati.

Considering the fact that one kilogram of yarn is converted to 10 metres of fabric on weaving,²⁰ The Assam State Textile Corporation Ltd. will require a weaving capacity of 50,000 metres per day to utilize their own yarn production itself. Their weaving capacity as proposed would be barely 20% of that. The other proposed units, except that of Assam Polyester Co-operative Society Ltd., are smaller units to come up under the shade of Assam Industrial Development Corporation Ltd. as well as Assam Powerloom Development Corporation Ltd., under their decentralized industrial development scheme. The units at sl. nos. 6-8 are such aided and sponsored projects. The units 3-4 also plan to come under AIDC's development scheme. The Units 9 and 10 are actually complex of such would be units yet to come up. Productions of units 1 and 2 have already started. ASTC products are being marketed under the brand name MANAS fabric. The Assam State Textile Corporation has also set a target of 2,000 powerlooms, to be installed under this decentralized scheme. If a unit has a project cost not more than Rs. 5 crores and employment not more than 48, then it comes under this scheme and is entitled to get license from the state government itself. Government of India relaxed the licensing norm in 1987 and encouraged the formation of powerloom co-operative in the states. The AIDC projects have been

²⁰ From Preliminary Techno-Economic Feasibility Report of the Assam Co-operative Textile Industries Ltd.

formulated under this broad policy frame-work.

However, all said and done, the progress registered in the weaving sector is quite minimal. And to make things worse, the post weaving processing facilities, of course still in the planning stage, would be even scantier. Only one firm, Assam State Textile Corporation has proceeded with a concrete plan; it has proposed to install processing facility for 20,000 metres of clothes, 15,000 metres of it being for synthetic clothes (the rest would be for cotton fabric). Of this 15,000 meters, 10,000 metres would be their domestically produced clothes and remaining 5,000 metres produced in the decentralized units. Thus these pre-weaving and processing facilities planned by A.S.T.C. would not even take care of the weaving capacity planned as of now, let alone accommodating new and would-be weaving capacity to be launched in near future. Assam polyester Co-op. Society Ltd. has planned processing capacity. But that would take care of only their own weaving production. Thus the textile scene of Assam at the planning stage itself is being set at a low level and it starts with an underbalance.

10.7 Market demand and Capacity generation

And this is in spite of a flourishing market in textile. If 199 lakh population of Assam in 1981 consumed 18 metres per capita of clothes-as estimated during the fourth plan period -

the state consumed 35 crore metres of clothes per annum. Of this Assam produced only 6.4 crore metres and that too in handloom sector.²¹ With the rise in population to 222 lakhs in 1991, the demand for cloths^e_A per annum is expected to rise to about 40 crore metres. Another estimate puts it as 45 crore metres with 30 crore metres of it being cotton and 15 crore metres synthetic clothes.²² If we consider the processing facility to be installed by A.S.T.C. as the ultimate decider of domestic clothes production in the near future, then even at full capacity utilization, the state would produce at non-stop operation round the year basis, a mere 0.75 crore metre of clothes, and at 300 working day basis an even lower 0.60 crore metres.

The weaving capacity that needs to be installed to cater to the complete demand of synthetic cloth by 1991, i.e. 15 crore metres per annum, has been assessed at 4500 powerlooms. These will weave per day 50,000 kg. of synthetic yarn to produce 5 lakh metres of clothes, daily.²³ And in 300 working days

²¹ A report on Survey of Seri-culture and Handloom in Assam, Directorate of Seri-culture and Weaving (1980) p. 58

²² Preliminary Techno. Economic Feasibility Report of Assam Co-operative Textile Industry Ltd.

²³ Ibid.

in a year, the total production becomes 15 crore metres. So it is abundantly clear that the issue is not of demand generation but of creation of weaving and processing capacities.

10.8 Modernization

However there are some important points to be noted in this context. It is not that just weaving capacity without any consideration of technology choice is the need of the hour. Non-planned capacity generation can turn out to be an Achille's heel of the economy in the long run. The planners and prospective entrepreneurs can take the cue from Indian textile industry. The national textile industry has had to carry the burden of numerous textile mills laden with obsolete machinery. Production cost of these mills are necessarily high while quality of production low. Eventually the profitability of the mill goes down. In fact, a study²⁴ has found that the Indian Cotton Textile mills during the period 1978-79 to 1983-84 paid dividends which were modest and lower than those of other industries. The Study has refuted the belief that the textile industry continues to be profitable whether it is based on old technology or new sophisticated technology. It found that 97% of the funds of these cotton textile mills were employed in the main business activity of the mills e.g. net fixed assets, inventories, receivables, cash and bank balances; a minimal 0.6 percent was

²⁴Textile modernization : Problems & Prospects' by C.V.Radhakrishnan, The Economic Times, March, 6, 1987.

invested in Government securities as per stipulation; investment in industrial securities and immovable assets accounted for hardly 2 percent. Thus the textile industry suffers from lack of investible surplus funds.

So it is our recommendation that any new capacity generation must keep this aspect in view. As far as possible the newly installed machinery should be of recent and sophisticated technology. On employment considerations, the government has supported and promoted the decentralized sector. In fact on overhead cost, labour cost and many other counts this will help cut cost of production. But diseconomy of low scale of production as well as marketing and standardization problem counter this advantage. Whether the disadvantages are mitigated by the advantages or not depends on how the whole thing is planned. We would prescribe some norms in this respect.

- (1) The powerlooms to be installed in the decentralized sector should be of most sophisticated technology and preferably of state of the art technology.
- (2) To get over standardization and marketing problem, weaving complexes should be set up. This way production at these centres would be sufficiently high so as to have sophisticated research and development wing, quality control measure as well as orderly and integrated marketing network.

- (3) Number of powerloom service centres be increased.
- (4) Special care be taken to promote powerloom centres in regions where handlooms have historically prospered and a large traditional reserve of expert hands remain.
- (5) Special care be taken to promote the concept of co-operative, as this would enable to promote advanced technology units with greater amount of resources forthcoming.
- (6) Fashion and design institutes be opened in every state; these will in addition to innovating new and modern designs, will collect patterns and samples of traditional designs.
- (7) Uninterrupted supply of power should be assured to the powerloom complex. We recommend such priority treatment to all industrial estates and complexes.

The seriousness and worth of our analysis and prescriptions is supported by the textile scene of Gujarat. A report²⁵ says that the 1984 crisis which saw 24 mills close down making as many as 50,000 workers jobless, has not in any way blown

²⁵ Gujarat News-letter: "Textile mills face uncertain future" by Aahraf Sayed, Times of India, April 27, 1987.

over. More than a dozen mills, some of them belonging to prestigious business houses were facing closure. The nationalization of 12 closed mills by the state Government could not do any good to them. These mills were taken over by Gujarat State Textile Corporation (GSTC). The latter was suffering annual loss of Rs. 25 crores in five of these mills in spite of spending crores of rupees in modernization. On the other hand National Textile Corporation (NTC) which was managing 12 mills in the state, till then accumulated loss of Rs. 50 crores and that too after spending Rs. 45 crores on modernization of some of its units. In fact NTC incurs loss of Rs. 2 per metre of cloth produced by them. All this is taking place even after centre, state Government, IDBI and nationalized banks have pumped more than Rs. 500 crores into the textile mills and more than 11,000 workers retired under voluntary retirement scheme.

The study attributes all this to lack of modernization in time. The textile industries tried to profit from the mill as much as they could. The textile mills have been used as source of capital accumulation in the Indian economy. The textile mills generated resources for a vast number of industries spanning from chemicals to electronics. But this was not accompanied by the slightest attempt at updating the technology. As a result the machinery have become junks in some cases. And in general they cannot any more compete with the modern

sophisticated units. The technology being of earlier vintage, it is necessarily labour intensive. This makes labour cost high. Also any attempt at innovation faces enormous resistance from the organized labour force. However the attractive voluntary retirement schemes have got over this problem. But even then the sickness remains. This proves the enormity of the issue of technological backwardness. This failure of the industry to go for modernization is really hard to understand. The Bureau of Industrial Costs & Prices also opined that the textile industry did not take modernization seriously in spite of various budgetary concessions.²⁶

10.9 Power-looms

The Gujarat study has been referred to here in details to substantiate our view that sophistication in the technology is the need of the hour. New units should simply not make the blunder of starting with old technology. Another note-worthy point is that the mills referred to in the study did face strongest market competition from the power-looms sector. This consolidates the position of the protagonists of decentralized sector. There cannot be two opinions about the preference of powerloom weaving to composite mill weaving. Because of

²⁶ Economic Survey, Govt. of India, 1989-90.

their advantages several lakhs of powerlooms were installed throughout the country, whether authorized by the government or not. Ultimately in 1979, the government regularized all unauthorized looms.

In this new emerging situation, the backward areas like Assam stand to gain by developing a strong powerloom sector. It requires lesser amount of capital, has lower cost of production and shorter gestation period, but excel in terms of quality and quantity of production.

Another flexibility of the powerloom sector is that one can have different type of looms for high value and low value products, thus keeping the capital-output ratio at an optimum level all over. This way low value products also can be included in the product-mix without their cutting into the profit ratio. And for the same reason, employment consideration remain without being a casualty.

Capable of taking root in the underdeveloped economy of backward regions, powerloom sector can be integrated into the regional economy very easily. However before that the infra-structural facilities like power etc. must be developed. But once established, the linkage effects can be materialized more than in composite mill sector. It will also lead to development of tertiary sector as well; because the decentralized growth

of this industry would generate demand for services.

If the textile industry is not developed in a planned manner, the fall out of it will impair the health of the state economy very badly. Because to protect the interest of the employees the government is constrained to take over the sick units which accumulate huge losses over the years. The NTC mills have incurred loss of Rs. 990 crores in the last five years or so.²⁷

The changing scene of Indian textile industry can be understood from the fact that while employment in the organized mill sector has declined from 12.53 lakhs in 1986 to 11.81 lakhs in 1988, the same in powerloom has risen from 31.9 lakhs to 50.95 lakhs. Number of powerlooms has risen from 8.36 lakhs in 1985 to about 11 lakhs in 1988. Handloom also has seen an increased employment of 84.22 lakhs in 1988 against 72.76 lakhs in 1986 and production of 3508 million metres in 1987-88 against 3137 million metres in 1984-85. Thus handloom and powerloom have grown at an extremely fast rate while the organized mills continue to lag. The latter has read the writings on the wall. They are desperately trying to modernize so as to become competitive with the powerloom. In 1988 as many as 164 composite mills have availed the government scheme of textile

²⁷ Economic Times May 16, 1989.

modernization fund and invested Rs. 666 crores in modernization.²⁸ The textile industry has understood their plight very well. Every year mills are closing down due to financial problem, strike etc. At the end of 1989 total 140 textile mills remain closed. They comprise of 84 spinning mills and 56 composite mills with installed capacity of 35.6 lakh spindles and 34,800 looms employing 1.68 lakh workers.²⁹ Production of cotton textile in the mill sector, has been steadily falling, while the same in the decentralized powerloom sector is steadily rising, as seen in the following table.

Table 10.3
Production of Cotton Textile
(in million metres)

Year	Production in the mills sector	Production in decentralized sector.
1970	4157	3696
1980	4176	4845
1986	3337	6743
1987	3115	7309

Source : Indian Economy : Basic Statistics, R.B.I., Dec'1988.

²⁸Economic Times April 25, 1989

²⁹Economic Times February 24, 1989.

Out of the total production of 12,992 million metres of both cotton and man-made textiles in India in 1987-88, as much as 9,965 million metres were contributed by the decentralized sector and only 3,027 million metres came from the mill sector.³⁰

The viability of the textile industry, particularly in Bombay and Gujarat, is facing a problem also because of high input costs: In a separate chapter on Petro-chemical industry we have shown that the units manufacturing DMT etc. is of below optimum level. So these items incur high cost of production. Now DMT and PTA are raw material for polyester staple fibre. So naturally the costs of PSF and thereby of polyester yarn and cloths go up. In 1988-89 budget the government gave some duty concessions to synthetic fibres and yarn. But the industry eventually retained these benefits to themselves. Prices of DMT and PTA also saw further rise in 1988. All these are making future of textile industry bleak.

But this also augurs well for powerlooms. A composite mill cannot change its product mix very easily or change production level as financial and labour problem come on the way. But the powerloom industry can incorporate necessary changes so as to get over the crisis situation. In the changing

³⁰ Report on Currency and Finance 1987-88, Vol. I, Reserve Bank of India.

scenario of textile industry it is the power-loom which will benefit. This explains the phenomenal growth of powerlooms in the country.

The government of Assam has established Assam Power-loom Development Corporation Ltd. in order to promote the powerloom industry in the state. The corporation has established three powerloom complexes in the decentralized sector in Kalapahar (Guwahati), Hengrabari (Guwahati) and Kaliabor (Nag-aon). All the complexes will be commissioned within the financial year 1991-92.³¹ The next step of the government should be the establishment of a few Technical Service Centres for the powerlooms.

³¹ Assam Tribune March 22, 1991.

CHAPTER XI

PRINTING PRESS INDUSTRY IN ASSAM

11.1 pre-dominance of Printing Press

The printing press is a service industry. As it is not a manufacturing industry, it holds comparatively lesser status among different industries. Thus in any discussion on industrialization or industrial problem this industry does not receive much attention.

However the situation is different in the case of Assam. printing presses occupy a distinguished status here among the entrepreneurs. Many of the first generation industrialists have taken to this vocation. Number of presses is rising very fast in Assam. From 176 in 1973-74, the number of permanently registered units of printing & binding industries in Assam increased to 393 in 1982-83. They comprised respectively 10.68% and 9.38% of the total number of permanently registered small scale industries in Assam.¹

This dominance of printing & binding industries can be ascribed to several factors. These are respectively safeness of investment, low risk, easy management, easy availability of labourer, promotion by the government, low investment requirement and easy marketing. We are elaborating these factors in details below.

However though the number of printing presses are increasing at a phenomenal rate, very few of them have been registered

¹Backward Areas and Industrial incentives, A.K.Neog, in 'Problems and Prospects of Industrialization (ed.) P.C. Goswami, 1987.

under the Factories Act. In 1985, only 22 nos. of printing, binding and allied industries existed in Assam, which were registered as factories. Of these, seven each were in Kamrup and Jorhat districts.²

11.2 Safe Investment

Number of entrepreneurs was not very significant in Assam till very recently. So most of the present entrepreneurs are first generation entrepreneurs. This makes them to opt for comparatively safe, easy, low technology, tested venture. Press has a proven record of sustenance over centuries because the press is the most indispensable component of modern civilization. Without press all communication, transaction, administration, academic activities etc. would come to a grinding halt. This assured status of press tempts any entrepreneur to take it up.

11.3 Less Risk

The printing press is a foot-loose industry. It has a lesser or little risk involved in it. The people of Assam has a typical tribal character, which makes them prefer certain, easy and smooth going life. They do not like risk and hence avert it. There is almost no risk of losing the investment on printing press as their machineries have a large second hand market even if the unit turns sick and become unmanagable for some reason. But the

²Chief Inspector of Factories, Assam.

fact is that the very sickness is a rare thing here. It can be noted that among the offset printing presses only one has turned sick. But this unit also has had a long history of mismanagement as well as strained industrial relations. The proprietors diverted fund to other business. They also estranged the government publication firms which used to be their main customers earlier. The feudalistic proprietors did not honour the bank stipulations about repayment schedule of loans for which the latter became stringent in their dealings with the press. All those culminated in near closure of the press. Presently this press has only about 10% of its previous work force. But all these are their own making and not due to marketing problem or raw material crisis etc. So this incidence of sickness is an abnormal one and does not deter the other printing press entrepreneurs.

11.4 Easy management

Assamese people by nature are an amicable lot. Their mind find the press with comparatively lesser problems and more attractive. Actually Indian people in general look for such investment opportunities. But people from other states also go in for high-technology units and those involving complicated procedure. That proclivity is missing in Assam.

11.5 Labour

The press workers need not be very highly skilled. The requisite skill can be acquired within a short span of time.

This has helped formation of a pool of press workers in Assam. Thus compared to other industries press has better availability of labourers.

11.6 Promotion by Government

The National Small Industries Corporation Ltd. (NSIC) held an industrial machinery exhibition in 1985. This exhibition concentrated mainly on printing machinery. This made the local youths more exposed to this industry compared to others. No wonder after that NSIC was overwhelmed by applications seeking hire-purchase loan for setting up press units. Thus faulty government programme has tilted the direction of entrepreneurs to printing industry.

11.7 Low Investment

Compared to any other industry, an average workable printing press (letter press type) requires less investment. A small scale unit with sufficient capacity to print books as well as job matters can be established for total investment below one lakh rupees. This is inclusive of working capital as well. Against this, other small scale industries require investments as given below.

Table 11.1

Investment requirement of some small scale industries

Sl. No.	Industry	Plant & Machinery (Rs. lakh)	Working Capital (Rs. lakh)	Total Investment. (Rs. lakh)
1.	Mechanised Carpentry	1.50	5.00	6.50
2.	Wooden Electrical accessories	1.50	2.00	3.50
3.	Stone crushing	1.50	1.50	3.00
4.	Citronella distillations	1.50	1.50	3.00
5.	Alum manufacturing	12.00	10.00	22.00
6.	Polythene film bag	2.00	1.15	3.15
7.	Steel Fabrication	.57	1.50	2.07
8.	Truck & Bus body building	.80	2.00	2.80
9.	Bakery unit	2.25	2.25	4.50
10.	Bricks manufacturing	2.00	2.00	4.00
11.	Printing Press	0.70	0.25	0.95

Source : Action Plan, 1984-1989, DIC, Kamrup. The requirement for Press has been calculated by author consulting with several printers.

However there are some industries which require lesser investment. For example Spice grinding (Rs. 28,000) Supari processing (Rs. 18,000), Fruit & Vegetable processing (Rs. 20,000) Washing soap (Rs. 55,000), Writing ink (Rs. 43,000), Steel Trunks & Factory (Rs. 60,000), Ball pen refill (Rs. 27,000), Envelope making (Rs. 60,000), PVC pipe fitting (Rs. 62,000) etc.³ All these

³ Action Plan, 1984-1989, DIC, Kamrup.

industries can be set up for investments below Rs. one lakh each.

But then there is a problem. These industries entail vigorous marketing effort. In soap, spice, writing ink, Ballpen refill etc. established all-India companies are marketing their brand of products in a cut-throat competition market. A new entrepreneur cannot dare to stand in this market, unless he goes for big unit to derive economy of scale as well as spends lavishly on marketing effort. Thus these industries are actually possible only on large and medium scale with a big investment. Small scale units in these industries are only theoretically possible.

Against these even a sophisticated printing press with modern offset machine can be established for 6 to 20 lakhs of rupees depending on size. However rotary machine for printing of news paper as well as specialized printing machinery like Tin printing, screen printing etc. are costlier proposition. But as a whole the letter press units and small scale offset units come quite cheap. There are as many as 16 offset printing machines in Guwahati city alone.

11.8 Marketing

Another important factor that was mentioned above alongwith investment size is marketing aspect. Most industries require great marketing effort. Whether it is a consumer good or capital good, it has to be sold in the market. And to do that when there are reputed manufacturers already well entrenched in the market,

call for vigorous salesmanship on the part of the entrepreneur. Assamese youths normally seem to be lacking in this quality. Of course this is not without reason. They do not need to compete much for job. The region being a backward one, any body doing a little specialization in any area find rich openings for him. So one does not need to make any effort to sell oneself in the job market. Our conjecture is that the salesmanship of a person starts with himself. First he has to be able to sell himself. Then only he can sell other commodities. Assamese youths do not yet know how to sell. So they cannot succeed in industries where sale is a top priority activity. They go in for well-tested ventures. In Assam, it is historically seen that, when an entrepreneur thinks of setting up any industry in rural areas the first thing that comes to his mind is a rice huller, and in urban areas a printing press.

11.9 Excess Capacity

Thus most entrepreneurs turn to printing. Because press is a service industry. It has a definitive and proportional role in the urbanized society's lives. A printing press is a part and parcel of an academic community, a frequent requirement for business community. Nobody can really do without printing press. So press very often enjoys a seller's market. Indeed in Assam also till recently this was the situation. That was why press continued to attract investments. However in the late eighties the scene has changed a little. Excess capacity has already developed

in general printing industry. Any future investment should be directed to specialized printing lines. In both letter press and general offset printing, there is already overcapacity in the industry.

11.10 Linkage Effects

How fast the printing industry is expanding can be guessed from the fact that till late seventies there was only one press with rotary machine in Assam whereas now five presses have rotary machine, all additions having taken place in the eighties. So eighties saw a massive expansion of capacity in this industry. When the anti-foreign national movement started in late seventies, the production and sale of books and periodicals increased. This might have also been a reason for the steep rise in printing capacity.

This has led to some degree of backward integration. One local manufacturing firm has started producing automatic stop cylinder press. It is noteworthy that this type of machine which is reasonably sophisticated for the small scale letter press printing presses do not have very many manufacturers in India. The fact that one full scale plant has come up in Assam denotes the degree of expansion of printing industry.

However it cannot be said that all the backward linkages of this industry have been exploited. Till now only one printing ink manufacturing unit has been established in Assam. It has launched its product under the brand name 'Luhit'. For

other requisite materials like wooden case, wooden lead etc, the state depends on outside supply. But these products are made of soft wood where the state abounds in. These soft wood goes out of the state and come back as finished product. However we would not recommend establishment of such units considering the ecological disturbances that are arising following deforestation. And the soft wood users from outside the state also should not receive any more supply from this state. They can go to other supplying regions which have denser forests.

Considering the numerous printing presses in Assam there is also scope for establishing type foundries here. Presently the local presses depend on supplies from Calcutta based producers. There was one local type foundry unit in Guwahati. However due to mismanagement it turned sick. But this sickness is entirely man-made and it would not therefore deter from new capacity being created. At least three-four type foundries can be profitably run here. But this is not the full number. Because the big presses almost all have their captive units. That they are maintaining these units show that the foundries need not necessarily be high volume producers. Because these captive units certainly do not produce very big amount of types.

CHAPTER XII
DRUGS AND PHARMACEUTICAL INDUSTRY

12.1 Scope of drugs and pharmaceutical industry in Assam

The drugs and pharmaceuticals industry has enormous scope in Assam and other North-Eastern States of India. The annual drug consumption in the N.E. Region in 1983 stood at Rs. 25 crores which increased to Rs. 45 crores in 1987 and then to Rs. 110 crores in 1988.¹ Thus the drugs consumption is increasing by leaps and bound. Even if the latest consumption estimates quoted above is an over-estimate, the impression is clear that the rise is phenomenal. In any case the demand is quite significant. The all-India production of formulation drugs in the callendar year 1987 was worth Rs. 1675.84 crores.² But during 1987-88 the same was Rs. 2,350 crores which signifies an extremely fast growth rate.³ In 1989-90, it rose even higher to Rs. 3,225 crores.⁴

There is scope for even greater increases in the demand for drug formulations. Because presently the per capita consumption of drugs is only Rs. 5/- per annum in the country's villages which account for more than 70% of the population. With improvement in per capita income this consumption is bound to increase. In the urban areas the per capita consumption is Rs. 25, which is also

¹ Souvenir, National Seminar on Development of Pharmaceutical Industries in N.E. India, Indian Institute of Chemical Engineers, Guwahati, March 1989, pp. 1,7.

² Ibid., p.7

³ Assam Tribune, 20.4.88

⁴ Economic Times, October 30, 1989

not high. As per an estimate only 5-6% of the people can afford modern drugs and 25% use it sparingly. Thus more than 70% people go without or with little drugs.⁵ With increasing emphasis on health care in government plans the drug use is supposed to increase. Though the health for all by 2000 A.D. may not be a feasible proposition, 2025 A.D. or so may see more or less universal use of drugs. So the coming three decades will see enormous increase in demand and scope for drug industry.

The enormity of scope for drugs industry can be seen from the fact that the state of Assam remains grossly backward in health care measures, which thus bear need and scope for a large scale increase that will mean corresponding increase of drugs uses. However to exploit this scope for developing the drugs industry there will be necessary a strong promotional drive backed by the government. Research & Development work in medicines, adequate supply arrangement of bulk drugs, training of technical personal and a well-planned marketing net-work will be necessary. As on January 1, 1985 the state had total 12,534 beds in 125 number of hospitals. They are respectively 2.33% and 1.67% of all India figures 5,35,735 and 7,474.⁶ This is less than proportionate to the number of population in the state. Because the projected

⁵ Ibid., p.7

⁶ Health Information of India, 1986, quoted in Basic Statistics of N.E. Region, 1987, North-East Council, p.89

population figure of Assam in 1981 stood at 2.9% of all India population.⁷ Also the number of population ^{per} ^{bed} is 1,791 in Assam against all-India 1,404.⁸ Even the doctor - population ratio is as deplorably low at 1 in 11,879 in Assam.⁹ An increasing availability of doctors in the state should help generate more health awareness thus leading to greater scope for pharmaceutical industry. However there is a problem. The infra-structural facilities in the health sector is grossly inadequate. Because even out of the limited number of medical graduates produced by the state every year, a major section remain unemployed. As on December 1986, there were 240 unemployed medical graduates registered in the live register of employment exchanges of Assam.¹⁰ So there is an urgent necessity of expanding the health infra-structure. This also vindicates the hypothesis of the present study that infra-structural facilities must precede expansion of industrialization in backward regions.

12.2 Bulk Drugs

In setting the pharmaceutical industries in Assam, the most serious problem faced by the entrepreneurs is raw material purchase. There is no bulk drug production facility in North-East India.

⁷ Basic Statistics of N.E. Region, 1987, p.7

⁸ Ibid., p.90

⁹ Ibid., p.92

¹⁰ Statistical Hand Book Assam, 1987

It is really unfortunate that out of an all India production of Rs.480 crores(as in 1987-88) Assam and North-East produces no bulk drug at all.¹¹ Even in Calcutta this has not come up so prominently as yet. So formulations manufacturers have to bring bulk drugs from Bombay, Ahmedabad, Madras and New Delhi. Not only the bulk drugs, all other raw materials necessary in the production process come from outside the region. Only some packaging material as well as labels etc. are now locally available. The acquisition of raw material from such long distance increase their costs by 30-40%.¹² This problem is not unique for Assam only. The two states of India-Maharashtra and Gujarat, being the major producers of bulk drugs, enjoy comparative advantage in manufacturing of formulations also. That is why, they account for 80% of the country's drug and formulation production.¹³

It is not only the increased cost that matter to the producers; the long transshipments are often delayed and give headache to the producers. The recent political troubles in Assam has brought this problem to the fore.

It is therefore suggestible that the state government takes up trading of these raw materials. They can set up buffer stocks

¹¹ Assam Tribune, 20.4.89

¹² Souvenir, Pharmaceutical Seminar, p.8

¹³ Ibid., p.7

of these. A corporation can be set up to trade in industrial raw materials. This can be in the line of State Trading Corporation (STC). In addition to pharmaceutical industry raw materials for other industries can also be supplied. A central raw material bank can be well in order.

Another option is for the government to enter bulk drug production. The private firms we surveyed do not dare to enter this area as they think there may not be sufficient scope; because the user industry, formulation manufacturing units, have just started in the region. They are afraid of not having economy of scale. But some experts opine that small scale units can be economically viable.¹⁴ If that is true, the government should not waste time in setting up or sponsoring some.

12.3 Cold - storage

The government can encourage the growth of cold storage facilities so essential for pharmaceutical industry. This will help spatial dispersal of this industry. The production work will be helped as raw materials can then be pre-stored in these storages. A state-wide marketing net-work would also necessitate establishment of cold-storages at important marketing centres. These storages can be developed as a separate ancillary industry.

¹⁴Ibid., p.2

12.4 Comparative advantage

In any industry cost competitiveness is a must for its sound health. There has to be cost economy in the production process, so that some leverage can be had to face the market competition. Therefore the products where the state can have comparative advantage can be good options while deciding on the product-mix of any unit. In pharmaceuticals, Assam may have such advantage on herb-based drugs and formulations, as many medicinal herbs are locally available here. In this context a vigorous research programme can be undertaken and possible association of allopathic with the Ayurvedic system of medicines can be contemplated. A synthetic approach of the two branches of medicine can augur well for the pharmaceutical industry in the state.

The selection of the product-mix of the pharmaceutical industries can also take into account the demand pattern. Certain diseases like cancer, goitre, gastro-enteritis, diarrhoea and typhoid etc. are common in this region. Research on these areas and production of drugs thereof may be suggested. However this will necessitate active support and assistance of the government as there will be considerable financial implication in it.

12.5 Labour

In addition to these problems, the entrepreneurs face a severe dearth of skilled workers. The present pharmaceutical units depend on expert hands brought from outside the state, which is not always

a feasible proposition for the average entrepreneur. Special crash courses in the polytechnic institutes and colleges can remove this problem. Full fledged departments of Pharmaceutical Engineering can be started later on, depending on the demand as and when it somewhat stabilizes.

But there is one problem. Whatever small number of technical hand have been trained in the state have opted for government job. For instance the B.Pharm students can become drug or food inspector after graduation. So according to the pharmaceutical manufacturers it will be quite some time before these skilled persons are attracted to the private sector manufacturing firms. Thus there will still be a time lag before the industry can avail of the benefit of establishment of any technical training institution. That means establishment of such institutions brooks no delay. Because already several manufacturing units have started. The pace is expected to pick up over time. It will not be in the interest of cost competitiveness of these units to keep on bringing technical experts from outside the state as that naturally entails a higher expense than what local hands will require.

12.6 Medicinal Herbs

Assam can very comfortably go for many herbal based drugs manufacturing units. Medicinal plants are available in plenty here. Many medicinal plants are said to be having their origin in

Assam.¹⁵ It is noteworthy that in total about 1500 species of medicinal plants are used for preparations of herbal formulations which number as many as 10,000. Assam accounts for a fair percentage of these plants. This shows the enormous scope of herbal formulation drugs in Assam. Even in allopathic drugs the herbal ingredients are used in abundance. Most liver care drugs are herbal medicines. And for several other ailments the ayurvedic drugs are more effective than allopathic drugs. For instance Metaka Alkaloid is a better medicine for Gentlemen Goiter whereas Honey can prevent blindness. Neem trees purify air and controls leprosy, which is a menace for Indian population.¹⁶

Several herbs, plants and fruits growing widely in Assam have valuable role in Ayurvedic medicine. Turmeric, Coconut, Zinger, Kalmegh etc. are good for G.I.T. problems. Punarnava, Arjun, Brahmi, Aswagandha etc. can be made into liquid, tablet or decoction for high blood pressure. Onion, Kerala, Jamun, Methi etc. are used for diabetes medicine. Tulshi is used as medicine for injury, fever, Cough and Bronchial asthma. Amloki, Brahmi, Bingaraj, Pippali, Kalmegh etc. have multifarious uses in ayurvedic formulations.¹⁷

¹⁵ Survey on the Sastriya Medicinal flora from the Brahmaputra Valley, R.Majumdar, Pharmaceutical Seminar Paper.

¹⁶ Medicinal Plants of Assam & its scope in pharmaceutical industry, O.P.Gupta, Pharmaceutical Seminar paper.

¹⁷ Ibid.

12.7 Ayurvedic drugs

As per an estimate Rs. 2 crores worth of ayurvedic drugs are consumed annually in the North Eastern Region. But as much as 95% of these come from outside the region. The use and scope of ayurvedic medicine is gradually increasing. There are about 120 government ayurvedic dispensaries, and 60 government subsidized ayurvedic dispensaries in Assam. More than 500 Ayurvedic private practitioners are there in the North East. Thus the market is ever expanding. Of the earlier mentioned 1500 species of medicinal plants this region as a whole have as many as 300 species. But till now only 5-10% of these have been exploited by local firms and practitioners. More than 90% of the plants are being spoiled by people due to ignorance of their value and properties.¹⁸ Thus there is an urgent necessity of proper survey, collection and preservation of these herbs and plants.

Though there are many herbs and plants and many drugs can be prepared from them we would suggest the ayurvedic drugs industry to concentrate initially on mass production of several essential drugs. These should be selected on the following criteria.

1. Wide availability of the medicinal plant.

¹⁸ Prospect for the establishment of Pharmaceutical industry for the preparation of ayurvedic drugs in the N.E. India, P.C. Bhattacharya, Pharmaceutical seminar paper.

2. Lower cost of production
3. Non-availability of similar drugs in allopathy.

Heart disease, diabetes are such examples.

If the manufacturers concentrate production on the drugs satisfying above criteria they would be able to capture larger market. This would generate profit enabling them to expand the product lines.

An inhibiting factor in the growth of ayurvedic drugs industry is the apathy and lack of appreciation by people. The status of traditional ayurvedic drugs practitioner has fallen in our society. So people dissuade the potential entrepreneurs from entering this 'obsolete' industry. In our survey we have come across many such entrepreneurs who shifted to other lines of production. A systematic campaign to boost the image and importance of ayurvedic drugs is a must if this industry has to be developed here. The government must deliver this duty.

12.8 Product - mix

Now in the determination of product mix of the allopathic drugs and pharmaceutical industry, some social objectives should be adhered to. The drugs should be targeted at curing the diseases of people, not at maximizing of profit by product diversification. Because since the resources are scarce in a backward area, they should be carefully invested in the bare essential drugs. According

to Hathi Committee Report, only 116 drugs are necessary for the health needs of the people. But against that the Indian market is flushed with as many as 50,000 - 60,000 drugs. Barely 20% of the medicine available in the market are for 80% of the prevailing diseases. So 80% of the medicines are for only 20% of diseases. This shows the topsy-turvy character of drug industry. While tonics and anti-diarrhoeals have flooded the market, medicines for TB, Leprosy, Malaria etc. are in short supply. Against an annual demand of 300 million tonnes of anti T.B. drug INH in 1982-83 only 158 million tonnes were produced. This is a criminal offence when half of worlds' T.B. Patients live in India and when according to law TB patients need to be given all treatment free.¹⁹

Another harmful practice by the drug manufacturers is the production of combination drugs. In order to earn profits they make new and new drugs combining the active elements. But the World Health Organisation's (WHO) list of 250 essential drugs contain only seven combination drugs. Most combination drugs are not only unnecessary, but are positively harmful. The streptomycine and penicillin combination is being used for fever, infection etc. But this makes the T.B. Bacilli germs resistant to Streptomycin, which is used in T.B. treatment. So if such a patient develops T.B. too, his treatment will be very difficult.²⁰

¹⁹ A rational drug policy, All India drug action network and Voluntary health association of India, 1986, pp.1-2, 48.

²⁰ Ibid., p. 48, 57

12.9 Hazardous and sub-standard drugs :

There are some hazardous drugs which continue to be produced with impunity. In early sixties the Swiss and Swedish veterinarians warned veterinarians not to use Mexaform. But this drug which is unfit ~~for~~ even veterinary use was consumed by the people of India till recently. Anti-diarrhoeal drug Clioquinol causes blindness and is banned in most countries of the world but freely marketed in India.²¹

Innumerable instances of such hazardous medicines can be given. There are also some drugs which are totally useless and wrong. Their ingredients work in opposite directions thus neutralizing each other. The cough syrups are such an example. Because they contain both the elements which suppress and stimulate cough.²²

Generally it is not very easy to take on a well-entrenched business or other interest group. But in Assam the pharmaceutical industry is just developing. So the government can and should start directing the industry right from now so that the drugs manufactured are only those which are necessary and essential for the health of people. To start with only the 116 drugs recommended by the Hathi Committee should be allowed to be produced.

²¹Ibid., pp. 61-64

²²Ibid., p. 74

But it would not be justifiable to make only one section of the people undergo the trials. So even the outside manufacturers should be debarred from marketing the non-essential and harmful drugs in Assam.

12.10 Drug Prices

A common complaint by the drugs and pharmaceutical industry in Assam is that they are not receiving the rate as fixed by the government of India. The government of Assam should not be stringent on this matter. Because their stringency will only goad the manufacturers to make substandard drugs in order to remain profitable. It is noteworthy that 20% of the expenditure of government of India is spent on drugs.²³ Because with our large population the health expenses are very high. The state government would do well to remember this fact. The enormous scope of the drug industry should not be wasted.

A means of making the essential drugs more easily available is to rationalize the price structure. Working of the Drugs Price Control Order 1987 shows that reduction in price control leads to greater availability of drugs.²⁴ So if the objective is to give the people the essential drugs, the government should not mind being flexible on price count. Also the stringency in essential

²³ Ibid., p. 4

²⁴ Economic Times, 10, 5.89

drugs prices compels the manufacturers to produce non-essential drugs as well as sub-standard drugs to cover losses. That the pricing of the essential drugs is faulty can be seen from the experience of Indian Drugs and Pharmaceuticals Ltd. (IDPL). The IDPL is a producer of essential bulk drugs and profit margin is very low in these drugs; so it has led to a situation where IDPL has accumulated a loss of Rs. 250 crores.²⁵ The Drugs (Price Control) Order (DPCO) 1987 aimed at remunerative drug pricing. But there have been lot of arbitrariness. The government also reduced the number of drugs under price control from 364 to 124. But prices of only 63 drugs have been fixed. All these have led to discontinuation of production of essential drugs like anti-leprosy and anti-T.B. drugs by several firms. Production of drugs like Chloroquin and Peracetamol etc. also have fallen.²⁶

In drug industry it is essential that the public sector takes a lead in setting up capacity. For instance the private sector would not find investment in bulk drugs economically viable in areas like North-East. And once the public sector enters the field there will be created a conducive atmosphere. With its massive linkages, the public sector will develop a skilled manpower base, a wide marketing network and a overall industrial atmosphere. Also there is no question of such enterprises of having to incur

²⁵ Economic Times, 5.5.89

²⁶ Economic Times, 16.9.89

perrenial losses. Because the bulk drugs produced by these public sector enterprises would find a captive market in the drugs and pharmaceutical producers within the state. As the latter seem to depend on the purchases by the state health department, they may be compulsorily made to procure their requisite bulk drugs from the public sector units in the state. However the pricing of such bulk drugs would have to be so done that it does not exceed the price elsewhere in the country.

Also the private sector entrepreneurs in this region should be more aggressive and market oriented. At present all the 18 drugs and pharmaceutical manufacturers of Assam are merely supplying to government requirement. Not a single unit has entered the open market yet. This is not a welcome sign too.

12.11 State of Drugs producing units in Assam

Assam has fourteen drugs & pharmaceuticals producing units. They are as follows:

1. Assam Chemical & Pharmaceuticals Pvt. Ltd.
2. Drugs India
3. Doson Chemicals
4. J. D. Pharmaceuticals
5. Elan Laboratories Pvt. Ltd.
6. North East Laboratories
7. Hechatomb Laboratories
8. Humanoid Laboratories

9. Relax Laboratories
10. Kamakhya Laboratories
11. Aldis Pharmaceuticals
12. G.D. Industries
13. Purbanchal Pharmaceuticals Pvt. Ltd.
14. Gelen Pharmaceuticals.

All these units enter to the demand of health department only. They do not sell in the open market. But even then they have been able to supply only 10% of the health department requirement. This shows the enormity of the scope of the drugs & pharmaceuticals industry in Assam. So far 1,000 persons have been employed by this industry directly, besides helping in the growth of ancillary industries like packaging. However rather than receive incentives from the government, these units are deprived of larger purchase orders from the government. Playing into the hands of outside drugs & pharmaceuticals industry, the health department sometimes fixes the prices for direct procurement at much below the cost price as the former quote prices accordingly. As then no firm remains in the position of supplying the medicines, eventually the health department procures the medicines from the Central Government Medical Store Depot. That way the outside firms benefit, since they are major suppliers of the Government Medical Store Depot. If the industry is to prosper in Assam, such malpractices must be stopped.²⁷

²⁷ Problems of Local Pharmaceutical Industries, by Assam Drugs & Pharmaceuticals Association, Seminar Paper.

12.12 Relevance and importance of Drug industry for Assam

As shown before, Assam abounds in medicinal herbs which are raw material for ayurvedic drugs. Assam also has enormous petroleum resources. After the proposed petro-chemical complex in the state is set up, there would also be available enough raw material for the allopathic drugs. So the drug industry deserves special attention in Assam. In our hypothesis before we showed that a land-locked economy should stress on industries where raw material can be had locally. The drug industry is one such industry. Actually this industry should have been discussed alongwith the petro-chemical industry, which has been indicated, by the present study as a thrust industry for Assam. However we discussed it seperately as it has carved a niche for itself and as it also includes ayurvedic drugs.

Another reason of our advocating a special interest in the drug industry for Assam is that it will then create a market for agricultural products which are used as raw material for production of vitamins, syrups etc. These perishable products cannot but be utilized locally. The agricultural sector will get a welcome boost from this demand creation.

Whether petro-chemical products or agricultural products or medicinal herbs - all raw material for drugs industry are bulky. These cannot be transported but with high costs. So drug industry is necessarily an industry based on local resources. It is an illustrative type of industry suggested by us for Assam.

CHAPTER XIII

SUMMARY & CONCLUSION

13.1 Industrialization for Economic Development

Industrialization is considered all the world over as an indispensable and inevitable means of development. With increasing population and consequent fall in availability of land, agriculture cannot be stretched beyond a point to contribute to the national income. Also the creation of newer and newer necessities with the growing pace of urbanization and modernization has meant establishment of more and more manufacturing industries.

In such a backdrop it becomes a subject of worry for the underdeveloped countries who have not yet made a score in industrialization. Some endogenous factors have adversely effected the efforts of these countries for accelerating the pace of industrial development. A study of such backward economies is therefore highly in order. However to make it a feasible proposition we have restricted our purview to those economies which are landlocked and constrained with a subsistence agriculture.

In our pursuit for a strategy of industrialization we give greater stress on social and political factors which generally tend to be ignored in the economic analysis. The underdeveloped countries are bedevilled by a wide range of Socio-political problems which are the legacy of the colonial era.

13.2 Assam as a case study

In this study we take Assam for a representative economy

in our investigation. This Indian state has all the characteristics of our target economy. She is landlocked. Her economy is a subsistence agriculture based economy. As late as in 1985-86 the primary sector contributed as much as 56.8% of the SDP at current price. Though the share is on a declining trend (in 1983-84 it was 62.2%), its main component viz. agriculture depicts a dismal picture. Employer of 77% of workforce, this sub-sector contributed only 42.1% of SDP in 1985-86. This brings out the character of mode of production in agriculture well. Out of total 22,97,588 landholdings in 1980-81 as many as 21,02,580 belonged to the size class below 3 hectares.¹ The backwardness of the state economy is in fact worse than the statistical depiction. Because a significant part of the SDP comes from Tea, which is an oligopoly of a few non-local business houses, as well as from the oil industry, which is controlled by the central government. Thus Assam is a perfect example of a backward economy.

13.3 Problems of a Backward Economy

A backward economy suffers from numerous handicaps. Lack of natural resources, sub-optimal use of existing natural resources, high cost economy, scarcity of capital, distribution of labour force heavily biased towards primary sector, old technology, depressed wage rate, labour intensive technology, very low

¹ Directorate of Economics and Statistics, Assam, Statistical Handbook Assam 1987.

productivity of factors of production, extremely insufficient division of labour, low human capital formation, low growth rate of national income, continuous fall in per capita income, falling per capita consumption, etc. are some of the characteristics of a backward economy.

With these constraints backward economies obviously face problems in the industrialization process. Non-availability or little availability of resources makes investment in infrastructural development impossible. If a strategy for concentrated development of some part of the economy is attempted by mapping up whatever resources is available, a dual economy may develop. In case of sub-optimal use of resources, a high cost economy may be the result. High propensity to consume keep national savings low. Political situation in such states remain volatile. The landed section (alongwith the traders) which tend to be powerful in political scene collaborate with foreign or multinational firms. With this business-politics nexus the little available resources also is plundered by the business firms. The economic condition of the mass people as well as the economy as a whole tends to deteriorate. Remaining uneducated, the people happen to be of regressive disposition. Lack of family planning and consequent population explosion make the situation worse. The massive unemployment tends to create tension and disturbances. Potential entrepreneurs and investors find this atmosphere incongenial for industrialization. Thus the economy gets locked in a vicious

circle.

13.4 Problems of Capital and Technology

When the backward economy under consideration happens to be a part of a national economy with developed counterparts elsewhere, the national financial institutions tend to ignore such a region in investment decisions even though they mop up savings. Thus credit deposit ratio as well as per capita assistance of national financial institutions in such regions remain below national level and a drain of wealth takes place. Average per capita assistance sanctioned by all India financial institutions for Assam at March end, 1984 was only Rs. 16.57 compared to all-India level of Rs. 58.30.²

The producers and manufacturers in a backward economy stress on profit maximization. They spare no resources for R & D work. But periodically they continue to import technologies from abroad. These repetitive technology imports raise capital output ratio and tell on foreign exchange reserve. Neglect of the R & D works deprive the economy of ancillary developments, linkage and spread effects that might have accrued. Because the imported technology never gets internalized by the system.

² Economic Survey Assam 1985-86, Directorate of Economics and statistics.

13.5 Political Leadership

Though paucity of natural resources may hinder the process of industrialization, an illuminated and strong political leadership, as seen during the Meiji Restoration of Japan (1868-), can help in industrialization. Political activities are closely linked with economic power. The cold-war between the two super-powers is also basically a fight for greater market control. The non-aligned movement is nothing but an economic association with its ever increasing stress on south-south co-operation.

Political leadership is of utmost importance in the economic growth of an economy, Emperor Meiji converted the feudal and military hierarchy to an efficient economic structure. His nationalization of the shipping lines stopped outflow of foreign exchange. In contrast the neighbouring present Bangladesh Government continue to let her entire shipping line to be dominated by foreign operators.

Back to our model study, we find that compared to the present regional party government in Assam which has depended on urban middle class for its vote bank the earlier regimes depended on the tea labourers and the riverine settlers coming from erstwhile East Pakistan. The latter did not have demand for industrialization in the state. So the political leadership could do without being much vocal on this. But the present government have had to demand the central government to establish more and more indus-

tries in Assam so that employment avenues are generated for urban middle class. As many as 10,545 small industries were registered under the new regime till the end of 1987. This is quite significant, when till 1983-84 the state had altogether 16,734 SSI units.³

Political support has enabled some industries to grow and flourish. A notable and classical example among them is tea. The tea estates in the imperial times were granted big plots of land. Labourers were settled in vacant lands where they cultivated to create supplementary income. This enabled the garden owners keep the wages low and thereby increase profits. Such instances establish the overwhelming importance of political factor in the industrialization process.

13.6 Infra-structure

Infra-structure plays a pivotal role in industrialization. Without its proper development, industrialization cannot pick up momentum. There must be a co-relation between the poor infra-structural development in Assam and her laggard character in industries. Only 24.41% of Assam's roads length was surfaced as in 1983 against all-India rate of 47.04%. The entire north east accounts for only 6.3% of country's total road length. In power also Assam fares poorly. In 1985-86 she produced 845.1 million KWH and had to import 586.6 million KWH from others in order to

³Ibid.

make up the demand-supply gap.⁴ Irregular power supply has compelled several medium and large scale industries to instal diesel generating sets at additional capital cost. Prominent among them are Assam Co-operative Jute Mills Ltd., Silghat and Assam Syntex Ltd. These happenings naturally perturb new entrepreneurs and dissuade potential entrepreneurs. These prove the importance of prior establishment of infra-structural facilities for industrial development in backward areas.

13.7 Labour

The labour issue should not deter industrialization in backward areas. It was shown by TISCO which raised the productivity of labourers from 5.52 tonnes in 1918-23 to 36.32 tonnes in 1935-39. The glass industry of India, which started with Japanese and Austrian workers could indigenise the entire work force by 1932. These show that given proper training, the local labourers can become as productive and efficient as anywhere. Thus local people must justifiably be recruited in industries so that the regions locating the industries derive benefit from them. The large pool of unemployed people in rural and semi-urban areas can easily fill the bill for low volume, simple technology small-scale units.

⁴ Statistical Hand Book Assam 1987.

13.8 Common market for Land-locked economies

A landlocked economy faces serious problems in procurement of raw materials. Cost of production in Nepal as for instance is therefore 15% higher than a country with Sea access.⁵ International law entitles such a country outer access through the passage country. But that the strict legalistic facilities are not enough has been proven by predicament of Nepal. The transit rule needs liberalization. Blockades and lack of passage makes industries starve of raw materials and people of essential consumer goods. The GNLF agitation at Siliguri and Bodo agitation in Kokrajhar area made whole North East India suffer from inadequate supply during the period and consequent price rise. All these underscore the necessity of raising buffer stocks of important raw materials as well as of consumer goods. A common market strategy may be tried with adjacent regions or countries. The common market strategy has been popularized by the European Economic Community (EEC) formed in 1957. Now the EEC's trade accounts for as much as 40% of international trade. Even if the trade among member countries are excluded their share still remain 23%. But the high level of intra-community trade also is a benefit for the members. Enlargement of the market helps in the growth and development of capital goods industry. This is specially relevant for Assam and North-East. However a

⁵ Economic Times, October 3, 1989.

common market cannot succeed if industries of member countries are not efficient. Members of Latin American common market LAFTA which was established in 1961 preferred to buy from outside, because of higher prices of Latin American manufacturers. A common market cannot also be successful if some members happen to be highly developed with others comparatively underdeveloped; the latter do not co-operate for fear of domination by the former. Change of government and policy of any member country also may jeopardise the market. For success the community should develop complementarity in their industrial structure.

13.9 Savings for capital formation

Capital, the most essential requirement for industrialization, gets generated in savings. On this the Indian Economy is not doing very badly. Her net domestic savings as percent of national income rose from 5.7% in 1950-51 to 22.3% in 1978-79. In 1978-79, 79% of it came from household sector, 19.3% from public sector and 1.7% from domestic corporate sector. But in the context of Assam which is a very backward region, share of household sector is expected to be predominant. And with high marginal propensity to consume in such underdeveloped region, savings can be expected only in the form of small savings. In 1985-86 small savings in Assam (excluding deposits in banks) was only Rs. 75.07 crores which was a bare 1.57% of the states's net SDP Rs. 4777.30 crores.⁶ This brings out well the capital scarcity

⁶Economic Survey Assam 1985-86.

faced by Assam. Deposits in the scheduled commercial banks in Assam also was found to be low when taken as percentage of GDP, in comparison to all-India percentage. And the worse thing was that even of that deposit, the banks are offering a lower percentage as credit than at the all-India credit - deposit rate. Because that implies taking out from here some of the precious savings mobilized by these institutions.

13.10 Supply and Demand constraints

Due to poor resource base of Assam and consequent inadequate commercialization, demand for industrial goods remain low. Also due to poor availability of agricultural products in a subsistence agriculture economy industries suffer from raw material constraint, which is only aggravated by transport problems. Thus industries suffer from both supply and demand constraints. So that at least one of these, supply constraints, can be eliminated, industrialization should be based on locally available raw materials. Therefore we have identified three thrust areas for Assam. They are textile, agro-based and petro-chemical industry. All these are based on local resources. In keeping with the large stock of poor unskilled workers as well as poor resource base the industries should be as far as possible in small scale with labour intensive technology. When large sophisticated industries are established, care should be taken to employ labourers after proper training. This will help spread the industrial culture in

the state.

13.11 Pre-dominance of Service Industries

Service industries have dominated the industrial scene of Assam. This is not a welcome phenomenon. For this the financial institutions are to blame. Road transport operators, printing industry etc. account for an overwhelming part of the investment portfolio of financial institutions. The subsidies and concessional finance are creating inefficiencies and unwarranted capacity generation in service industries. So these schemes should be stopped totally except for the thrust industries. Unfortunately the state budgets go on extending these facilities to more and more service industries.

13.12 Tea

After these theoretical discussions we have analysed some industries or industry groups in little details. First of them is tea. Assam produced 371.75 million Kg. of tea in 1988 which was 53.02% of all India output 701.09 million Kgs. Assam tea has a higher yield rate than all India.⁷ As rainfall, Soil, humidity etc. are of prime importance, so for the maintenance of tea quality, preservation of ecological balance as well as serious afforestation drives are called for. Though the success of tea plantation has led to numerous small gardens to crop up they are not of

⁷ J. Thomas & Co. quoted in Data Bank '89.

economic size. A tea garden should be at least 200 hectares or 500 acres in size. Amalgamation or co-operativization of smaller gardens may cure them of sickness.

13.13 Agro-based industries

Assam abounds in agricultural and forest products based on which numerous small scale industries can be developed. Different types of agricultural waste materials can be used as feed-stock of numerous chemical and consumer goods industry. Rice husk and saw dust yield silicon, sodium silicate, furfural, oxalic acid, artificial coal and active carbon. Rice straw generates paper board, pentose, cattlefeed, ethyle alcohol and mono saccharides. Paper board, micro crystalline cellulose and moulding powder can be made from Jute stick. Tea-wastes yield Caffeine, moulded plug and compost manure.

As all these agricultural wastes are available plentifully almost at no cost, Assam enjoys a definite comparative advantage in the above product lines. An important agrobased industry viz jute products deserves special attention. The only Jute mill in the state which was re-opened in 1986 after a long period registered profit in the 21 month period ending 31 March, 1989.⁸ Now this industry needs a massive modernization drive! Also instead of remaining at the stage of producing hessian and sacking, production of final products like thermal insulated blanket by jute

⁸ Annual Report 1989, Assam Co-operative Jute Mills Ltd.

fibres blended with poly propylene, carpets, decorating jute covered yarn used for packaging etc. should be taken up.

Agro-based industries have lesser gestation period and are comparatively less capital intensive than other industries. Technology is simple and there is sufficient scope for employment. Agricultural produces being perishable the waste materials can be easily disposed of without environmental problems. Only an efficient and wide network for procurement of these perishable feed-stock is necessary. Establishment of a chain of cold storages throughout the state would also be necessary.

13.14 Petro-chemical industry

The current large industrialization plans are all centred around petro-chemical projects. The recent mega Capital issues by the Indian corporate sector targets at developing the petro-chemical industry in a big way. One of the several big petro-chemical complexes being planned will be in Assam. With this and other downstream units Assam can hope for a massive industrialization programme. Of numerous downstream industries, plastic and pharmaceutical industries have bright future in Assam. In the light of enormous scope, establishment of an Udyog Nagar as suggested by the task force for economic development of Assam would be in order. The L.C.Jain Committee on clause seven of Assam Accord recommended an aromatic complex and an integrated gas pipeline in

in addition to the proposed oil refinery and the proposed petro-chemical complex.

Based on petro-chemical products the bulk drug industry can be developed here. Presently the entire eastern zone suffers from inadequate capacity of bulk drugs. This constrains the development of formulation industries. Assam has a rich flora with numerous medicinal herbs. This gives her comparative advantage in ayurvedic drugs industry. In allopathic formulation drugs the government should however check the incipient industry so that only the essential drugs are manufactured. There is no sense in wasting resources on spurious drugs or redundant combination drugs which are however very lucrative commercial proposition.

13.15 Textile industry

Textile is an industry which traditionally flourished in Assam albeit in handloom sector only. Assam has 6.94 lakh looms and employ 12 lakh people in this industry. But 75% of these looms are ordinary throw shuttle looms. Productivity is abysmally low - 81.59 sq. metre per weaver per annum. Actually most handlooms are seasonal, operated temporarily before the festive seasons. So with 16.4% of country's looms, Assam produces only 2.84% of country's handloom production. Thus the handloom industry has enormous scope for development in Assam. And with the availability of polyester staple fibre from Bongaigaon Refinery & Petro-chemical Ltd., the modern textile mills and powerlooms also can

be developed now. Already a few spinning mills have been established. However all of them have a poor capacity utilization. Reasons are erratic power supply, transport problem and production dislocation due to disturbed political atmosphere.⁹ These vindicate our emphasis on political and infrastructural factors in the industrialization process. The spinning mills have faced difficulties due to delay in establishment of downstream user industries like weaving complex. A part of the blame lies with the Co-operative department which is not giving adequate guidance and support to powerloom co-operatives. Though the government of Assam holds licence for 10,000 powerlooms it has failed to enthuse promoters. The government agency for industrial promotion viz Assam Industrial Development Corporation seems to have erred in the selection of entrepreneurs under its decentralized industrial development scheme as the entrepreneurs so assisted are still to deliver the good. It is true of the firms selected for powerlooms also.

13.16 Promotional drive

The government should launch a massive industrial promotion drive. Machinery exhibition should be held highlighting agro-based, petro-chemical and textile industries. Time-bound action by the promotional agencies like financial institutions, electricity boards etc. should be made compulsory, supported by

⁹Economic Times, September 25, 1989.

adequate infra-structural facilities, the new breed of entrepreneurs will certainly ensure a positive result.

13.17 Recommendations

On the basis of our study we have arrived at some conclusions as given below. Of course they are not hard and fast rules. Local factors may justify the importance of some of them. But broadly these are of interest in an industrialization process.

1. When the social situation is volatile or even otherwise, the entrepreneurs can depend on the rural settings better than on urban setting. Youths and workers in rural areas are less deviant from social norms than their urban counterparts. Greater social affinity and bindings, lesser frustration among the rural people would help in better industrial relations. Small scale units with unsophisticated technology can easily depend on the rural unemployed for unskilled labour requirement. This calls for identification of viable units for rural areas.

2. The government financial institutions should necessarily maintain credit - deposit ratio for a backward region at least equal to the national level. If possible, it should be made higher and preferably 80%. This calls for periodic monitoring by the government. Also, the increase should be in phases to enable the economy to absorb the increased money flow.

3. The industries should be barred from repetitive import of technology. R & D works have to be developed to adapt and further develop the technology once imported. Thorough internalization of the technology by the system would help in domestic development of a wide spectrum of technologies down the line.
4. Industrialization of a backward economy is not strictly dependent on natural resources, but mainly on political leadership. Even the government agencies for industrial promotion cannot function properly for the local interest without clear-cut policy guidance.
5. Infra-structural facilities must precede presence of industrialization in backward areas.
6. Unless industrialization provides employment to local people, the region cannot derive the benefit. Method of remote control over recruitment from outside the region should be discouraged.
7. Strategy for development of industries in a land locked region must be based on self-reliance with regard to raw material and technical personnel. Institutions should be set up to impart technical skills to unemployed youths.
8. International law regarding passage for landlocked country should be liberalized. Otherwise serious problems may arise in procurement of raw material and/or sell of industrial products

outside the country.

9. A landlocked region should stress on industries for which raw material can be procured from adjacent regions, if not domestically available. Also, a regular buffer stock may be maintained for important raw materials. Joint ventures with adjacent regions may be explored. A common market with adjacent regions may be the best possible option for a land locked economy. For success of such market the members should be at equal or comparative stage of development. Also inefficiency of production reflected in higher price than outside the market is a bane for its success. Complementarity in industrial structure is a key to success of the market. In case of Assam, a common market with other North-Eastern states as well as West Bengal may be explored. Presently insufficient marketing facility has compelled the major industries from Assam like tea and plywood to situate the distribution centres outside the state. This is an unwarranted condition, not conducive for industrialization process for this landlocked state.
10. Colonial legacies have left the backward economies with industries using labour intensive technology. Even otherwise, for these underdeveloped economies with huge population burden, low economic base, paucity of investible resources, necessity to maintain equal developmental pace all over, growing unemployment with increasing population pressure on land etc. , the small scale industries with labour intensive technology demand greater

attention. These can be dispersed specially. The consumer goods industry should basically be in small sector. Agro-based industries like rice bran oil, cattlefeed, oxalic acid, moulding powder, compost manure etc. as well as the powerloom industry need greater encouragement.

11. Though we have stressed on greater development of small scale industries, there have to be some large scale units which are centrally located. Capital goods industry like production of machinery for textile and agro-based industries can flourish in Assam. In case of intermediate goods industry such units would ensure scale economy supplying inputs to final goods manufacturing small units. The petro-chemical industry also should be largely in large scale as the minimum economic size of these industries are very high and since with the generation of so many plants all over the country the market will become a buyers' market.

12. In view of the lack of sufficient resources with the private sector, any large scale industry can only be established in the public sector.

13. Assam should stress on three thrust areas in industrialization viz. textile, agro-based and petro-chemical industry. The first two will generate enormous employment directly, whereas the third will facilitate ancillary development and indirect employment.

14. Improvement of agricultural productivity and income is an imperative so that demand for industrial products pick up. A subsistence agriculture acts as a back-pulling force in the process of industrialization.

15. The present domination of investment portfolio of financial institutions by service industries and ecologically harmful industries should be corrected.

16. Subsidy, seed money and concessional finance should not be offered to service industries, industries where excess capacities have been generated. These should be restricted to thrust industries, manufacturing industries using local resources industries using new technology certified by institution like RRL and industries capable of generating sufficient employment for local populace. For other industries, availability of finance from scheduled commercial banks should be enhanced. In industries what matters more is timely availability of credit, rather than subsidies and concessions.

17. Tea estates should be of at least 200 hectares (500 acres) large in size which is the minimum economic size unit. Amalgamation of sick gardens is suggested.

18. To mitigate the power problem, captive micro-hydel-plants should be installed by large industries. Or cluster of small industries can be developed around micro-hydel-plants. Incentives should be offered to industries to use power saving devices.

19. Agro based industries are specially recommended for Assam. She has definite comparative advantage in this line. With plenty of agricultural commodities and wastes, these low technology, short gestation period industries can create enormous employment in the state. An efficient network for procurement of raw material and a chain of cold storages are recommended to help these industries develop.
20. Industrialization in backward economies should be based on locally available raw materials.
21. Petro-chemical and plastic industries can generate enormous economic growth in Assam. In plastics a training centre is necessary. For petro-chemical complex and its downstream units an Udyog Nagar as suggested by the task force is recommended. It should be near the Brahmaputra river with adequate transport facility to nearest port like Calcutta and Paradeep. Because petro-chemicals has an export angle.
22. Drugs and pharmaceutical industry has big scope in Assam. Since they are at an incipient stage, it is easier to mould it now. The production of spurious, banned or unnecessary combination drugs should be discouraged. Only the essential drugs should be made. A common malady of pharmaceutical industry, the lack of bulk drugs can be cured by establishing it as a downstream unit of the forthcoming petro-chemical complex.

23. Machinery exhibition should be held to attract the attention of entrepreneurs. These should be confined to thrust industries, i.e. agro based, petro-chemical and textile industry.

24. The licenses for 10,000 powerlooms that the state government is sitting up on should be expeditiously utilized to develop this industry. If the user weaving industry does not develop, the spinning mills will not become viable.

...

SELECT BIBLIOGRAPHY.A. Books:

1. Ahluwalia I.J., Industrial Growth in India, Oxford and Delhi, 1985.
2. Allen G.C., A Short economic history of modern Japan, 1962.
3. Alagh Y.K., Some Aspects of Planning Policy in India, N.Delhi, 1984.
4. Bagchi A. & Banerjee N. (Ed), Change and Choice in Indian Industry, Centre for Studies in Social Sciences, Calcutta, 1981.
5. Bhuyan S.K., Studies in the History of Assam, Guwahati 1965
6. Bauer P.T. & Yamey B.S., Economies of under-developed countries, 1957.
7. Buchanan D., Development of Capitalist Enterprise in India, New York 1934.
8. Baishya P., Small and Cottage Industries : A Study in Assam, Manas Publications, N.Delhi 1989.
9. Bardhan P., The Political Economy of Development in India, Oxford, 1984.
10. Barthwal R.R., Industrial Economics, N.Delhi 1984.
11. Baran P.A., The political economy of growth (ed.) R.B. Sutcliffe, London, 1973.
12. Bidani S.N. & Mitra P.K., Industrial Sickness: Identification and Rehabilitation, N.Delhi, 1983.
13. Bhagwati J.N. & Desai P., India : Planning for Industrialization, OECD 1970.
14. Borkakoti S.K., The Deceleration Phenomena, Guwahati, 1989
15. Borpujari H.K., Assam in the days of Company, 1826 to 1958, Guwahati 1963.
16. Borpujari H.K. (Ed.), Political History of Assam, Vol I, Guwahati, 1977
17. Blaug M., Education and the Employment Problem in Developing Countries, ILO 1974.

18. Carnoy M., Industrialization in a Latin American Common Market, An ECIL study, The Brookings Institution, Washington, 1972.
19. Chanana C., Industrial Economics in Developing Countries: India - A case study, N. Delhi, 1983.
20. Chakravarty S., Development Planning : The Indian Experience, Oxford, 1987.
21. Choudhury S.N., Mulberry Silk Industry, Shillong, 1984.
22. Choudhury P., The Indian Economy, N.Delhi, 1978.
23. Chayanov A.V., Peasant Economy, Oxford, 1987.
24. Dhar P.K., The Economy of Assam, Bijni, 1987
25. Deka B., Asomor Arthaniti, Guwahati, 1987.
26. Das N.C., Development of Handloom Industry: Organization, Production, Marketing, Deep & Deep, N.Delhi, 1986.
27. Dutta K., Dasgupta R. & Chatterjee A., Bangladesh Economy, N.Delhi, 1973.
28. Dutta B., Economies of Industrialization, Calcutta, 1975.
29. Dutta B.B. (Ed.), Land use Pattern in N.E. India, Shillong, 1986.
30. Dutta B.B. & Karna M.N. (Ed.), Land Relations in N.E.India, Shillong, 1987.
31. Dutt R.P., India Today, Reprint, 1986.
32. Dantwala M.L. (Ed.), Indian Agricultural Development since Independence, Indian Society of Agricultural Economics, 1986.
33. Gait E., A History of Assam, 3rd Edition 1984.
34. Goswami P.C. (Ed.), Agriculture in Assam, Assam Institute of Development Studies, Guwahati, 1989.
35. Goswami P.C. (Ed.), Problems and Prospects of Industrialization, Guwahati, 1987.
36. Goswami P.C., An Introduction to the Economy of Assam, 1989.

37. Goswami P.C., Economic Development of Assam, 2nd Edition, 1988.
38. Gogoi J.K., Asomor Muga Silpa, 1980.
39. Govt. of India, Silkman's Companion, Central Silk Board, 1980.
40. Gadgil D.R., The Industrial Evolution of India in Recent Times 1860-1939, Oxford, 1973.
41. Goswami A. (Ed.), Land Reforms and Peasant Movement, Shillong, 1986.
42. Hahn F.H., (Ed.), Reachings in the Theory of Growth, 1971.
43. Khanna K.K., Management of Public Sector Enterprises in India, Bombay, 1988.
44. Kabra G.D., Tribal Workers in an Industrial Setting, 1987.
45. Kahnert F., Stier M and others, Agriculture and Related Industries in Pakistan, OECD, 1970.
46. Lenin V.I., The Development of Capitalism in Russia, Moscow, 1977.
47. Lewis W.A., The Theory of Economic Growth, London, 1957.
48. Mitra P.K., Agregate Savings of the Indian Economy, N.Delhi, 1986.
49. Meir G.M. (Ed.), Leading Issues in Economic Development, 4th Edition 1984.
50. Mahajan V.S., Economic Development, N.Delhi, 1982.
51. Mote V.L., Malya M.N., Saha J., Capital Investment Decisions, N.Delhi, 1979.
52. Medhi S.B., Transport System and Economic Development in Assam, Guwahati, 1978.
53. Mishra R.K. & Ravishankar S. (Ed.), Public Enterprises in the world, N.Delhi, 1986.
54. National Council for Applied Economic Research, Industrial Programme for the Fourth Plan for Assam, N.Delhi, 1966.

55. Nurkse R., Problem of capital formation in under-developed countries, London, 1953.
56. N.E.India Council for Social Science Research, Problems of Tea Industry in North East India, Shillong, 1981.
57. Patnaik S.C., Industrial Development in a Backward Region; Dynamics of Policy, N.Delhi, 1988.
58. Pattanaik S.M., Development Strategy for Small Industries, N.Delhi, 1988.
59. Papi & Nunn, Economic Problems in Industrial Society.
60. Ray R.K., Industrialization in India 1979.
61. Sinha A.P. (Ed.) Changing North East, Shillong, 1986.
62. Sivayya K.V., & Das V.B.M. India's Industrial Economy, 1987.
63. Shirokov G.K., Industrialization of India, N.Delhi 1980.
64. Samuelson E.A., Economics, 1989.
65. Williams J. (Ed.), Soviet Peasantry : An outline History 1917-1970, Moscow, 1975.
66. World Bank, World Development Report, 1981.
67. World Bank, World Development Report, 1985.
68. World Bank, World Development Report, 1986.
69. World Bank, World Development Report, 1987.
70. World Bank, World Development Report, 1988.
71. Wadia P.A. & Merchant K.T., Our Economic Problem, Bombay 1957.
72. Wickiser V.D., Tea and International Regulation, California 1944.

B. Articles :

1. Bhattacharya P.C., Prospect for the establishment of Pharmaceutical Industry for the preparation of Ayurvedic drugs in the N.E.India, Paper of seminar on 'Development of Pharmaceuticals Industry in N.E.India', Guwahati, March 1989.
2. Borkakoti S.K., Peasant organization and peasant movement in Assam, in Agriculture in Assam (ed) by P.C. Goswami, 1989.
3. Borkakoti S.K., Industrial policy and its implications on industrialisation of the backward regions (with special reference to North-East India), in Problems and Prospects of Industrialization (ed) by P.C. Goswami 1987.
4. Bordoloi, Industrial Sickness, in Problems and prospects of Industrialization (ed) by P.C. Goswami, 1987.
5. Borbora S., Industrial Development in Assam, in Problems and Prospects of Industrialization(ed) by P.C.Goswami, 1987.
6. Baruah T.L., Industrial Policy of Assam, in The Assam Tribune, Guwahati, 1988.
7. Baruah T.L., Flow of Finance to Industries, in The Assam Tribune, 1988.
8. Barua, P.K., Petro-chemicals on the fast track, in The Assam Tribune, 1988.
9. Baruah A.K., Plastic Industries in Assam, in The Assam Tribune, 1989.
10. Baruah R.K., Plastic Industry's Prospects & Promises, in The Assam Tribune, 1989.
11. Baruah T.L., AFC: A catalyst for industrial growth, in The Assam Tribune, 1988.
12. Baishya P., Agro Industries in Assam, in Agriculture in Assam (ed) by P.C.Goswami, Guwahati, 1989.
13. Chaliha S., Utilization of hydro-carbon potential of N.E. India, in The Assam Tribune, 1988.

14. Das H.N., A New Paradigm of Development : Regional Imbalance and Assam, Paper of seminar on 'Economic environment in the N.E. region', Guwahati, 1985.
15. George K.T., Quick profits over large production, in EPW, March 24, 1984.
16. Gupta D., Inter-state industrial disparities in India- the changing scene, RBI Occasional Papers, June, 1985.
17. Gupta O.P., Medicinal Plants of Assam & its scope in Pharmaceuticals industry, Pharmaceutical seminar paper, Guwahati, 1989.
18. Gowda L.D., Handloom News, Vol II, No. 2, 1980.
19. Goswami P.C., Role of Small Scale Industries in Economic Development of North East India, 2nd Annual IFCTI lecture, Guwahati, 1986.
20. Goswami M.N., Foreword to 'Agriculture in Assam' (ed) by P.C. Goswami, 1989.
21. Jeffery R., Merchant capital and the End of Empire, in Economic and Political Weekly, February 13, 1982.
22. Kaul H.N., Broad banding of Sugar Industry, in Economic Times, 1989.
23. Lal D., Supply price and surplus labour : some Indian evidence, in World Development, London, Vol 4, Nos. 10/11, 1976.
24. Majumdar R., Survey on the Sastriya Medicinal Flora from the Brahmaputra Valley, Pharmaceutical Seminar Paper, Guwahati, 1989.
25. Neog A.K., Backward areas and industrial incentives, in Problems and Prospects of Industrialization (ed) by P.C. Goswami, 1987.
26. Radhakrishnan C.V., Textile Modernisation: Problems & Prospects, in The Economic Times, 1987.
27. Swyed A., Textile mills face uncertain future, in The Times of India, 1987.

28. Sharma A.K., Who owns Oil and Gas in Assam, Assam Tribune, August 20, 1986.
29. Seminar on "Development of Agro-based chemicals in the N.E.Region," Institution of Engineers(India), Guwahati, January, 1988.
30. Sarma P., A region of neglected potentialities and unrealised opportunities, in Assam and the Assamese Mind (ed) by Nagen Saikia, 1980.
31. Thiyagarajan V., Development of Small Scale Industries in the N.E.region, Paper of the Seminar on 'Small Industries Development', Guwahati, 1985.

...

C. Reports & Surveys :

1. Assam Land Revenue Manual, Vol I, Government of Assam.
2. Administrative Reports of Assam, 1938-39, Government of Assam.
3. All India Report on the Census of Small Scale Units, Vol II, 1977, Govt. of India.
4. Annual Financial Statement 1986-87, Government of Assam.
5. Annual Report 1981-82, Assam Industrial Development Corporation, Guwahati, 1982.
6. Attracting Industries to Developing Areas, The Industrial Credit & Investment Corporation, 1975.
7. Annual Report of Small Industries Development Organisation, Ministry of Industry, Govt. of India, 1987-88.
8. Action Plan 1984-1989, District Industry Centre, Kamrup, Guwahati.
9. Annual Report 1989, Assam Co-operative Jute Mills Ltd.
10. Annual Report, 1988-89, Reserve Bank of India.
11. Basic Statistics of North Eastern Region, 1987, North-Eastern Council Secretariat, Shillong.
12. Basic Road Statistics of India 1982-83, Transport Research Division, Ministry of Shipping & Transport, Govt. of India.
13. Capital Formation and Saving in India, 1950-51 to 1979-80, Report of the working group on Savings, Reserve Bank of India, 1982.
14. Data Bank '89, Economic Times, Calcutta, 1989.
15. D.V.Kapur Committee Report.
16. Diagnostic Survey Regarding Sickness in The Small Scale Units, Office of Development Commissioner (SSI), Govt. of India, 1986.
17. Economic Survey 1987-88, Govt. of India.
18. Economic Survey, 1988-89, Govt. of India.

19. Economic Survey, 1989-90, Govt. of India.
20. Economic Survey, Assam, 1985-86, Deptt. of Economics and Statistics, Govt. of Assam.
21. E.T.Tea, Economic Times Survey of Tea Industry, Calcutta, 1990.
22. Estimates of Capital Formation of Assam, 1950-51 to 1964-65, Deptt. of Economics and Statistics, Assam.
23. Foreign Collaboration in Indian Industry, Fourth Survey Report, 1985, Reserve Bank of India.
24. Freedom Forty-Story of Oil, Ministry of Petroleum & Natural Gas, New Delhi, 1988.
25. Health Information of India, 1986.
26. Industrial Potentiality of Assam and its Development, Directorate of Industries, Assam, 1962.
27. Industrial Policy of Assam, 1982, Govt. of Assam, 1982.
28. Industrial Policy of Assam, 1986, Govt. of Assam, 1986.
29. Indian Economy : Basic Statistics, Reserve Bank of India, December, 1988.
30. J.J.Mehta Committee Report.
31. Measures for the Economic Development of Underdeveloped Countires, United Nations, New York 1951.
32. OIL, A Corporate Profile, Oil India Ltd., Duliajan, 1990.
33. Processes and Problems of Industrialization in Under-developed Countries, United Nations, New York, 1955.
34. Problems of Local Pharmaceuticals Industries, presentation by Assam Drugs & Pharmaceuticals Local Industries Association in Pharmaceuticals Seminar, Guwahati, 1989.
35. Preliminary Techno-Economic Feasibility Report, Assam Co-operative Textile Industries Ltd.
36. Publication No. 14, North Eastern Council, Shillong, 1981.

37. Report of the Power Loom Enquiry Committee, Ministry of Industry, Govt. of India, 1964.
38. Report on Currency and Finance (Vol I & II), 1981-82, Reserve Bank of India.
39. Report on Currency and Finance (Vol. I & II) 1987-88, Reserve Bank of India.
40. Report on Currency and Finance (Vol. I & II), 1988-89, Reserve Bank of India.
41. Report of the Textile Enquiry Committee, All India Handloom Board, Calcutta, 1954.
42. Report of the Task Force in Economic Development of Assam, Guwahati, 1988.
43. Report of the Committee on Clause Seven of Assam Accord, Planning Commission, Govt. of India, 1990.
44. Report of the Committee on Financing of Tea Industry, Reserve Bank of India, Bombay, 1981.
45. Report of the National Commission on Agriculture, 1976.
46. Report on Industrial Dispersal : National Committee on the Development of Backward Areas, Planning Commission, 1980.
47. Small Scale Industries in India - Handbook of Statistics, 1982, Govt. of India.
48. Statistical Handbook, Assam, 1981.
49. Statistical Handbook, Assam, 1985.
50. Statistical Handbook, Assam, 1987.
51. Survey report on Sericulture and Handloom in Assam, Directorate of Sericulture and Weaving, 1980.
52. Souvenir, National Seminar on "Development of Pharmaceutical Industries in N.E.India," Indian Institute of Chemical Engineers, Guwahati, March, 1989.
53. Sixth Five Year Plan, Planning Commission, N.Delhi, 1980.
54. Seventh Five Year Plan (Vol. I & II) Planning Commission, N.Delhi, 1985.

55. Silver Jubilee Souvenir, Assam Industrial Development Corporation Ltd., Guwahati, 1990.
56. Souvenir, Institution of Engineers (India), Guwahati, 29th Annual General Meeting, January, 1988.
57. The Hindu Survey of Indian Agriculture, 1988.
58. The Hindu Survey of Indian Industries, 1988.
59. The Hindu Survey of Indian Industries, 1987.
60. Tea, Economic Times Special Feature, Calcutta, 1989.
61. Tea Industry, Business Standard Special Feature, Calcutta, February, 1989.
62. World Agricultural Census, 1970-71.

...

News Papers & Periodicals:

D.

1. Business World, Calcutta.
2. Business Standard, Calcutta.
3. Economic and Political Weekly, Bombay.
4. Occasional Papers, Reserve Bank of India, Bombay.
5. The Economic Times, Calcutta.
6. The Assam Tribune, Guwahati.
7. The Times of India, New Delhi.
8. Yojana, New Delhi.

Brochures:

EE.

1. Assam Petro-Chemicals Ltd., Namrup.
2. Assam Co-Operative Textile Industries Ltd., Guwahati.
3. A Rational Drug Policy, All India drug action network and voluntary Health Association of India, 1986.
4. Assam Co-Operative Jute Mills Ltd., Silghat.
5. Assam Industrial Development Corporation Ltd., Guwahati.
6. Bongaigaon Refinery & Petro-Chemicals Ltd., Bongaigaon.
7. Hindustan Fertilizer Corporation Ltd., Namrup.
8. Oil India Ltd., Duliajan.

Names of Industrial Units Surveyed

<u>Sl. No.</u>	<u>Name of the Unit</u>	<u>Type of Industry</u>	<u>Location</u>
1.	Aldis Pharmaceuticals.	Formulation Drugs.	Guwahati.
2.	Assam Bandage Manufacturing Industries.	Bandage & Surgical Dressings.	Guwahati.
3.	Galen Pharmaceuticals.	Formulation Drugs.	Guwahati.
4.	Kareng Printers.	Printing.	Guwahati.
5.	Sri Guru Press.	Printing.	Guwahati.
6.	Kiran Engineering Works.	Fabrication.	Duliajan.
7.	Assam Co-operative Textile Industries Ltd.	Textile.	Guwahati.
8.	Assam Polyester Co-operative Society Ltd.	Textile.	Rangia.
9.	Imphal Metals.	Fabrication.	Imphal.
10.	Brilliant Process.	Block making.	Guwahati.
11.	Wire & Wire Products.	Fabrication.	Guwahati.
12.	Angshuman Metal Works.	Fabrication.	Dibrugarh.
13.	Dhanada Press	Printing	Dibrugarh.
14.	Hotel Brahmaputra	Hotel	Sibsagar.
15.	Barua Printers.	Printing	Sibsagar.
16.	Aroma Tea(P) Ltd.	Tea Packaging	Guwahati.
17.	Borah Printing Works	Printing	Dibrugarh.
18.	Das Metal Industries	Wire & Nail making	Guwahati.

<u>Sl. No.</u>	<u>Name of the Unit.</u>	<u>Type of Industry.</u>	<u>Location.</u>
19.	Sri Krishna Tea Estate.	Tea.	Digboi.
20.	Segunbari Tea Estate.	Tea.	Dibrugarh.
21.	Bagrodia Tea Industry Ltd.	Tea.	Tengakhat.
22.	Hindustan Fertilizer Corporation Ltd.	Fertilizer.	Namrup.
23.	Assam Petro-chemicals Ltd.	Petro-Chemical.	Namrup.
24.	Nagaon Paper Mill	Paper.	Jagiroad.

...

Appendix II

Some possible down-stream industries for the
proposed petro-chemical complex

Name of polymer based consumer product	Investment required in an unit (in lakh rupees)
1. LLDPE Film extrusion (monolayer) general purpose packaging	10
2. Milk Sachets	10
3. Detergent Bags	8
4. Blended with LDPE Bags GP Heavy duty (for foodgrain, fertilizer etc.)	8 - 15
5. Nursery Bags	5 - 8
6. Linear for Sacks	8
7. Water management film	100
8. Extrusion of multi-layer films, Milk Sachets	15
9. Extrusion(others) for Snack food	15
10. Moulding caps & closures	5 - 7
11. Domestic containers	7
12. Moulding, Bottles, drums	7 and above
13. Moulding(Rotational) tanks for potable water storage, loft tanks, storage bins for rural areas	above 30

14. HDPE Film extrusion carrier bags	10	
15. Gen. purpose packs	5 - 10	
16. Woven tape sacks for cement, fertilizer packaging	30	
17. Pipe extrusion water pipes	20	
18. Other extrusion, monofilaments/ ropes	8	
19. Cane for chairs	7	
20. Sheet for liners etc.	25	
21. Injection moulding & blow moulding for domestic items	5 and above	
22. Luggage Ware	20	"
23. Furniture	30	
24. Bottles and Containers	5	
25. Toys	5	
26. Educational aids	5	
27. Jerry cans & carboys	15 and above	
28. PP film extrusion, clear TQ film	5	
29. Sheets, Black boards	50 and above	
30. Woven sacks/Tapes/CB	30	"

31. Mono-filaments/ropes	7 and above
32. Inj/Blow moulding appliances	10
33. T.V. Cabinets	20
34. Containers and domestic ware	8 and above
35. Furniture/Luggage	20
36. Ball pens & Refills	7
37. Automotive parts	15 and above
38. Textile components	10
39. Bottles & containers	5 and above
40. Crates	50 "
41. Industrial components	10 "
42. Filled PP parts for industrial usage components	30
43. Laboratory/Medicare toys etc.	8
44. Fibre staple fibre	300 and above
45. Cont. filament	500 "
46. Water proofing	5 "

Source : Report of the Committee on clause seven of Assam Accord,
Planning Commission, April 1990.