CHAPTER 4

The Study Area

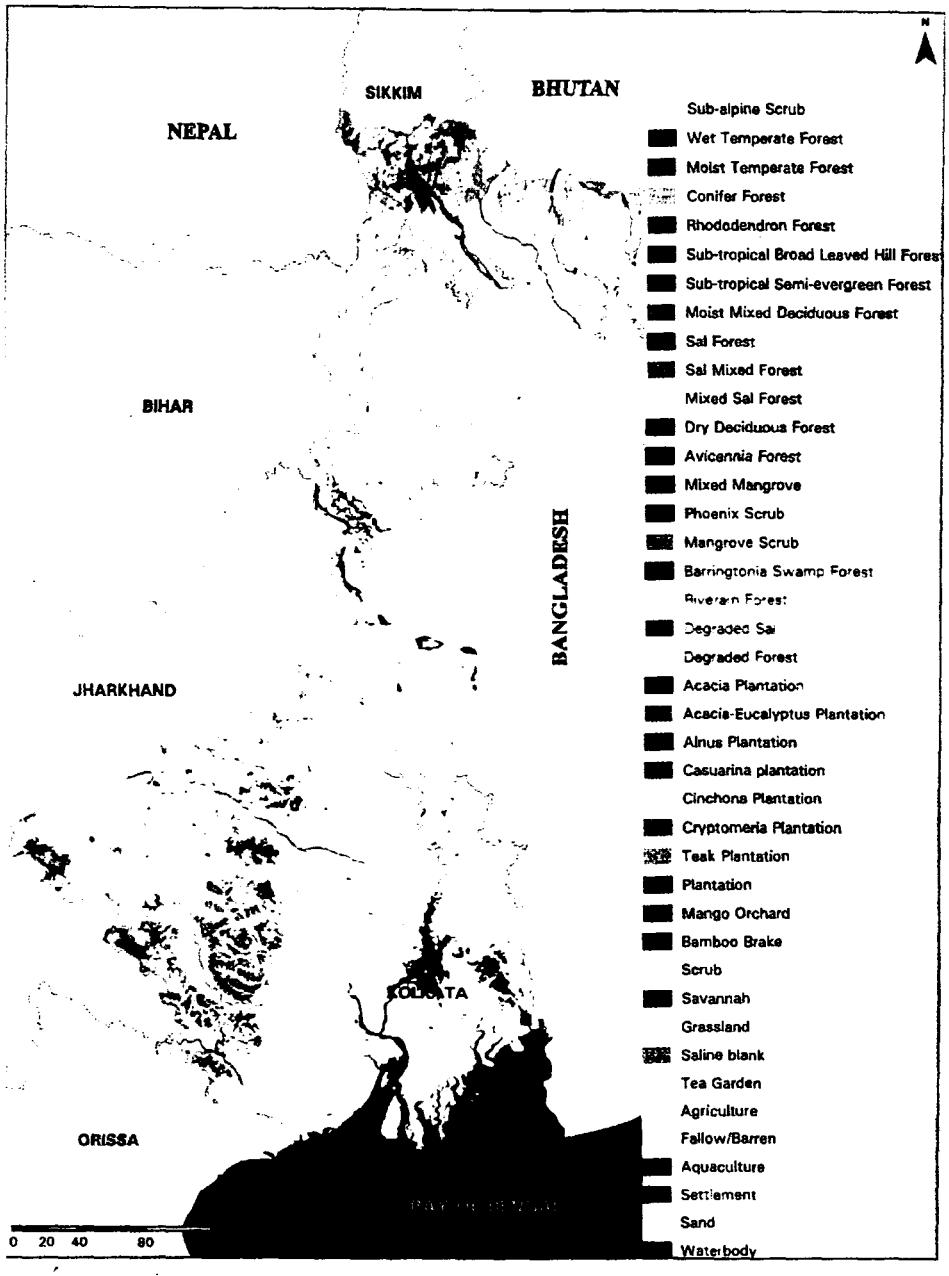
4.1 Introduction

The present dissertation is based on the studies on weeds of Tea Gardens in Terai and on the Hills of Darjiling. This entire region is located within 26° 31′ 05" and 27° 13′ 10"N latitude and between 87° 59′ 30" and 88° 53′ E longitude and is covering an altitudinal range of c. 132 m (at Siliguri) to 3660 m (at Phalut). Before the establishment of Tea Gardens, the entire area was covered with forests (Bhujel 1996). So, today's Tea Gardens have replaced the region's basic floristically rich vegetation (Fig. 4.1). In fact, entire Terai, Duars and upto 2100 m altitude of Darjiling Hills are supporting a very large number of Tea Gardens. While the gardens on hills generally cultivate China variety plants [*Camellia sinensis* var. *sinensis*], the gardens in Terai and Duars grow Assam variety [*Camellia sinensis* var. *assamica*] plants.

Chinese variety plants prefer cooler climate and produce best quality of tea. These plants are comparatively smaller and generally form lower and smaller bushes. On the other hand, Assam variety plants are stouter, stronger and fast growing and produce much higher amount of tea.

The structures of plantations of these two varieties of plants are visually different. That is mainly due to the landscape structure. However, for a trained eye the difference is quite widely recognizable. Chinese variety plants are grown in close space and are generally not in strait lines. There is no need of a well defined drainage system inside the plantations as the excess water will easily move downward following the hill slopes.

4.1. Map of West Bengal showing vegetation types.



Vegetation/Land Cover in West Bengal

On the other hand, Assam variety plants are grown in the plains. Here, saplings are planted more spaced and in definite rows. At the same time, development of proper drainage system within the plantations is a must.

4.2 Selection of Area

Basically, the work was designed to do within the boundary of the District of Darjiling. Tea Gardens of Duars are rarely located within this district [Fig. 4.2]. So, during the selection of

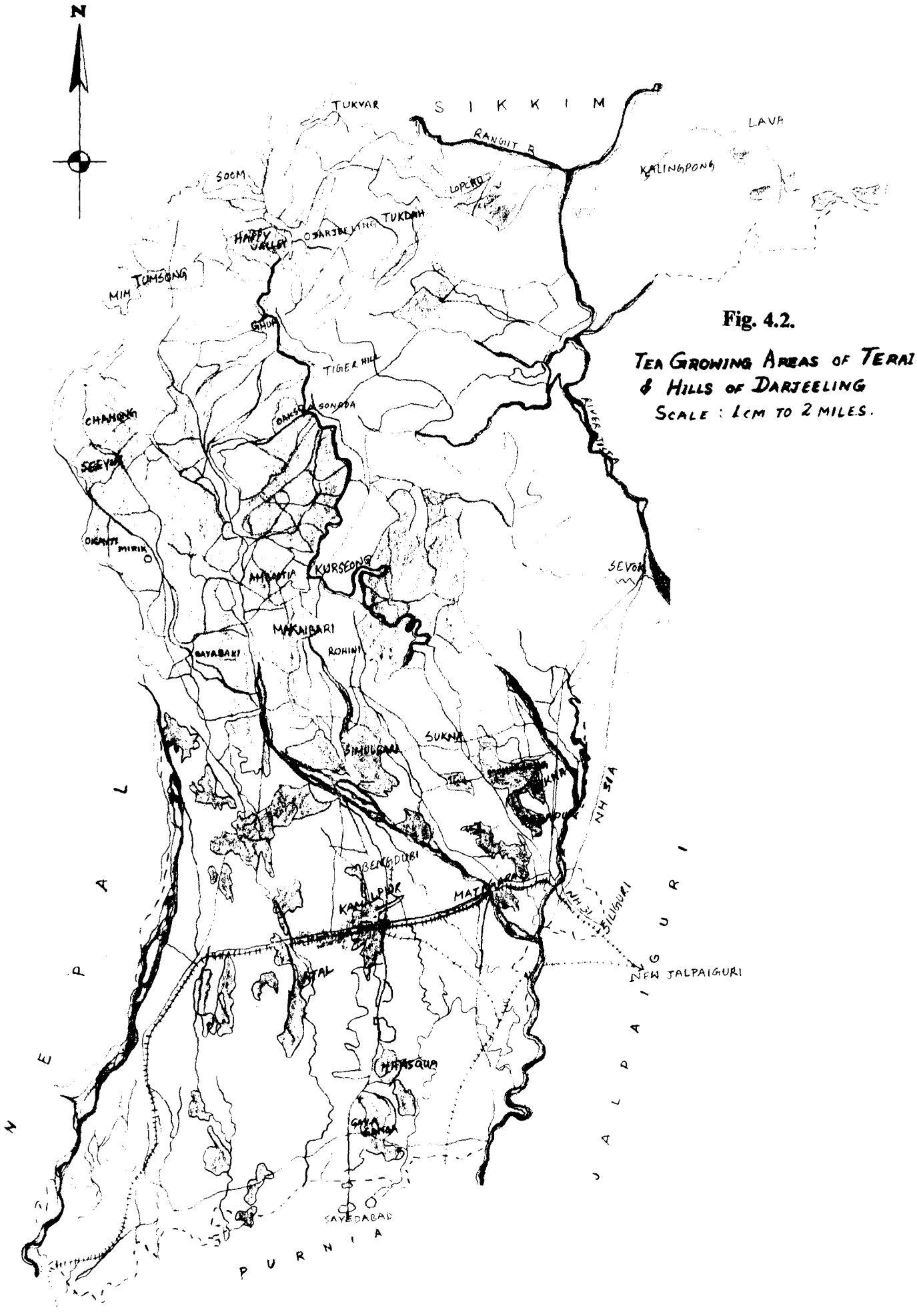


Fig. 4.2.

TEA GROWING AREAS OF TERAI & HILLS OF DARJEELING
SCALE : 1CM TO 2 MILES.

Gardens Tea Gardens from Duars were not considered. Accordingly, all the selected Tea Gardens are located within the District of Darjiling and are either in Terai or on the hills. And, we know, there are at least 102 Tea Estates located within this district. This entire range, plains of Terai to the highest altitude where Tea is under cultivation in Darjiling, the habitat is suitable for the growth of weeds and, in fact, the back ground natural vegetation in the entire area is floristically very rich. The difference is that, due to the prevalence of tropical climate in Terai, the weeds species are supposed to be warm-weather plants and in hills the may be subtropical and/or temperate weather loving plants. And, in the transition zone, the weed flora is expected to change gradually, along with the increase of altitude, from a purely tropical to a purely temperate type.

4.3 Gardens from Terai

From Terai FOUR Tea Gardens has been selected for the study. Those are:

1. **Mohurgong & Gulma Tea Estate:** The average altitude of the Tea Estate is ±154 m amsl and the central location of the garden is 26° 47.203' N Latitude & 88° 22.866' E Longitude. The place is very near to Sukna where from the outermost hills of the Darjiling Himalaya starts rising and the topography of the garden is quite undulating. The area of the garden is 1120.08 Ha. [Fig. . 4.3].
2. **Hansqua Tea Estate:** The average altitude of the Tea Estate is ±125 m amsl and the central location of the garden is 26° 37.784' N Latitude & 88° 19.068' E Longitude. Out of the four selected gardens this is located furthest from the Hills and the topography is nearly flat and gradually sloping towards the south. The area of the garden is 604.92 Ha. [Fig. 4.4].

3. **Kamalpur Tea Estate:** The average altitude of the Tea Estate is ±154 m amsl and the central location of the garden is 26° 42.341' N Latitude & 88° 18.428' E Longitude. This garden is also located completely on the plains and is slowly sloping towards the south. The area of the garden is 92 Ha. [Fig. 4.5].

4. **Matigara Tea Estate:** The average altitude of the Tea Estate is ±130 m amsl and the central location of the garden is 26° 42' 500" N Latitude & 88° 22' 142" E Longitude. This garden is only about 10 km away from the foot of the hills and is located completely on the plains and is slowly sloping towards the south. This is the nearest Tea

Garden of the University and, in fact, a part of the garden is situated within the University campus. The area of the garden is 215.16 Ha. [Fig. 4.6].

The environment, topography and soil structure of these gardens are nearly similar. And all four of these gardens are planted with Assam variety of Tea. But, the **Mohurgong & Gulma Tea Estate** is expected to have good influence of hills on its weed-vegetation.

4.4 Gardens from Hills

From the hill part of Darjiling THREE Tea Gardens has been selected for the study. Those are:

1. **Makaibari Tea Estate:** The average altitude of the Tea Estate is ± 1100 m amsl and the central location of the garden is 26° 62' 59" N Latitude & 88° 16' 43" E Longitude. The place is little below the township of Kurseong, and on the Kurseong – Pankhabari Road. The hills are quite stiff at most of the places and face the plain-land of the country. The entire garden is situated on hills and the prevailing climate is of subtemperate type. The area of the garden is 570.21 Ha. [Fig. 4.7].

2. **Soom Tea Estate:** The average altitude of the Tea Estate is ±1200 m amsl and the central location of the garden is 27^0 04' 590" N Latitude & 88^0 13' 723" E Longitude. The place is well inside the hill-system on the southern bank of the river Rangit. The region is much cool and the prevailing climate is ranging between subtropical and temperate. The hills are moderately stiff and at places the slope is quite gentle. The area of the garden is 507 Ha. [Fig. 4.8].

3. **Tamsong Tea Estate:** The average altitude of the Tea Estate is ±1300 m amsl and the central location of the garden is $27^0$02.318' N Latitude & $088^0$09.992' E Longitude. The place is well inside the temperate hills and the lowest altitude is around 1000 m. The upper reaches of the garden little above 1500 m. The prevailing environment is temperate with a chilling winter. The slope is generally moderate. The area of the garden is 280 Ha.[Fig. 4.9].

4.5 Climate of Study Area

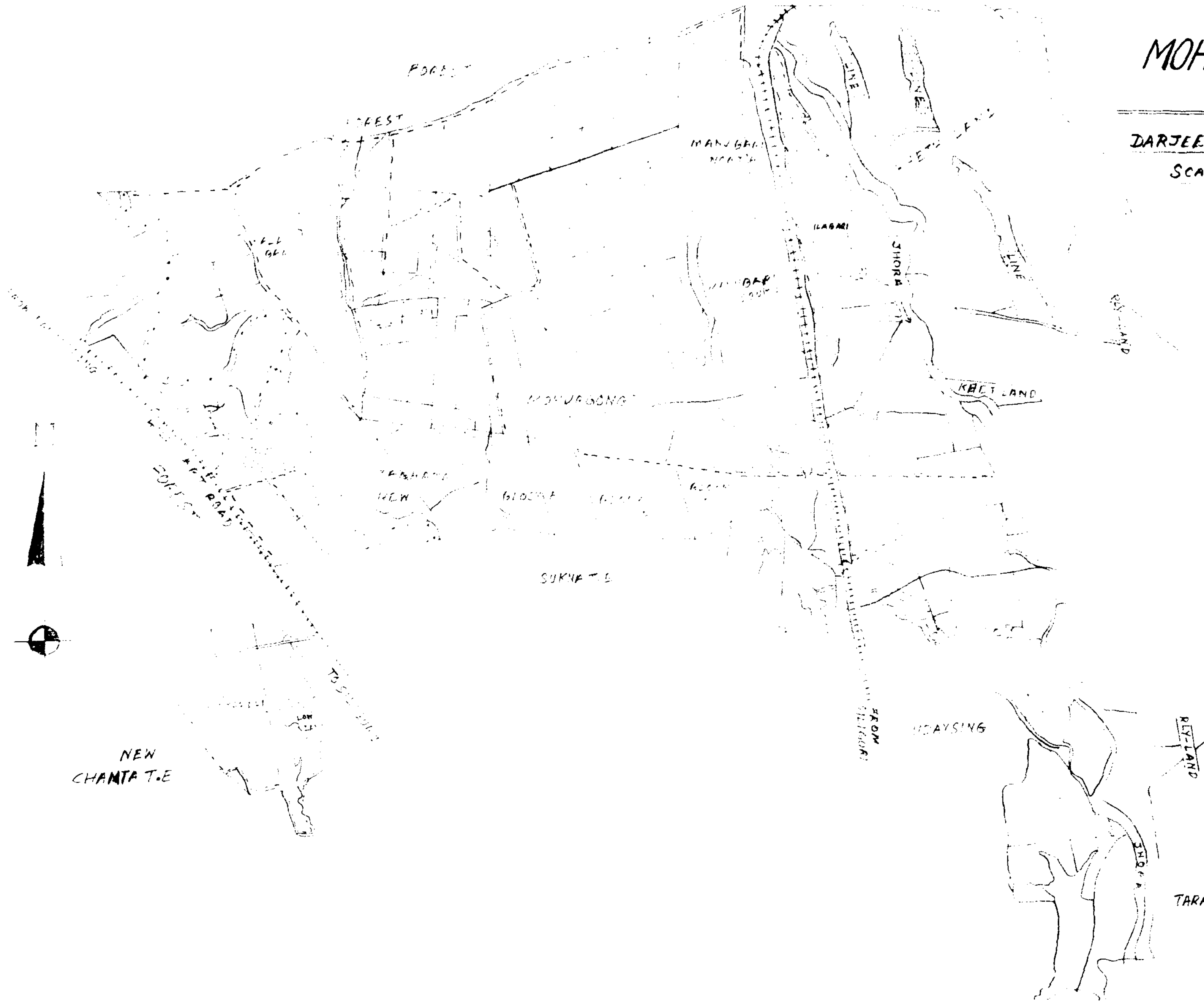
Though many Tea Gardens regularly collect and maintain the records of climatic data but all the selected gardens are not doing so. It is also true that, specially in the hills, the climatic condition

MOHURGONG & GULMA T.E.

DARJEELING, WEST BENGAL.

SCALE 4" INCHES TO 1 MILE

Fig. 4.3.




HANSQUA TEA GARDEN
P.O. Bagdogra Dist Darjeeling
Scale:- 4" = 1 Mile
3 Ext
Factory
19 Ext
M.E.S. Qtrs
River

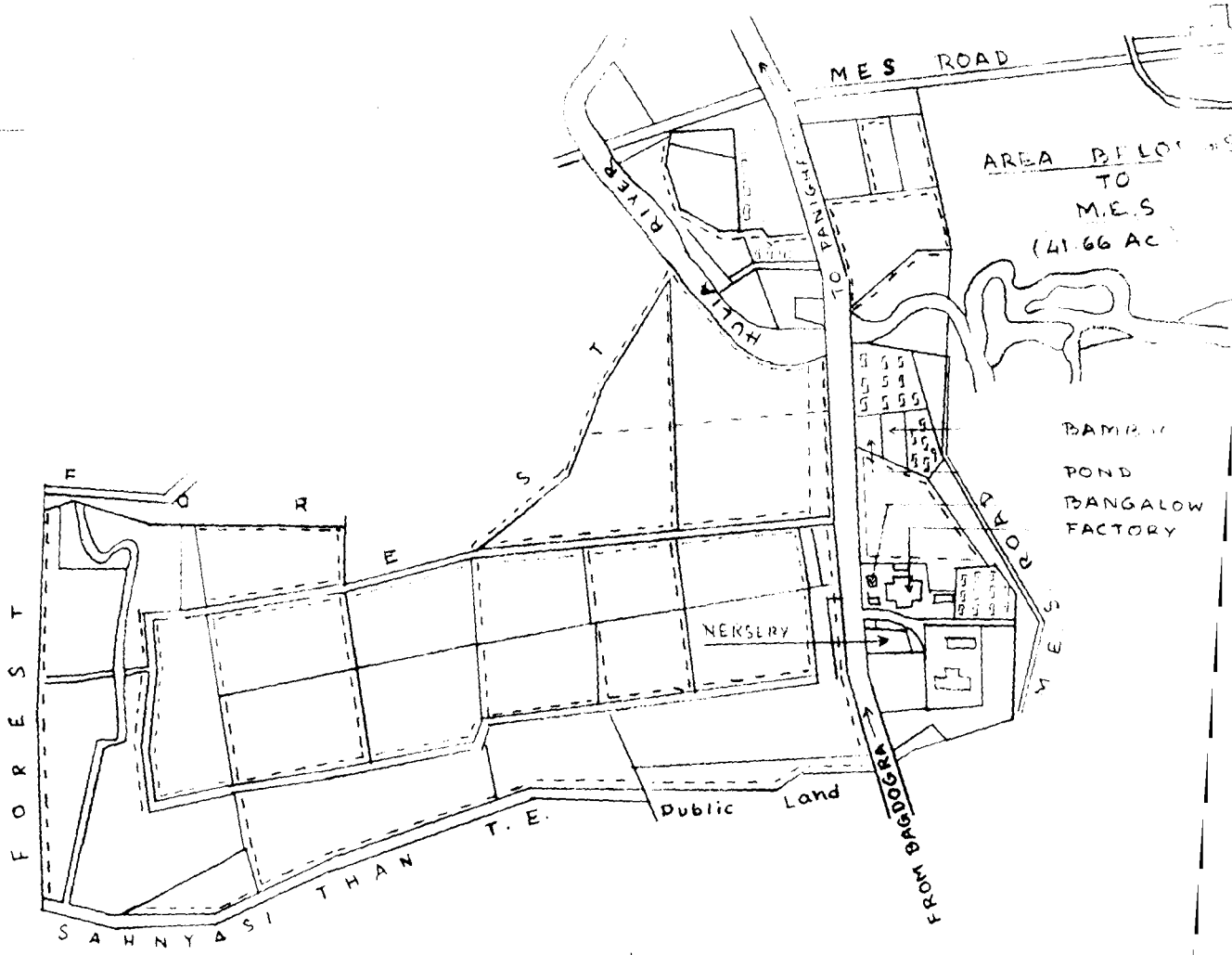
Fig. 4.4.

KAMALPUR TEA ESTATE

P.O Baydogra, Dist Darjeeling

(Scale:-8"= 1 Mile)

Fig. 4.5.



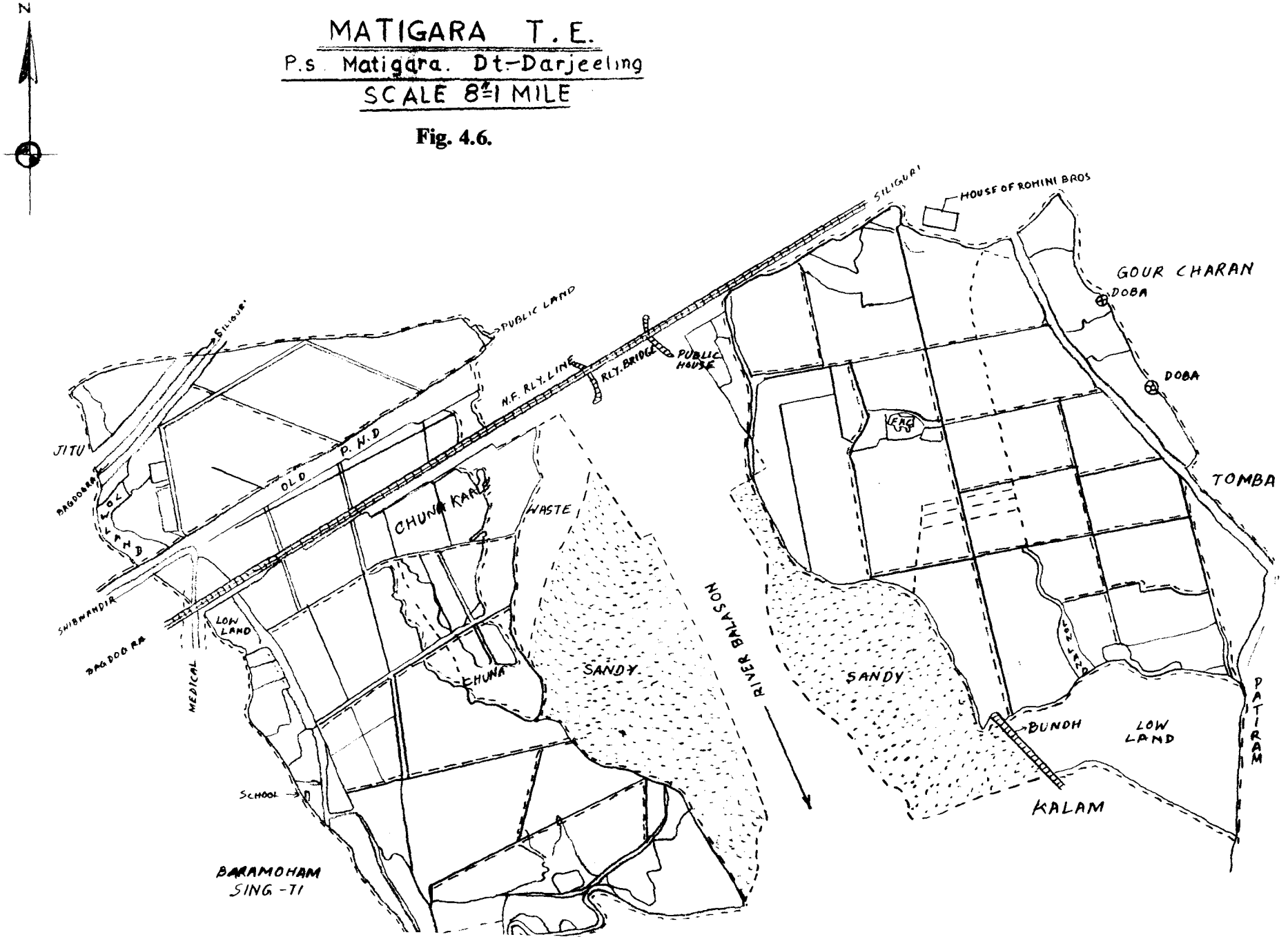

N
MATIGARA T. E.
P.s Matigara. Dt-Darjeeling
SCALE 8"=1 MILE
SILIGURI
HOUSE OF ROMINI BROS
GOUR CHARAN
DOBA
DOBA
TOMBA
PUBLIC LAND
N.F. RLY. LINE
RLY. BRIDGE
PUBLIC HOUSE
JITU
BAGDOGRA
WOL
LAND
OLD
P. W. D
CHUNA KARI
WASTE
SHIBMANDIR
BAGDOGRA
LOW LAND
MEDICAL
CHUNA
SANDY
RIVER BALASON
SANDY
LOW LAND
BUNDH
PATIRAM
SCHOOL
BARAMOHAM
SING-TI
KALAM

Fig. 4.6.

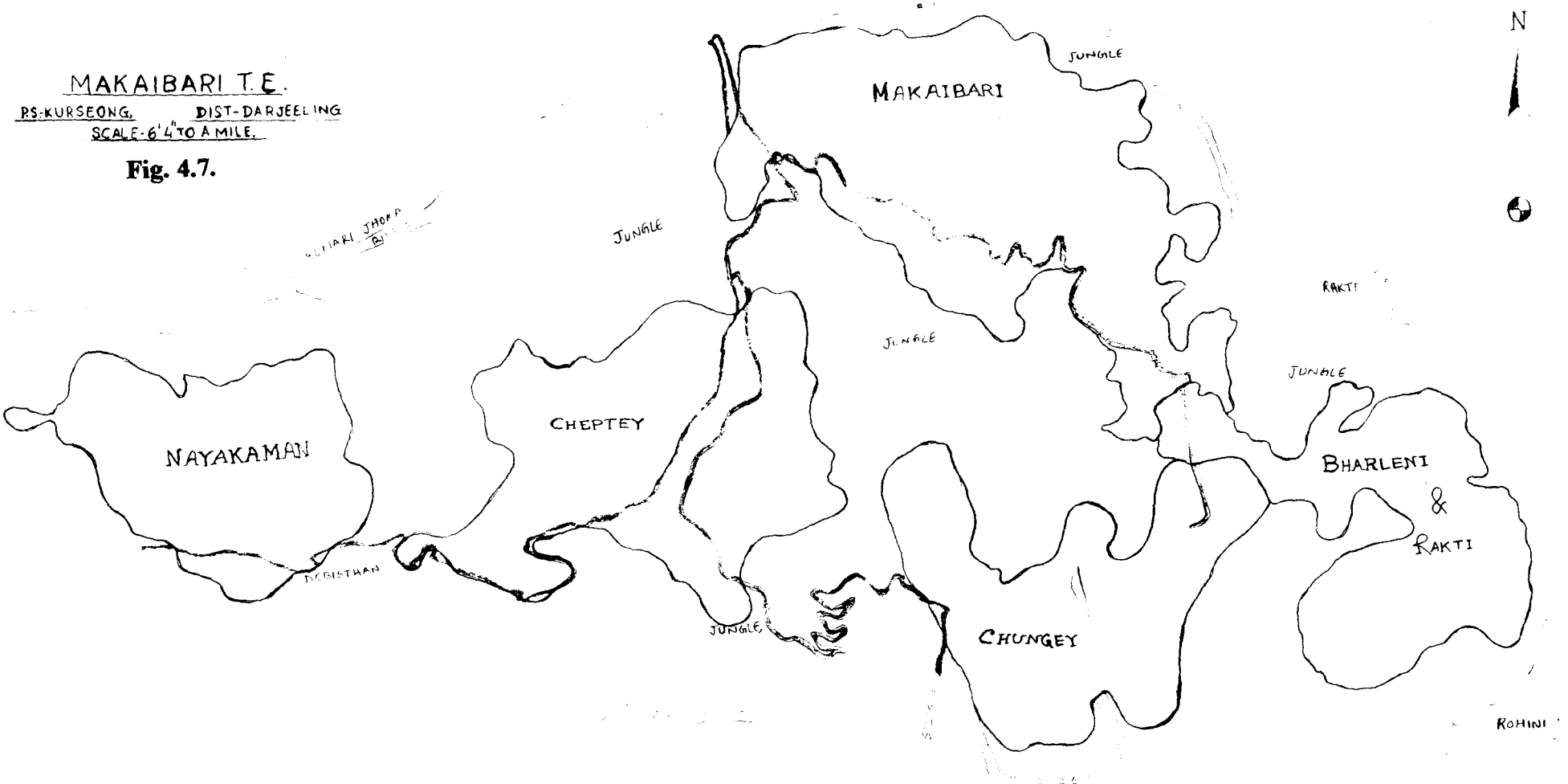

MAKAIBARI T.E.
PS-KURSEONG, DIST-DARJEELING
SCALE-6'4" TO A MILE.
MAKAIBARI
JUNGLE
JUNGLE
JUNGLE
JUNGLE
JUNGLE
RAKTI
NAYAKAMAN
CHEPTEY
BHARLENI
&
RAKTI
CHUNGEY
ROHINI
N

Fig. 4.7.


SOOM TEA ESTATE
P.S. DARJEELING DT. DARJEELING
SCALE-8"=1 MILE
N
RIVER
FOREST
SEED BARI
KAIJALAY
J.B. NEW
K.B. OLD
A.B. DARA
L.&C. DARA
T.B.R.
KATARAY OLD
ORANGE
P.B. TOP
P.B. LOWER
D.B. NEW
D.B. OLD
TEAST LINE
DAISY
KHOLA
CHONG TONG T.E.
FOREST
TAKVAR T.E.

Fig. 4.8.

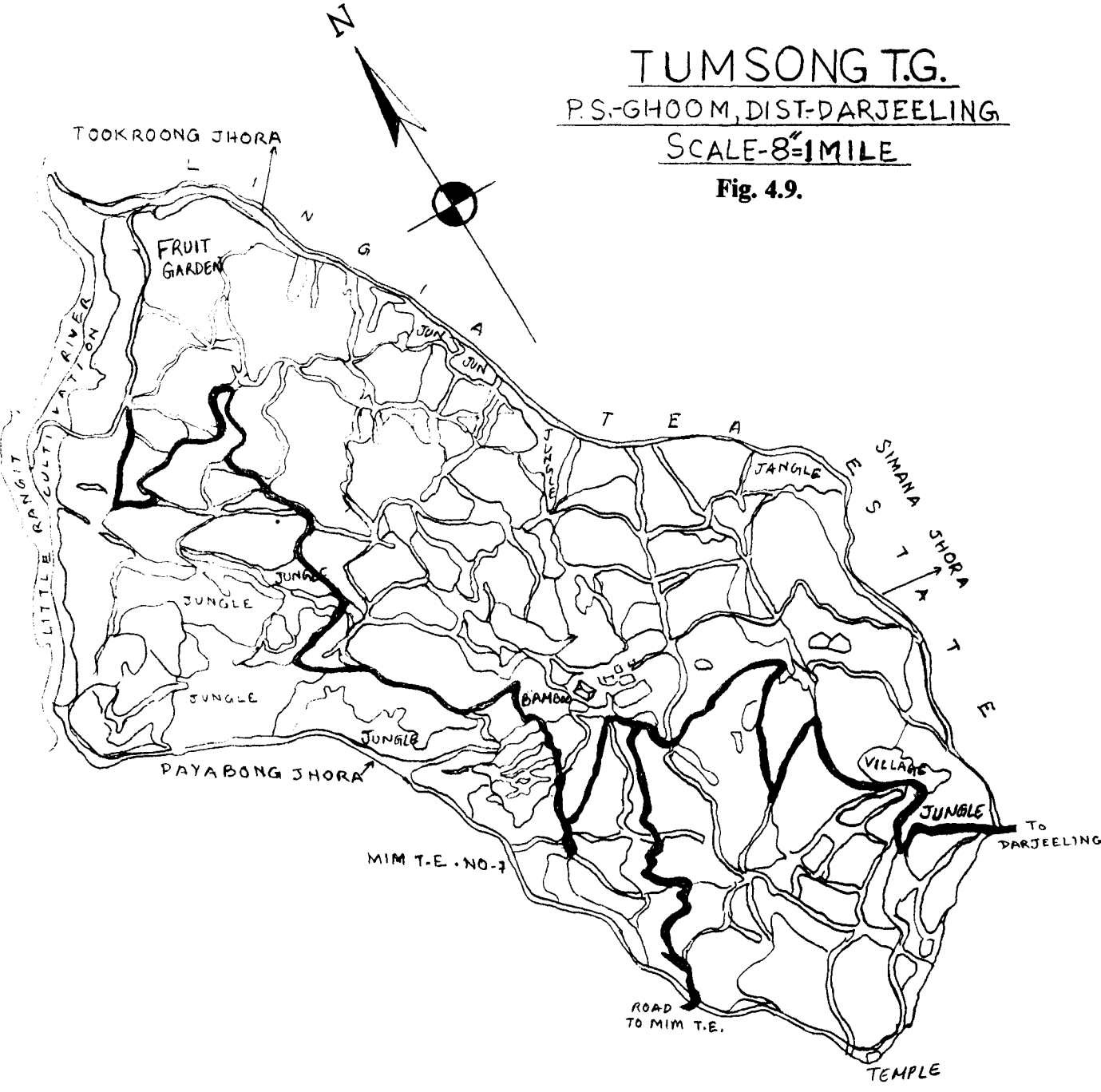
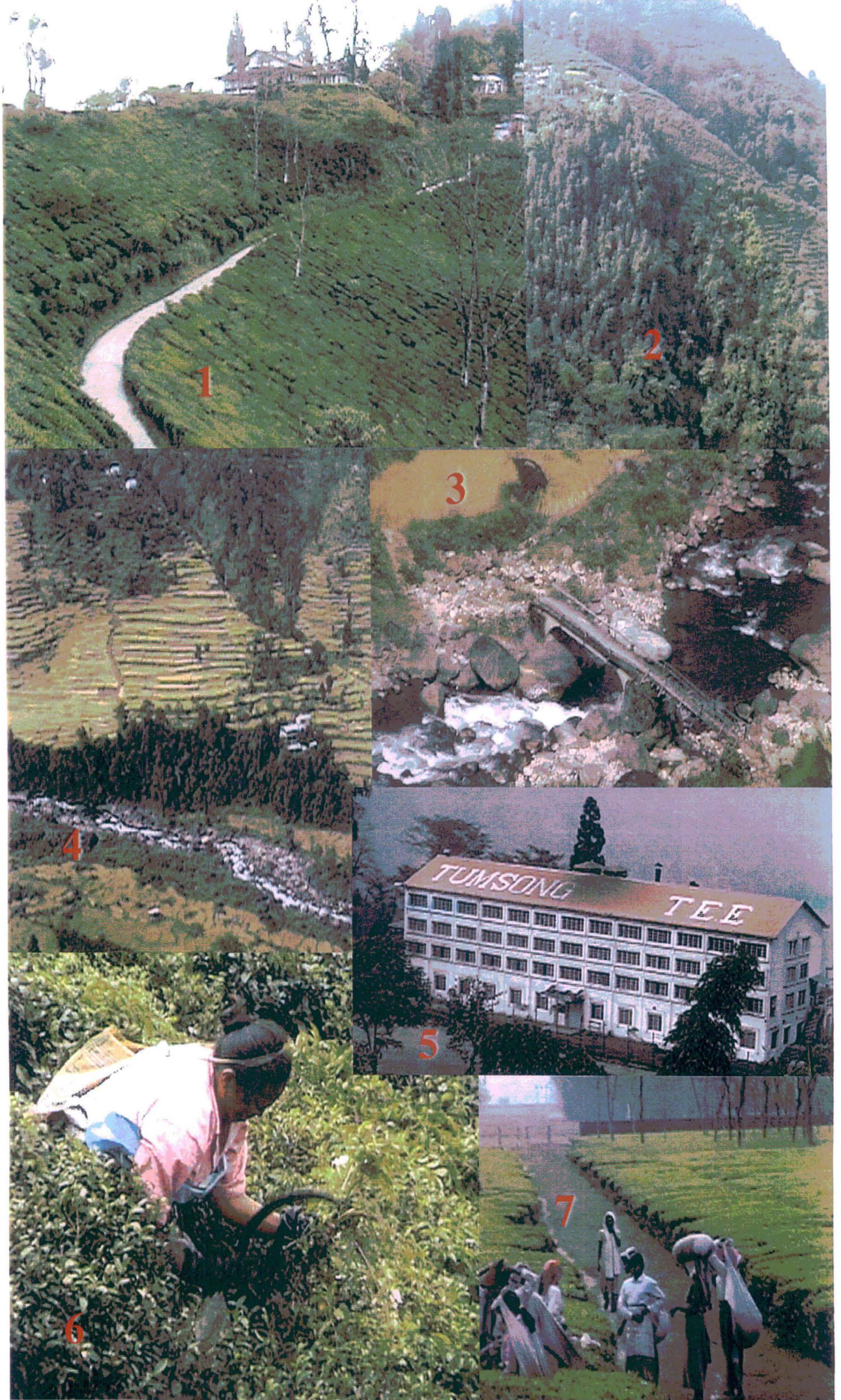

TUMSONG T.G.
P.S.-GHOOM, DIST-DARJEELING
SCALE-8"=1MILE
N
TOOKROONG JHORA
FRUIT GARDEN
JUNGLE
JUNGLE
JUNGLE
JUNGLE
JUNGLE
JUNGLE
JUNGLE
JUNGLE
SIMANA JHORA
BAMBOO
VILLAGE
JUNGLE
To DARJEELING
PAYABONG JHORA
MIM T.E. NO-7
ROAD TO MIM T.E.
TEMPLE
T E A E S T A T E

Fig. 4.9.


1
2
3
4
TUMSONG TEE
5
6
7

in different localities in this area varies too much. Even the adjacent slopes do not receive same amount of precipitation. Availability of sunlight will vary greatly due to the differences in angle of exposure. Accordingly, ambient temperature and its diurnal variation and also the atmospheric humidity will be different.

Considering all these factors, climatic data for different locations in Terai and in Darjiling Hills has been provided under *General Introduction* [Chapter 1, Section 1.9]