# CHAPTER I

# I N T R O D U C T I O N

# CHAPTER I

# INTRODUCTION

## 1.1. Introducing North Bengal

Jalpaiguri division, the northern portion of West Bengal, popularly known as North Bengal in common parlance and comprising of Malda, West Dinajpur, Darjeeling, Jalpaiguri and Cooch-Behar districts, is a rich tract of land abundantly blessed with natural resources, inhabited by a poor and toiling mass which is ethnologically a complex mosaic of different scheduled castes, various tribes, non tribes, local and migrated people.

Despite its rich agricultural resources, painstaking peasants, immense forest and horticultural potentialities, heavy mineral deposits, vast scope for the expansion of industrial tourism, this region of North Bengal presents all the symptoms of an underdeveloped economy.[1] North Bengal, with the exception of the traditional tea industry has not undergone much industrial development and it is still dominated by tradition bound agriculture.[2]

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1 For per capita income please refer to table No. $A_2$.2 of Appendix II.

2 Please see section 1.6 of this chapter.

There is little existence of industrial centres, and concentration of economic activities in urban centres are conspicuous by their absence. A few urbanisations[1] without adequate modern industrialisation has not yielded the desired result of economic development. Most of these urban centres do not possess diversified economic bases, they primarily serve as distributing and servicing centres for their hinterlands. The economy of the region limps at a very unsatisfactory level. The various economic maladies are reflected through different social and political discontent which sometimes, take a violent turn creating chaos and confusion[2]. Sufficient power supply, well-knit communication system, necessary marketing facilities organised markets etc. are still lacking.

Perhaps, as a result of this, investment is not adequately forthcoming in this region. This sort of extreme regional imbalance needs serious attention. Though quite recently some measures have been adopted to remedy various economic ills of the region[3], yet these have remained only in the realm of sectoral plans and their overall impact have been

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1 Please refer to Appendix on North Bengal.

2 During the early seventies there was a violent social and political commotion in West Bengal whose epi-centre was a small village in the plains of Darjeeling district. This movement commonly known as Naxalbari movement spread all over the country in varying degree, nature and direction.

3 To mention a few : Jaldhaka Hydel Project, Premganj Basusuba Irrigation Project, the Tista-Mahananda Master Plan Project — 1st phase has recently been started.

on the whole modest. It may, therefore, be realised that not only to feed the swelling masses but also to provide a satisfactory infrastructure for industrial development, proper measure be taken up in order to deal with the problems of agriculture in rural economy of North Bengal.

Rightly perhaps, it may be said that agricultural productivity may be the base for future development of this region. But this perhaps, can better be achieved, inter alia, through the introduction of improved and modern farm technology among the agricultural producers. It seems, however, that sufficient discussion has not taken place about the problems of the farmers of North Bengal.[1]

The problem, seems to be stupendous. For, agriculture in the countryside is in the hands of a vast illiterate and ignorant peasantry which constitutes the unorganised section of rural North Bengal. A determined effort, therefore, coupled with the full utilisation of all that science can offer has to be goaded to develop agriculture in this backward region of West Bengal.

The excellence of the cultivators of this region in the art of cultivation may be considered enough to guide them so long

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1 Besides a few stray and scattered government publications, Bhattacharya, S.N.'s Ph.D., Thesis is a pioneering scholarly work on rural North Bengal and perhaps, it still remains the only work of its kind.

as farming is just a way of life.[1] But conditions are fast changing and the farmers now have higher and more aspirations than before.[2] So the present situation may call for a change[3] in the attitude and approach and they may be required to adopt modern farm techniques, if they want to satisfy their increasing needs. To begin with, various possibilities of looking into the nature and scope of agricultural enterprise have to be looked for, as the 'agricultural enterprise' may have a positive role to play in the changed set-up for improving farm production. But unfortunately, not sufficient research works seem to have been undertaken in North Bengal and there seems to be a dearth of literature on this important aspect especially relating to Jalpaiguri district. So the harbingers of modern methods of farming technology have to be identified in order to make prudent and efficient use of the modern knowledge in the process of planned agricultural development of rural North Bengal.[4]

Therefore, in the above circumstances perhaps, it becomes important to study 'agricultural enterprise' in the overall context of the village economy of North Bengal.[5]

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1 Bhattacharya, S.N., "Rural Conditions in Agricultural North Bengal," Unpublished Ph.D. Thesis, Calcutta University, pp. 16-60.

2 Ibid.

3 Ibid.

4 Fourteen villages of Jalpaiguri district have been considered for the study. For details, please refer to section 1.5 of this chapter.

5 For importance of the study, please see section 1.7 of this chapter.

## 1.2. Purpose of the Study

The present dissertation has been designed to study the 'agricultural enterprise' in one of the districts of North Bengal — Jalpaiguri, with the following purposes :

(i) to study the extent to which the sample zones in the district have responded to the enterprise commonly associated with the use of high-yielding variety of seeds, use of chemical fertilisers, modern agricultural appliances and equipments, etc.; and

(ii) to study the problems of the application and impacts of modern technology in agriculture in sample villages during the period of the study in the context of 'gains and limitations of the modern farm technology' in the sample villages.

## 1.3 Collection of Data - Some Problems

The present dissertation designed to study 'agricultural enterprise' in the farm economy of Jalpaiguri district based on information collected from fourteen sample villages, has some problems inherent in the very nature of such studies. One of the problems appears to emanate from the paucity of desired data and information. The secondary sources like the Census Reports, Bulletins of the Statistics Department, District Handbooks, District Gazetteers or other official government

publications do not always seem to be sufficient and exhaustive. On the other hand, collection of primary data is hazardous and one has to face multifarious difficulties. A brief mention of a few such problems may be interesting to note here.

In general, the apprehensive and evasive nature of the village people seemed to be a great stumbling block in the way of smooth collection of information. Some of the people did not appear to be adequately willing to divulge information about themselves and their farms to a stranger on the plea that those information might create complications leading to their suffering. The existence of widespread illiteracy and ignorance appeared to create another serious difficulty in deriving precise information. Most of the sample farm-families did not have the habit of maintaining systematic written accounts of their farms, which often created complications.

During the initial stages of the survey some adverse and unpleasant situations had to be encountered which were averted by tacts and endurance only. However, this side of the problem was soon eased by an introduction to some of the prominent members of different villages by certain well-known personalities of the locality. These influential persons (social and political leaders) tried to impress upon the yokels the actual purpose of the visits and urged upon them to co-operate in all possible ways. This introduction made a very favourable impact upon them. It helped to efface from their minds many sceptic ideas about the purpose of the study.

Having thus been able to get over the initial difficulties, frequent routine visits to these villages and free talks with the rural people on personal as well as, on general problems of the localities drew them very close to each other. This yielded positive results and by and by it was possible to become a man of their confidence who would be often consulted on intricate problems of the village. This gave an added opportunity to know the rural folks more intimately. This helped to establish a rapport between the two.

It may be mentioned here that these impacts were not uniform on all the farm-families; and at the time of investigations a few were found to be hard nut to crack. They seemed to be a little bit hesitant to express the actual conditions of their farms. However, sufficient care was taken to see that the investigation was not in anyway vitiated.

## 1.4. Plan of the Research Work

A preview of the organisation of the remainder of the research work is given below to indicate the relationship between the various parts of the work.

In chapter I, the subject matter of the study is introduced explaining precisely the purpose of the study, problems of data collection and sampling design. A brief introduction to the district of Jalpaiguri has also been made and at the end of the

chapter, mention has been made of scope, importance and limitations of the study.

In chapter II, attempt has been made to present the agrarian structure of the sample villages as a whole. It seeks to study how the farmers of different zones[1] are distributed by their size of landholdings and their nature of concentration that is to say, whether the economy is dominated by small peasants, middle peasants, big or very big farmers. The extent of share-cropping has also been discussed.

In chapter III, using select indicators, 'level of agricultural enterprise' in sample villages has been determined.

Chapter IV, has been designed to 'highlight the many frictions and unexpected developments' like 'mounting costs of modern inputs' and the 'tremendous imbalance which modern agricultural technology introduces in the ecology of the plants and vegetation' — a danger for both the modern and traditional agriculture. Moreover, 'the application of modern technology' and 'its gains and the limitations' under conditions of the sample villages have also been studied analytically. Problems of introducing and continuing modern farm technology in the sample villages have also been identified and critically studied. Moreover, some remedial measures necessary to move the ball in the right court have also been discussed to make the study realistic and lively.

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1 For the present study the sample villages have been broadly divided into three zones (Zone I - non-irrigated ; Zone II - newly irrigated ; and Zone III -old irrigated.

At the end, three appendices have been added which present select tables, some information on North Bengal and a select questionnaire which may be necessary for better comprehension of the present study.

The present dissertation is not an outcome of an armchair research. It is primarily based on field research. However, intellectual debts to some books, Journals and articles etc., are gratefully acknowledged ( Please see the Bibliography ) from which insights into the present work has been fruitfully appropriated.

## 1.5. Sampling Design

The sample design for the present study has been as follows :

At the first stage, the district had been divided into three broad zones, in consideration of their distinct agro-economic characteristics.[1]

At the second stage, fourteen villages in all were sampled, the villages being allocated among the zones roughly in proportion to the size of cultivating population in each zone. The distribution was : first zone — three villages, second zone — two villages and the third zone — nine villages.

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1 Soil (Dahala, Sahuri and Danga, composition of the soil), irrigation facilities, cropping pattern etc.

The villages were selected at random within each zone by giving each village a probability proportional to the number of cultivating households in it according to the Census of 1971. After the selection of the villages, all the cultivating households of a village were listed and arranged in an ascending order in terms of size of holdings and then a sample of twenty households was selected by following the method of systematic sampling with a random start. In all therefore, there were in the sample, 230 cultivating households drawn from an entire range of size distribution. Basically the approach adopted in this study was that of the case study method based on direct interview, questionnaire etc. In some cases, however, secondary sources were also utilized which have duly been acknowledged.

## 1.6 A Brief Introduction to the History and Economy of Jalpaiguri District

### 1.6.1 Documental Sources

The information contained in this section are collected from different government, non-government and private sources.[1]

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i) Project Report For Small Farmers' Development Agency, Jalpaiguri, West Bengal, Department of Agriculture & C.D., Government of West Bengal.

ii) Sunders, D.H.E., Settlement Report, 1885.

iii) Mukherjee Bijay Bihari, Rai Bahadur, Settlement Report, ( 1931 - 35 ).

## 1.6.2 A Brief Introduction to the District of Jalpaiguri.

In this section, we would like to present some of the regional characteristics of the district of Jalpaiguri which may be relevant to the present study. For this purpose, this section has been subdivided into two sub-sections : (i) the district in retrospect — a brief resume of the history of the formation of the district ; and (ii) physical features and economic characteristics of the district in the light of the official government publications.

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iv) Hunter, W. W., A Statistical Account of Bengal, Vol. X, Trubner & Co., London, 1876.

v) Mitra, A., District Census Handbook, Jalpaiguri, 1951.

vi) DEVELOPMENTAL ACTIVITIES OF THE DISTRICT OF JALPAIGURI (NOVEMBER - 1976), Published by Government of West Bengal, Development and Planning Department, Office of the Deputy Commissioner, Jalpaiguri - No pagination.

vii) JALPAIGURI, 1973, FINAL YEAR OF THE FOURTH FIVE YEAR PLAN, Published by Office of the Deputy Commissioner, Jalpaiguri.

viii) JALPAIGURI, Bish Dafa Karmasuchi Rupayana, Jalpaiguri, 1st July, 1976, Published by Jalpaiguri Zilla Tatha'o' Janasanjog Daptar.

ix) Panchayati Raj Rajat Joyanti Smaranika, Jalpaiguri, 1976, Jalpaiguri Zilla Panchayati Raj Rajat Joyanti Anusthan Committee.

x) Annual Administration Report, 1972-73, 1973-74, 1974-75, Government of West Bengal.

xi) Jalpaiguri District Centenary Souvenir (1869-1968), Souvenir, Sub-Committee.

xii) Swadhintar Panchis Batsar, Tatha'o' Janasanjog Bibhag, Government of West Bengal.

## 1.6.3 The District in Retrospect

### 1.6.3.1 A Glimpse into the History of the Region

In olden times, this region was a part of the kingdom of Prag Jyotishpur of Kamrup which spread in the west upto the river Karotoya. Hussain Shah, the Afghan Governor of Bengal ( 1497 - 1521 A.D. ) reigned over the territory. During the 16th century, the Koches established an empire and the 'duars' was a part of it. In 1603, the Moughals usurped almost the whole of the Koch territory. Gradually, with the decline of the Moughals, the region along the foot of the Bhutan hills ( the Himalayas ) passed into the clutches of the Bhutias who were only interested in exacting heavy tribute and maltreating the inhabitants.

In 1765, when the British got the 'dewani' of Bengal from the Moughal Badshah of Delhi, this region also came under the legal sway of the British. But a bone of contention persisted between the British and the Bhutias over the ownership of the duars.[1] In 1864, the British made an offensive onslaught on the Bhutias to settle the century long bitter relations decisively, over the ownership issue of the duars which culminated in final conclusion of a treaty in the same year leading to the annexation of the duars to British India, as a result of which 'Pax-Britannica' began to prevail upon this region.

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1 Etymologically, the word duars has perhaps, been adopted from the English word doors referring to the passes or gateways leading to the sovereign hill State of Bhutan through this sub-montane

1.6.3.2 The Formation of the District

After the annexation of the Duars in November, 1864, the tract was divided into Eastern and Western Duars. The Eastern Duars with an area of about 1563 square miles were ceded to Goalpara district of Assam. The Jalpaiguri subdivision was formed in 1354 with head quarters at Sookanee and was named as Sookanee subdivision. The name of the subdivision was changed to Jalpaiguri subdivision when the head quarter of the

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region lying at the foot of the Himalayas. The Duars is a strip of land about twenty miles in breadth, from North to South. It is about 180 miles in length from West to East. It extends eastward along the entire southern boundary of Bhutan starting from the eastern bank of the Tista. It forms the eastern section of Jalpaiguri district known as the Western Duars and it extends further east comprising of the northern portion of Goalpara and Kamrup and a north western piece of Darrang district of Assam. This side of the Duars is called the Eastern Duars or Assam Duars.

This region is a very low plain with an altitude of about 200 feet above the sea level at the southern boarder and in the north it varies from 500 feet to 2000 feet. Rainfall in this region varies between 150 inches and 300 inches per annum. Climate is wet, the land is damp and from the hoary past the region has been covered with dense forest infested with fierce and different carnivorus animals. In the past the region was notoriously known for the life-taking virulent diseases like Black-water fever, Kala-azar, Malaria, etc. However, stern prophylactic measures taken since independence has completely changed the condition / Sen, Aswini Kumar, Western Duars - Past & Present, Jalpaiguri District Centenary Souvenir (1869-1968) P. 43 /.

subdivision was transferred to Jalpaiguri. The three police thanas Fakirganj ( now Jalpaiguri ), Boda and Sanyasikata (now Rajganj) comprising the subdivision were transferred to the newly formed district of Jalpaiguri in 1869. The thana of Patgram was also detached from Rangpur and added to Jalpaiguri in 1870. The Western Duars district formed in 1864 comprised that portion of land which lies between the Tista and the Sankosh rivers. The district consisted of three subdivisions — Sadar with head quarters at Maynaguri, Buxa with head quarters at Buxa and sometimes at Alipurduar, and Dalimkote, the present day Kalimpong. In 1867, Dalimkote was transferred to Darjeeling district. In the same year the criminal jurisdiction of Jalpaiguri subdivision of Rangpur was tagged with the Deputy Commissioner of the Western Duars district. Thus the district of Jalpaiguri as an administrative unit came into existence in January, 1869 by the amalgamation of the Western Duars district with the Jalpaiguri subdivision of Rangpur district.

Since its inception the district of Jalpaiguri has undergone many changes. The major change occured in 1947, when a portion of the district was ceded to the erstwhile East Pakistan ( now Bangladesh ).[1]

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1 Under the Radcliffe Award the southern police stations of Tetulia, Pachagar, Boda, Debiganj and Pathgram with a total of 672 square miles were given away to East Pakistan, thereby reducing the district area from a total of 3,050 square miles to a total of 2378 square miles. District Census Handbook, Jalpaiguri, Mitra, A., P. VII.

### 1.6.4 Physical Features and Economic Characteristics of the District

The district of Jalpaiguri with evergreen primeaval forests and soft velvety tea gardens, lie just at the foot of the majestic Himalayas. Geographically Jalpaiguri district is situated between 27°0' North and 26°16' South latitude and between 88°25' West and 89°53' East longitude. The area of the district according to the Surveyor General of India is 2,373.3 square miles.[1]

#### 1.6.4.1 Boundary of the District

The district on its north has the district of Darjeeling, Sikkim and the sovereign state of Bhutan, on the south is the erstwhile East Pakistan (now Bangladesh) and the district of Cooch-Behar, on the west are Bihar, and Nepal, and also the district of Darjeeling and Bangladesh; and Assam is on the east. The district has a length of 144 kilometres from east to west and an average breadth of 40 kilometres from north to south in the shape of an irregular rectangle. On the east of the Tista, there lies a strip of sub-montane land between Kalimpong and Bhutan which is about 22 miles in width and known as the Western Duars.

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1 Mitra, A. District Census Handbook, Jalpaiguri, 1951, P. VIII.



1.6.4.2 Physical Divisions

The prospect of the farm economy does not depend solely on enterprise rather it also depends on physical features like soil composition, rainfall, temperature, climate, river system etc. So some physical characteristics of the district are given below.

There may be three physical broad divisions of the district based on their characteristics :

(i) Some part of the district is comprised of hilly tracts and forests. About 26.6 percent of the total area of the district is under forests.

(ii) About 56.4 percent of the district area is under tea gardens and farming operations, of which 19.4 percent is under tea gardens and 37 percent under farming cultivation.

(iii) The rest 17 percent of the total area includes urban areas, river beds, roads, and other uncultivable wastes.

Thus in the district about 56.4 percent of the area is important for farm sector including tea estates, approximately 26.60 percent of the area has importance for forestry and minerals.[1] It may be noted that only 37 percent of the area of the district has its importance for farm enterprise.

1.6.4.3 Soil Composition

Such 56 percent of the area which is important for paddy, jute and tea cultivation is the first of Terai soil which

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[1] The Buxa Joyanti hills are composed of a series of rocks known as "Buxa series" which consist of variegated slates, quartzities and dolomites. Recently copper and zinc have also been discovered awaiting commercial excavation.

is brought down by the rivers from a height of 10,000 feet. Such area of the district is covered by alluvial deposits which is important for the growth of agricultural crops spread over a heap of sand resting on an irregular rock formation of uneven height. The alluvial layer consists of coarse gravel near the hills and sandy clay and sandy loam further south. A patch of black clay occurs in the area between the Tista and Jaldhaka.[1] The soil in the uplands of the north of the Duars is a ferruginous clay which is specially fit for the growth of tea plant. The Western Duars has innumerable old river-beds forsaken by the streams which once flowed along them ; near the hills they are full of stones and boulders, in the down stream they have gravel and in the plains they have sand only. These deserted river-beds are agriculturally incapable of producing anything.*

With regard to classification of soil, reference may be made to the maiden report of Glazier[2] on the above matter.

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[1] Development Activities of the District of Jalpaiguri (November - Government of West Bengal, Development and Planning Department, Office of the Deputy Commissioner, Jalpaiguri). No pagination.

[2] From a report of E.G. Glazier on Rangpur in 1873, the following classification of soil is found :

(a) Jatwari or according to the nature of the soil, and
(b) Rakamwary or according to the use to which the land is put.

* "In the bed of the Tista itself, however, there are large islands or chars containing much valuable timber." — Mitra, Op cit. P. IX.

1.6.4.4 Classification of the Soil

According to the Agriculture Department of West Bengal, the soil texture of Jalpaiguri is usually sandy to sandy loam and has a low moisture retentive capacity. This type of soil is very much congenial for the growth of tea and jute. In view of the above stated problems and frequent sudden floods it becomes imperative for the government to take special measures against these odds for the overall development of agriculture in the district.

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(a) Jatwary Classification :

| | | |
|---|---|---|
| 1st quality | Awal | Pan baraj |
| 2nd quality | Doyam | Palum |
| 3rd quality | Seyam | Dokhunda |
| 4th quality | Charam | Ekhunda |

(b) Rakamwary Classification :

| | | |
|---|---|---|
| Homestead land | Bastu | Laik Patit |
| | Ujar bastu | Bhanga baraj |
| | Praja bastu | Utbastu |
| Garden | Baghat (arecanut) | Tal |
| Bagan | Khar | Kostha |
| Grass | Bans | Bichhan Kanda |
| Bamboo | Ikshu | Tunt or Nil (Indigo) |
| Sugar cane | | |

Source : Mitra, A. District Census Handbook, Jalpaiguri, P.1, XVIII.

The district on the basis of climatic conditions is placed in the Agro-climatic Zone IV of the State. According to the Agro-climatic conditions prevailing in the district, it may broadly be divided into three distinct sub-zones, which are presented below in the following tabular form.

TABLE 1 - 1

Agro-climatic Conditions of Jalpaiguri District

| Sl. No. | | Sub-zone A | Sub-zone B | Sub-zone C |
|---|---|---|---|---|
| 1. | Soil | Sandy | Sandy loam | Silty loam |
| | P.H. | 4.8 to 5.3 | 5.5 to 6.0 | 6.5 to 7.8 |
| 2. | Rainfall in mili metres | 3200 to 3500 | 2800 to 3000 | 2800 |
| 3. | Geographical Area in Acres | 2,27647 | 12,83,409 | 14,000 |
| 4. | Net Sown Area in Acres | 41,062 | 4,94,418 | 11,000 |
| 5. | Percentage of area under cultivation | 18.037 | 38.523 | 78.571 |
| 6. | Extent of cultivation, i.e. percentage of cultivated land to the total district area | 2.692 | 3.241 | 0.721 |
| 7. | Percentage of area of the zone with respect to total of the zones 1,2 and 3. | 14.927 | 34.154 | 0.917 |

8. Cropping pattern :

| | | | |
|---|---|---|---|
| (i) Pre-Khariff | 1) Maize (H.Y.V.) | 1) Aus Paddy (H.Y.V.) | 1) Aus Paddy (H.Y.V.) |
| | 2) Maize | 2) Aus Paddy | 2) Aus Paddy |
| | 3) Aus Paddy (H.Y.V.) | 3) Aus Paddy | 3) Aus Paddy |
| | 4) Aus Paddy | 4) Jute | 4) Jute |
| | | 5) Fallow | |
| (ii) Khariff | 1) Pasture | 1) Aman Paddy (H.Y.V.) | 1) Aman Paddy (H.Y.V.) |
| | 2) Aman Paddy | 2) Aman Paddy | 2) Aman Paddy |
| | 3) Aman Paddy (H.Y.V.) | 3) Fallow | 3) Fallow |
| | 4) Aman Paddy | 4) Aman Paddy | 4) Aman Paddy |
| | | 5) Aman Paddy | |
| (iii) Rabi | 1) Fallow | 1) Wheat (H.Y.V.) | 1) Wheat (H.Y.V.) |
| | 2) Pasture | 2) Fallow/ Wheat | 2) Fallow/Wheat |
| | 3) " | 3) Pulses/ Potato | 3) Oilseeds/Pulses etc. |
| | 4) " | 4) Potato | 4) Fallow/Wheat |
| | | 5) Fallow | |
| | | 6) Fallow | |

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Note : The Sub-zones include the following areas :

1 - Sub-zone A : Northern portion of Mal, Mataili, Nagrakata, Kalchini, Madarihat and Kumargram Blocks.

2 - Sub-zone B : Southern portion of Mal, Mataili, Nagrakata, Kalchini, Madarihat and Kumargram Blocks.

1.6.4.5. Interpretation

On the basis of the above table, the following points may be noted :

(i) The three sub-zones have different soil textures, e.g., sandy, sandy loam and silty loam with PH varying from 4.8. to 7.8.

(ii) Rainfall ranges from 2800 mm to 3500 mm.

(iii) The area under cultivation in sub-zone $C_3$ is 78.571 per cent of the total geographical area of the sub-zone C.

(iv) From the above table it is apparent that the percentage of area under cultivation in sub-zone C (78.571) is larger than the other two zones, but the extent of cultivation ( percentage of cultivated land to the total district area ) is 0.71, which is lower than any other zone.

(v) Sub-zone $B_3$ comprises about 84.154 percent of the total geographical area of the district ; but only 33.523 per cent of this sub-zone's geographical area comes under cultivation which is quite low in comparison to that of sub-zone C.

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3 - Sub-zone C : Southern most portion of Kumargram, South Western region of Falakata, South Eastern portion of Dhupguri Block attached to Falakata.

Source : Computed and tabulated from information available from Project Report For Small Farmers' Development Agency, Jalpaiguri, West Bengal ; Department of Agriculture and C.D., Government of West Bengal.

(vi) The above table shows a wide variation in the different zones of the district so far as percentage of net sown area under cultivation is concerned. It may perhaps, be suggested that among other factors enterprise may be an important factor responsible for this difference.

1.6.4.6 Irrigation

Irrigation in the eastern part of the Western Duars is very popularly practised since a very long time mainly for the aman or winter rice crop. The water is carried to the fields by means of small artificial channels and water courses (called dungs[1] in the local parlance) cut from the nearby rivers or streams. In other parts of the Duars, irrigation was not adopted. In the permanently settled region to the west of the Tista where no spare land was left, 'fields were not allowed to remain fallow for the soil to recruit itself.' But in the Duars, cultivators rarely cultivated aus rice, mustard, tobacco, etc. more than two years in the same plot. The aman rice would be cultivated in the same field for years together without any break. Rotation of crops was unknown and not practised in the district.[2]

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1 Jampois is another local name (vide P. lXVII of Mitra's Handbook).

2 Hunter, W.W., A Statistical Account of Bengal, P. 292.

According to the Deputy Commissioner, general destruction of crops by natural calamities like flood or drought ; or by blight etc., was a rare phenomenon which could affect the general prosperity of the district ; and there was no demand from the public for construction of canals or irrigation works as a measure against drought.[1]

From the above, it is more or less clear that till very recently there was no arrangement for public irrigation, whatever irrigation was practised was done on a private basis. However, things have changed and for sometime past government measures are being taken up because irrigation is a part and parcel of the modern method of farming. Without a guaranteed regular supply of water, new techniques of agriculture may not be introduced. Even in Jalpaiguri, where rainfall is plentiful, "Irrigation is doubtless necessary in parts of the Western Duars, but it is not safe to allow channels to be dug without supervision".[2]

In the above light, it may be deemed relevant to peep into the actual conditions of irrigation obtaining in the district. But the area under irrigation is difficult to determine and conflicting estimates are available.[3] However, information on irrigation is given in a tabular form below.

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1 Ibid, P. 293.

2 Mitra, A. District Census Handbook, Jalpaiguri P. 1, XVIII.

3 Fifth Five Year Plan, Draft out line, District Planning Committee, Jalpaiguri, P. 16.

## TABLE 1.2

Statistics of the Irrigated Area of Jalpaiguri District for the years 1974-'75 — 1975-'76

| Years | Gross Area (in Acres) | | Irrigated Area (in Acres) Sourcewise | | |
|---|---|---|---|---|---|
| | | | Canal | | Other* Sources |
| | Sown | Irrigated | Government | Private | |
| 1. | 2. | 3. | 4. | 5. | 6. |
| 1974-'75 | 727275 | 58145 | 13300 | 30900 | 13445 |
| 1975-'76 | 819826 | 61002 | 13300 | 30900 | 16,302 |

Percentage of Gross Irrigated area to Gross sown area

| Col.3 to Col.2 | Column 4 as percentage of Col.2 | Col.5 as % of Col. 2 | Col.6 as % of Col.2 | Col. 4 as % of Col.3 | Col.6 as % of Col. 3 | Col. 5 as % of Col.3 |
|---|---|---|---|---|---|---|
| 7. | 8. | 9. | 10. | 11. | 12. | 13. |
| 7.00 | 1.8974 | 4.2437 | 1.8426 | 23.7337 | 23.1232 | 52.1 |
| 7.4408 | 1.6832 | 3.7690 | 1.9834 | 22.6222 | 26.737 | 50.6 |

* Tanks, Beels, Bunds, Deep and Shallow tube-wells, Riverlift Irrigation, Wells, Pump-sets, etc. are included in 'other sources'.

Source : Compiled from information contained in "Information on Agriculture, Jalpaiguri District," District Agricultural Office, P. 8 & 38.

1.6.4.6 (1), Interpretation

From above the following points may be noted :

(1) About seven per cent of the area of the district is under irrigation system.

(2) This percentage has a slightly rising trend.

(3) The irrigation of the district mainly depends on private enterprises because more than fifty per cent (vide 1.2, coln 13 of the above table) of the irrigated area of the district is under private canal ( ignoring other private enterprises such as wells, tube-wells, beels, pump sets, etc.), whereas only 27 per cent (vide table 1.2, coln 12) area is covered by government enterprise.

(4) It seems that government has taken little interest to increase the irrigation facilities of the district.

Thus the table No. 1.2, seems to present a very dismal picture of the district in respect of irrigation.

TABLE 1.3

1.6.4.7 Basic Background Information of Jalpaiguri District for the years 1971-'72 to 1974-'75*

| Years | Percentage of Land under high-yielding variety of different crops. | | Fertilisers used (in tonnes) | | | |
|---|---|---|---|---|---|---|
| | Rice | Wheat | Nitrogen | Phosphate | Potash | Total |
| 1971-'72 | 3.257 | 61.184 | 61.72 | 42.36 | 57.83 | 161.96 |
| 1972-'73 | 6.209 | 63.011 | 97.94 | 21.94 | 17.72 | 137.60 |
| 1973-'74 | 4.621 | 52.683 | 132.78 | 29.57 | 11.05 | 173.40 |
| 1974-'75 | 8.163 | 100.00 | 107.14 | 49.35 | 40.95 | 197.44 |

* Computed from data published in Developmental Activities of the District of Jalpaiguri (November - 1976), published by Office of the Deputy Commissioner, Jalpaiguri.

1.6.4.8 Observations

Thus from the data and information furnished above, it may perhaps, be observed that

(i) roughly 56.4 percent of the land in the district is under farm economy including tea gardens of which only thirtyseven percent is available for agriculture ;

(ii) the district largely depends on natural factors for its farming ;

(iii)as regards irrigation, it may perhaps, be concluded that the role of the public sector in this regard does not seem to be encouraging;

(iv) the use of fertilizers seems to be increasing.

1.6.4.9 Climate (A)

The climate of Terai and Doears is characterized by heat, humidity and heavy precipitation which is the Am type of Koppen's classification. The seasons of this district generally follow the course of those of other districts in the plains. After the warmest days of summer, the monsoon winds from the Bay of Bengal blow over the whole of the Tista valley and Jalpaiguri district and bring heavy rains in their wake.[1]

Owing to heavy rainfall, the temperature is seldom very excessive or unbearable. November to January are driest months, though even in these months there are occasional showers. During the early cold weather the atmosphere is generally clear. The latter part of December and the whole of January are the coldest months and there are very often fog and mist during the cold months. By the end of March, it begins to get warmer, and is very hot in April and May, in years when the rainfall is light in those months.[2]

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[1] Census 1961, West Bengal District Census Handbook, Jalpaiguri, P. 19.

[2] Mitra, A. — District Census Handbook, Jalpaiguri, 1961, P. XXXI.

1.6.4.10 Climate (B)

The district of Jalpaiguri is abundantly blessed with sunshine and shower. But the rainfall is not the same throughout the length and breadth of the district and also it is not evenly distributed throughout the year. The heaviest rainfall in Jalpaiguri district is at the foothills. The monsoon winds lash on the foothills with all force in a North-West direction pouring in nearly 250 inches annually at Kalimpong and Mal. The foothills of Dowhill-Mahaldhiram ranges also record a rainfall not less than 200 inches per annum.[1] It is lowest in the south on the borders of Rangpur district in East Pakistan (now Bangladesh). The town of Jalpaiguri and its neighbouring tracts occupy an intermediate position between the two extremities. Downpour is lightest in the cold weather months ; it gets heavy in March, and increases significantly by April. The month of May may almost be regarded as a rainy month and precipitation is usually very heavy. The usual rainfall for May is 12 inches. From June to September rainfall is general. The following figures show the wide variation of rainfall at the turn of the century : Jalpaiguri - 119·41 inches ; Alipurduar - 122·66 inches ; Buxa cantonment - 176·76 inches and Samsing Tea Estate (1500 feet above sea-level) - 184·55 inches. In the south at Debiganj, the average was only 69·65 inches.

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[1] Census 1961, West Bengal District Census Handbook, Jalpaiguri, P. 19.

The highest rainfall in the district was 249.92 inches at Buxa in 1903. 1900, was one of the driest years in Jalpaiguri recording rainfall of 84 inches only.[1]

1.6.4.11 Rainfall

The following table gives the average annual rainfall in the district of Jalpaiguri, during the period 1971 - 75.

TABLE 1.4

Average Annual Rainfall
( 1971-75)

| | Years | | | | |
|---|---|---|---|---|---|
| | 1971 | 1972 | 1973 | 1974 | 1975 |
| Annual rainfall in Milimetre | 3418.6 | 2923(A) | 2640(A) | 3532 (A) | 2955(A) |
| Number of Rainy days | 131 | 113 | 111 | 124 | 119 |

Source : A - Approximate

Based on data published in Development Activities of the District of Jalpaiguri ( November, 1976 ).

As to the uneven distribution of rainfall causing problem to agriculture of the district, the District Planning Committee, Jalpaiguri observes "..... the rainfall, which is 3275 MM per year on an average,..... received between the months of May, and September only 10 percent being received during the remaining 7 months of year. This means that during the rainy season there is more water on the fields than is necessary and during the remainder of the year crops

[1] Mitra, A. — District Census Handbook, Jalpaiguri, 1951, P. XXXII.

cannot be grown because of paucity of water. The precipitation during the rainy season is so much that large scale irrigation schemes on the gravity flow model cannot be of much use."[1]

1.6.4.12 Temperature

The district seldom attains excessive heat. It is minimum in January ; by April the mean temperature begins to rise. The mean maximum temperature is recorded in April and the mean minimum is lowest in January. At Buxa cantonment the climate is very soothing ; the rainfall is heavier ; even in the hottest weather fans are not needed and blankets have to be used during the nights. The tea estate area on the north of the district is usually colder than the region west of the Tista river. Below is given a table showing temperature, during 1970-'74.

TABLE 1.5

Showing Temperature (1970-74)

| Temperature C | Years | | | | |
|---|---|---|---|---|---|
| | 1970 | 1971 | 1972 | 1973 | 1974 |
| Maximum m | 36 | 36 | 35 | 39 | 36 |
| Minimum m | 9 | 9 | 9 | 9 | 5 |

Source : Key statistics of the District of Jalpaiguri, 1974-75 Published by Statistical Office, Bureau of Applied Economics and Statistics, Government of West Bengal, Jalpaiguri, P. 1.

[1] Jalpaiguri District, Fifth Five Year Plan, Draft outline — District Planning Committee, Jalpaiguri, P.3.

1.6.4.13 River System — A Brief Resume

The whole of the district of Jalpaiguri is strewn with numerous named and unnamed rivers, streams, rivulets, springs and 'bills'[1] etc. Below is given a short sketchy description of the river system of the district. The major rivers in the district of Jalpaiguri flowing from west to east are (1) the Mahananda which marks the western border ; and (2) the Tista. Between these two giant rivers there are many small rivers as Saun, the Karatoa, Chaol, the Talma, the Jamuna, the Panga, the Karala, the Gukchuka, the Rukruka and the Gadadhar. All these rivers and rivulets proceed from north to south into the Karatoa which forms into a broad river in Rangpur district of Bangladesh. Jaldhaka is the next larger river east of the Tista ; between the Tista and the Jaldhaka, there lies the medium sized Dharla river. The Lish river joins the Tista near Bagrakot. Next comes the Gish river which flows into the Tista. The Chel river comes further east near Odlabari to be joined by the Chitijhora river. Besides, there are the Neora, Mal and Kurti streams. Murit and Jiti are tributaries of the Jaldhaka. The Jaldhaka is joined near Romshai Hat[2] by Diana. Torsa comes next as a large river to the east of the Jaldhaka. Between these two rivers from west to east are several small streams named as Galandi, the Duduya, the Damdim, the Tasati, the Mujnai and the Buritorsha. Gadadhar or Jainti is the next major river. Several small

1 Water-logged swamps.
2 Weekly village markets.

streams intersect between the Torsa and the Jainti, namely, Sanjol and Siltorsha. The Kaljani is joined by the rivers Bania, Pana, Dima, Datia. The Sankos is the next big river east of the Jainti which demarcates the eastern boarder of the district and also between Assam and West Bengal. From west to east between the Jainti and the Sankos are the Kaljani, the Turturi and the Raidak. Between the Raidak and the Sankos there is a small stream known as Chikiajhora.

All the large rivers like the Mahananda, the Tista, the Jaldhaka, the Torsa, the Kaljani, the Raidak and the Sankos are normally navigable by boats carrying loads of 100 maunds during July and September, although the current down stream is extremely swift.[1] One interesting point about the rivers is that owing to the porous character of the soil near the hills, water remains invisible on the surface along the bed for some miles. Another point is that the Tista, Jaldhaka and Raidak rivers very often cut away their banks and change their courses, forming islands and sandbanks in their channels. The beds of the rivers are sandy in the plains ;[2] towards the hills they are first pebbly, then stony and lastly full of boulders.[3]

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1 Mitra, A., District Census Handbook, Jalpaiguri ; P. IX-X.

2 Please, refer to the Foot Note at page 17.

3 Hunter, W.W., Statistical Account of Bengal, Vol. X ; P. 235.

The North Bengal Flood Control Commission observes that the principal problem created by the rivers are inundation, erosion and avulsion through adjacent valleys owing to heavy silting of the river-beds, caused by the land slides in the Himalayas during the monsoon. It is a tremendous job to tame the rivers.[1]

## 1.7 Importance of the Study

The present study appears to be important because of the following reasons :

(i) Bhattacharya, S. N. in his thesis has pointed out that sufficient discussions on various problems of rural North Bengal have not been undertaken and he has suggested that adequate attention should be given at the earliest opportunity to undertake intense studies on the various problems of rural North Bengal;[2]

(ii) from the background information about Jalpaiguri district and other information relating to North Bengal supplied in the study including the appendices, it may appear

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[1] Developmental Activities of the District of Jalpaiguri — Office of the Deputy Commissioner, Jalpaiguri, Chapter on Flood Control and Irrigation.

[2] Bhattacharya, S. N., Op cit, Preface (i) to (xv).

that economically Jalpaiguri district[1] — North Bengal, is typically a backward region in the State of West Bengal. Bhattacharya, S.N. has observed that one of the reasons for backwardness of this region is the lack of adequate number of innovative minded farm-families who can undertake modern improved farming on a wider scale profitably and meaningfully ;[2] and

(iii) it may be argued that in order to have an accelerated rate of growth in the vast countryside of North Bengal, it is perhaps, desirable to have a faster rate of growth in the farm sector which in its turn inter alia, may demand for the presence and the extension of the scope and change of the nature of 'agricultural enterprise' in the overall context of rapid rural development. Hence, the need and importance of intensive studies of 'agricultural enterprise' may be considered quite significant.

What may probably be emphasized is that such a knowledge, if linked with a rational blue print for the economic development of this region, may contribute to the growth process to an appreciable extent.

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1 "The Planning Committee noted the extreme backwardness of the District contrary to the opinions held in some important quarters. The isolation of the tea and forest areas from the general economy of the life of the District is the cause of this backwardness as well as the reasons for the distortion of the opinion about this backwardness." — Fifth Five Year Plan, Draft outline, District Planning Committee, Jalpaiguri, P. 5.

2 Bhattacharya, S.N., Op cit, Preface (i) to (xv).

## 1.8 Scope of the Study

The findings of this thesis pertain to fourteen sample villages of Jalpaiguri district only and to that extent, it may appear to be limited in its scope. The villages, however, as stated earlier ( vide, section 1.5 ) are properly drawn sample of the entire district.

The period of study relates to 1973 - 1975.

## 1.9 Limitations of the Thesis

The present thesis, however, appears to suffer from the following limitations ( In subsequent chapters, where necessary, some other limitations experienced in the completion of the present project, have also been pointed out and for obvious reasons, the same have not been repeated here ) :

(i) the period of study is short, which is limited to 1973 - '75 only ;

(ii) it might have been better should more villages and farm-families of other districts of North Bengal could be accommodated in the sample and an extensive study on the basis of a comparative analysis could be made which per chance, could give out more meaningful information and comprehensive conclusion. It was however, felt that depth of the thesis might have to be sacrificed on account of extensive nature of such a study, if undertaken by an individual researcher faced with so many inhibiting factors mentioned earlier ; and

(iii) adequate requisite information ( for details, please see, section 1.3 of this chapter ) were not, however, always available.