

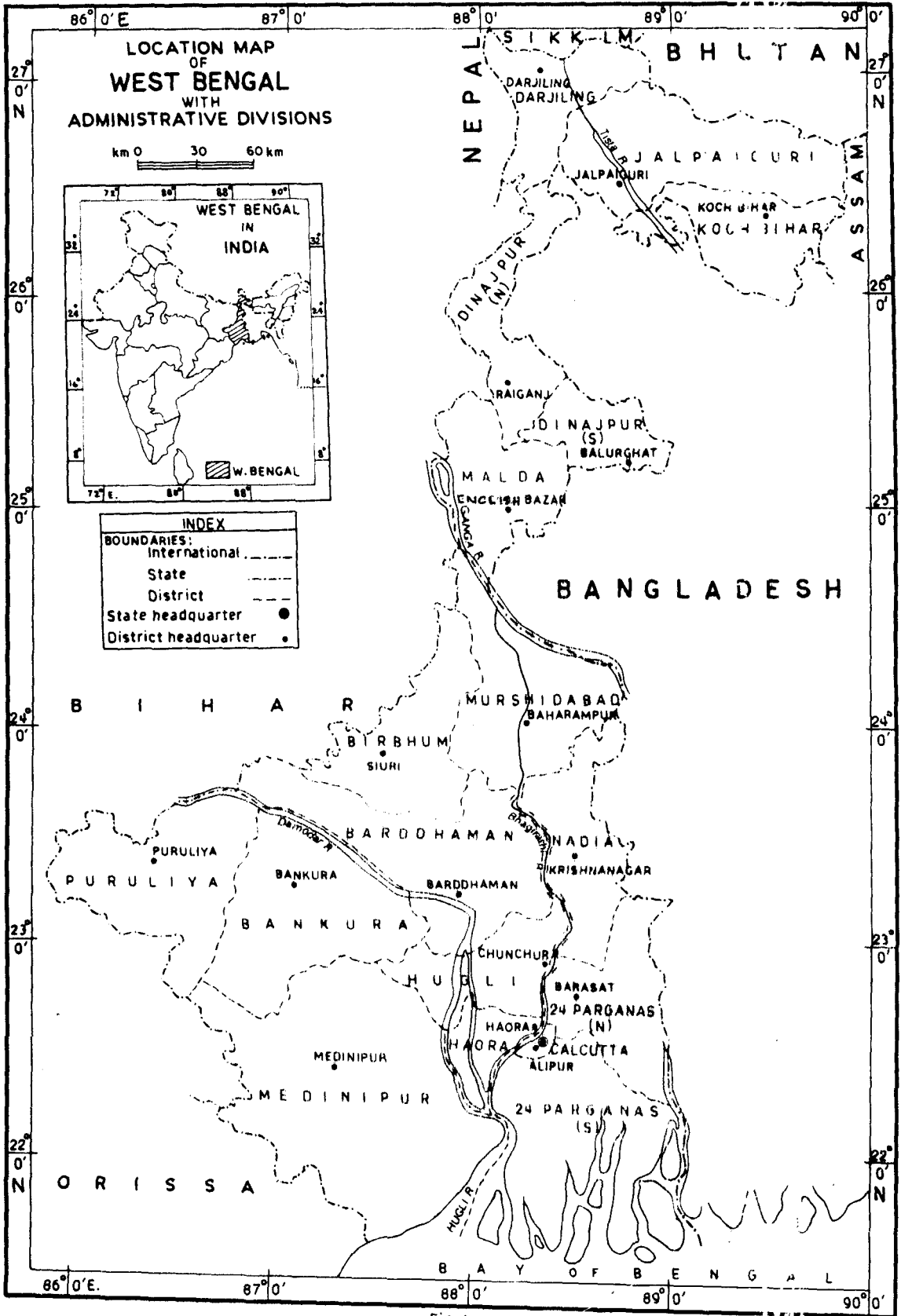
INTRODUCTION

THE STUDY AREA :

West Bengal, the State under study is situated between the geo-co-ordinates of 21°25'24"N and 27°15'15"N latitude and longitudes of 85°49'20"E and 89°53'04"E (Fig.1). This is one of the outlying States of India and covers an area of 87,616,77 ha (1991 Census) which is about three per cent of the total land surface of India(Chowdhury). West Bengal is bounded on the north by Sikkim and Bhutan, on the east by Assam and Bangladesh, on the west by Orissa and on the south by the Bay of Bengal. The State, consists of 17 districts grouped into three Administrative Divisions (Fig.1). The percentage of area under horticulture in each district are shown in table 1

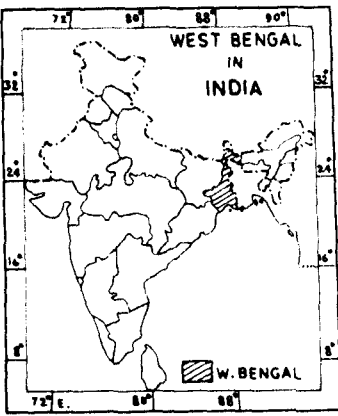
Table-1
Area and the % of horticultural area to total, in different districts of West Bengal.

Administrative Division	District	Area in km ²	% of horticultural area to the total geographical area.
I. Bardhaman Division	1. Bankura	6,871,24	7.84
	2. Birbhum	4,550,61	5.20
	3. Bardhaman	7,034,41	8.02
	4. Hugli	3,149,43	3.60
	5. Medinipur	13,618,17	15.54
	6. Puruliya	6,354,83	7.15
II. Jalpaiguri Division	7. Darjiling	3,004,39	3.45
	8. Jalpaiguri	6,234,11	7.11
	9. Kochbihar	3,338,50	3.80
	10. Dinajpur (Uttar & Dakshin)	5,314,66	6.06
	11. Malda	3,719,22	4.24
III. Presidency Division	12. Murshidabad	5,325,02	6.07
	13. Nadia	3,921,24	4.47
	14. Haora	1,489,24	1.70
	15. 24-Parganas		
	16. Calcutta		
Total:		87,616,77	100.00



LOCATION MAP
OF
WEST BENGAL
WITH
ADMINISTRATIVE DIVISIONS

km 0 30 60 km



INDEX	
BOUNDARIES:	
International	---
State	---
District	---
State headquarter	●
District headquarter	•

Fig.1

Almost the entire area of the State, except the Himalayan fringe in Darjiling district and the non-alluvial margins of the peninsular part in the west, provides the rich fertile agricultural land. The climate is congenial and rainfall is quite sufficient for the most part. A great variety of crops is grown in the State. This includes 'kharif' and 'rabi' with their varieties, consisting both food and cash crops in the State.

West Bengal being one of the outlying States of India, is constantly facing problems since independence. The State had to face an awful situation when the siphoning of excess population due to migration from Bangladesh and other neighbouring States occurred. A glimpse of the bordering districts expose the rates of migration in Kochbihar as 38.47%, Dinajpur 39.46%, Maldah 32.13%, Murshidabad 28.48%, Nadia 29.98%, 24-Parganas 36.33% and Jalpaiguri 28.90%. Political instability effects resource stability. The overall strain on economy and life paid heavily on the exploitation of natural resources. West Bengal had to make a progressive expansion of the agricultural area to meet the deficit. Apart from rice and jute (which affected most), care and attention are being paid in the production of various food crops, cash crops, fruits and vegetables in the rich soils of the State. (Bose, N.K. 1947).

As a source of food supply from land, fruits and vegetables can cope with cereals. The maximum yield of paddy recorded so far as to about 13,000 kg/ha while a comparable for fruits like banana and pine-apple are 22,000 kg/ha and 45,000 kg/ha respectively. Vegetables yield roughly three to four times than the food obtained from cereals crops in a unit area.

The present estimated production of fruits is 8.3 lakh m. tons only from 0.93 lakh ha of land which is enough to cater a little over 28.4 gm per head per day against the requirement of 56.7 gm. as recommended by the Indian Council of Medical Research (ICMR). Production of vegetables is also about half the recommended requirement of 280 gms., per head

per day. So, growing of fruits and vegetables of high yield potentiality in different agro-climatic conditions of West Bengal is now being paid attention by the State Department of Horticulture.

OBJECTIVES :

The purpose of the present study is to analyse :-

- (1) Scope and possibilities of horticulture in different districts of West Bengal;
- (2) A detailed and analytical study of the informations available on the important horticultural crops, and
- (3) Horticultural developments of the State as a whole with their problems and prospects.

To meet the increasing requirements (as mentioned earlier), horticulture of the State will have to achieve a tremendous target and hence the subject attracts for an analytical study.

With a view to the following objectives, present study of Horticulture of West Bengal - a geographical analysis has been attempted.

1. To identify the physical factors as the guiding force of horticulture of the State ;
2. to assess the scope and provision of fruit culture ;
3. to assess the production of vegetables ;
4. to study the floriculture in West Bengal ;
5. to analyse the economics of horticulture ;
6. to identify the major problems in horticulture ;
7. to review the horticulture in the State ;
8. to suggests some developmental plan to improve production.

METHODOLOGY :

It is essential to have the basic data and maps for infrastructural planning and an information system to monitor the programme. For this purpose, both hard and soft or quantitative and qualitative data are required. Qualitative data specifies the features and conditions of the study area describing geographical, historical, politico-economical problems which effect potentials and limitations. These informations have been collected from books, periodicals, journals, practical experiences, general knowledge, outlook of the local people, officials and non officials. Quantitative data are the results of compilation and processing of the collected informations from various sources, official and unofficials. Two main sources are used for obtaining required data, i.e., primary sources such as local people leaders, officials and non officials etc. and secondary sources are District Census Handbook, Agricultural Census, Govt. and other institutional records, Reference books, periodicals, journals, maps and Atlases. Data had been collected from different districts by visiting the area and field work. Different maps and diagrams had been drawn to present the data and information. Different questionnaires had been prepared for spot survey and personal interview. The data and informations were compiled and these were analysed for arriving at the result.

SCOPE OF THE STUDY :

Horticultural development dealing with small and marginal farmers, drought-prone districts and rural employments need to make long term decision on infrastructural investments so that sectoral and short term investments are in consequence with the long term and inter sectoral perspective plans. Planning is a technical process which has to review the social and economic development of the past and to take stock of the present resources and make decisions for the future.

HISTORICAL BACKGROUND OF HORTICULTURE IN INDIA :

A brief historical account of horticulture in India will reveal the glorious past. The word horticulture is derived from the Latin word "Hortus" meaning garden and "Colere" to cultivate. The English word "Horticulture" first found in 1678 in Edward Phillips "The New World of English words". Horticulture is the science and art of growing fruits, flowers, ornamental plants and vegetables. The concept of garden culture as a distinct field culture dates back to medieval periods. Modern agriculture has maintained the traditional divisions.

The field of horticulture is traditionally divided into food crops (Pomology and Olericulture), ornamentals (Floriculture and Arboriculture). Pomology deals with fruits and nut crops whereas olericulture is related to the production of herbaceous plants including edible root (carrot), edible stem (asparagus), edible leaf (Lettuce), edible flowers (Cauliflower), edible fruits (Tomato) and edible seed (Pea).

Floriculture deals with the production of flowers and ornamental plants, generally cut-flowers, potted plants and greenery. Arboriculture is a broad category including plants for the landscape beautification.

Horticultural crops have undergone extensive modification by continuous experiments to improve them from their wild proto types. Cultural technology regarding seeding, harvesting and storing was also transferred with the crops.

The existence of this science in India can be traced to the Rigvedic times. The valuable source of agricultural information of the post-vedic period is "Arthashastra" by

Kautilya (Gupta period). Kautilya classified land as "Krasta" (cultivated), "Akrasta" (uncultivated), "Sthala" (high and dry ground), "Kedara" (field sown with crops), "Arama" (groved), Sanda (horticultural plantations) "Mulavapa" (field with growing roots), "Vata" (sugarcane plantations), Vana (Forest), "Vivita" (Pastura land) and "Pathi" (Roads). "Arthashastra" denoted land where foam strikes is "Phenaghata (the bank) is situated is irrigated cultivation including flower gardens, fruits orchards, vegetables and wet crops. Encyclopaedia like "Amarkosa" and "Brhatsamhita" have sections like Krishi Parasara, where soil classification and manuring are described. These sections also deal with collections and selections of seeds, germination, grafting, cuttings, sowing, planting nursing, manuring, meteorological conditions favourable for plant growth etc.

Botany of the medieval period showed influence of Arabic and Persian influence in trade and commerce along with the countries of Far-West. Mughal emperor, Babar (1526 - 30 A.D.), in his memories mentioned some flowers and fruits in India which were new to him. In addition to Mango (*Mangifera Indica* L). Amir Khusru mentioned different kinds of grapes (*Vitis Vinifera*. L.), dates (*phoenia* Spp.), Pomegranate (*Punia granatum*. L.), Plantains (*Musa Paradisiaca* L.), Lemons (*Citrus* Spp) Jaman (*Syzygium ceemini*. L.), Jackfruit (*Artocarpus heterophyllus*. L.) and many others. Ferozshah-Tughluk carried out extensive operations to establish fruit gardens. According to his chroniel Feroz-Shah laid 1,200 gardens in Delhi and 43 in Chitor. Considerable improvement had been brought in Akbar's regime by introducing new stock from Central Asia and Afganistan. Shah Jahan lifted this box for both the select and masses. (History of Sciences in India)

Establishment of the "Royal Botanical Garden" in 1787 at Shibpur in the west bank of the river Hugli in West Bengal

practically started horticulture in West Bengal as well as in India. The four fold purposes of the garden were : (1) conferring economic benefit to the region, (2) increasing their resources in food and raw materials, (3) importing new type of plants of economic importance from other countries and acclimatizing them here and (4) extending the interest in this science of horticulture and Botany. Mr. Robert Kid, the first honorary Superintendent of the garden introduced 300 species which had evidently the first of its type at that time. Being a proud heir to this rich heritage, West Bengal shows a great scope for horticulture. Present study is a geographical analysis of West Bengal's horticulture today with problems and prospects.

DESIGN OF THE THESIS :

The thesis contains, in all, nine chapters. It is a complete picture of horticulture in West Bengal. With the help of the manual maps, charts, tables from the real data the following chapters are formulated.

The first chapter reflects the geophysical status of West Bengal which shows high potentialities for growing horticultural crops in one section and cultural conditions and practices on the other. The Second Chapter deals with the detailed study of the major commercial fruits with their distribution and cultural practices. The Third chapter is the study of vegetable cultivation and their distribution in different districts of West Bengal. The Fourth chapter deals with different aspects of floriculture in West Bengal as well as its gorgeous history in India.

The Fifth chapter focusses on the economics of horticulture from the field of production to the consumers and through typical marketing system in one hand and the economic conditions of different horticultural crops with

their yield rate and average price index. Chapter six discusses major problems in horticulture with particular reference to the zonal problems in West Bengal. Chapter seven outlines the review of horticultural planning and development formulated for horticulture in the State on different crops and in different horticultural farms in the districts of West Bengal as well as financial allocations in different districts either from lead Banks or from State's Agriculture Finance.

Finally, the Eighth chapter of the thesis deals with future prospects in horticulture and the proposals for further improvements based on the findings of the entire research work. The ninth chapter deals with conclusion and suggestions.

LIMITATIONS :

To monitor this programme it is essential to have the basic data and maps for this kind of infrastructure planning and information systems. Extensive field work had been carried out in the districts of important producing areas of fruits, flowers and vegetables to get the actual position of horticulture in the State. The State Department of Horticulture, Agriculture marketing provide facts and data while bankable projection data on loan assignment in horticulture had been found from the Lead Bank Survey Report of the districts of West Bengal. All these data has been analysed and processed to complete the study with relevent tables and maps. There are limitations in collecting data and information due to various factors like non-availability of ready data, maps and informations. These have been complemented with field data and information to some extent.

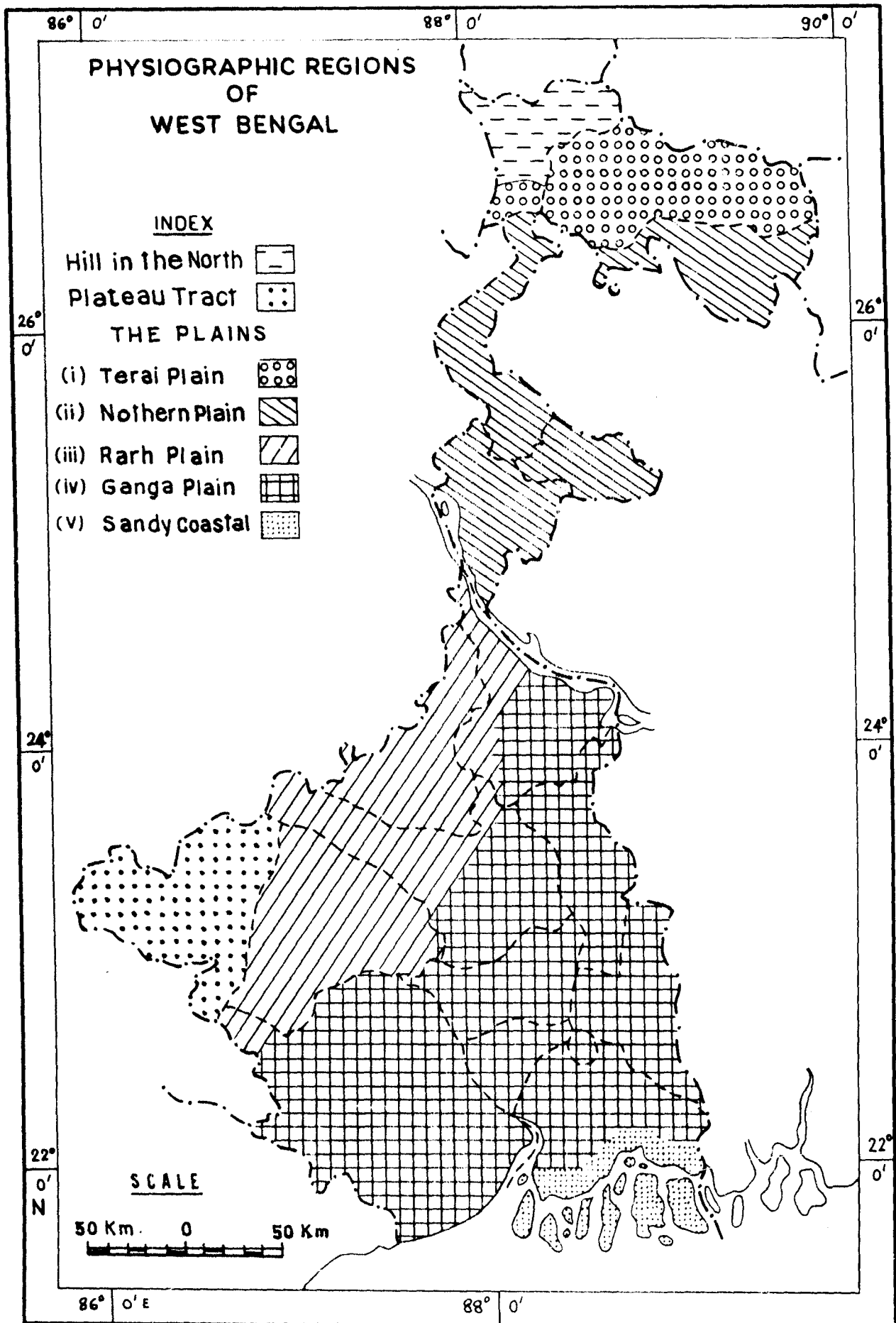


Fig. 1.1