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REPORT ON

FOREST RESOURCES OF WEST & SOUTH DISTRICTS OF SIKKIM

FOREST SURVEY OF INDIA
EASTERN ZONE
CALCUTTA
2001

Contents

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सत्यमेव जयते

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PREFACE

Forest Survey of India is happy to publish the report on Forest resources of West and South districts of Sikkim State. The Eastern Zone unit at Calcutta carried out the survey work during the field season of 1997-98. In 1976, a small forest area covering 276 sq. km. was surveyed in two separate areas in South Western part and South Central part of Sikkim, thereafter 4 districts of Sikkim were surveyed in the year 1985 to 1987 and resurveyed after a period of 10 years in 1997-98 to assess the changing situation over a decade. Emphasis is given on the methodology, data collection and its analysis.

The West district and South district geographically extends over 1166 sq. kms and 750 sq.kms respectively. Reserved forests occupy 42.25% and 34.22% of the total geographical area in West and South district respectively. The tree forest area of the two districts have been stratified into four altitudinal strata on the basis of the changes in the vegetative character with altitude.

The survey result revealed a total growing stock of 12.81 million m^3 and 4.42 million m^3 in West & South district of Sikkim respectively. The number of stems per hectare has been estimated as 222.99 and 226.50 for West and South district. Stratum wise number of stems/ha. are also available in the report.

With the enthusiastic support of the Officers and staff of the Eastern Zone the field work was carried out and the report in its present form deserves appreciation. Thanks are also due to Officers and staff of Sikkim Forest Department who have put in ceaseless efforts and extended all co-operation in bringing out the report. It is hoped that this report will be of much help to the all concerned.

(Dr. J. K. Rawat)
Director

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FOREST SURVEY OF INDIA
EASTERN ZONE
KOLKATA
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Acknowledgement

For organizing field work, guidance and support received from Shri P.K.Basnet, I.F.S., P.C.C.F. cum Secretary (Forests) Sikkim is gratefully acknowledged. This organization also expresses its gratitude and sincere thanks to Shri Manjit Singh, I.F.S., Conservator of Forests, (Working Plan) Sikkim and Conservator (Territorial) Forest Department, Sikkim and their field staff to render all possible cooperation to the field parties of our organization during the survey period without which it would not have been possible to complete the survey work in scheduled time. Sincere thanks are also conveyed to the Dy. Commissioner, West & South Sikkim.districts. The report in the present form has been possible because of team efforts of the Officers and technical staff of Eastern Zone, Forest Survey of India which is thankfully acknowledged.

(Madhawa Trivedy)
Regional Director.

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CHAPTER: I

BACKGROUND INFORMATION

1.1 INTRODUCTION:

Forest resources have been recognized since ages for their important role in maintaining ecological balance and economic security. Therefore, expansion of forest area as a resource base is most essential for environmentally viable development. On the other hand, human interaction with forest areas has its own impact on quantity and quality of the forests. Keeping this in front, a completely up-to-date knowledge of the forest cover and crop composition etc. is an essential pre-requisite. For this, Forest Survey of India, in the year 1997-98, took an endeavour to estimate the forest resources in the south and west districts of Sikkim. The previous study on forest inventory over the entire state was carried out by the organization during the period 1985-87. The basic need for upgrading old data base as well as periodic (on a period of 10 year cycle) change on the record of forest resources inevitably paved the inroad to undertake the current study.

1.2 LOCATION AND AREA:

Sikkim is a tiny mountainous state in the Eastern Himalayan region, extending approximately 114 km. from north to south and 64 km. from east to west. It is situated between 88°00'58" and 88°55'25" east longitudes and 27°04' and 28°07'48" north latitudes. The state is surrounded by vast stretches of Tibetan plateau in the north; Chumbi valley of Tibet and the kingdom of Bhutan in the east; Darjeeling district of West Bengal in the south and the kingdom of Nepal in the west. Sikkim is one of the smallest states of India and has a geographical area of 7299 sq. km. The state has four districts namely, East, West, North and South. The aim of the present study was to look into the forest resources in south and west districts of Sikkim. The geographical locations of these two districts are as follows:

South Sikkim:	Latitude	27^0 5" to 27^0 271/2" North
	Longitude	$88^0$171/2" to $88^0$321/2" East
West Sikkim:	Longitude	$88^0$2' to $88^0$55" East
	Latitude $27^0$7' to 27^0 25' North	

The geographical areas of South and West Sikkim districts are 750 sq.km. and 1166 sq.km. respectively.

1.3 PHYSICAL FEATURES:

Physiographically, Sikkim can be said to have its feet in the ocean and its head in the sky. The altitudes vary from 300 meters to 8500 meters above mean sea level. The entire state is a young mountain system with highly folded and faulted rock strata at many places. It encompasses the lesser Himalayas, Central Himalayas and the Tethys Himalayas. Great mountains ranging from 3000 meters to 8500 meters in height separate the state from its surroundings. In fact, it has no flat piece

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of land of good size anywhere. Major portion is covered by the pre - Cambrian rock and is much younger in age. The rock type consists of phyllites and schists and therefore, the slopes are highly susceptible to weathering and prone to erosion and landslides. The northern portion of the state is deeply cut into steep escarpments. Southern Sikkim is lower, more open and fairly well cultivated. The western portion of the state is constituted of hard massive gneissose rocks capable of resisting denudation. The southern portion is formed of comparatively soft, thin, slaty and half-schist ore rocks which denude very easily. The trend of the mountain system is in a general east west direction.

The main channels of drainage in south and west districts, the Teesta and the Rangeet, run nearly north to south. The topography of Sikkim abounds by 180 perennial lakes fed either by the melting snows or ground springs. Among the thermal springs prevailing in the state, Ralangralop(South Sikkim) and Phustsa Chhu (West Sikkim) are the well known ones. The perpetual snow line in Sikkim may be approximated at 16,000 ft. Sizeable areas under the west district are under perpetual snow cover. In short, against the backdrop of a glittering range of snowy peaks in the state, a large number of perennial and seasonal streams and mountain springs, the forested slopes and ridges, the lakes and glaciers add unmatched beauty, grandeur to this Himalayan landscape.

1.4 SOIL STRUCTURE:

Soil of a region being the nutrient medium, is indispensable in vegetation investigations. Soil moisture, mostly depending upon the soil thickness, has an explicit impact on forest type and coverage in an area. The southern and western parts of the state primarily consist of gneissose rocks and half-schistose rocks. The soil developed from the gneissic group of rocks is a brown clay, generally shallow and poor. They are typically coarse, often with ferric concentrations, neutral to acidic with poor organic/ mineral nutrients. They tend to carry most of the evergreen and deciduous forest with Sal (*Shorea robusta*) as the dominant species. The high intensity of rainfall in Sikkim often causes extensive soil erosion and heavy losses of nutrients of land by leaching.

1.5 CLIMATIC CONDITION:

Climatically Sikkim experiences variable temperatures with burning summers in the foothills to freezing winter on high mountains. The climate of the state has been roughly divided into the topical, temperate and alpine zones. The general trend of decrease in temperature with increase in altitude holds well in both West and South Sikkim districts. For most of the period in a year, the climate is cold and humid as rainfall occurs in each month. The area experiences a heavy rainfall due to its proximity to the Bay of Bengal. The state receives an average annual rainfall of 500 cm. which is the highest in the Eastern Himalayas. The high intensity of rainfall causes extensive soil erosion and frequent landslides in both West and South district. Either of the two districts experiences timely arrival of southwest monsoon which spreads from heavy to very heavy rain in some parts of these districts. However, the headquarters of south district, Namchi is comparatively

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a low rainfall region. Pre-monsoon rain occurs in April-May and the monsoon occurs normally from the month of May and continues up to early October. The temperature varies with altitude and slope. While in lower altitudinal zones, the mean temperature varies between 4.5^0 C to 18.5^0 C, at higher altitudinal zones it varies from 1.5^0C to 9.5^0C. The maximum temperature is recorded usually during the month of July & August and minimum during December & January. During the period from May to September, fog becomes a common feature in these area. Also during winter snowfall is common in high altitude places.

1.6 IRRIGATION SYSTEM:

Sikkim being a hilly state with heavy rainfall, occurrence of landslides and erosion of land by waterfalls and rivers during heavy rains are quite common. In order to safeguard the human lives and natural resources of the State, flood protection works, Waterfall Training Works and anti erosion works are necessary. The government duly realizing this importance opened an 'Irrigation Cell' in the Power Department in 1976. The topography of the state being characterized by difficult hilly terrain, the irrigation system adopted by and large fall under the category of minor irrigation. The responsibility of implementation of such schemes in the beginning was with the Panchayat and Rural Development Department. Later, a separate department for Irrigation was set up to provide irrigation facilities in the state; flood control and anti erosion works including management and control of drainage and waterfall training works. The end of seventh plan created 20,459 hectares of additional irrigation potential created as against the projected target of 50,000 hectares. Of this, only 13,130 hectares was utilized. In the year 1994-95, the area sown up was 51,000 hectares and the net area irrigated was approximately 13,000 hectares. Number of channels, length and area covered in south and west districts of the state are encased:

Table 1 **Details of Irrigation system**

District	Channel No.	Length (in Km.)	Area covered (in Ha.)
South	64	122	3820
West	141	154	4003

It was noticed that the existing channels were not properly functioning due to many reasons like, area damaged by slides, requirement of heavy maintenance charge, etc. In order to assess the total requirement of funds for complete assured Irrigation facilities in the state, a master plan was prepared by the Irrigation Department. Basically the plan was formulated to utilize the existing irrigation potential by way of harnessing various streams and rivers that traverse through the state and to create new irrigation potential.

Besides, provision has been made to introduce Sprinkler and Drip irrigation system in selected areas where availability of irrigation water is less and also within the command of lift irrigation schemes. The implementation of the Irrigation Master Plan, with modern irrigation

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methods is expected to bring transformation in agriculture pursuits from mere traditional one to a remunerative one.

1.7 MINERAL RESOURCES:

The mining activities as well as geological studies being held in the Sikkim region are primarily undertaken by the Department of Mines & Geology which serves as a nodal agency of the State. With the Geological Survey of India carrying out investigations and research on exploration of mineral resources, the State Department also carries out research and development work on geo-technical studies. Considerable deposits of various minerals in several parts of the state have been reported through these geological investigations. Large deposits of good grade dolomite are available in the Rishi and Rangit river valleys of West Sikkim. Also in the West in the Rangit valley, a narrow strip of Gondwana rock comprising pebble slate, sandstone with thin coal seams is exposed. One of the important industrial mineral graphite occurs in the western part of the state in Chitrey. Besides, Garnet is abundant in the gneiss and mica schist at west Sikkim district, Coal occurs extensively in the Rangit river valley and Namchi area of South district, but occurring in a structurally disturbed terrain and being a soft rock, it does not have much consistency in length. Indications and occurrences of magnesia rich, silica rich and phosphatic rocks are seen in parts of south and west Sikkim.

1.8 FLORA AND FAUNA:

The forests of the state exhibit diversified variety of flora and fauna. The myriad life forms of both plant and animal that characterize this bio-geographical region is unique in India and perhaps in the whole world. Sikkim being a high rainfall region encompasses within its narrow belt a luxuriant floristic composition ranging from tropical screw pines to alpine primulas. There are 4000 species of flowering plants, 300 species of ferns and its allies, 11 species of Oaks, 8 species of tree ferns and 20 species of bamboo that grow at various altitudinal zones in Sikkim. The state is renowned for its Rhododendrons and orchids as also of high altitude Primulas, *Meconopsis* and blue puppies. In fact, it is the abode of more than 450 species of orchids,50 species of rhododendrons and about 100 species of Primulas. The flora of Sikkim is also esteemed for several medicinal plants.

Sikkim is also rich in faunal wealth and Himalayan animals such as Snow Leopard, Musk Deer, Blue sheep, Himalayan Tahr and rare pheasants are to be found in several parts of the pristine spots and virgin forests of the State. Its richness in the faunal resources is indicated by the reported 144 species of mammals, 429 species of birds, 39 species of reptiles, 9 species of amphibia, 16 species of fishes and 423 species of lepidopterous insects. The lakes fed by melting snows are the habitat of a number of resident and migratory waterfowls and for birds like the Ruddy Shelduck (Brahminy Ducks), principally they are the permanent breeding grounds. Many of the faunal species are declared as endangered ones. Among the mammals these are Bharal, Clouded Leopard, Fishing

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Cat, Golden cat, Leopard Cat, Red Panda, Pangolin, etc. and among birds, are Peafowl, large Falcon, Black Necked Crane, Tragopan pheasant, Snow Partridge, etc. Besides most of the butterflies and moths found in Sikkim are endangered species. In order to protect these species the government has already established National Park, sanctuaries and biosphere reserves in several parts of the state. Among these, Mainam Wildlife Sanctuary in South Sikkim and Biosphere Reserves in South and West Sikkim district are mentionable in our considered area.

1.9 LAND UTILIZATION:

The land utilization pattern of an area shows the socio economic status and the mode of development opportunity of that area. Forest is the main land use in the State and nearly 42 percent of the total geographical area is lying under varying densities of forest cover. The available agricultural land is approximately 12 percent of the total geographical area and is confined to the altitude less than 2000 meters. The area under forestry in South Sikkim district is 414 sq.km. which is 55 percent of its total geographical area. The corresponding figure for West Sikkim district is 659 sq.km. which comes to 56 percent of its geographical area. Under the non-forest category, cover of agriculture accounts to 31 percent in South district and 18 percent in West district of Sikkim. The land use statistics for south and west districts of the state are shown as follows:

Table 2 Forest Area as a % of Geographical Area.

Class	South district		West District	
	Area in sq.km.	%	Area in sq. km.	%
Crop land	231.41	30.85	212.80	18.25
Total tree cover	414.12	55.22	658.61	56.49
Forest blanks/scrubs	28.12	3.75	27.76	2.38
Alpine scrub/pastures	30.34	4.05	64.87	5.56
Alpine barren	13.34	1.78	90.14	7.73
Snow	12.01	1.60	93.53	8.02
Lakes/streams/dry rivers	12.73	1.70	12.56	1.08
Township	0.57	0.08	0.38	0.03
Major landslides	5.70	0.76	1.57	0.14
Miscellaneous	1.66	0.22	3.78	0.32
Total:	750.00	100.00	1166.00	100.00

Source: Indian Remote Sensing Satellite 1A(LISS II) data of November,1988.

1.10 FOREST COVER:

Sikkim situated in the Eastern Himalayas has a predominant role to play in the maintenance of ecological balance. Around 42 percent of the total geographical area is lying under forest cover. This figure is one of the largest in the country. According to Indian Remote Sensing Satellite 1A (LISS II) data of November, 1988, the total forest cover of south Sikkim district is 55 percent of its total geographical area. The detailed analysis of forest coverage reflects that 19 percent and 36 percent of area was accordingly under dense and open canopy cover. The scrub land and forest blanks cover 1.5 and 2.4 percent within the reserve forest respectively. On the other hand, the forest cover of West Sikkim district is 56 percent of the total geographical area. The area under dense and

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open canopy cover is accordingly 19 percent and 37 percent. The scrub land and forest blanks cover 0.7 and 1.6 percent within the reserve forest respectively. The vegetation types are more or less associated with climate, rainfall and topographic pattern. However, the forest in south and west Sikkim district can broadly be classified into three types depending upon the altitude as i) lower hill forests, ii) middle hill forests and iii) upper hill forests.

i) Lower hills forests: The vegetation of this zone at an altitude between 300 -900 m consists mainly of tropical dry deciduous to semi evergreen with Sal as a dominant species. These forests have suffered greatly due to the effect of biotic factors leading to frequent landslides.

ii) Middle hill forests: The tall evergreen species of *Alnus nepalensis, Schima wallichii, Castanopsis hystrix* and species of *Macaranga, Eugenia, Sapium,* etc. are found at high elevation between 900 - 1800 m. In the West Sikkim district, the species like, *Prunus cerasoides* and *Saurauja nepalensis* are also predominant in this region. In view of no distinct spectral signature from these species, all such mixed group of species is combined together as 'mixed forests'.

iii) Upper hill forests: The upper hills of these two districts can be distinguished into three strata based on altitude and also into general species composition as:

Zone 1: 1800 -2400 m: This Zone is distinct as transitional between subtropical broad leaved to sub-temperate zone consisting wide range of species like, *Alnus, Michilus, Quercus lanceaefolia, Q.lanmellosa,* and *Symplocos* sp.

Zone 2. 2400 - 2700 m: This Zone has typical temperate forests dominated by needle leaved conifer covering extensive areas inter - mixed with species of Oak, *Rhododendron arboreum,* Betula *alnoides, Michilus* sp.

Zone 3. 2700 m & above: The lower reaches of this Zone are occupied by sub-alpine species of *Rhododendron* mixed with temperate to evergreen species in the west district of Sikkim. As the altitude increases, the vegetative cover in this district becomes sparse because of less soil cover and adverse meteorological conditions, high wind velocity and frost conditions. This Zone is called alpine. On the basis of vegetative cover, the alpine Zone is further delineated into Alpine barren (without vegetative cover) and Alpine scrub (with bush). Some of the species in Alpine scrub area are *Juniperus, Salix, Berberis.* On the other hand, thin top soil, high wind and freezing condition of Zone 3 in south Sikkim district do not favour establishment of free vegetation, but support xerophytic shrubs like, *Salix* and *Berberis.*

With regard to the forest types, Sal, Mixed, Coniferous and Alpine types occupy approximately 0.01, 35.1, 21.2 and 13.3 percent respectively in West Sikkim district. In the South Sikkim district, the corresponding percentages are 1.7, 44.2, 9.4 and 5.8. The following diagram shows the distribution of forest types in two districts:

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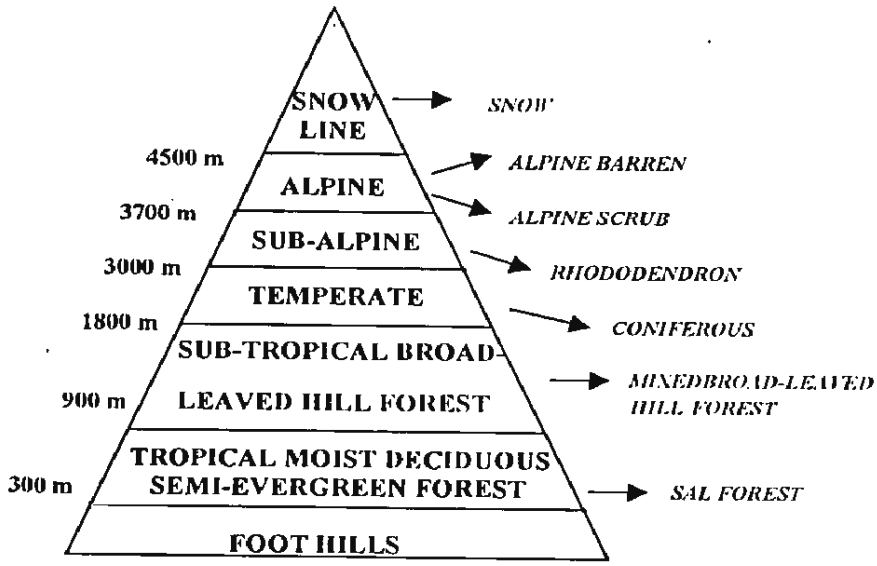
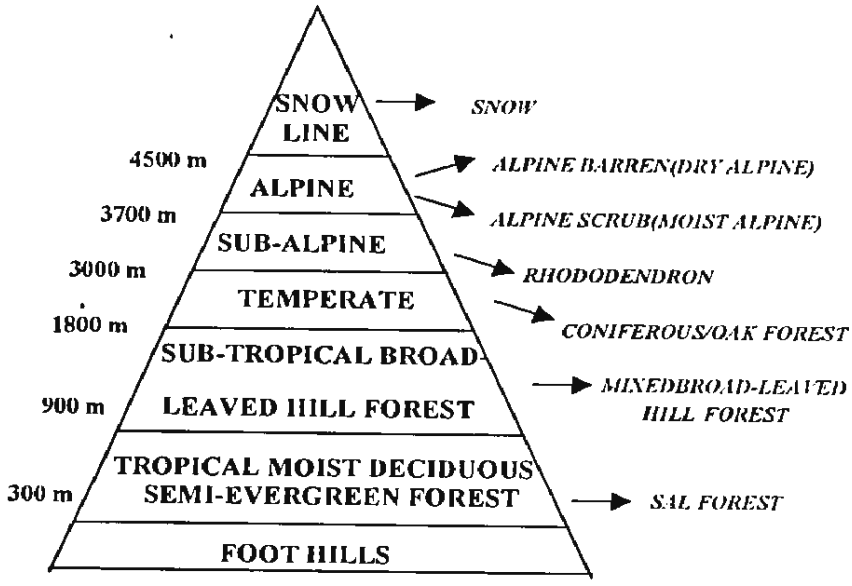


SOUTH SIKKIM DISTRICT



WEST SIKKIM DISTRICT

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1.11 DEMOGRAPHIC DESCRIPTION:

Sikkim is a multi ethnic state. It has been the home to the Lepchas, the original inhabitants of the state, the Bhutias who came in from Tibetan province of Khams and belong to the fighting clan of the Khampas and the Nepalese who migrated to the state from the kingdom of Nepal. A majority (70%) of the population is from the Nepalese stock. The Bhutias and Lepchas may be considered next to it. Most of the Nepalese are Hindu by religion. The Bhutias, Lepchas and a few Nepalese follow Buddhism. The Sherpas are a marginal ethnic group in the state. Of the Nepalese stock, Kami, Damai, Sarki, Majhi and Lohar have been notified as scheduled castes and of the Sikkim stock, Bhutias Lepchas and Sherpas have been notified as scheduled tribes. The people from the plains who are immigrants from different states in India are found in small proportion.

As per 1991 Census, total population of south district of Sikkim is 98604 comprising of 53 percent males and 47 percent females. The corresponding figure for West Sikkim district accounts to 98161 of which 52 percent are males and 48 percent are females. The percentage share of population either of these district to the total population of the state is almost equal, viz. 48 percent. The decennial growth rate of population of the state has come down. In 1971-81 it was 51 percent whereas in 1981-91 it was 29 percent. The south district follows a similar pattern in respect of decennial growth (43 percent in 1971-81 and 30 percent in 1981-91). The west district, on the contrary has emerged to be an exception, as in 1971-81 the decennial growth rate accounts to 30 percent and in 1981-91, it has slightly risen up to 31 percent

The percentage of urban population in the state as well as in its all four districts has decreased considerably in comparison to 1981 Census (16% in 1981 and 9% in 1991). For south district, this percentage has notably come down from 7 percent in 1981 to 3 percent in 1991, whereas for west district the reduction is marginal from 2.3% in 1981 to 1.8% in 1991. The south district appears as more densely populated (132 persons per sq.km. than the west district. Females per thousand males, i.e. the sex ratio for Sikkim, as a whole, have recorded a sharp increase during the last decade (from 835 in 1981 to 878 in 1991). For the South district the ratio has considerably improved from 854 in 1981 to 892 in 1991 and for west district it has increased from 906 in 1981 to 915 in 1991. On the other hand the proportion of scheduled tribe population is much higher in west district (20%) than that in south district (17%). In respect of literacy, Sikkim occupies nineteenth position (57%) among the states and union territories of India. Moreover, this literacy rate is even higher than the all India average literacy rate of 52%. The south Sikkim district has recorded a higher literacy rate (54%) than west Sikkim district (46%).

Main languages spoken in these districts are Lepcha, Bhutia, Hindi, Nepali, and Limbu. Furthermore, during the decade 1981-1991, growth rate of Hindus and Buddhists are much higher in west district than that in south district and on the contrary, growth rate of Muslims and Christians are much prevalent in south district compared to west district.

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1.12 SOCIO ECONOMIC STATUS:

The socio-economic status focuses on the mode of social opportunities and economic development of a region. Sikkim being an agriculture based economy, majority of its population (65%) make livelihood out of agricultural practices. Since only 12 percent of the state's geographical area is available for cultivation, there has been continuous pressure on the land as to give increased productivity of crop following the increase in population. The data on working population of 1981 and 1991 reveals that the percentage share of cultivators in the state have declined by 2% indicating a shift towards non-agricultural activities. Despite this indication it is the agricultural economy which permeates the social life in the south and west district of Sikkim. In fact, the social life of these districts is rooted in the villages and it is the rural pattern of life, which largely rules the districts. Cultivators account for the greater majority of population in both the districts, 71 % in south district and 77% in west district. Agricultural labourers constitute only 5% of the population of south district and 7% of the population of west district. Agriculture is of the mixed type and still at the subsistence level rather than commercial level.. The principal agricultural products are rice, wheat, maize, pulses, oilseeds, etc. While at present due emphasis is aimed at production of cash and other agricultural commercial crops under the favorable agro-climatic condition of the state, due attention has also been given to other horticulture crops like, cardamom, ginger and exotic crops such as avacado, strawberry, mushrooms etc. which have a good market in the state as well as outside. Animal husbandry is an integral part of the household economy of the region. The production of milk, eggs and wood adds much to the net state domestic product. The development of floriculture has recorded considerable progress with establishment of floriculture cooperative society in south district. The Rural Development Department is concerned with the poverty alleviation and rural employment programs like IRDP, JRY, TRYSEM, DWCRA, EAS for bringing about all round improvement in the standard of living and equality of life in rural areas. The policy of industrial development in the state was taken up with a view to encourage small and medium scale industries such as flour mills, printing press, carpet weaving, wood carving etc. The District Industry Centre of south and West Sikkim districts located at Jorethang supports the promotion and development of industries. Besides, tourism has been playing an important role in the economic condition of the state. Construction, trade, and commerce and transport occupy many of the inhabitants of south (10%) and West (5%) district. In recent past, there is a tendency to diversify into tertiary jobs such as government services. The estimate of the state domestic product is the most significant indicator to study the growth and performance of the state economy. The net State Domestic Product at current prices has gone up to Rs. 243 crore in the year 1992-93 as compared to RS 237 crore in the year 1991-92. On the other hand, the per capita Net State Domestic Product at current prices has gone down from RS 5728 in 1991-92 to RS 5722 in 1992-93.

The state is financing schools and colleges even in the interior villages. Adult literacy program is also being carried out the revenue blocks. To provide affordable, accessible and appropriate basic health care to the community and to augment family Welfare services, Primary

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Health Sub-centres have been established at Chumbung in West district and Sripatham in south district. The women and child Welfare Department have been established to look after various welfare schemes for women and children of Sikkim as well as Integrated Child Development Schemes. The SC/ST and OBC Development Corporation has also been set up to grant low interest loans to the people falling under these categories for their speedy economic development.

1.13 TRANSPORT FACILITY:

The state of Sikkim, by virtue of its topography is connected with only one transport mode i.e. road transport. The other modes of transport viz. Rail, air and waterways are not available in this state. Keeping in pace with the development of the state, the Government of India helped in preparation of a master plan for road development in this region. The plan includes construction of new roads and bridges, up-gradation of narrow roads, road development in as many villages as possible and replacement of old weak bridges. With the rapid development of road network in the state, increased traffic facilities are on demand. With this objective in view, Sikkim Nationalized Transport, a departmental commercial undertaking was put into operation in 1955 to meet the growing demands of passengers and goods traffic. Since then, substantial achievement has been made in developing infrastructure in terms of number of buses and trucks in the fleet, coverage of passenger traffic and goods traffic. It is seen that on an average 17% growth in goods traffic and 16% growth in -passenger traffic has taken places during the seventh plan period. The road development had achieved a significant mark in extending the road networks in the state to the extent of 1515 kms. by the end of 1991-92 . In the year 1992-93 the road length has been increased to 1556 kms. which includes the construction of new surfaced roads and surfacing of unsurfaced roads. At the end of the 1992-93, Sikkim Nationalized Transport has achieved a fleet strength of 139 buses and 181 trucks and was operating its passenger service in 62 routes throughout the state. Keeping in view of the fact that the state economy is solely dependent on road transport for incoming and outgoing goods as well as passengers, the government is taking several measures for upliftment of road connection from one corner of the state to another.

1.14 FOREST POLICY:

Environmental degradation is one of the alarming problems throughout the world nowadays and it has knocked the door of Sikkim too. With the pressure of increase in population and thereby ever-increasing human interaction with the forest, degradation of forests appeared as a real impediment for the ecological balance of this place. Practically no systematic survey operation for detection of encroachment into reserve forest areas has been undertaken in this region. As a result, extensive forest areas have been indiscriminately encroached by the passage of time. This may be due to the fact that the forest resources could not be scientifically managed because of inaccessible terrain and strategic locations. Proper management of such areas is of paramount importance to evolve plan for ecological balance. The Government duly realizing this sensitive situation has taken

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some stringent measures in order to control undue exploitation of forest resources. The Government of Sikkim declared the year 1995 as 'Harit Kranti year' i.e., Green Revolution Year and started a campaign to protect existing forest cover as well as to enhance it through massive plantations in Degraded Forests, Khasmal, Gocharan, Degraded Gumpa Forests and other community lands and in private fallow land. Plantation works and seed distribution were carried out in each Gram Panchayat by organizing Gram Sabhas and constituting Village level Plantation Committees consisting of Panchayats, NGOS and villagers. The southern and western parts of the state are very much prone to drought. Excessive graying in the reserve forests of these districts has caused destruction of the ground cover resulting in excess run off and low percolation of rain water due to which the springs have dried up. The government has issued notification in the year 1995 banning grazing in the reserve forests of these districts. Besides, the Mobile Squad of the Forest Department is taking care of illegal activities in forest area and illegal transport of timber and other forest products. The territorial divisions in the districts are putting substantial effort in prevention and control of the illicit activities within and outside forest areas.

In background of all these information amalgamated on south and west district of Sikkim, details of findings of the present study on forest resources in these areas taken up by Forest Survey of India, Eastern Zone would be more comprehensive and meaningful.

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CHAPTER: II

DESIGN AND METHODOLOGY

2.0 OBJECTIVES:

The main objectives of the inventory are summarized as under:

i. To collect information on distribution of forest with regard to various parameters such as topography, aspect, soil consistency etc.
ii. To collect various information on crop data, its composition, status of regeneration, fire incidence, grazing incidence, injury to crop etc.
iii. To estimate the total growing stock separately for each district at a reliable level.
iv. To arrive at the availability of resources in Reserved and unreserved forests (Gocharan, Khas forests) in each district.
v. To monitor periodically (10 years cycle) the changing pattern of the forest resources.

These will help the planners and forest officials to take up suitable action plans and for preparation of future working schemes.

2.1 AREA SELECTED FOR INVENTORY:

For the purpose of the inventory, the forest area falling in south and west district of Sikkim was considered. Following areas are treated as forest areas for the purpose of forest inventory.

i. Area shown in green wash on the Survey of India topo-sheets.
ii. All such areas in which woods such as thick jungle, open forests, bamboo etc. are printed.
iii. All those areas indicated by dotted line or spotted line or a pillar line as forest areas
iv. Any other areas as reported to be forested areas by local forest department.

2.2 M A P S:

The Survey of India toposheets in 1:50,000 scale and in case of their non-availability 1:25,000 scale toposheets as given in Annexure –I were used:

2.3 SAMPLING DESIGN:

2.3.1 UPTO 2400 METRE ALTITUDE:

A systematic sampling was adopted to estimate the growing stock of the project area. Systematic grids of size 1 km x 1 km were laid out over the entire south and west district below 2400 meter altitude. It was decided to layout only one square plot of size 0.1 ha. (31.62 m x 31.62 m) at each grid center.

2.3.2 ABOVE 2400 METRE ALTITUDE:

STANDARD FOREST SURVEY OF INDIA DESIGN:

The survey design was essentially a systematic sampling under which the Survey of India toposheets of 1:50,000 scale is divided into 36 grids of 2.5′ x 2.5′ of latitude and longitude. In each grid, two sample points were selected on the toposheets. In selection of the first point is random and the second point is the mirror image of the first, i.e. the second point is linked to the first one in the opposite direction at an equal distance from the grid center. The inventory data were collected from a square plot of 0.1 hectare laid out at each of these sample points on the ground. Mention may be made that only the plots falling within the forest areas were surveyed. One sample plot of 0.1 hectare represents about 10 sq.km. on the ground and the intensity of sampling is 0.01%. The length of each side of the square plot is 31.62 meter on the ground and 0.6324 mm. (say 0.6 mm.) on the toposheet of scale 1:50,000.

2.3.3 PRECISION AND ACCURACY:

The result of the present survey would be at the precision level of 95% probability with error limit of ±10%. This accuracy is, however, obtained for the entire state and not by individual districts.

2.3.4 PLOT LAYOUT:

The method of marking of the plot centers of the two sample plots on the map in each grid of 2.5′ x 2.5′ is depicted in Diagram-2. The length and width of each grid are measured to the smallest convenient scale. The length of the side of a plot on the map corresponding to 0.1 hectare square plot on the ground is calculated. Let X and Y be the length and width of the grid and s the side of the plot. Subtract side s from both sides, i.e. find (X-s) and (Y-s). Let these numbers be X′ and Y′. Two random numbers, one in the range of o to X′ and the other in the range of o to Y′ are selected. These numbers are called x and y respectively. Half of the side of the plot (s/2) is added to both x and y. Then x+s/2 and y+s/2 will be coordinates of the center of first plot in the grid, considering the left hand bottom corner (south-west corner) of the grid as origin of the axis. The center of second plot is located by joining the center of first plot with the grid center and extending this line in the opposite direction. A point at an equal distance from the grid center in the opposite direction is marked which is the center of second plot. After fixing the plot center with the help of toposheet and reference point, the four corners of the plot are obtained by measuring 22.36 meter from the plot centre in each of the directions viz. North-West, South-West, North-East and South-West.

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2.4 DATA COLLECTION:

An inventory crew (team) headed by a crew leader collects the data in the field. To demarcate a plot, a prominent reference point is selected in the vicinity of the plot center. The field reference point may be clearly visible on the map as well as on the ground, e.g. junction of roads or rivers, prominent topographical features in hilly area such as spurs and knots, village tri-junction points, old bridges and culverts, springs, milestones etc. The data is collected and recorded in a legible manner in the codified field forms such as Plot Approach Form, Plot Description Form, Plot Enumeration Form etc. The details of all these forms are discussed here.

(a) *Plot approach form:* It gives an account of the details regarding the approach to the plot. All the conspicuous features observed during the journey from campsite to the plot center are recorded. Prominent reference point along with bearings is recorded which serves as an aid to reach the plot at a feature date.

(b) *Plot description form:* The description of several parameters each as topography, soil, land use class, forest type, regeneration, crop data etc. are collected and recorded in this form for an area of 2 hectare around the centre of the plot.

(c) *Plot enumeration form:* This form is filled up for each plot. The details recorded are the name of the species and its diameter. Trees less than 10 cm. d.b.h. over-bark and utility less than 70% are not recorded usually. Trees, the stems of which touch the NW-SW and NE-NW border lines of the plot (called border line trees) are enumerated. However, those trees, the stems of which touch the NE-SE and SW-SE border lines of the plot are treated as 'out trees' and are not enumerated.

(d) *Sample tree form:* Data for trees with diameter 10 cm. and above at breast height over bark are collected from ¼ area of the total plot is 0.025 hectare area. On each sample tree, sample tree card will be nailed. In this form, data on tree height, bark thickness, length of clear bole, shape of the tree etc. are recorded.

(e) *Bamboo enumeration form:* This form is designed for enumeration of bamboo culms per clump by age and culms and soundness of culms by clump size. Separate forms are used for clump forming and non-clump forming bamboos.

(f) *Bamboo weight form:* This form is maintained to determine the green weight and dry weight of bamboo. Mature bamboos are selected from each diameter class and for each species, tree 30 cm. long pieces obtained from the top, middle and bottom portions of the utilizable culm are cut out and their green weights are recorded. These pieces are properly documented and kept in the base camp and weighed every 30 days till a constant weight is obtained.

CHAPTER: III

DATA PROCESSING AND COMPILATION

3.0 GENERAL:

The information collected in the field serves as the basic input. The processing of these data and its compilation is carried out in two phases viz. Manual processing and processing on computer.

3.1 MANUAL PROCESSING:

It involves overall checking of the field forms which is done manually. The basis of such approach is to improve the accuracy and consistency of data. The following steps are incorporated under this approach.

- Proper documentation of the field information received.
- Codification of the information in the field forms which has not already been incorporated.
- Manual checking of the information filled in the forms.
- Reconciliation of the discrepancies with the help of the field officers.

3.2 INPUT FOR COMPUTER:

After the manual checking is done, the information incorporated in the field forms is fed into the computer for onward processing and final compilation of data. In fact, the following three types of inventory data are stores in the disk/floppy for this purpose.

- PLOT DESCRIPTION DATA
- PLOT ENUMERATION DATA
- SAMPLE TREE DATA

The information encoded in these three forms is the ideal requisite to estimate the existing forest stock. Therefore, assessment on several aspects of these forms is essential. The various stages followed under processing on computer are presented as follows.

3.3 PROCESSING ON COMPUTER:

This involves the following:

- Loading of the inventory data on computer. Verification and correction of data for the creation of clean file and then transfer of the corrected data to hard/floppy disk.
- Consistency checking of the data on computer and correction of data to remove discrepancies noticed during consistency checking.
- Tabulation of Plot Description Data and thus to find out area under different land use classes.
- Tabulation of plot wise stem distribution for the district as a whole.
- Tabulation of plot wise volume distribution for the district as a whole.
- Calculation of standard error.

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3.4 CONSISTENCY CHECKING:

For checking the consistency of the data suitable computer programs were developed. Each entry in the field forms was checked for consistency in the data. The main checks applied were the range check for the maximum and minimum value of the codes and logical check for inter relationship between the entries for two or more parameters. Mistakes if any were corrected and then incorporated.

3.5 VOLUME ESTIMATION:

No trees were felled during the survey. The general volume and local volume equations developed in earlier survey in Sikkim State were used to arrive at reliable estimation of volume for different species.

Form class wise equations were used both in general and local volume equations. Form class and name of the species are appended below:

Table 3 Form Class.

Form class	Botanical name	Local name
I	*Acer campbelli*	Kapasi
	Symingtonia populnea	Pipli
	Betula alnoides	Sour
	Cinnamomum impressinervium	Sissi
	Toona febrifuga	Toona
	Evodia roxburghii	Khanukpa
	Juglans regia	Walnut
	Macaranga species	Malata
	Syzygium species	Jam
II	*Beilschimiedia roxburghiana*	Thups
	Echinocarpus dasycarpus	Gobra
	Engelhardtia spicata	Mewa
	Elaeocarpus species	Bhadrasi
	Rhododendron hodgsoni	-
III	*Betula utilis*	Bhujpat
	Litsaea species	
	Machilus edulis	Lepcha kawla
	Machilus gammieana	Chupli kowla
	Machilus odoratissima	
	Nyssa javania	
	Prunus nepalensis	
	Phoebe lanceolata	
IV	*Castanopsis species*	
	Quercus lamellosa	Katus
	Quercus lineata	
	Quercus pachyphylla	

The volume equations for the following species were also compiled.

1. *Abies densa* (Gobra Salla)
2. *Tsuga dumosa* (Tengra Saklla)

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3. *Symplocos thiefolia* (Kharane)
4. *Alnus nepalensis* (Utilis)
5. *Michelia doltsopa* (Rani champ).

3.5.1 GENERAL VOLUME EQUATIONS:

General volume equations are as follows:

Form class	Equations
I	$V/D^2 = 0.000172 - 0.00258/D^2 + 0.0000332H$
II	$V/D^2H = 0.0000389 + 0.02856/D^2H$
III	$V/D^2 = 0.00006 + 0.000032H - 0.0177/D^2$
IV	$V/D^2H = 0.0000387 + 0.02305/D^2H$
Species:	
Abies densa	$V/D^2 = 0.01945/D^2 + 0.00002896H + 0.00009565$
Alnus nepalensis	$V/D^2 = 0.000172 - 0.0258/D^2 + 0.0000332H$
Michelia doltsopa	$V/D^2H = 0.00003503 + 0.02692/D^2H$
Symplocos thaefolia	$V/D^2 = 0.0000718 - 0.005398/D^2 + 0.00003255H$
Tsuga dumosa	$V/D^2H = 0.00003283 + 0.0008056/D^2H$
Others	$V = 0.024659 + 0.00003492\ D^2H$

V= Under bark volume in m^3

D= Diameter (OB) at breast height in cm.

H= Height in metre.

3.5.2 LOCAL VOLUME EQUATIONS:

Following local volume equations have been used in volume calculation in the present inventory:

Form class	Equations
I	$V/D^2 = 0.001559 + 0.06674/D^2 - 0.02039/D$
II	$V/D^2 = 0.0012897 + 0.25564/D^2 - 0.030418/D$
III	$V = 0.12652 - 0.018037\ D + 0.000956D^2$
IV	$V/D^2 = 0.001184 + 0.1812/D^2 - 0.02348/D$
Species:	
Abies densa	$V = 0.12167 - 0.0114D + 0.000812D^2$
Alnus nepalensis	$V/D^2 = 0.001559 + 0.06674/D^2 - 0.02039/D$
Michelia exelsa	$V/D^2 = 0.0002138 + 0.002517/D + 0.00001064D - 0.00000004D^2$
Symplocos theaefolia	$V = -0.03754 + 0.000587\ D^2$
Tsuga dumosa	$V/D^2 = -0.00055 + 0.00716/D + 0.000029D - 0.00000012D^2$
Others	$V = -0.3555 - 0.037D + 0.001259\ D^2$

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V = Total under bark volume of trees in m^3; D = Diameter at breast height (OB) in cm.

3.6 TREE VOLUME:

Volume of each enumerated tree was estimated with the help of volume tables/equations and was used for generation of stock tables by species and diameter classes.

3.7 PLOT VOLUME:

Volume of each enumerated tree in a plot when added up provided the plot volume. These plot volumes are the basis for estimation of sampling error.

3.8 ANALYSIS OF GROWING STOCK:

Analysis of growing stock was carried out from plot data and per hectare figures were worked out for each stratum by species and diameter classes. Following are the important tables generated for each stratum.

- Stems/ha. for individual species and its distribution into different diameter classes.
- Total stems by species and diameter classes.
- Corresponding volume/ha by species and diameter classes.
- Total volume by species and diameter classes.

3.9 STANDARD ERROR:

Statistical inference is incomplete without information on associated errors. For estimation of sampling error some assumptions were taken into consideration. The sample was considered as a systematic sampling having only one plot in each grid block of 1km x 1 km up to 2400 meter altitude, i.e for stratum I, II and III. After 2400 meters altitude, the sample was considered as a systematic cluster sample having two sampling plots in each cluster. While estimating the sampling error in stratum IV the sample was considered to be of unequal sizes and ration method of estimation was used since in many grids only one plot was enumerated.

Standard error is calculated for each stratum and then pulled over the project area i.e. over the entire District irrespective of the stratum.

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CHAPTER: IV

RESULTS OF INVENTORY

4.1 GENERAL:

Inventory data of West and South district of Sikkim has been analyzed separately for the district level as well as stratum wise also. The present data has been analyzed with a view to highlighting the type, composition and distribution of forest area by various parameters like land use classes, topography classes, grazing incidence, fire incidence, regeneration class etc.

4.2 FOREST COVER AS PER STATE OF FOREST REPORT 1997:

The geographical area and the extent of forest cover of the above two districts is given below:

Table 4 Geographical Area and Forest Cover.

District	Geographical area (sq.km.)	Forest cover (sq.km.)
West Sikkim	1166	District wise break-up is not available
South Sikkim	750	

Source: State of Forest Report, 1997, F.S.I. publication.

4.2.1 INVENTORIED AREA:

Area shown in green wash on the Survey of India toposheets is treated as forest area. The total forest area of the two districts was calculated using 'dot grid' method, which comes to 63435 ha. And 31616 ha. for West and South Sikkim districts respectively. The area estimate for reserved forest of the two district are 49272 ha and 25664 ha. for West and South districts and the balance forest area has been taken as unreserved forest area of these two districts. Henceforth, the inventoried forest area as calculated by 'dot grid' method would be taken as the total forest area of the respective district. The total forest area of the two districts have been stratified into four altitudinal strata on the basis of the change in the vegetative characters with altitude. Four altitudinal strata have been formed namely forest area upto 900 m, between 900-1800 m. and 1800-2400m and above 2400m.

The distribution of reserved and unreserved forest areas under the above mentioned altitudinal classes is given below:

Table 5 Distribution of Reserved and Unreserved Forests in sq. km.

Stratum	Altitude	West District		South District	
		R.F. area	U.R.F.	R.F. area	U.R.F.
I	Upto 900 meter	11.40	14.25	38.07	7.20
II	901 to 1800 meter	11.17	55.85	14.68	25.16
III	1801 to 2400 meter	123.25	61.62	97.00	27.16
IV	Above 2401 meter	346.90	9.91	106.89	-
	Total	492.72	141.63	256.64	59.52

Thus the total of reserved and unreserved forest area for West Sikkim district is 634.35 sq.km. and is 316.16 sq.km. for South Sikkim district.

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4.3 DISTRIBUTION OF PLOTS:

Total number of plots surveyed during the forest inventory in West and South district were 136 and 256 respectively. Distribution of plots by reserved, unreserved and stratum is as follows:

Table 6 Distribution of plots

Item	West Sikkim					South Sikkim				
	I	II	III	IV	Total	I	II	III	IV	Total
Reserved	13	29	41	14	97	62	34	55	4	155
Unreserved	5	22	12	-	39	12	67	22	-	101
Total	18	51	53	14	136	74	101	77	4	256

It is already stated that standard F.S.I. design has been followed in most of the forest area and in the balance forest area particularly the forest area below 2400 meter altitude Sikkim design has been followed (Ref. para No.2.3.1). The weightage for survey of 1 plot in F.S.I. design is given as 1121.26 ha. forest area while it is only 61.05 ha. in Sikkim design for the survey of West Sikkim district. Similarly, the weightage for survey of plot in standard F.S.I. design in south district is estimated as 295.86 ha. and area by land use class, topography, aspect etc. is based on the weightage of forest area. In order to increase the intensity of sampling the standard F.S.I. design could not be strictly followed in all the grids mostly in the South district. As a consequence, in a same grid of 2.5'x2.5' both standard F.S.I. design and Sikkim design (1 km.x1 km.) have been followed resulting low weightage of forest area representation per plot in standard F.S.I. design in South district.

4.4 ANALYSIS OF PLOT DESCRIPTION DATA (WEST DISTRICT):

Plot description data are analysed separately for each district. The percentage occurrence of various plot description data is calculated and required information is generated on soil, terrain condition, crop etc. The results of West Sikkim district is furnished in the following table:

4.4.1 DISTRIBUTION OF FOREST AREA BY LAND USE CLASSES, WEST DISTRICT.

Table 7 Distribution of Forest Area by land use in West district.

Code	Land use	Description	No. of plots			Forest area (Ha.)	Percentage
			F.S.I. design	Sikkim design	Total		
1	Dense tree forest	Forest with Canopy density 70% and above	1	4	5	1365	2.15
2	Moderately dense	Forest with Canopy density 30-69%	38	42	80	45174	71.21
3	Open tree forest	Forest with Canopy density 5-29%	7	22	29	9193	14.49
4	Scrub forest	Forest with Canopy density Less than 5%	1	2	3	1243	1.96
5	Bamboo brakes	Areas completely covered with bamboo	-	-	-	-	-
6	Shifting cultivation	Areas under current as well as previous years shifting cultivation	-	-	-	-	-
7.	Young plantation of forestry species		-	2	2	122	0.19
8 to 10	Trees in line		-	1	1	61	0.10
11	Barren land		-	-	-	-	-
12	Agricultural land Without trees		1	3	4	1304	2.06
13	Agricultural land With trees		3	6	9	3730	5.88
14	Non-forest plantation		1	-	1	1121	1.77
15	Habitation		-	2	2	122	0.19
16	Water bodies		-	-	-	-	-
18	Young crop Of natural Or artificial regeneration		-	-	-	-	-
Total:			**52**	**84**	**136**	**63435**	**100.00**

The above table reveals that bulk of the forest area are moderately dense followed by open tree forest. The percentage of dense tree forest is 2.15% only.

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4.4.2 DISTRIBUTION OF FOREST AREA BY TOPOGRAPHY, WEST DISTRICT:

Number of plots and distribution of forest area by topography with percentage is furnished in the following table:

Table 8 Distribution of Forest Area by topography, West District.

Code	Topography	No. of plots			Forest area (Ha.)	Percentage
		F.S.I. design	Sikkim design	Total		
1	Flat	-	-	-	-	-
2	Gently rolling	-	-	-	-	-
3	Hilly	-	1	1	61	0.10
4	Very hilly	52	83	135	63374	99.90
	Unrecorded	-	-	-	-	-
Total:		**52**	**84**	**136**	**63435**	**100.00**

Almost all the forest area in West Sikkim district is under very hilly region and there is no flat and gently rolling topography in the district.

4.4.3 DISTRIBUTION OF FOREST AREA BY ASPECT, WEST DISTRICT:

The distribution of forest area by various aspect classes is given below:

Table 9 Distribution of forest area by aspect, West district.

Code	Aspect	No. of plots			Forest area (Ha.)	Percentage
		F.S.I. design	Sikkim design	Total		
1	Northern	1	6	7	1487	2.34
2	North - eastern	8	23	31	10375	16.36
3	Eastern	8	3	11	9153	14.43
4	South-eastern	15	19	34	17979	28.34
5	Southern	3	13	16	4158	6.55
6	South-western	8	12	20	9703	15.30
7	Western	6	2	8	6850	10.80
8	North-western	3	6	9	3730	5.88
9	No aspect	-	-	-	-	-
	Unrecorded	-	-	-	-	-
Total:		**52**	**84**	**136**	**63435**	**100.00**

4.4.4 DISTRIBUTION OF FOREST AREA BY ROCKINESS, WEST DISTRICT:

Table 10 Distribution of forest area by rockiness, West district

Code	Rockiness	No. of plots			Forest area (Ha.)	Percentage
		F.S.I. design	Sikkim design	Total		
1	High	-	-	-	-	-
2	Medium	6	9	15	7277	11.47
3	Low	60	22	32	12556	19.79
4	No rock	36	53	89	43602	68.74
	Unrecorded	-	-	-	-	-
Total:		**52**	**84**	**136**	**63435**	**100.00**

The above table reveals that medium to low rockiness in West Sikkim district is to the extent of 31.26% whereas 68.74% of the forests have negligible rockiness.

4.4.5 DISTRIBUTION OF FOREST AREA BY SOIL CONSISTENCY,WEST DISTRICT:

Table 11 Distribution of forest area by soil consistency, West district.

Code	Soil consistency	No. of plots			Forest area (Ha.)	Percentage
		F.S.I. design	Sikkim design	Total		
1	Friable	-	1	1	61	0.10
2	Slightly compact	52	78	130	63069	99.42
3	Compact	-	5	5	305	0.48
4	Cemented	-	-	-	-	-
5	No soil	-	-	-	-	-
	Unrecorded	-	-	-	-	-
	Total:	**52**	**84**	**136**	**63435**	**100.00**

The above table reveals that soil in the district is friable to the extent of 0.10% only. Most of the soil 99.42% is slightly compact in nature. Compact soil cover 0.48% of the forest area only.

4.4.6 DISTRIBUTION OF FOREST AREA BY SOIL TEXTURE:

Table 12 Distribution of Forest Area by Soil texture, West District.

Code	Soil texture	No. of plots			Forest area (Ha.)	Percentage
		F.S.I. design	Sikkim design	Total		
1	Clayey	-	-	-	-	-
2	Clayey loam	27	62	89	34061	53.70
3	Loamy	25	20	45	29252	46.11
4	Sandy loam	-	2	2	122	0.19
5	No soil	-	-	-	-	-
	Unrecorded	-	-	-	-	-
	Total:	**52**	**84**	**136**	**63435**	**100.00**

The soil texture in the district as noted from the above table ranges between clayey loam to loam where clayey loam prevails largely about 53.70%. Loamy texture occurs 46.11% of the forest area. Sandy loam texture is observed in 0.19% of the forest area.

4.4.7 DISTRIBUTION OF FOREST AREA BY SOIL EROSION, WEST DISTRICT:

Table 13 Distribution of forest area by soil erosion, West district.

Code	Soil erosion	No. of plots			Forest area (Ha.)	Percentage
		F.S.I. design	Sikkim design	Total		
1	Heavy	3	19	22	4524	7.13
2	Moderate	5	22	27	6949	10.95
3	Mild	40	43	83	47477	74.85
4	No erosion	4	-	4	4485	7.07
	Unrecorded	-	-	-	-	-
	Total:	**52**	**84**	**136**	**63435**	**100.00**

Mild erosion is noticed in maximum forest area to the extent of 74.85%. Heavy erosion and moderate erosion together constitute 18.08% of the forest area. The situation of heavy erosion is 7.13% whereas no erosion zone is 7.07% forest area.

4.4.8 DISTRIBUTION OF FOREST BY INJURIES TO CROP, WEST DISTRICT:

Table 14 Distribution of forest by injuries to crop, West district

Code	Injuries to crop	No. of plots			Forest area (Ha.)	Percentage
		F.S.I. design	Sikkim design	Total		
1	Borer attack, leaf defoliater, attack or damage by other pest epidemic	-	1	1	61	0.10
2	Top drying	-	-	-	-	-
3	Girdling and illicit felling	27	66	93	34305	54.08
4	Scaring of trees	-	-	-	-	-
5	Lopping for fodder	-	-	-	-	-
6	Wind damage or flood damage	5	2	7	5728	9.03
7	Other injuries	10	1	11	11274	17.77
8	No injuries	5	5	10	5911	9.32
	Unrecorded	5	9	14	6156	9.70
Total:		**52**	**84**	**136**	**63435**	**100.00**

Girdling and illicit felling of trees are the main causes for depletion of natural forests, which accounts 54.08% of the forest. Flood damage and wind also causing 9.03% forest damage. Beside, human agency, other injuries e.g. climber damage, lightning and wildlife also damages about 17.77% of the forest area. The forest area free from injuries is 9.32% only.

4.4.9 DISTRIBUTION OF FOREST AREA BY FIRE INCIDENCE, WEST DISTRICT:

Table 15 Distribution of forest area by fire incidence, West district

Code	Item	No. of plots			Forest area (Ha.)	Percentage
		F.S.I. design	Sikkim design	Total		
1	Heavy	2	12	14	2975	4.69
2	Moderate	7	12	19	8582	13.53
3	Light	5	23	28	7010	11.05
4	No fire	34	28	62	39833	62.79
	Unrecorded	4	9	13	5035	7.94
Total:		**52**	**84**	**136**	**63435**	**100.00**

A portion of 62.79% of the forest area is free from fire incidence. The inventory result indicates that 4.69% of the forest are under heavy fire region whereas 13.53% and 11.05% of the forest area is affected by moderate and light fire incidence.

4.4.10 DISTRIBUTION OF FOREST AREA BY GRAZING INCIDENCE, WEST DISTRICT:

Table 16 Distribution of Forest Area by Grazing Incidence, West district.

Code	Grazing	No. of plots			Forest area (Ha.)	Percentage
		F.S.I. design	Sikkim design	Total		
1	Heavy	1	13	14	1915	3.02
2	Moderate	15	23	38	18223	28.73
3	Light	31	22	53	36103	56.91
4	No grazing	1	17	18	2159	3.40
	Unrecorded	4	9	13	5035	7.94
Total:		**52**	**84**	**136**	**63435**	**100.00**

Inventory result indicates that 3.02% forest area is under the influence of heavy grazing, while 28.73% and 56.91% of the forest area are effected by moderate and light grazing respectively. Only 3.40% of forest area is free from grazing incidence.

4.4.11 DISTRIBUTION OF FOREST AREA BY PLANTATION POTENTIALITY, WEST DISTRICT :

Table 17 DISTRIBUTION OF FOREST AREA BY PLANTATION POTENTIALITY,WEST DISTRICT

Code	Plantation potentiality	No. of plots			Forest area (Ha.)	Percentage
		F.S.I. design	Sikkim design	Total		
1	Plantable	8	23	31	10374	16.35
2	Unplantable	-	1	1	61	0.10
3	Not applicable	44	58	102	52878	83.36
	Unrecorded	-	2	2	122	0.19
Total:		**52**	**84**	**136**	**63435**	**100.00**

Data analysis shows 16.35% of the forest area is found to be suitable for carrying out plantation work while in 83.36% of the forest area this is not applicable because of adequate stocking of tree crop in the above region and does not require further plantation. The percentage of unplantable forest area is 0.10% only. Forest area of 0.19% is under habitation for plantation potentiality could not be judged and placed in the unrecorded group.

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4.4.12 DISTRIBUTION OF FOREST AREA BY DEGRADATION, WEST DISTRICT:

Table 18 Distribution of Forest Area by Degradation, West District.

Code	Status	No. of plots			Forest area (Ha.)	Percentage
		F.S.I. design	Sikkim design	Total		
A. Grazing, fire, pollarding, illicit cutting and lopping.						
11	Heavily	10	26	36	12800	20.18
12	Moderately	8	32	40	10925	17.22
13	Mildly	24	19	43	28070	44.24
14	Not degraded	10	1	11	11274	17.78
B. Other natural calamities such as landslides, glaciers flood, rainfall.						
21	Heavily	-	3	3	183	0.29
22	Moderately	-	3	3	122	0.19
23	Mildly	-	-	-	-	-
24	Not degraded	-	-	-	-	-
	Unrecorded	-	1	1	61	0.10
Total:		**52**	**84**	**136**	**63435**	**100.00**

Degradation on account of biotic interference could be judged from the above table. Heavy to moderate degradation is noticed in 37.88% of forest area of the district. Mildly degraded area constitutes 44.24% forest area whereas areas not subjected to any degradation constitute 17.78% only.

4.4.13 DISTRIBUTION OF FOREST AREA BY INTENSITY OF REGENERATION, WEST DISTRICT.

The intensity of regeneration in forest of the West District is as follows.

Table 19 Distribution of Forest Area by regeneration status, West district.

Code	No. of Seedlings in a 4m X 4m plot	No. of Plots			Forest Area (Ha.)	Percentage
		F.S.I. Design	Sikkim Design	Total		
1	Adequate (8 or more)	-	11	11	672	1.06
2	Inadequate	20	26	46	24013	37.85
3	Absent (No seedlings)	27	31	58	32167	50.71
	Unrecorded	5	16	21	6583	10.38
	TOTAL	**52**	**84**	**136**	**63435**	**100.00**

The status of regeneration is not satisfactory in the district as only 1.06% of the Forest area shows adequate regeneration.

4.5 Plot description study (South district):

Various parameters related to the description of the plot are analyzed, and the results are summarized in the following sub-paragraphs for south district.

4.5.1 DISTRIBUTION OF FOREST AREA BY LAND USE CLASSES, SOUTH DISTRICT:

Table 20 Distribution of forest area by land use classes.

Code	Land use	Description	No. of plots			Forest area (Ha.)	Percentage
			F.S.I. design	Sikkim design	Total		
1	Dense tree forest	Forest with Canopy density 70% and above	1	13	14	1230	3.89
2	Moderately dense tree forest	Forest with Canopy density 30-69%	40	105	145	19381	61.30
3	Open tree forest	Forest with Canopy density 5-29%	15	57	72	8535	27.00
4	Scrub forest	Forest with Canopy density Less than 5%	-	3	3	216	0.68
5	Bamboo brakes	Areas completely covered with bamboo	-	-	-	-	-
6	Shifting cultivation	Areas under current as well as previous years shifting cultivation	-	-	-	-	-
7.	Young plantation of forestry species		-	2	2	144	0.46
8 to 10	Trees in line		-	1	1	72	0.23
11	Barren land		-	7	7	503	1.58
12	Agricultural land Without trees		-	4	4	288	0.91
13	Agricultural land With trees		2	-	2	592	1.87
14	Non-forest plantation		-	5	5	359	1.14
15	Habitation		1	-	1	296	0.94
16	Water bodies		-	-	-	-	-
18	Young crop of natural or artificial regeneration		-	-	-	-	-
Total:			**59**	**197**	**256**	**31616**	**100.00**

The above table shows that most of the forest area is under moderately dense tree forest followed by open tree forest which constitute 61.30% and 27.00% respectively. The percentage of dense tree forest is only 3.89%.

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4.5.2 DISTRIBUTION OF FOREST AREA BY TOPOGRAPHY, SOUTH DISTRICT:

Table 21 Distribution of forest area by topography, South district.

Code	Topography	No. of plots			Forest area (Ha.)	Percentage
		F.S.I. design	Sikkim design	Total		
1	Flat	-	1	1	72	0.23
2	Gently rolling	-	-	-	-	-
3	Hilly	21	72	93	11388	36.02
4	Very hilly	38	124	162	20156	63.75
	Unrecorded	-	-	-	-	-
	Total:	**59**	**197**	**256**	**31616**	**100.00**

The above table clearly shows that 99.77% of the forest area falls in hilly or very hilly areas. The district is basically a hilly area with undulating configuration.

4.5.3 DISTRIBUTION OF FOREST AREA BY ASPECT, SOUTH DISTRICT:

Table 22 Distribution of Forest Area by Aspect, South District.

Code	Aspect	No. of plots			Forest area (Ha.)	Percentage
		F.S.I. design	Sikkim design	Total		
1	Northern	5	14	19	2485	7.86
2	North - eastern	9	31	40	4891	15.47
3	Eastern	3	10	13	1607	5.08
4	South-eastern	16	28	44	6747	21.34
5	Southern	3	17	20	2110	6.67
6	South-western	12	35	47	6066	19.19
7	Western	5	27	32	3420	10.82
8	North-western	6	35	41	4290	13.57
9	No aspect	-	-	-	-	-
	Unrecorded	-	-	-	-	-
	Total:	**59**	**197**	**256**	**31616**	**100.00**

A close study of the aspect reveals that major portion of the area in the district is with south-eastern aspect. Aspect in the hilly areas governs the growth and quality of the crop.

4.5.4 DISTRIBUTION OF FOREST AREA BY ROCKINESS,SOUTH DISTRICT:

Table 23 Distribution of forest area by rockiness, South district.

Code	Rockiness	No. of plots			Forest area (Ha.)	Percentage
		F.S.I. design	Sikkim design	Total		
1	High	-	3	3	216	0.68
2	Medium	9	38	47	5394	17.06
3	Low	15	49	64	7960	25.18
4	No rock	35	107	142	18046	57.08
	Unrecorded	-	-	-	-	-
	Total:	**59**	**197**	**256**	**31616**	**100.00**

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The table shows that the district bears practically very little rocky areas. High rocks and medium rocks exist in the district covering an area of 17.74% forest area bearing low rock constitute 25.18% whereas areas having no rock constitute 57.08% forest area.

4.5.5 DISTRIBUTION OF FOREST AREA BY SOIL CONSISTENCY, SOUTH DISTRICT:

Table 24 Distribution of forest area by soil consistency, South district.

Code	Soil consistency	No. of plots			Forest area (Ha.)	Percentage
		F.S.I. design	Sikkim design	Total		
1	Friable	1	11	12	1087	3.44
2	Slightly compact	55	181	236	29282	92.61
3	Compact	3	4	7	1175	3.72
4	Cemented	-	-	-	-	-
5	No soil	-	1	1	72	0.23
	Unrecorded	-	-	-	-	-
	Total:	**59**	**197**	**256**	**31616**	**100.00**

Most of the soil in the forest area is slightly compact and favorable for vegetative growth and accounts for 92.61% of the project area.

4.5.6 DISTRIBUTION OF FOREST AREA BY SOIL TEXTURE, SOUTH DISTRICT:

Table 25 Distribution of forest area by soil texture, South district.

Code	Soil texture	No. of plots			Forest area (Ha.)	Percentage
		F.S.I. design	Sikkim design	Total		
1	Clayey	2	-	2	592	1.87
2	Clayey loam	24	87	111	13355	42.25
3	Loamy	32	93	125	16151	51.08
4	Sandy loam	1	16	17	1446	4.57
5	No soil	-	-	-	-	-
	Unrecorded	-	1	1	72	0.23
	Total:	59	197	256	31616	100.00

Texture of soil in the district ranges between clayey loam and loamy texture which accounts for 42.25% and 51.08% respectively. Sandy loam constitutes 4.57% of the forest area.

4.5.7 DISTRIBUTION OF FOREST AREA BY SOIL EROSION, SOUTH DISTRICT:

Table 26 Distribution of Forest Area by Soil Erosion, South District.

Code	Soil erosion	No. of plots			Forest area (Ha.)	Percentage
		F.S.I. design	Sikkim design	Total		
1	Heavy	-	10	10	719	2.27
2	Moderate	9	26	35	4531	14.33
3	Mild	47	133	180	23465	74.22
4	No erosion	3	27	30	2829	8.95
	Unrecorded	-	1	1	72	0.23
	Total:	**59**	**197**	**256**	**31616**	100.00

Soil is prone to erosion as mild erosion constitutes 74.22% of the forest area. It is noticed that heavily eroded area is 2.27% whereas moderately eroded area constitute 14.33% of the forest area. Soil conservation measures are to be adopted particularly in moderately eroded areas.

4.5.8 DISTRIBUTION OF FOREST AREA BY INJURIES TO CROP, SOUTH DISTRICT:

Table 27 Distribution of Forest by Injuries To Crop, South District.

Code	Injuries to crop	No. of plots			Forest area (Ha.)	Percentage
		F.S.I. design	Sikkim design	Total		
1	Borer attack, leaf defoliater, attack or damage by other pest epidemic	-	-	-	-	-
2	Top drying	1	-	1	296	0.94
3	Girdling and illicit felling	47	145	192	24328	76.95
4	Scaring of trees	-	-	-	-	-
5	Lopping for fodder	-	4	4	288	0.91
6	Wind damage or flood damage	-	-	-	-	-
7	Other injuries	4	18	22	2477	7.83
8	No injuries	3	14	17	1894	5.99
	Unrecorded	4	16	20	2333	7.38
	Total:	**59**	**197**	**256**	**31616**	**100.00**

The inventory result reveals that the district is subjected to maximum injuries by human agencies in the form of illicit felling and girdling which constitute 76.95% of the forest area. 'Other injuries' which include climber damage, lightening damage, wildlife damage constitute 7.83% of the forest area. Area free from injuries constitutes 5.99% only. It is, therefore, necessary to give protection to damage prone area as far as possible.

4.5.9 DISTRIBUTION OF FOREST AREA BY FIRE INCIDENCE, SOUTH DISTRICT:

Table 28 Distribution of Forest Area by Fire Incidence, South District.

Code	Item	No. of plots			Forest area (Ha.)	Percentage
		F.S.I. design	Sikkim design	Total		
1	Heavy	-	-	-	-	-
2	Moderate	5	10	15	2198	6.95
3	Light	18	46	64	8632	27.30
4	No fire	32	125	157	18453	58.37
	Unrecorded	4	16	20	2333	7.38
	Total:	**59**	**197**	**256**	**31616**	**100.00**

The survey result indicates that there is no incidence of heavy fire in the forest. Light fire incidence occurs in 27.30% of forest area while moderate fire incidence occurs in 6.95% forest area only. No fire incidence occurs in 58.37% of the forest area.

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4.5.10 DISTRIBUTION OF FOREST AREA BY GRAZING INCIDENCE, SOUTH DISTRICT:

Table 29 Distribution of Forest Area by Grazing Incidence, South District.

Code	Grazing	No. of plots			Forest area (Ha.)	Percentage
		F.S.I. design	Sikkim design	Total		
1	Heavy	7	28	35	4084	12.92
2	Moderate	24	59	83	11343	35.88
3	Light	19	60	79	9933	31.41
4	No grazing	5	34	39	3923	12.41
	Unrecorded	4	16	20	2333	7.38
Total:		**59**	**197**	**256**	**31616**	**100.00**

It is observed that 12.92% forest area is subjected to heavy grazing while moderately grazing is found to occur in 35.88% forest area. Incidence of light grazing is observed in 31.41% of the forest area. Grazing is detrimental to forest regeneration and its occurrence should be minimized as far as possible in moderate to light grazing region.

4.5.11 DISTRIBUTION OF FOREST AREA BY PLANTATION POTENTIALITY, SOUTH DISTRICT:

Table 30 Distribution of Forest Area by Plantation Potentiality, South District.

Code	Plantation potentiality	No. of plots			Forest area (Ha.)	Percentage
		F.S.I. design	Sikkim design	Total		
1	Plantable	18	58	76	9494	30.03
2	Unplantable	-	11	11	791	2.50
3	Not applicable	41	124	165	21044	66.56
	Unrecorded	-	4	4	287	0.91
Total:		**59**	**197**	**256**	**31616**	**100.00**

Plantation potentiality of the district is 30.03% of the total forest area. It is suggested that plantable areas should be afforested as quickly as possible with suitable species.

4.5.12 DISTRIBUTION OF FOREST AREA BY DEGRADATION, SOUTH DISTRICT:

Table 31 Distribution of Forest Area by Degradation, South District.

Code	Status	No. of plots			Forest area (Ha.)	Percentage
		F.S.I. design	Sikkim design	Total		
	A. Grazing, fire, pollarding, illicit cutting and lopping					
11	Heavily Degraded	14	61	75	8527	26.97
12	Moderately Degraded	19	55	74	9575	30.28
13	Mildly Degraded	25	70	95	12427	39.31
14	Not degraded	-	6	6	431	1.36
	B. Other natural calamities such as landslides, glaciers flood, rainfall					
21	Heavily Degraded	-	1	1	72	0.23
22	Moderately Degraded	-	1	1	72	0.23
23	Mildly Degraded	1	-	1	296	0.94
24	Not degraded	-	-	-	-	-
	Unrecorded	-	3	3	216	0.68
	Total:	**59**	**197**	**256**	**31616**	**100.00**

The survey result indicates that 27.20 % of the forest area is subjected to heavy degradation. The forest area affected by moderately and mild degradation is 30.51% and 40.25% respectively. The area free from degradation is only 1.36% only. The position is alarming and protection is necessary on a priority basis in the form of rehabilitation.

4.5.13 DISTRIBUTION OF FOREST AREA BY REGENERATION STATUS, SOUTH DISTRICT.

Table 32 Distribution of Forest Area by Regeneration Status, South District.

Code	Regeneration Status (No. of Seedlings in 4m X 4m plot)	No. of plots			Forest area (Ha.)	Percentage
		F.S.I. design	Sikkim design	Total		
1	Adequate (8 or more seedlings)	2	7	9	1095	3.46
2	In adequate (Less than 8 seedlings)	20	69	89	10877	34.40
3	Absent	33	95	128	16592	52.48
	Unrecorded	4	26	30	3052	9.66
	Total:	**59**	**197**	**256**	**31616**	**100.00**

The status of regeneration is unsatisfactory with only 3.46% of the forest area showing adequate regeneration.

4.6 TREE DENSITY STUDY:

The distribution of stems/ha. by species and diameter classes in different altitude stratum and in reserved and unreserved forest have been calculated which are given in Table No. 1.1.1.1 to 1.2.4.1 (vide part II of this report). The number of stems/ha. by strata for both West and South districts are summarized.

DISTRICT: WEST SIKKIM

Table 33 Stratawise distribution of stems per Ha. West District.

Stratum	Altitude	No. of stems/ha.	
		Reserved	Unreserved
I	Upto 900 m	144.999	110.000
II	900 – 1800 m	287.307	193.684
III	1801 – 2400 m	190.811	110.000
IV	2400 m+	270.714	
	District Average	**248.205**	**135.297**

The number of stems/ha. in West Sikkim district is 222.99 without segregating the reserved and unreserved forest.

DISTRICT: SOUTH SIKKIM.

Table 34 Stratawise distribution of stems per Ha., South District.

Stratum	Altitude	No. of stems/ha.	
		Reserved	Unreserved
I	Upto 900 m	168.421	181.667
II	900 – 1800 m	151.532	182.344
III	1801 – 2400 m	211.296	254.762
IV	2400 m+	277.500	-
	District Average	**229.093**	**215.306**

Similarly, the number of stems/ha. in South district is 226.50 irrespective of reserved and unreserved forest.

4.6.1 Stratum I, upto 900 m, reserved – West Sikkim district:

Salient features of this stratum are given below:

- Number of stems/ha. is 144.999.
- Trees are mostly concentrated in 10-19 cm diameter classes accounting for 48.85% followed by 20.69%, 10.92% and 12.07% in 20-29 cm., 30-39 cm. and 40-49 cm. diameter classes respectively.
- Presence of tree observed upto 70-79 cm. diameter classes.

Important species with stems/ha. and percentage distribution are as follows:

Table 35 Stems/Ha. & % Distribution, West District Stratum-1, >900m, R.F.

Species	Stems/ha.	Percentage
Shorea robusta	74.166	51.15
Garuga pinata	10.000	6.90
Alstonia scholaris	9.167	6.32
Schima wallichii	10.000	6.90

4.6.2 Stratum I, upto 900 m unreserved – West Sikkim district:

Following observation can be made for this stratum in respect of stems/ha.

- Number of stems/ha. is 110 in this stratum.
- Concentration of trees is maximum in 10-19 cm diameter classes which accounts for 59.09% of the total trees of the stratum.
- Trees up to 50-59 cm diameter classes are found to be present.

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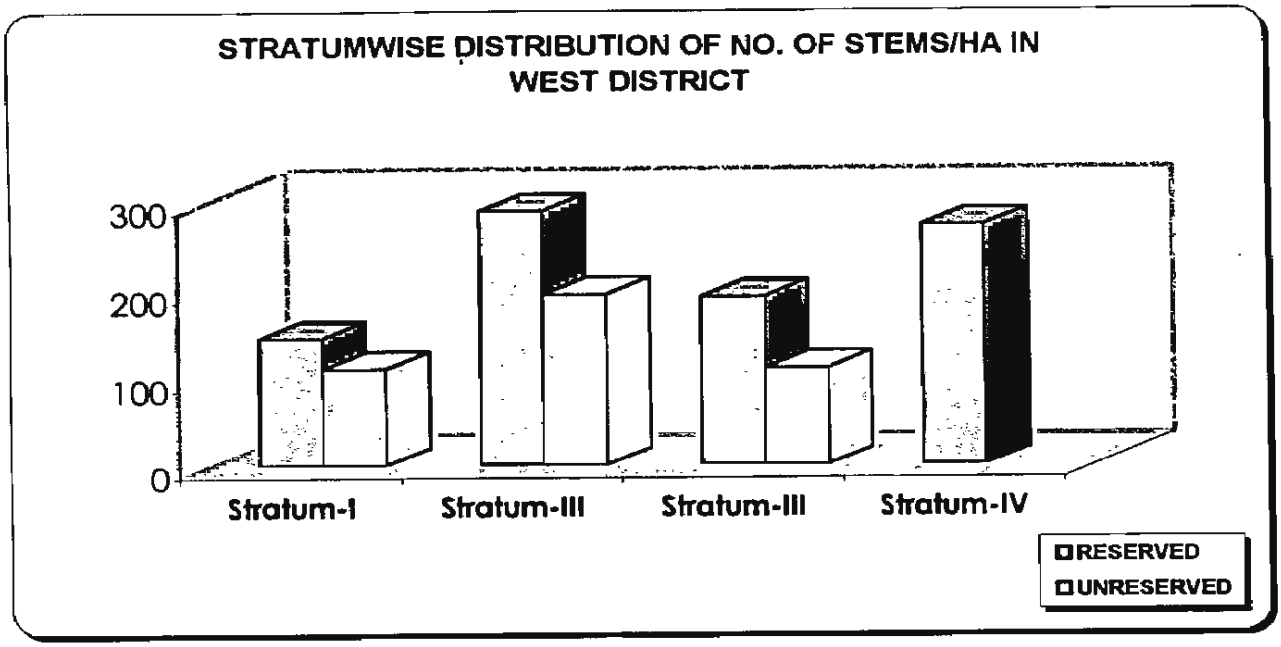
STRATUMWISE DISTRIBUTION OF NO. OF STEMS/HA IN WEST DISTRICT
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200
100
0
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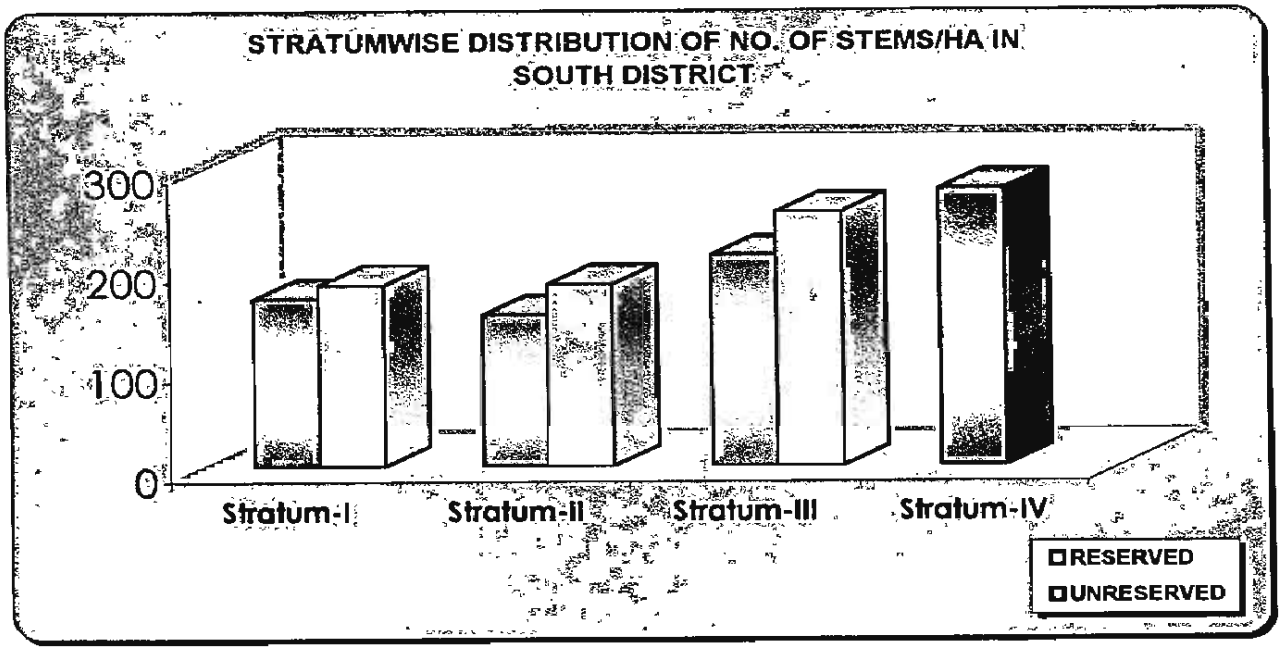
Stratum-III
Stratum-III
Stratum-IV
RESERVED
UNRESERVED


STRATUMWISE DISTRIBUTION OF NO. OF STEMS/HA IN SOUTH DISTRICT
300
200
100
0
Stratum-I
Stratum-II
Stratum-III
Stratum-IV
RESERVED
UNRESERVED

Contents

Number of stems/ha. with percentage for predominant species are furnished below:

Table 36 Stems/Ha. & % Distribution, West District Stratum-1, >900m, Unreserved.

Species	Stems/ha.	Percentage
Schima wallichii	50.000	45.45
Shorea robusta	45.000	40.91
Albizzia procera	5.000	4.54
Chukrasia vellutina	5.000	4.54

4.6.3 Stratum II, 901 to 1800 m, reserved – West Sikkim district:

- Number of stems/ha. in this stratum is observed to be 287.307. The associates are *mainly Cryptomeria japonica, Castanopsis spp., Schima wallichii, Alnus nepalensis* etc.
- 60.24% of the stems are concentrated in 10-19 cm. diameter class followed by 21.55% and 9.50% in 20-29cm.and 30-39cmdiameter classes respectively.
- Trees are present in all the diameter classes.

The main species in this stratum with percentage of occurrence is shown as below:

Table 37 Stems/Ha. & % Distribution, West District Stratum-II, 901-1800m, R.F.

Species	Stems/ha.	Percentage
Cryptomeria japonica	56.923	19.81
Castanopsis spp.	35.000	12.18
Schima wallichii	33.846	11.78
Castanopsis indica	19.231	6.69
Engelharditia spicata	17.308	6.02
Alnus nepalensis	16.923	5.89

4.6.4 Stratum II, 901 to 1800 m, unreserved – West Sikkim district:

- Number of stems/ha. is 193.684. Concentration of trees in the lower diameter classes i.e. 10-19 cm. is maximum which accounts for 57.88% of the total trees of this stratum followed by 21.20% and 10.60% in 20-29 cm. and 30-39 cm. diameter classes.
- Trees are observed to be present in all the diameter classes except in 80-89 cm. and 90-99 cm. diameter classes.
- It is also observed that only 1.9% trees is above 60cm.diameter class.

Number of stems/ha. with percentage of some of the important species are furnished below:

Table 38 Stems/Ha. & % Distribution, West District Stratum-II, >900m, Unreserved.

Species	Stems/ha.	Percentage
Schima wallichii	50.526	26.09
Castanopsis spp.	32.632	16.85
Engelharditia spicata	15.263	7.88
Alnus nepalensis	14.211	7.33
Eurya japonica	13.684	7.06
Macaranga spp.	11.053	5.71

4.6.5 Stratum III, 1801 to 2400 m altitude, Reserved – West district:

Analysis of the data in this stratum reveals the following conclusions:

- Number of stems/ha. in this stratum is 190.811.
- 55.24% of the stems are concentrated in 10-19 cm. diameter class followed by 28.33 and 6.09% in 20-29 cm. and 30-39 cm. diameter classes.
- Trees are present in all the diameter classes.

The stems/ ha. and percentage for some of the dominant species is as follows:

Table 39 Stems/Ha. & % Distribution, West District Stratum-III, 1801-2400m, R.F.

Species	Stems/ha.	Percentage
Symplocos theifolia	28.919	15.16
Eurya japonica	13.684	7.17
Alnus nepaulensis	25.676	13.46
Quercus spp.	24.865	13.03
Viburnum spp.	15.135	7.93
Quercus lamellosa	11.892	6.23

4.6.6 Stratum III, 1801 to 2400 m altitude, Unreserved – West district:

- Number of stems/ha. in this stratum is 110.
- Stems are mostly concentrated in lower diameter classes.
- 60% of trees are concentrated in 10-19 cm. diameter class followed by 17.27% and 8.18% in 20-29 cm. and 30-39 cm. diameter classes.

Principal species in this stratum are as under:

Table 40 Stems/Ha. & % Distribution, West District Stratum-III, 1801-2400m, Unreserved.

Species	Stems/ha.	Percentage
Symplocos theifolia	7.000	6.36
Eurya japonica	7.000	6.36
Alnus nepaulensis	17.000	15.45
Viburnum spp.	21.000	19.09
Engelhardtia spicata	7.000	6.36
Phoebe attentuata	13.000	11.82

4.6.7 Stratum IV, above 2400 m, Reserved – West district:

Following observations could be drawn in respect of this stratum:

- Number of stems/ha. in the stratum is 270.714.
- Stems in this stratum are distributed over all the diameter classes.
- Number of stems is maximum in 10-19 cm. diameter class which is 49.08%. Number of stems present in diameter class 20-29 cm. and 30-39 cm. is 14.51% and 11.61% respectively.

Value of Stems/ha for some of the important species are furnished below:

Table 41 Stratum IV, West District, 2400 m+, Reserved.

Species	Stems/ha.	Percentage
Rhododendron griffithianum	40.714	15.04
Rhododendron arboreum	31.429	11.61
Rhododendron spp.	26.429	9,.76
Michelia spp.	21.429	7.91
Symplocos laurina	17.857	6.60
Acer campbelli	13.571	5.01

4.6.8 Stratum I, upto 900m , Reserved (South district):

The observation in respect of this stratum is as under:

- The number of stems/ha. in this stratum is 168.421.
- Trees are found to be present in all the diameter classes.
- Trees are mostly concentrated in the diameter class 10-19 cm. followed by 20-29cm. and 30-39cm. diameter classes which accounts for 43.65%, 25.73% and 17.50% respectively.

The stems per hectare with percentage are furnished below :

Table 42 Stratum I, South District, >900m, R.F.

Species	Stems/ha.	Percentage
Shorea robusta	73.333	43.54
Tectona grandis	11.579	6.87
Mallotus phillippinensis	9.298	5.52
Schima wallichii	9.123	5.42
Ostodes paniculata	6.667	3.96

4.6.9 Stratum I, upto 900m, Unreserved (South district):

Following conclusions can be drawn from the results of this stratum:

- Number of stems per hectare in this stratum is 181.667.
- Stems are not present uniformly in all the diameter classes. Stems are mostly concentrated in the lower diameter classes.
- 48.17%, 26.15% and 17.43% of the stems are present in 10-19,20-29 and 30-39cm. diameter classes respectively.

Number of stems/ha with percentage for the predominant species are as under:

Table 43 Stratum I, South District, >900m, Unreserved.

Species	Stems/ha.	Percentage
Shorea robusta	13.333	7.33
Albizzia spp.	14.167	7.80
Engelhardtia spicata	12.500	6.88
Schima wallichii	43.333	23.85
Ostodes paniculata	10.000	5.50
Diploknema bulyracea	10.000	5.50

4.6.10 Stratum II, 901 to 1800m altitude, Reserved (South district) :

Following observations have been made in respect of this stratum:

- Number of stems/ha. in this stratum is 151.532.
- Regarding the distribution of stems in diameter classes it is observed that most of the stems fall in the diameter classes 10-19 cm., which accounts for 58.12% followed by 26.40% and 7.36% in the 20-29 cm. and 30-39 cm. diameter classes respectively.

The stems/ha. for species in this stratum with percentage of occurence are furnished below:

Table 44 Stratum II, South District, 901-1800m, R.F.

Species	Stems/ha.	Percentage
Alnus nepalensis	10.769	7.11
Michelia spp.	6.923	4.57
Engelhardtia spicata	11.153	7.36
Schima wallichii	43.460	28.68
Nyssa javanica	4.615	3.04

4.6.11 Stratum II, 901 to 1800m altitude, Unreserved (South district):

Salient features of this stratum are furnished below :

- Number of stems/ha. is 182.344.
- Stems are observed to be present in all the diameter classes.
- Trees are mostly concentrated in 10-19 cm. diameter class, which accounts 60.15% of the total stems of this stratum followed by 20.39%, 9.08% and 5.74% in 20-29 cm., 30-39 cm. and 40-49 cm. diameter classes respectively.

The number of stems/ha. with percentage for the predominant species are as under:

Table 45 Stratum II, South District, 901-1800m, Unreserved.

Species	Stems/ha.	Percentage
Schima wallichii	25.156	13.79
Eurya japonica	11.875	6.51
Castanopsis spp.	9.375	5.14
Engelharditia spicata	23.906	13.11
Alnus species	10.938	6.00
Macaranga spp.	8.594	4.71
Viburnum spp.	9.844	5.40

4.6.12 Stratum III, 1801 to 2400m altitude – Reserved (South district):

The observation in respect of this stratum is as under:

- Number of stems/ha. is 211.296.
- Trees are found to be present in all the diameter classes. 1.67% of the trees are present even over 90 cm. diameter classes.
- Trees are mostly concentrated in the lower diameter classes 54.60%, 24.45% and 8.59% of the trees are found to be present in 10-19 cm.,20-29 cm. and 30-39 cm. diameter classes respectively.

Stems/ha. for the major occurring species with percentage are summarized below:

Table 46 Stratum III, South District, 1801-2400m, R.F.

Species	Stems/ha.	Percentage
Symplocos theifolia	40.741	19.28
Phoebe altenuata	18.148	8.59
Cryptomeria japonica	12.963	6.13
Eurya japonica	12.407	5.87
Machilus spp.	11.667	5.52
Litsaea spp.	11.296	5.34

4.6.13 Stratum III, 1801 to 2400m altitude, Unreserved – (South district):

Following observations in respect of this stratum is noted:

- Number of stems/ha. is 254.762.
- Trees are found to occur in all the diameter classes even upto 100 cm. diameter classes but trees are mostly concentrated within 40 cm. diameter class.
- 55.14% of the trees are concentrated in 10-19 cm. diameter classes followed by 27.66% and 10.47% of trees in 20-29 cm. and 30-39 cm. diameter classes respectively. Stems/ha. with percentage for some of the important species furnished below:

Table 47 Stratum III, South District, 1801-2400m, Unreserved.

Species	Stems/ha.	Percentage
Eurya japonica	34.762	13.64
Viburnum species	30.952	12.15
Castanopsis spp.	20.000	7.85
Cryptomeria japonica	30.000	11.78
Alnus nepalensis	31.429	12.34
Symplocos theifolia	18.095	7.10

4.6.14 Stratum IV, above 2400 m. altitude, Reserved, (South district):

- Number of stems/ha. is 277.500.
- Trees are found to be present in almost all the diameter classes. Most of the trees are concentrated in the lower diameter classes. 48.65% of the trees are found to be present in 10-19 cm. diameter classes followed by 21.62% and 9.01% and 11.71% of trees in 20-29 cm.,30-39 cm., 40-49 cm. diameter classes respectively.
- Main association of the species in this stratum are *Litsaea* spp., *Quercus* spp., *Symploces theifolia*, *Rhododendron* spp., and *Machilus* spp.

The stems/ha. and percentage of occurrence for the above species are furnished below :

Table 48 Stratum IV, South District, 2400m+, R.F.

Species	Stems/ha.	Percentage
Litsaea spp.	87.500	31.53
Quercus spp.	50.000	18.02
Symplocos theifolia	40.000	14.41
Rhododendron spp.	30.000	10.81
Machilus spp.	30.000	10.81

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4.7 Total stems:

The total number of stems in different stratum and in both the districts by species and diameter classes have been estimated and given in Table No. 2.1.11 to 2.2.4.1 (vide Part II of this report). These are summarized as follows:

Table 49 No. of stems in the forests of West Sikkim:

Stratum	Description	Total stems ('000 No.)	
		Reserved	Unreserved
I	Upto 900m altitude	165	157
II	900 to 1800m	321	1082
III	1800 –2400m	2352	678
IV	2400m + altitude	9391	-
Total:		**12229**	**1917**

Table 50 No. of stems in the forests of South Sikkim:

Stratum	Description	Total stems ('000 No.)	
		Reserved	Unreserved
I	Upto 900m altitude	641	131
II	900 to 1800m	222	459
III	1800 –2400m	2050	692
IV	2400m + altitude	2966	-
Total:		**5879**	**1282**

Thus, total number of stems in West and South Sikkim district is 14.146 million and 7.161 million respectively.

4.8 Volume studies:

The distribution of volume/ha. by species and diameter classes in different stratum in West and South Sikkim district has been calculated and given in table No. 3.1.1.1 to 3.2.4.1 (vide Part II of this report). The volume/ha. by stratum and district is summarized in the subsequent paragraphs:

Table 51 Volume(m^3)/ha. in the forests of West Sikkim:

Stratum	Description	Volume (m^3)/ha.	
		Reserved	Unreserved
I	Upto 900m altitude	66.813	67.078
II	900 to 1800m	111.266	70.120
III	1800 –2400m	130.196	113.009
IV	2400m + altitude	283.047	-

The volume/ha. for the entire West Sikkim is 201.90 m^3 merging the reserved and unreserved forest area.

Table 52 Volume(m^3)/ha. in the forests of South Sikkim:

Stratum	Description	Volume (m^3)/ha.	
		Reserved	Unreserved
I	Upto 900m altitude	77.250	69.571
II	900 to 1800m	52.752	77.272
III	1800 –2400m	137.916	103.276
IV	2400m + altitude	204.533	-

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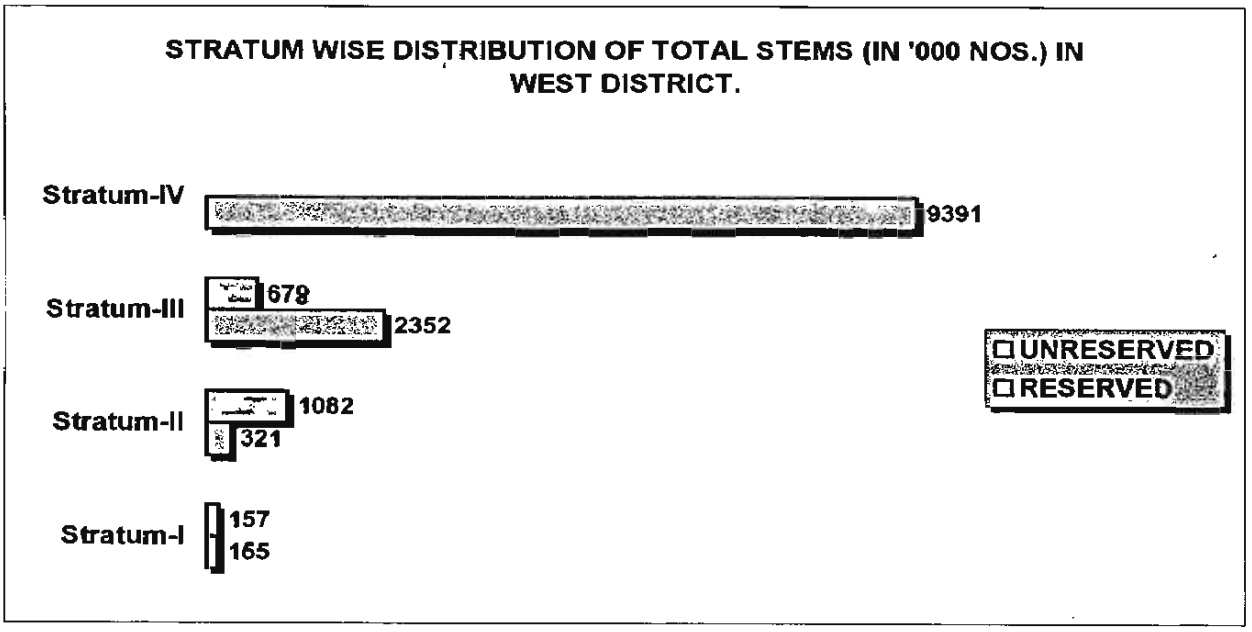
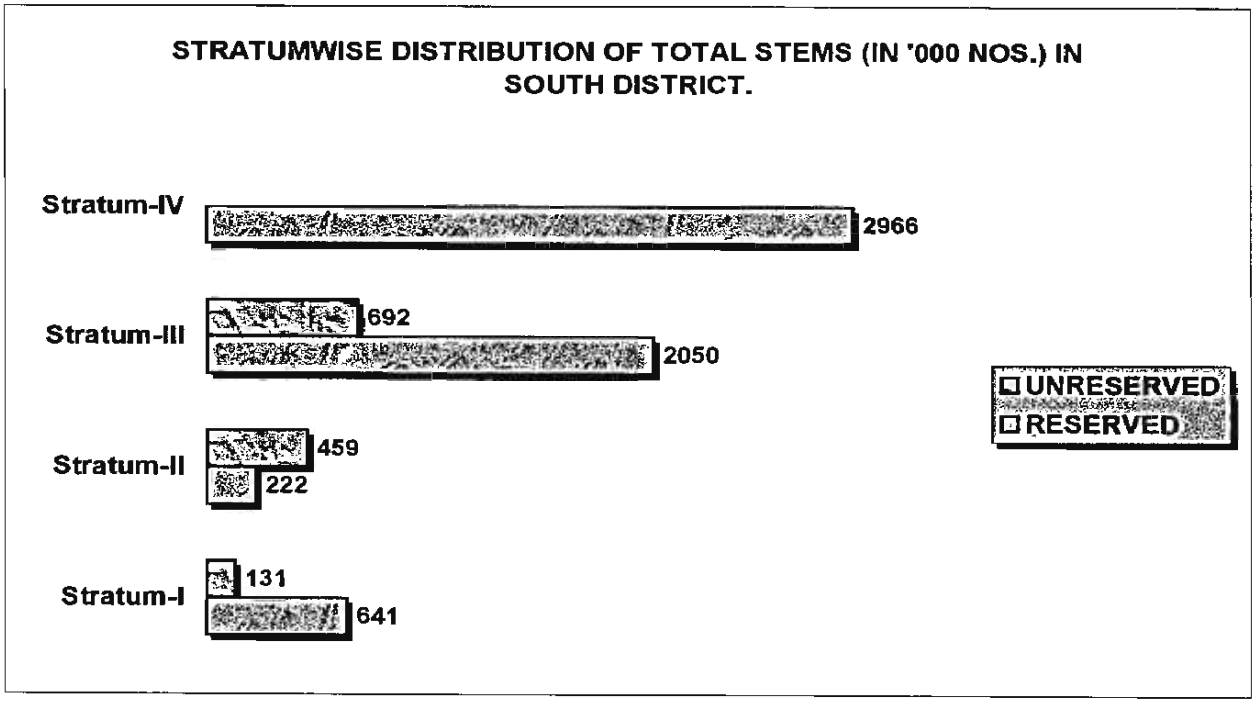

STRATUM WISE DISTRIBUTION OF TOTAL STEMS (IN '000 NOS.) IN WEST DISTRICT.
Stratum-IV
9391
Stratum-III
678
2352
Stratum-II
1082
321
Stratum-I
157
165
UNRESERVED
RESERVED


STRATUMWISE DISTRIBUTION OF TOTAL STEMS (IN '000 NOS.) IN SOUTH DISTRICT.
Stratum-IV
2966
Stratum-III
692
2050
Stratum-II
459
222
Stratum-I
131
641
UNRESERVED
RESERVED

Contents

The volume/ha. for South Sikkim district is 139.62 m^3 only irrespective of reserved and unreserved forest area.

4.8.1 VOLUME STUDIES, STRATUM I, RESERVED UPTO 900M ALTITUDE, WEST DISTRICT:

The analysis of the inventory data in this stratum reveals the following conclusions:

- The volume/ha. in this stratum is 66.813 m^3 only.
- Most of the volume is concentrated in the 40-49 cm. diameter classes which accounts 30.25% followed by 13.87% and 26.81% in 30-39 cm. and 50-59 cm. diameter classes respectively.
- Volume of stems is present upto 70-79 cm. diameter class.
- The main species in this stratum is Shorea robusta.

The Volume/ha.with percentage for some of the species are given below:

Table 53 Volume/Ha., Stratum I, West District, R.F.

Species	Volume (m^3)/ha.	Percentage
Shorea robusta	26.881	40.23
Tetrameles nudiflora	9.789	14.65
Schima wallichii	6.221	9.31
Pinus species	4.856	7.27

4.8.2 VOLUME STUDIES, STRATUM I UNRESERVED UPTO 900M ALTITUDE WEST DISTRICT:

The inventory results indicates the following information:

- The volume/ha. is only 67.078 m^3 in this stratum.
- Trees are found to be present in the irregular diameter classes which is also reflected in the volume estimation i.e. illicit felling might be the regular practice in this stratum.

The volume/ha. with percentage for the volume contributing species is furnished below:

Table 54 Volume/ Ha. Stratum I, West District, Unreserved.

Species	Volume (m^3)/ha.	Percentage
Shorea robusta	60.775	90.60
Chukrasia vellutina	0.557	0.83
Schima wallichii	4.857	7.24

4.8.3 VOLUME STUDIES, STRATUM II, RESERVED 900-1800M ALTITUDE WEST DISTRICT:

Following observation can be made for this stratum:

- Volume/ha. is 111.266 m^3 only.
- Volume is found to be present in all the diameter classes.

- 19.78% of volume is observed in 40-49 cm. diameter classes. It is interesting to note that 6.84% of the total volume of the stratum is found in 100 cm. diameter class and above.

The volume/ha. with percentage for some of the volume contributing species are furnished as follows:

Table 55 Volume/Ha., West District, Stratum II, R.F.

Species	Volume (m^3)/ha.	Percentage
Cryptomeria japonica	20.307	18.25
Castanopsis species	16.089	14.46
Alnus nepalensis	15.333	13.78
Engelhardtia spicata	12.082	10.86
Quercus lamellosa	11.637	10.46
Schima wallichii	7.752	6.97

4.8.4 VOLUME STUDIES, STRATUM II UNRESERVED 900-1800M ALTITUDE WEST DISTRICT:

Following observation is drawn from the inventory results:

- The volume/ha. in this stratum is 70.120 m^3 only.
- Volume is found to be present in all most all the diameter classes upto 70-79 cm. diameter class.

The volume/ha. with percentage for some of the species are furnished below:

Table 56 Volume/Ha., West District, Stratum II, Unreserved.

Species	Volume (m^3)/ha.	Percentage
Schima wallichii	20.515	29.26
Castanopsis species	4.980	7.10
Alnus nepalensis	4.618	6.59
Engelhardtia spicata	7.657	10.92
Shorea robusta	7.758	11.06

4.8.5 STRATUM III, RESERVED, 1800-2400M; WEST DISTRICT:

The following observations have been made in respect of this stratum:

- Number of volume/ha. is 130.196 m^3.
- Predominant species in the stratum in respect of volume is *Quercus lamellosa* and *Castanopsis* species which contribute 26.71% and 26.15% of the total volume respectively.
- It is also evident from the result that percentage contribution of volume by matured trees over 60 cm. diameter is 62.99% of the total volume of the stratum.
- Volume of trees is observed in all the diameter classes and almost evenly distributed. This is due to less biotic inference in this high altitudinal zone.

Volume/ha. with percentage for some of the species are furnished below:

Table 57 Volume/Ha., West District, Stratum III, R.F.

Species	Volume (m^3)/ha.	Percentage
Quercus lamellosa	34.781	26.71
Castanopsis species	34.052	26.15
Alnus nepalensis	14.929	11.47
Quercus spicata	7.496	5.76
Quercus spp.	7.060	5.42
Symploces theifolia	5.529	4.25

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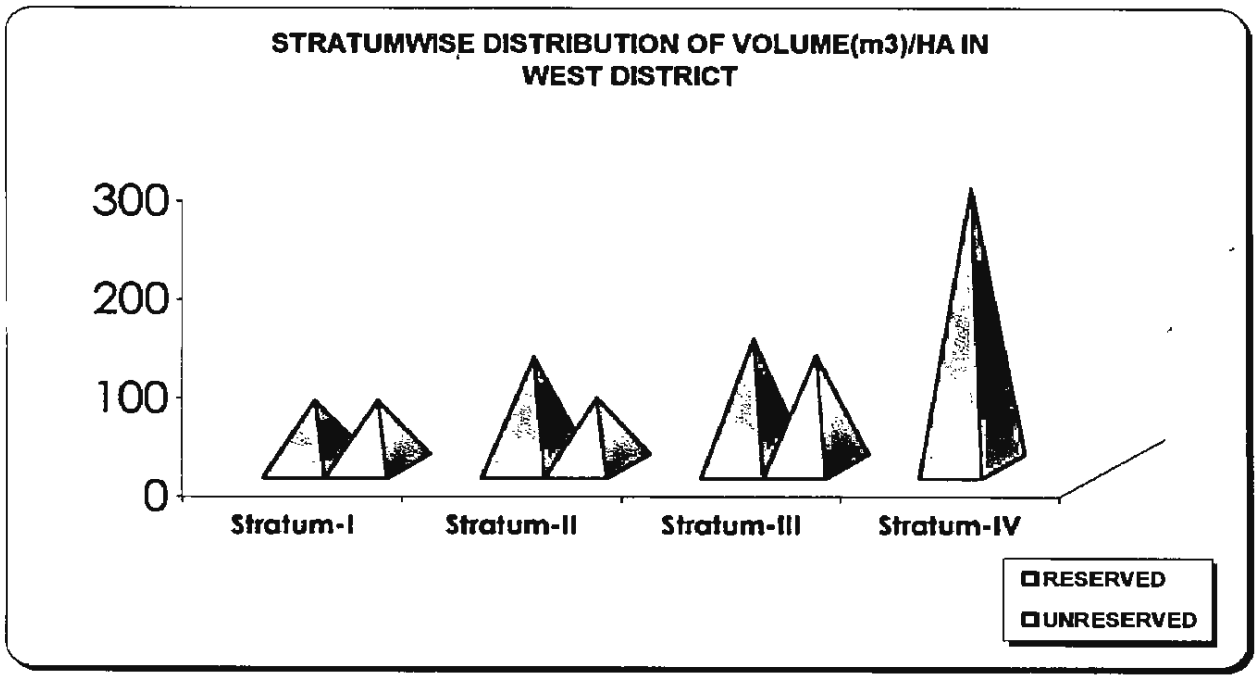
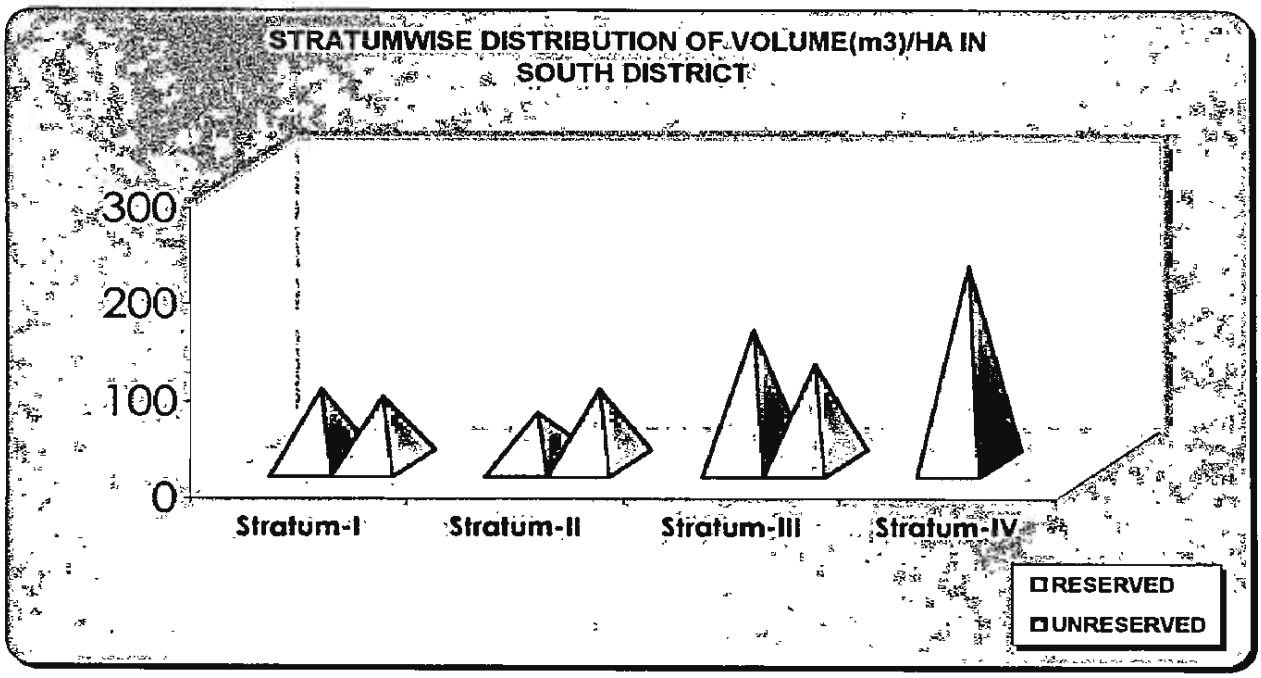

STRATUMWISE DISTRIBUTION OF VOLUME(m3)/HA IN WEST DISTRICT
300
200
100
0
Stratum-I
Stratum-II
Stratum-III
Stratum-IV
RESERVED
UNRESERVED


STRATUMWISE DISTRIBUTION OF VOLUME(m3)/HA IN SOUTH DISTRICT
300
200
100
0
Stratum-I
Stratum-II
Stratum-III
Stratum-IV
RESERVED
UNRESERVED

Contents

4.8.6 STRATUM III UNRESERVED, 1800-2400M; WEST DISTRICT:

Salient features of volume distribution in this stratum is as follows :

- Volume/ha. in this stratum is 113.009 m^3.
- *Castanopsis* species is the main volume contributing species, which contributes 26.85% of the total volume of the stratum.
- Maximum contribution of volume is observed in 90-99 cm. diameter classes which accounts for 38.42% followed by 100 cm. above which is 24.92% of the total volume.
- *Castanopsis spp.* contributes the maximum portion of volume, which contributes 30.344 m^3/ha.

The volume/ha. with percentage for some of the important species are appended below :

Table 58 Volume/Ha., West District, Stratum III, Unreserved.

Species	Volume (m^3)/ha.	Percentage
Castanopsis spp.	30.344	26.85
Castanopsis indica	15.552	13.76
Engelhardtia spicata	19.394	17.16
Schima wallichii	17.365	15.37
Quercus lamellosa	11.547	10.22

4.8.7 STRATUM IV, RESERVED , 2400 AND ABOVE : WEST SIKKIM:

Following observation in respect of volume studies in this stratum are as follows:

- Volume per hectare is 283.047 m^3.
- Volume is almost uniformly distributed in all the diameter classes. Maximum volume is observed in the diameter class 100 cm. and above, which is 16.55% followed by 16.44% in 80-89 cm. diameter class.
- It can be safely concluded that percentage contribution of volume by mature trees over 60 cm. diameter is about 65.81% of the total volume.

Volume/ha. with percentage for some of the species is furnished below:

Table 59 Volume/Ha., West district, Stratum, IV, R.F.

Species	Volume (m^3)/ha.	Percentage
Quercus lamellosa	34.194	12.08
Rhododendron spp.	23.066	8.15
Michelia spp.	32.759	11.57
Abies pindrow	45.143	15.95
Quercus lanceafolia	38.924	13.75

4.8.8 VOLUME STUDIES, STRATUM I, RESERVED FOREST UPTO 900M, SOUTH DISTRICT:

An analysis of the inventory result leads to the following inference;

- Volume per hectare in this stratum is 77.250m^3.
- Shorea robusta is the main volume contributing species in this stratum and contributes about 45.17% of the total volume.

- Volume is distributed in all the diameter classes. The maximum concentration of volume is noticed in 30-39 cm. diameter class followed by 40-49 cm. diameter class which accounts for 20.84% and 20.54% respectively.

Volume/ha. with percentage of some of the species are summarized as follows:

Table 60 Volume/Ha., South District, Stratum I, R.F.

Species	Volume (m^3)/ha.	Percentage
Shorea robusta	34.890	45.17
Schima wallichii	11.493	14.88
Albizzia species	3.567	4.62
Duabanga grandiflora	3.400	4.40

4.8.9 VOLUME STUDIES, STRATUM I, UNRESERVED 900-1800M , SOUTH DISTRICT:

Salient features in respect of volume distribution of this stratum is as below:

- Volume/ha. is 69.571 m^3 only.
- Volume is evenly distributed in different diameter classes. Maximum concentration is found in 30-39 cm. diameter class followed by 40-49 cm. diameter class which accounts for 24.96% and 17.13% respectively.
- Volume above 60cm.diameter is 21.883 m^3 which is 31.46% of the total volume.

The volume/ha. with percentage for some of the species is furnished below:

Table 61 Volume/Ha., South District, Stratum I, Unreserved.

Species	Volume (m^3)/ha.	Percentage
Shorea robusta	8.227	11.83
Schima wallichii	11.210	16.11
Albizzia species	6.475	9.31
Duabanga grandiflora	7.705	11.08

4.8.10 VOLUME STUDIES, STRATUM II, RESERVED 900-1800M, SOUTH DISTRICT.

Following observation is drawn from the result of the inventory:

- Volume/ha. in this stratum is 52.752m^3 only.
- So far about the diameter class wise distribution of volume is concerned, the volume/ha. is almost uniform upto 69 cm. diameter classes and more or less vary between 14.17% to 20.75%.
- Volume above 60 cm. diameter class is only 24.91%.

Volume/ha. with percentage for some of the volume contributing species is appended below :

Table 62 Volume/Ha., South District, Stratum II, R.F.

Species	Volume (m^3)/ha.	Percentage
Schima wallichii	12.253	23.23
Engelhardtia spicata	8.522	16.15
Alnus nepalensis	7.046	13.36

4.8.11 VOLUME STUDIES, STRATUM II, UNRESERVED 900-1800M, SOUTH DISTRICT:

Salient features in respect of volume in this stratum is appended below:

- Volume/ha. in this stratum is 77.272 m^3/ha.
- Volume is distributed in all the diameter classes. The maximum concentrated is noticed in 40-49 cm. diameter class followed by 10-19 cm. and 30-39 cm. diameter classes which accounts for 17.76%, 13.39% and 13.58% respectively.

Value of Volume/ha. with percentage for some of the volume contributing species is summarized below:

Table 63 Volume/Ha., South District, Stratum II, Unreserved.

Species	Volume (m^3)/ha.	Percentage
Schima wallichii	6.972	9.02
Engelhardtia spicata	11.395	14.75
Castanopsis species	5.480	7.09

4.8.12 VOLUME STUDIES, RESERVED STRATUM III, 1800-2400M, SOUTH DISTRICT:

- Volume/ha. in this stratum is 137.916 m^3.
- Distribution of volume is noticed in all the diameter classes. Maximum concentration is observed in 70-79 cm. diameter class which accounts for 15.10% followed by 60-69 cm. and 80-89 cm. diameter class which is 11.69% and 11.80% of the total stems of this stratum.

The main association of species with value of volume/ha. and percentage are furnished below:

Table 64 Volume/Ha., South District, Stratum III, Reserved

Species	Volume(m^3)/ha.	Percentage
Castanopsis spp.	27.569	20.00
Quercus lamellosa	17.033	12.35
Machilus species	16.314	11.83
Quercus lanceaefolia	7.873	5.71
Quercus spp.	6.784	4.92
Symplocus theifolia	6.263	4.54
Phoebe attenuata	4.299	3.12

4.8.13 VOLUME STUDIES, UNRESERVED, STRATUM III, 1800-2400M-SOUTH DISTRICT.

Salient features in respect of volume in this stratum are as under:

- Volume/ha. in this stratum is only 103.276m^3 only.
- Volume is uniformly distributed in all the diameter classes. The maximum concentration is noticed in the 20-29cm. diameter class followed by the 30-39cm. and 10-19cm. diameter classes which accounts for 17.37%, 15.46% and 13.26% of the total respectively.
- Volume is observed from over 100cm.diameter classes and accounts for 13.38%.
- *Castanopsis* species is the main volume contributing species having 34.068 m^3/ ha.

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The value of volume /ha. with percentage for some of the important species is summarized below:

Table 65 Volume/Ha., South District, Stratum III, Unreserved.

Species	Volume (m^3)/ha.	Percentage
Castanopsis spp.	34.068	32.99
Quercus lamellosa	7.406	7.17
Alnus nepalensis	7.879	7.63
Cryptomeria japonica	11.519	11.15
Alnus spp.	5.224	5.06

4.8.14 VOLUME STUDIES, STRATUM IV, RESERVED, 2400M & ABOVE, SOUTH DISTRICT:

The following observation may be drawn from the result of the inventory of this stratum:

- Volume/ha. is 204.533 m^3.
- Volume is distributed uniformly in all the diameter classes except in 90-99 cm. diameter where volume is practically absent.
- Volume is maximum in the diameter class above 100 cm. which accounts 23.12% of the total volume of the stratum. Volume is also concentrated in 40-49 cm. diameter class followed by 80-89 cm., 70-79 cm. diameter classes which accounts 19.49%, 14.37% and 10.22% respectively.

The principal volume contributing species with percentage are summarized below:

Table 66 Volume/Ha., South District, Stratum IV, R.F.

Species	Volume (m^3)/ha.	Percentage
Quercus species	100.275	49.03
Litsaea species	27.666	13.53
Castanopsis species	24.183	11.82
Machilus odoratissima	12.716	6.22
Machilus species	11.155	5.45
Betula cylindrastachys	7.280	3.56

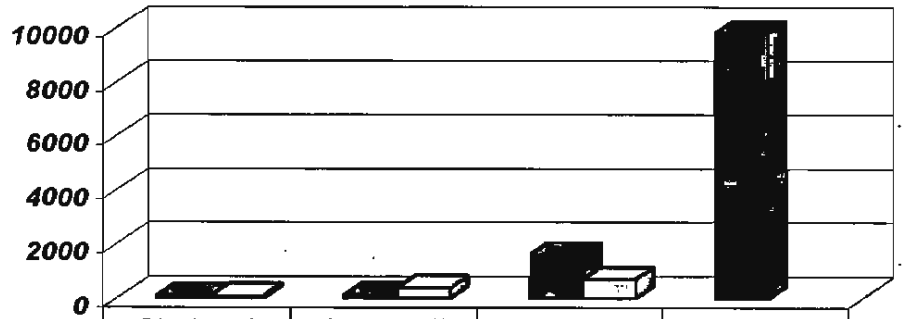
4.9 TOTAL VOLUME :

Total growing stock is 11.624 million m^3 and 1.183 million m^3 in reserved and unreserved forest of West Sikkim district respectively. The same is 3.895 million m^3 and 0.524 million m^3 in reserved and unreserved forest of South Sikkim district. An abstract of total growing stock by district and stratum is summarized below:

Table 67 Stratawise Volume distribution in the forests of West & South Sikkim

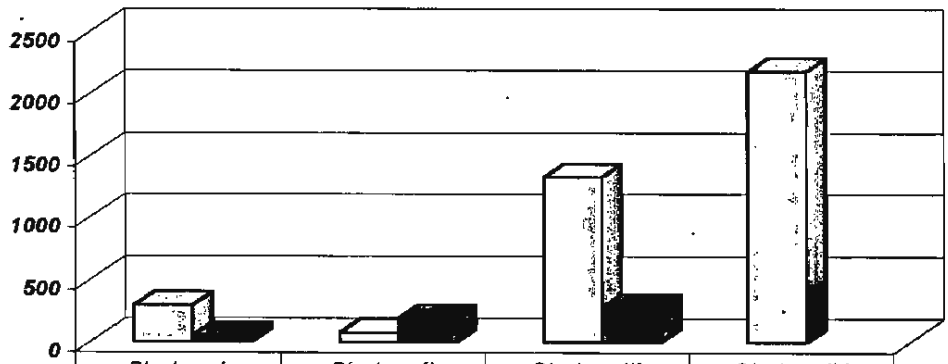
District	Stratum	Total Volume ('000 m^3)	
		Reserved	Unreserved
West Sikkim	I, Upto 900 m altitude	76	95
	II,900-1800 m altitude	124	392
	III, 1800-2400 m altitude	1605	696
	IV, 2400 m and above	9819	-
	Total:	**11624**	**1183**
South Sikkim	I,Upto 900 m altitude	294	50
	II, 900-1800 m altitude	77	194
	III,1800-2400 m altitude	1338	280
	IV, 2400 m and above	2186	-
	Total:	**3895**	**524**

STRATUMWISE DISTRIBUTION OF TOTAL VOLUME(in '000 m3) IN WEST DISTRICT



	Stratum-I	Stratum-II	Stratum-III	Stratum-IV
RESERVED	76	124	1605	9819
UNRESERVED	95	392	696	

STRATUMWISE DISTRIBUTION OF TOTAL VOLUME (in '000 m3) IN SOUTH DISTRICT



	Stratum-I	Stratum-II	Stratum-III	Stratum-IV
RESERVED	294	77	1338	2186
UNRESERVED	50	194	280	

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Thus, the total growing stock of West and South Sikkim is 12.81 million m^3 and 4.42 million m^3 respectively taking into account the merging of reserved and unreserved forest area together.

4.10 ERROR CALCULATION:

Standard error has been estimated separately for each stratum both for West and South district of Sikkim. Attempt is also made to calculate the standard error for reserved and unreserved forest areas also. Percentage of error for each stratum in the district is given as follows:

Table 68 Standard Error.

District	Stratum	Standard error %	
		Reserved	Unreserved
West Sikkim	I, Upto 900 m altitude	24.19	38.64
	II,900-1800 m altitude	17.48	20.36
	III, 1800-2400 m altitude	15.46	24.37
	IV, 2400 m and above	21.59	-
	Total:	**10.16**	**15.44**
South Sikkim	I,Upto 900 m altitude	12.51	24.37
	II, 900-1800 m altitude	16.90	12.36
	III,1800-2400 m altitude	13.66	19.49
	IV, 2400 m and above	19.91	-
	Total:	**8.15**	**10.09**

The standard error % for West district and South district is 8.68% & 6.39% respectively, irrespective of reserved and unreserved forest area.

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CHAPTER: V

SUMMARY AND CONCLUSIONS

5.1 SUMMARY:

At the end of the discussion, the main points to be pondered may be summarized for understanding the various aspects of the present inventory. For this, several angles of the survey have been considered and the corresponding information have been amalgamated and judged from these angles.

INVENTORY AREA:

The inventory area is comprised of the forest area of West and South district of Sikkim. The total forest area of West Sikkim is 634.35 sq.km whereas it is 316.16 sq.km for South Sikkim. The percentage of forest area to total geographical area for West and South Sikkim is 54.40% and 42.16% respectively.

ALTITUDINAL STRATA:

- In either of these districts bulk of the forest are moderately dense followed by open tree forest.
- The percentage of dense tree forest in these districts is meagre, viz.2.15% in West Sikkim and 3.89% in South Sikkim.

PER HECTARE STEMS AND VOLUME:

- The tree density expressed in terms of number of stems/ha. in West and South Sikkim is 222.99 and 226.50 respectively.
- Per hectare volume for West and South Sikkim is 201.90 m^3 and 139.81 m^3 respectively.
- Mild soil erosion was observed in most of the forests in the two districts.
- As per the inventory results, the fire incidences do not seem to be a major problem in these districts except some areas in West Sikkim where heavy effects of fire incidences were observed.
- It was noticed that major injury to crops in both the districts is by way of girdling and illicit felling.

ESTIMATION OF TOTAL STEMS AND VOLUME:

- The total number of stems in West district of Sikkim is 14.14 million whereas for South district it accounts to 7.16 million.

- The volume of total growing stock for West and South districts are estimated as 12.81 million m^3 and 4.42 million m^3 respectively.

OTHER FEATURES:

- Percentage of forest area damaged by light to moderate grazing is 85.64% for West Sikkim and 67.29% for South Sikkim districts. However, occurrence of heavy grazing is found to be 3.02% and 12.92% for West and South districts respectively.
- 20.47%of the forest area is heavily degraded in West Sikkim while it is 27.20% in South Sikkim. The forest area affected by moderate and mild degradation is also profound (61.65% in West Sikkim and 70.76% in South Sikkim).

ANALYSIS :

Though the ratio of the percentage of forest area to the total geographical area for both the West and South districts of Sikkim are more than the prescribed figures in the National Forest Policy-1988, it is the general health of these forests which should be a matter of concern for the management agency. Really dense forests in both the districts are only a small fraction and most of the crop is moderately dense and open tree forests. Major portions of the forests are subjected to injuries by way of girdling and illicit felling in both the districts but the problem seems to be more grave in South district. Adequate protection measures need to be taken up to curb these practices causing degradation of forests. Heavy degradation was observed in about one fourth of the forests in these two districts which needs to be immediately checked. Although effective steps are also required to deal with the problems of soil erosion, fire grazing etc. which are of moderate nature, a lion share of efforts must go to putting some check on degradation of forests through human agencies.

5.2 COMPARISON WITH THE PAST INVENTORY:

Earlier survey was carried out by F.S.I. in 1988 in the 4 districts of Sikkim State. But in the year 1998, only two districts e.g. West and South districts are inventoried. The result of the last inventory of the two districts will now be compared with the present inventory of the two districts to analyze and monitor periodically in accordance with one of the objectives of F.S.I.

The findings of the present survey of 1998 has been compared with the earlier survey of 1988 in terms of number of stems per hectare and percentage of occurrence in different diameter classes which is furnished in the following tables taking in to consideration the reserved and unreserved forest combined for both the districts.

Table 69 West Sikkim district (Comparative)

Diameter class (cm.)	No. of stems/ha.		Percentage	
	Year of survey 1988	Year of survey 1998	Year of survey 1988	Year of survey 1998
10-19	105.10	115.20	44.74	51.70
20-29	48.43	38.91	20.61	17.46
30-39	25.44	22.89	10.83	10.27
40-49	23.04	14.75	9.81	6.62
50-59	10.71	8.89	4.56	3.99
60-69	9.91	7.85	4.25	3.52
70-79	4.52	3.38	1.92	1.52
80-89	2.79	4.39	1.19	1.97
90-99	2.84	2.55	1.21	1.14
100+	2.08	4.03	0.88	1.81
Total:	**234.94**	**222.84**	**100.00**	**100.00**

Table 70 South Sikkim district (Comparative)

Diameter class (cm)	No. of stems/ha.		Percentage	
	Year of survey 1988	Year of survey 1998	Year of survey 1988	Year of survey 1998
10-19	81.27	116.77	34.78	51.55
20-29	63.26	53.31	27.07	23.54
30-39	27.30	22.42	11.68	9.90
40-49	19.23	17.03	8.23	7.52
50-59	14.57	3.55	6.24	1.57
60-69	12.24	4.20	5.24	1.85
70-79	6.53	3.38	2.79	1.49
80-89	3.70	2.74	1.58	1.21
90-99	3.30	0.48	1.41	0.21
100+	2.30	2.62	0.98	1.16
Total:	**233.70**	**226.50**	**100.00**	**100.00**

The comparative picture in terms of stems/ha. during the last decade when viewed side by side indicate a very negligible change but this change became important when analysed diameter class-wise. The data leads to the following conclusion.

i. The data reveals that in the lower diameter class viz. 10-19cm. tree density has increased by 6.96% in West Sikkim district but it has increased to a large extent of 16.77% in South district. This may be due to the recent attempt of protection and management of forests by the Forest Department through ban on grazing and illegal activities in reserve forests, afforestation activities in forest areas, soil and water conservation programmes and announcement of the year 1995 as Green Revolution year to prevent the existing green cover and in further increase through massive plantation. Thus, the recent plantation program has caused for increase in number of stems in the lower diameter classes. This also indicates that prevention of grazing in the reserved forests and plantation areas is successful which is one of the main objective of the Departmental Program.

ii. The significant decrease in the occurrence of stems between diameter class 20-70 cm. is noticed. The number of stems/ha. has decreased from 117.53 to 93.29 in West district whereas the same has decreased from 136.60 to 100.51 per hectare in South district. Inventory results during this decade indicate that girdling and illicit felling of trees is 54.08% in West district and 76.95% in South district which appears to have affected heavily the diameter classes of 20 cm. to 70 cm.

iii. The number of stems/ha. above 70cm. diameter class is 12.23 and 14.35 in year 1988 and 1998 in case of West district but the stem/ha. is 15.83 and 9.22 in the 1988 and 1998 for South district. Thus, the change in stems / ha. above 70cm. onward is not so significant particularly in West district indicating the good maintenance of forest particularly in the high altitude where the high diameter class trees are more and protection is easy as the forest is far from the locality. The Forest Department is to pay attention so that a considerable portion of the growing stock is available for actual utilization and not allowed to be spoiled by decay and over maturity.

iv. The comparative study is confined to distribution of stems only as volume estimation in year 1988 was carried out on timber volume only. Timber volume is the underbark volume of trees of all the species having D.B.H. (O.B.) 30cm. and above and thus volume below 30 cm diameter (O.B.) was not included in the earlier report of 1988. As such, comparative analysis in respect of volume distribution seems to be irrelevant.

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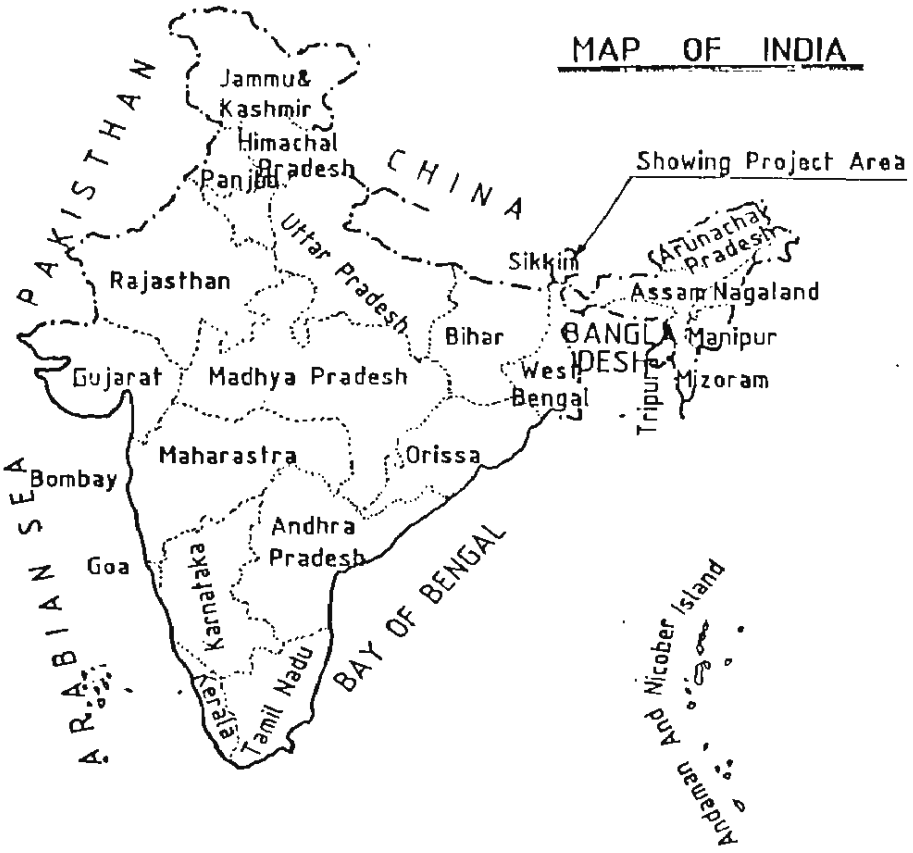
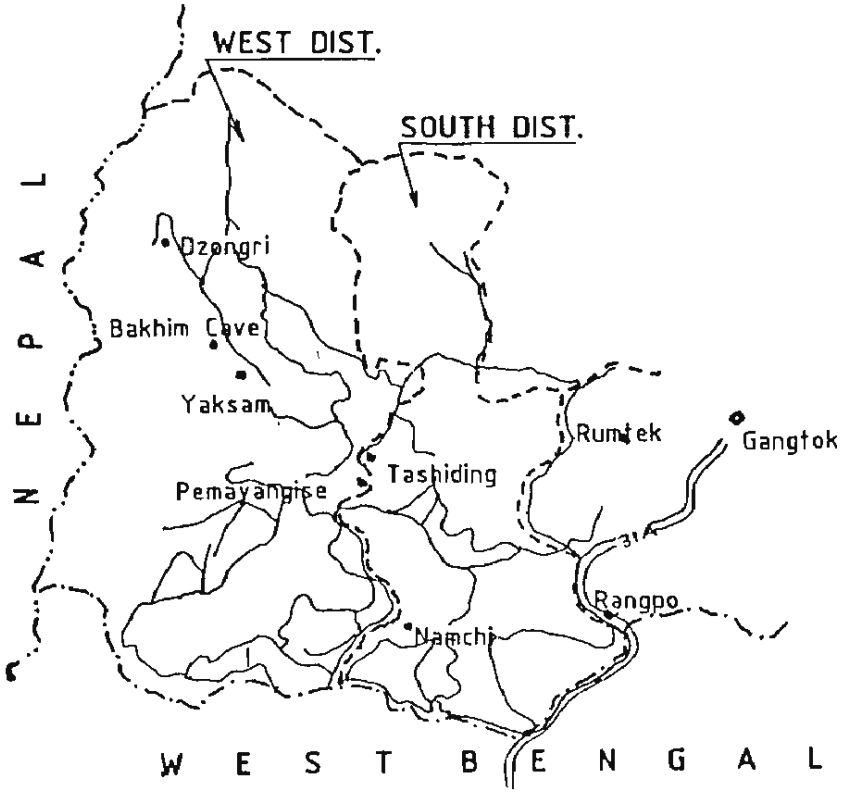
MAP OF INDIA



PROJECT MAP OF SOUTH AND WEST SIKKIM



FOREST SURVEY OF INDIA
INVENTORY DESIGN

FOLLOWED ABOVE 2400 M. ALTITUDE IN SIKKIM

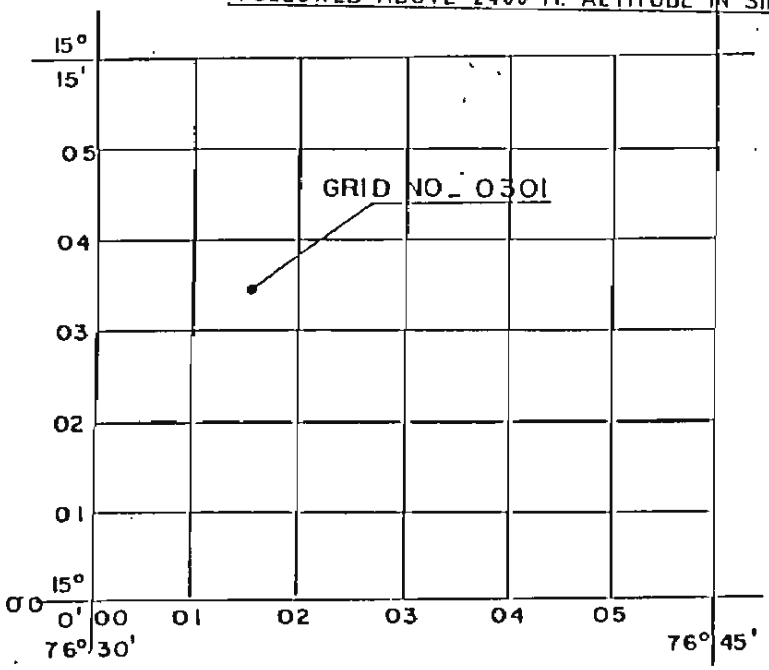
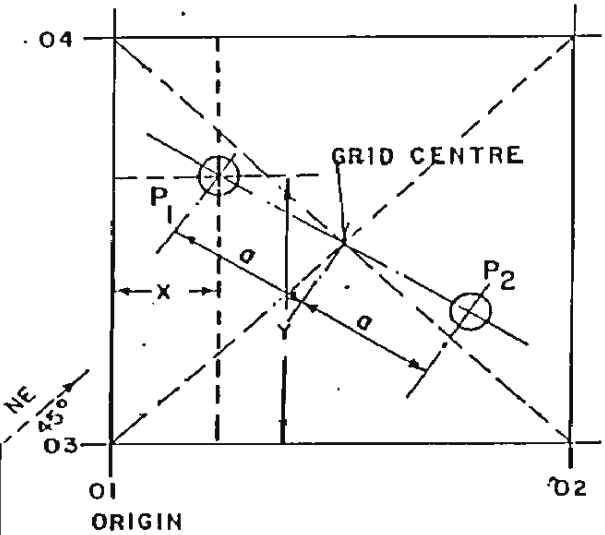


DIAGRAM_ 1

DIAGRAM SHOWING IDENTIFICATION OF GRIDS ON 1:50,000 OR 1:63,360 SCALE TOPO SHEETS

DIAGRAM_ 2

DIAGRAM SHOWING MARKING OF PLOT IN 2½' X 2½' GRID 'X' & 'Y' ARE THE DISTANCES ALONG 'X' & 'Y' AXES WITH S.W. CORNER AS THE ORIGIN.



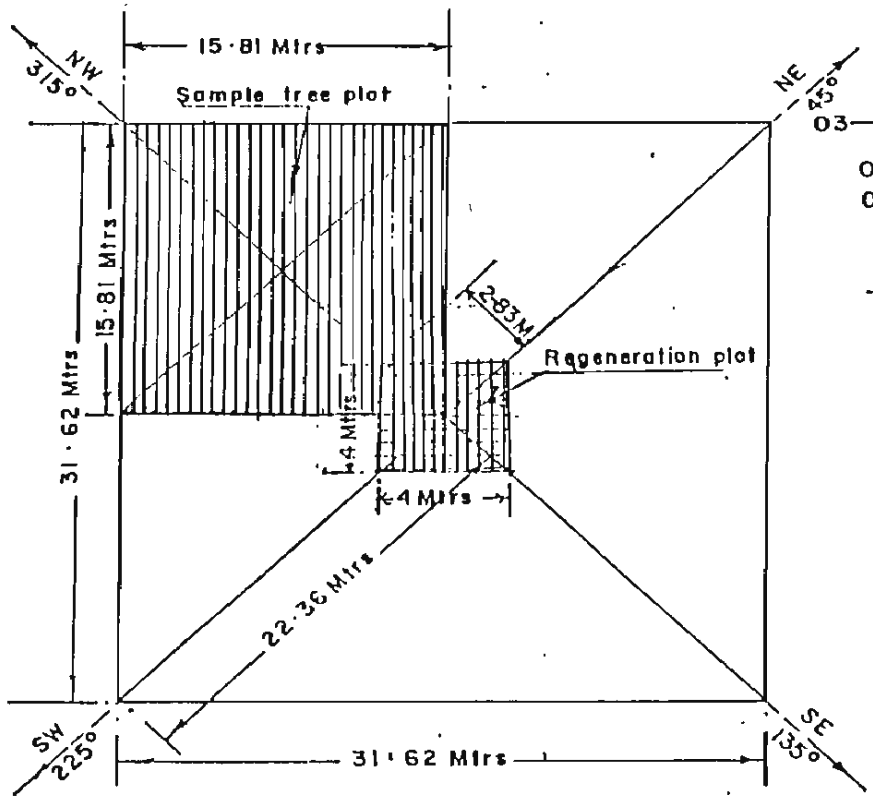


DIAGRAM_ 3

DIAGRAM SHOWING LAY OUT OF PLOT

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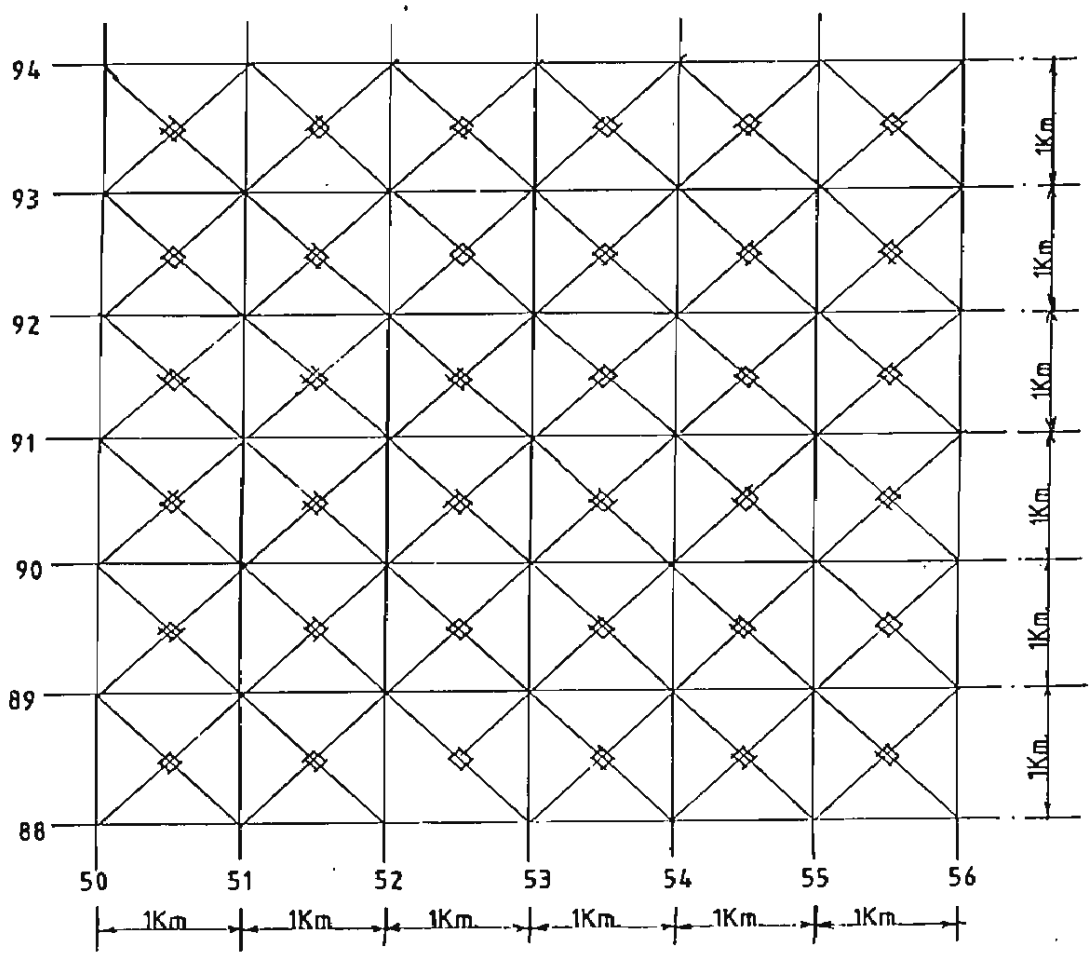
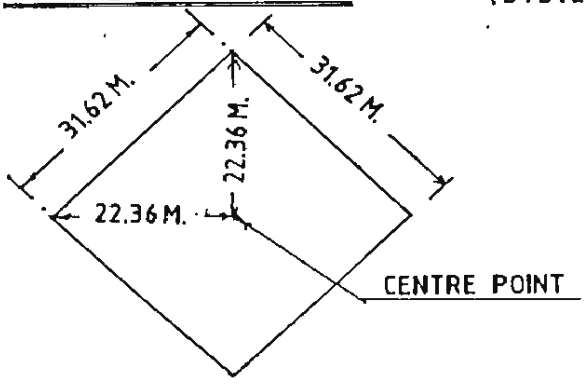
INVENTORY DESIGN FOR SOUTH & WEST SIKKIM



ORIENTATION OF GRDS OF SIZE 1Km. x 1Km.
BELOW ALTITUDE 2400 M.
(SYSTEMATIC SAMPLING)

LAY OUT OF PLOT
AT THE GRID CENTRE



PLOT SIZE:-0.1HA.

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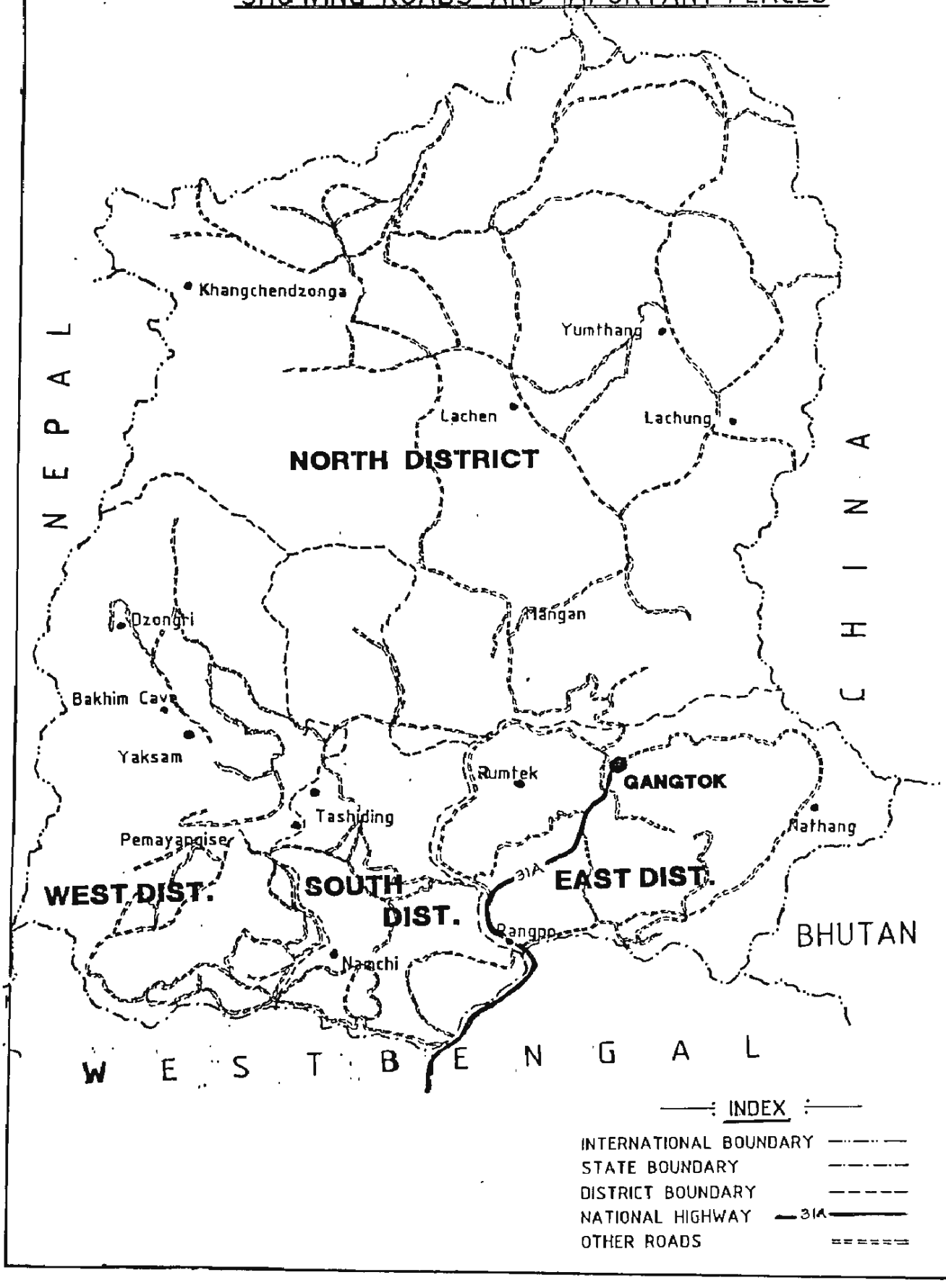
MAP OF SIKKIM

SHOWING ROADS AND IMPORTANT PLACES



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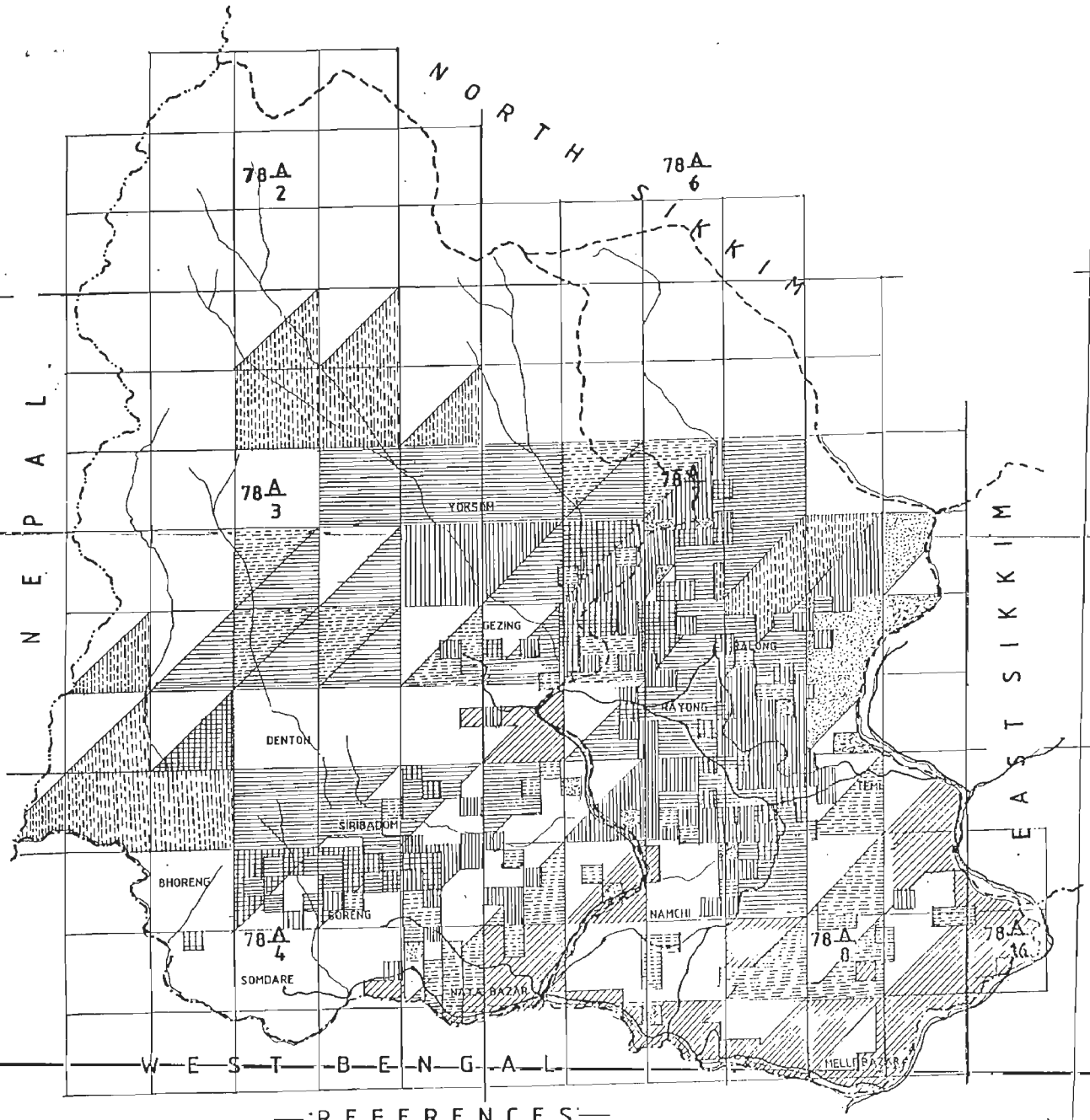
MAP OF WEST AND SOUTH DIST. OF SIKKIM

SHOWING DISTRIBUTION OF GRIDS BY STRATA

SCALE:- 1:300,000



REFERENCES

INTERNATIONAL BOUNDARY	STRATA- I (RESERVED)
STATE BOUNDARY	STRATA- II (- DO -)
DISTRICT BOUNDARY	STRATA- III (- DO -)
RIVER	STRATA- IV (- DO -)
ROAD	STRATA- I (UNRESERVED)
GRIDE 1Km. X 1Km. (BELOW 2400 m.)	STRATA- II (- DO -)
GRIDE 2½' X 2½' (ABOVE 2400m.)	STRATA- III (- DO -)

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PART - II

(STATISTICAL TABLES)

SIKKIM SURVEY WEST AND SOUTH DISTRICT

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TABLE NO.1.1.1.1

STEMS PER HACTARE(NO) BY SPECIES AND DIAMETER CLASSES(IN CM.)

STRATA-: I(RESERVED) DISTRICT - WEST SIKKIM

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Ailanthus excelsa	40	.000	.833	.000	.000	.000	.000	.000	.000	.000	.000	.833
Alangium salvifolium	42	.000	.833	.000	.000	.000	.000	.000	.000	.000	.000	.833
Albizzia procera	50	.833	.000	.000	.000	.000	.000	.000	.000	.000	.000	.833
Alstonia scholaris	57	8.333	.000	.000	.833	.000	.000	.000	.000	.000	.000	9.167
Bauhinia species	118	.833	.833	.000	.000	.000	.000	.000	.000	.000	.000	1.667
Bischofia javanica	129	.000	4.167	.833	.000	.000	.000	.000	.000	.000	.000	5.000
Bombax ceiba	131	.833	.000	.000	.000	.000	.000	.000	.000	.000	.000	.833
Chukrasia vellutina	208	.000	.000	.000	.000	.833	.000	.000	.000	.000	.000	.833
Diploknema butyracea	293	.000	1.667	1.667	1.667	.000	.000	.000	.000	.000	.000	5.000
Duabanga grandiflora	303	.000	1.667	.833	.000	.000	.000	.000	.000	.000	.000	2.500
Eugenia species	358	.000	.833	.000	.000	.000	.000	.000	.000	.000	.000	.833
Ficus species	385	1.667	.000	.000	.000	.000	.000	.000	.000	.000	.000	1.667
Garuga pinnata	407	6.667	.000	1.667	1.667	.000	.000	.000	.000	.000	.000	10.000
Mallotus philippinensis	565	1.667	3.333	.000	.000	.000	.000	.000	.000	.000	.000	5.000
Morus laevigata	617	.000	.000	.000	.833	.000	.000	.000	.000	.000	.000	.833
Pinus species	686	.000	.000	.000	.833	.000	.000	.833	.000	.000	.000	1.667
Schima wallichii	794	5.833	.833	.000	.833	2.500	.000	.000	.000	.000	.000	10.000
Semecarpus anacardium	798	.833	1.667	1.667	.833	.000	.000	.000	.000	.000	.000	5.000
Shorea robusta	802	41.667	12.500	8.333	8.333	3.333	.000	.000	.000	.000	.000	74.166
Syzygium cumini	843	.833	.000	.000	.000	.000	.000	.000	.000	.000	.000	.833
Tetrameles nudiflora	873	.000	.000	.000	1.667	2.500	.833	.000	.000	.000	.000	5.000
Vepris bilocularis	894	.000	.000	.833	.000	.000	.000	.000	.000	.000	.000	.833
Unidentified trees	944	.833	.833	.000	.000	.000	.000	.000	.000	.000	.000	1.667
TOTAL		70.833	30.000	15.833	17.500	9.167	.833	.833	.000	.000	.000	144.999
PERCENTAGE		48.85	20.69	10.92	12.07	6.32	.57	.57	.00	.00	.00	100.00

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TABLE NO.1.1.1.2

STEMS PER HACTARE(NO) BY SPECIES AND DIAMETER CLASSES(IN CM.)

STRATA-: I(UNRESERVED) DISTRICT - WEST SIKKIM

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Albizzia procera	50	5.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	5.000
Chukrasia vellutina	208	5.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	5.000
Engelhardtia spicata	328	5.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	5.000
Schima wallichii	794	50.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	50.000
Shorea robusta	802	.000	.000	.000	30.000	15.000	.000	.000	.000	.000	.000	45.000
TOTAL		65.000	.000	.000	30.000	15.000	.000	.000	.000	.000	.000	110.000
PERCENTAGE		59.09	.00	.00	27.27	13.64	.00	.00	.00	.00	.00	100.00

Contents

TABLE NO.1.1.2.1

STEMS PER HACTARE(NO) BY SPECIES AND DIAMETER CLASSES(IN CM.)

STRATA-:II(RESERVED) DISTRICT - WEST SIKKIM

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Acer compbellii	16	.385	.000	.385	.000	.000	.000	.000	.000	.000	.000	.769
Albizzia lebbek	46	.769	.000	.385	.000	.000	.000	.000	.000	.000	.000	1.154
Albizzia procera	50	1.923	.385	.385	.385	.000	.000	.000	.000	.000	.000	3.077
Albizzia species	51	.385	.385	.000	.000	.000	.000	.000	.000	.000	.000	.769
Alnus nepalensis	53	2.692	8.462	2.308	2.692	.769	.000	.000	.000	.000	.000	16.923
Betula alnoides	126	3.846	1.154	.000	.000	.000	.000	.000	.000	.000	.000	5.000
Betula cylindrostachys	127	.000	.000	.385	.000	.000	.000	.000	.000	.000	.000	.385
Bridelia retusa	138	.000	.385	.000	.000	.000	.000	.000	.000	.000	.000	.385
Callicarpa arborea	150	.769	.000	.000	.000	.000	.000	.000	.000	.000	.000	.769
Castanopsis hystrix	191	.000	.000	.000	.000	.385	.000	.000	.000	.000	.000	.385
Castanopsis indica	192	13.077	3.077	1.538	.769	.385	.000	.000	.385	.000	.000	19.231
Castanopsis species	194	14.615	8.077	9.231	2.308	.769	.000	.000	.000	.000	.000	35.000
Cedrela serrata	197	.385	1.154	.000	.385	.385	.000	.000	.000	.000	.000	2.308
Toona ciliata	198	.000	.000	.385	.000	.000	.000	.000	.000	.000	.000	.385
Cinnamomum species	216	.769	.000	.000	.769	.000	.000	.000	.000	.000	.000	1.538
Cryptomeria japonica	256	44.231	4.231	1.538	3.077	3.077	.000	.769	.000	.000	.000	56.923
Eelaeocarpus lanceaefolius	313	.769	.000	.000	.000	.000	.000	.000	.000	.000	.000	.769
Engelhardtia spicata	328	8.846	5.000	1.538	.769	.000	.000	.769	.000	.000	.385	17.308
Eugenia formosa	352	.000	.769	1.154	.000	.000	.000	.000	.000	.000	.000	1.923
Eurya japonica	367	7.692	3.462	.769	.000	.000	.000	.000	.000	.000	.000	11.923
Evodia species	370	.385	.000	.000	.000	.000	.000	.000	.000	.000	.000	.385
Ficus elastica	378	.385	.000	.000	.000	.000	.000	.000	.000	.000	.000	.385
Firmiana colorata	388	.385	.385	.000	.000	.000	.000	.000	.000	.000	.000	.769
Juglans regia	487	.000	.385	.000	.000	.000	.000	.000	.000	.000	.000	.385
Lannea coromandelica	509	.769	.000	.000	.000	.000	.000	.000	.000	.000	.000	.769
Macranga peltata	548	1.154	.000	.769	.000	.000	.000	.000	.000	.000	.000	1.923
Macranga species	550	.000	.385	.000	.000	.000	.000	.000	.000	.000	.000	.385
Mallilus species	559	.769	.385	.000	.000	.000	.000	.000	.000	.000	.000	1.154

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CONT.OF TABLE NO.1.1.2.1

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Mallotus philippinensis	565	.385	.000	.000	.000	.000	.000	.000	.000	.000	.000	.385
Michelia champaca	595	.000	.385	.000	.769	.000	.000	.000	.000	.000	.000	1.154
Michelia species	602	.385	.000	.000	.385	.000	.000	.000	.000	.000	.000	.769
Ostodes paniculata	652	7.692	3.077	.385	.385	.000	.000	.000	.000	.000	.000	11.538
Perishia species	665	1.154	.000	.000	.000	.000	.385	.000	.000	.000	.000	1.538
Phoebe attenuata	667	11.154	1.538	.385	.000	.000	.000	.000	.000	.000	.000	13.077
Prunus species	718	.385	.385	.000	.000	.000	.000	.000	.000	.000	.000	.769
Putranjiva roxburghii	734	.000	.000	.385	.000	.000	.000	.000	.000	.000	.000	.385
Quercus lamellosa	744	5.385	1.154	.385	.385	.000	.000	.000	.385	.385	.385	8.462
Quercus pachyphylla	749	.385	.769	.385	.000	.000	.000	.000	.000	.000	.000	1.538
Rhododendron arboreum	760	.385	.000	.000	.000	.000	.000	.000	.000	.000	.000	.385
Saurauia nepaulensis	791	.385	.000	.000	.000	.000	.000	.000	.000	.000	.000	.385
Schima wallichii	794	18.846	10.000	3.077	1.923	.000	.000	.000	.000	.000	.000	33.846
Semecarpus anacardium	798	.385	.000	.000	.000	.000	.000	.000	.000	.000	.000	.385
Spondias axillaris	811	.385	.385	.000	.000	.000	.000	.000	.000	.000	.000	.769
Symingtonia populnea	836	.385	.000	.000	.000	.000	.000	.000	.000	.000	.000	.385
Symploces theifolia	840	1.923	.000	.000	.000	.000	.000	.000	.000	.000	.000	1.923
Syzygium cumini	843	.769	.000	.000	.000	.000	.000	.000	.000	.000	.000	.769
Syzygium species	850	.385	.000	.000	.000	.000	.000	.000	.000	.000	.000	.385
Viburnum species	896	2.308	.385	.000	.000	.000	.000	.000	.000	.000	.000	2.692
Woodfordia floribunda	909	.385	.000	.000	.000	.000	.000	.000	.000	.000	.000	.385
Unidentified trees	944	14.615	5.769	1.538	.385	.000	.000	.000	.000	.000	.000	22.308
TOTAL		173.077	61.923	27.308	15.385	5.769	.385	1.538	.769	.385	.769	287.307
PERCENTAGE		60.24	21.55	9.50	5.35	2.01	.13	.54	.27	.13	.27	100.00

Contents

TABLE NO.1.1.2.2

STEMS PER HACTARE(NO) BY SPECIES AND DIAMETER CLASSES(IN CM.)

STRATA-:II(UNRESERVED) DISTRICT - WEST SIKKIM

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Acer oblongum	19	.526	.000	.000	.000	.000	.000	.000	.000	.000	.000	.526
Albizzia procera	50	6.842	.526	.000	.000	.000	.000	.000	.000	.000	.000	7.368
Albizzia species	51	.000	.526	.000	.000	.000	.000	.000	.000	.000	.000	.526
Alnus nepalensis	53	7.368	5.789	1.053	.000	.000	.000	.000	.000	.000	.000	14.211
Bauhinia species	118	1.053	.000	.000	.000	.000	.000	.000	.000	.000	.000	1.053
Betula alnoides	126	.526	.000	.000	.000	.000	.000	.000	.000	.000	.000	.526
Bombax ceiba	131	1.053	.000	.000	.000	.000	.000	.000	.000	.000	.000	1.053
Brassaiopsis mitis	136	2.105	.000	.000	.000	.000	.000	.000	.000	.000	.000	2.105
Callicarpa arborea	150	.000	.526	.526	.526	.000	.000	.000	.000	.000	.000	1.579
Castanopsis indica	192	.526	.526	.000	1.053	.000	.526	.000	.000	.000	.000	2.632
Castanopsis species	194	28.421	3.158	.526	.526	.000	.000	.000	.000	.000	.000	32.632
Toona ciliata	198	.526	.000	.000	.000	.000	.000	.000	.000	.000	.000	.526
Cinnamomum species	216	.000	.000	.000	.000	.000	.000	.000	.000	.000	.526	.526
Diploknema butyracea	293	.000	.526	.000	.000	.000	.000	.000	.000	.000	.000	.526
Eelaeocarpus lanceaefolius	313	.526	.000	.000	.526	.000	.526	.000	.000	.000	.000	1.579
Emblica officinalis	325	.526	.000	.000	.000	.000	.000	.000	.000	.000	.000	.526
Engelhardtia spicata	328	6.316	3.684	2.105	2.632	.526	.000	.000	.000	.000	.000	15.263
Eugenia formosa	352	.526	.000	.000	.000	.000	.000	.000	.000	.000	.000	.526
Eurya japonica	367	6.316	5.789	1.579	.000	.000	.000	.000	.000	.000	.000	13.684
Evodia species	370	.000	1.053	.000	.000	.000	.000	.000	.000	.000	.000	1.053
Juglans regia	487	.526	.000	.000	.000	.000	.000	.000	.000	.000	.000	.526
Macranga peltata	548	.526	.000	.000	.000	.000	.000	.000	.000	.000	.000	.526
Macaranga species	550	6.842	3.158	1.053	.000	.000	.000	.000	.000	.000	.000	11.053
Nyctanthes arbortristis	637	.000	.526	.000	.000	.000	.000	.000	.000	.000	.000	.526
Oroxylum indicum	650	.526	.000	.000	.000	.000	.000	.000	.000	.000	.000	.526
Ostodes paniculata	652	4.211	1.053	2.105	1.053	.000	.000	.000	.000	.000	.000	8.421
P ea owdenii	666	.526	.000	.000	.000	.000	.000	.000	.000	.000	.000	.526
P be attenuata	667	.000	.000	1.053	.000	.000	.000	.000	.000	.000	.000	1.053

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CONT. OF TABLE NO.1.1.2.2

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Prunus species	718	1.053	.000	.000	.000	.000	.000	.000	.000	.000	1.053	
Rhus species	768	2.632	.000	.000	.526	.000	.000	.000	.000	.000	.000	3.158
Schima wallichii	794	22.632	14.211	8.421	2.632	.526	1.579	.526	.000	.000	.000	50.526
Semecarpus anacardium	798	.526	.000	.000	.000	.000	.000	.000	.000	.000	.000	.526
Shorea robusta	802	.526	.000	1.579	4.211	1.053	.000	.000	.000	.000	.000	7.368
Symploces theifolia	840	.526	.000	.000	.000	.000	.000	.000	.000	.000	.000	.526
Symplocos species	841	2.105	.000	.000	.526	.000	.000	.000	.000	.000	.000	2.632
Terminalia belerica	861	.526	.000	.000	.000	.000	.000	.000	.000	.000	.000	.526
Viburnum species	896	4.211	.000	.000	.000	.000	.000	.000	.000	.000	.000	4.211
Unidentified trees	944	1.053	.000	.526	.000	.000	.000	.000	.000	.000	.000	1.579
TOTAL		112.105	41.053	20.526	14.211	2.105	2.632	.526	.000	.000	.526	193.684
PERCENTAGE		57.88	21.20	10.60	7.34	1.09	1.36	.27	.00	.00	.27	100.00

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TABLE NO.1.1.3.1

STEMS PER HACTARE(NO) BY SPECIES AND DIAMETER CLASSES(IN CM.)

STRATA-:III(RESERVED) DISTRICT - WEST SIKKIM

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Acer compbellii	16	.000	.000	.270	.000	.000	.000	.000	.000	.000	.000	.270
Alnus nepalensis	53	11.892	7.027	5.676	.811	.000	.000	.270	.000	.000	.000	25.676
Beilschimiedia roxburghiana	120	.541	.000	.000	.000	.000	.000	.000	.000	.000	.000	.541
Betula alnoides	126	.000	.000	.000	.270	.000	.000	.000	.000	.000	.000	.270
Castanopsis indica	192	1.081	.270	.000	.000	.000	.000	.000	.000	.000	.000	1.351
Castanopsis species	194	1.081	1.622	.541	.541	1.351	1.081	.541	.541	.000	1.892	9.191
Toona ciliata	198	.270	.000	.000	.000	.000	.000	.000	.000	.000	.000	.270
Cinnamomum species	216	.811	.000	.000	.270	.000	.000	.000	.000	.000	.000	1.081
Cryptomeria japonica	256	2.973	.000	.000	.000	.000	.000	.000	.000	.000	.000	2.973
Cupressus species	260	2.162	7.568	.270	.000	.270	.000	.000	.000	.000	.000	10.270
Eelaeocarpus lanceaefolius	313	.270	.000	.000	.000	.000	.000	.000	.000	.000	.000	.270
Engelhardtia spicata	328	2.162	.270	.000	.000	.000	.000	.000	.000	.000	.000	2.432
Eurya japonica	367	7.297	5.135	1.081	.270	.000	.000	.000	.000	.000	.000	13.784
Ficus elastica	378	.811	.270	.000	.000	.000	.000	.000	.000	.000	.000	1.081
Ficus species	385	1.081	.541	.000	.000	.000	.000	.000	.000	.000	.000	1.622
Glochidion species	416	.000	.000	.270	.000	.000	.000	.000	.000	.000	.000	.270
Juglans regia	487	.270	.541	.000	.000	.000	.000	.000	.000	.000	.000	.811
Leucosceptrum spp.	513	1.351	.541	.000	.000	.000	.000	.000	.000	.000	.000	1.892
Macranga peltata	548	.000	.000	.270	.000	.000	.000	.000	.000	.000	.000	.270
Macaranga species	550	2.973	.811	.000	.000	.000	.000	.000	.000	.000	.000	3.784
Machilus species	559	1.081	.000	.270	.000	.270	.000	.000	.000	.000	.000	1.622
Michelia champaca	595	.270	.000	.000	.000	.000	.270	.000	.000	.000	.000	.541
Michelia doltsopa	596	.000	.541	.000	.000	.000	.000	.000	.000	.000	.000	.541
Michelia species	602	.811	.541	.000	.270	.000	.000	.000	.000	.000	.000	1.622
Mitragyna parviflora	611	.270	.000	.000	.000	.000	.000	.000	.000	.000	.000	.270

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CONT.OF TABLE NO.1.1.3.1

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Nyssa javanica	638	.000	.000	.000	.000	.000	.000	.000	.270	.000	.000	.270
Perishia species	665	.000	.000	.270	.000	.000	.000	.000	.000	.000	.270	.541
Phoebe attenuata	667	.811	2.432	.000	.000	.000	.000	.000	.000	.000	.000	3.243
Prunus species	718	.541	.000	.000	.000	.000	.000	.000	.000	.000	.000	.541
Quercus lamellosa	744	4.595	1.351	.270	.811	.811	.541	.541	1.081	.000	1.892	11.892
Quercus lanceaefolia	745	.270	.000	.000	.000	.541	.270	.270	.000	.000	.000	1.351
Quercus lineata	748	.000	.000	.000	.000	.000	.000	.270	.000	.000	.000	.270
Quercus spicata	753	.000	.000	.000	.000	.000	.000	.000	.000	.000	.811	.811
Quercus species	754	15.135	9.189	.000	.000	.000	.000	.000	.000	.541	.000	24.865
Rhododendron arboreum	760	.270	.000	.000	.000	.000	.000	.000	.000	.000	.000	.270
Rhododendron species	765	.000	.541	.000	.000	.000	.000	.000	.000	.000	.000	.541
Rhus species	768	1.081	.270	.270	.000	.000	.000	.000	.000	.000	.000	1.622
Schima wallichii	794	1.081	.541	.270	.270	.270	.270	.000	.000	.000	.000	2.703
Semecarpus anacardium	798	.811	.000	.000	.541	.000	.000	.000	.000	.000	.000	1.351
Symingtonia populnea	836	.270	.000	.000	.000	.000	.000	.000	.000	.000	.000	.270
Symploces theifolia	840	17.838	9.189	1.622	.270	.000	.000	.000	.000	.000	.000	28.919
Viburnum species	896	11.351	3.514	.270	.000	.000	.000	.000	.000	.000	.000	15.135
Woodfordia floribunda	909	1.351	.541	.000	.000	.000	.000	.000	.000	.000	.000	1.892
Unidentified trees	944	10.541	.811	.000	.270	.000	.000	.000	.000	.000	.000	11.622
TOTAL		105.405	54.054	11.622	4.595	3.514	2.432	1.892	1.892	.541	4.865	190.811
PERCENTAGE		55.24	28.33	6.09	2.41	1.84	1.27	.99	.99	.28	2.55	100.00

Contents

TABLE NO.1.1.3.2

STEMS PER HACTARE(NO) BY SPECIES AND DIAMETER CLASSES(IN CM.)

STRATA-:III(UNRESERVED) DISTRICT - WEST SIKKIM

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Abies pindrow	1	2.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	2.000
Alnus nepalensis	53	14.000	3.000	.000	.000	.000	.000	.000	.000	.000	.000	17.000
Beilschimiedia roxburghiana	120	.000	.000	1.000	.000	.000	.000	.000	.000	.000	.000	1.000
Calophyllum polyanthum	157	1.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	1.000
Castanopsis indica	192	.000	.000	.000	.000	.000	.000	.000	1.000	.000	1.000	2.000
Castanopsis species	194	1.000	.000	.000	.000	.000	.000	1.000	.000	3.000	.000	5.000
Engelhardtia spicata	328	4.000	1.000	.000	.000	.000	.000	.000	.000	2.000	.000	7.000
Eurya japonica	367	3.000	1.000	3.000	.000	.000	.000	.000	.000	.000	.000	7.000
Macaranga species	550	2.000	1.000	.000	.000	.000	.000	.000	.000	.000	.000	3.000
Michelia species	602	.000	.000	.000	1.000	.000	.000	.000	.000	.000	.000	1.000
Ostodes paniculata	652	1.000	.000	1.000	.000	.000	.000	.000	.000	.000	.000	2.000
Phoebe attenuata	667	12.000	1.000	.000	.000	.000	.000	.000	.000	.000	.000	13.000
Quercus lamellosa	744	.000	.000	.000	1.000	.000	.000	.000	.000	.000	1.000	2.000
Rhododendron arboreum	760	5.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	5.000
Schima wallichii	794	.000	1.000	1.000	.000	.000	1.000	1.000	.000	.000	1.000	5.000
Semecarpus anacardium	798	.000	3.000	.000	.000	.000	.000	.000	.000	.000	.000	3.000
Symploces theifolia	840	6.000	1.000	.000	.000	.000	.000	.000	.000	.000	.000	7.000
Viburnum species	896	11.000	7.000	2.000	1.000	.000	.000	.000	.000	.000	.000	21.000
Woodfordia floribunda	909	4.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	4.000
Unidentified trees	944	.000	.000	1.000	1.000	.000	.000	.000	.000	.000	.000	2.000
TOTAL		66.000	19.000	9.000	4.000	.000	1.000	2.000	1.000	5.000	3.000	110.000
PERCENTAGE		60.00	17.27	8.18	3.64	.00	.91	1.82	.91	4.55	2.73	100.00

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TABLE NO.1.1.4.1
STEMS PER HACTARE(NO) BY SPECIES AND DIAMETER CLASSES(IN CM.)
STRATA-:IV(RESERVED) DISTRICT - WEST SIKKIM

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Abies pindrow	1	.000	.000	.000	.000	.714	1.429	.000	1.429	1.429	2.143	7.143
Acer compbellii	16	3.571	3.571	4.286	.714	.000	.714	.000	.714	.000	.000	13.571
Beilschimiedia roxburghiana	120	.000	.000	1.429	.000	.000	.000	.000	.000	.000	.000	1.429
Betula alnoides	126	.000	.714	.714	.714	.000	.000	.000	.000	.000	.000	2.143
Betula cylindrostachys	127	.000	.714	.000	.000	.000	.000	.000	.000	.000	.000	.714
Eelaeocarpus lanceaefolius	313	.000	.714	.000	.000	.000	.000	.000	.000	.000	.000	.714
Eurya japonica	367	3.571	.000	.000	.714	.000	.000	.000	.000	.000	.000	4.286
Machilus species	559	1.429	2.143	1.429	.714	1.429	.000	.714	.714	.000	.000	8.571
Michelia champaca	595	.000	.000	1.429	.000	.000	.000	.714	.000	.000	.000	2.143
Michelia species	602	.714	2.857	5.000	5.000	3.571	3.571	.714	.000	.000	.000	21.429
Premna tomentosa	708	.000	.000	.000	.714	.000	.000	.000	.000	.000	.000	.714
Prunus species	718	.000	.714	.000	.000	.714	.000	.000	.000	.000	.000	1.429
Quercus lamellosa	744	2.143	.000	.000	.714	.000	.714	2.143	.714	.000	1.429	7.857
Quercus lanceaefolia	745	.000	.714	.000	1.429	.000	2.857	.714	2.143	.714	.714	9.286
Quercus species	754	.000	.000	.000	.714	.714	.000	.000	.714	.714	.714	3.571
Rhododendron arboreum	760	17.143	7.857	5.714	.714	.000	.000	.000	.000	.000	.000	31.429
Rhododendron barbatum	761	9.286	3.571	.714	.714	.000	.000	.000	.000	.000	.000	14.286
Rhododendron hodgsoni	762	21.429	.000	.000	.000	.000	.000	.000	.000	.000	.000	21.429
Rhododendron griffithianum	763	35.000	3.571	2.143	.000	.000	.000	.000	.000	.000	.000	40.714
Rhododendron species	765	4.286	3.571	7.857	5.714	3.571	1.429	.000	.000	.000	.000	26.429
Saurauia nepaulensis	791	.000	.714	.000	.000	.000	.000	.000	.000	.000	.000	.714
Symplocos laurina	839	10.714	6.429	.714	.000	.000	.000	.000	.000	.000	.000	17.857
Symploces theifolia	840	2.143	.000	.000	.000	.000	.000	.000	.000	.000	.000	2.143
Taxus baccata	857	.000	.000	.000	.000	2.857	2.143	.000	.714	.714	.000	6.429
Viburnum species	896	12.143	.000	.000	.000	.000	.000	.000	.000	.000	.000	12.143
Unidentified trees	944	9.286	1.429	.000	1.429	.000	.000	.000	.000	.000	.000	12.143
TOTAL		132.857	39.286	31.429	20.000	13.571	12.857	5.000	7.143	3.571	5.000	270.714
PERCENTAGE		49.08	14.51	11.61	7.39	5.01	4.75	1.85	2.64	1.32	1.85	100.00

Contents

TABLE NO.1.2.1.1

STEMS PER HACTARE(NO) BY SPECIES AND DIAMETER CLASSES(IN CM.)

STRATA-:I(RESERVED) DISTRICT - SOUTH SIKKIM

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Acer species	21	.175	.351	.000	.000	.000	.000	.000	.000	.000	.000	.526
Ailanthus altissima	39	.526	.175	.000	.000	.000	.000	.000	.000	.000	.000	.702
Albizzia lucida	47	.351	.000	.000	.000	.000	.000	.000	.000	.000	.000	.351
Albizzia procera	50	.175	.526	.000	.000	.000	.000	.000	.000	.000	.000	.702
Albizzia species	51	1.228	.526	.702	.526	.000	.175	.175	.175	.000	.000	3.509
Alstonia scholaris	57	.351	.000	.000	.175	.000	.175	.000	.175	.000	.000	.877
Amoora rohituka	63	.526	.526	.351	.000	.000	.000	.000	.000	.000	.000	1.404
Bauhinia racemosa	115	.000	.175	.000	.000	.000	.000	.000	.000	.000	.000	.175
Bauhinia species	118	.877	.175	.000	.000	.000	.000	.000	.000	.000	.000	1.053
Betula alnoides	126	.877	.000	.000	.000	.000	.000	.000	.000	.000	.000	.877
Bischofia javanica	129	.175	.000	.000	.000	.000	.000	.000	.000	.000	.000	.175
Boehmeria species	130	.702	.000	.000	.000	.000	.000	.000	.000	.000	.000	.702
Bombax ceiba	131	.175	.702	.175	.000	.000	.175	.175	.000	.000	.000	1.404
Callicarpa arborea	150	.877	.702	.351	.000	.000	.000	.000	.000	.000	.000	1.930
Cedrela serrata	197	.000	.702	.351	.175	.000	.000	.000	.000	.000	.000	1.228
Chukrasia vellutina	208	.000	.526	.000	.000	.000	.000	.000	.000	.000	.000	.526
Eelonix ellate	272	.175	.526	.702	.000	.000	.000	.000	.000	.000	.000	1.404
Diploknema butyracea	293	.526	.351	.526	.000	.000	.000	.000	.000	.000	.000	1.404
Drypetes lancifolia	302	.000	.351	.000	.000	.000	.000	.000	.000	.000	.000	.351
Duabanga grandiflora	303	.000	.351	.175	.175	.000	.351	.175	.175	.000	.000	1.404
Engelhardtia spicata	328	.000	.000	.351	.175	.000	.000	.000	.000	.000	.000	.526
Erythrina variegata	341	.000	.000	.000	.000	.175	.000	.000	.000	.000	.000	.175
Eucalyptus hybrid	346	.175	.000	.000	.000	.000	.000	.000	.000	.000	.000	.175
Eucalyptus species	348	.351	.351	.175	.000	.000	.000	.000	.000	.000	.000	.877
Eurya japonica	367	.000	.175	.000	.000	.000	.000	.000	.000	.000	.000	.175
Ficus species	385	1.053	.000	.000	.000	.000	.000	.000	.000	.000	.000	1.053
G ga pinnata	407	4.211	.877	1.228	.526	.175	.000	.000	.000	.000	.000	7.018
G cordia odorata	437	.000	.000	.175	.000	.000	.000	.000	.000	.000	.000	.175
H arrhena antidysenterica	452	1.228	.000	.000	.000	.000	.000	.000	.000	.000	.000	1.228

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CONT.OF TABLE NO.1.2.1.1

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Juglans regia	487	.175	.000	.000	.000	.000	.000	.000	.000	.000	.000	.175
Lagerstroemia parviflora	505	3.860	.351	.351	.000	.000	.000	.000	.000	.000	.000	4.561
Lannea coromandelica	509	.000	.526	.175	.000	.000	.000	.000	.000	.000	.000	.702
Macaranga species	550	.175	.000	.000	.000	.000	.000	.000	.000	.000	.000	.175
Mallotus philippinensis	565	6.491	2.281	.351	.175	.000	.000	.000	.000	.000	.000	9.298
Nauclea griffithii	632	.351	.702	.000	.000	.000	.000	.000	.000	.000	.000	1.053
Ostodes paniculata	652	4.561	1.579	.175	.351	.000	.000	.000	.000	.000	.000	6.667
Pinus roxburghii	685	.000	.000	.000	.175	.000	.000	.000	.000	.000	.000	.175
Quercus lanceaefolia	745	.000	.175	.000	.000	.000	.000	.000	.000	.000	.000	.175
Quercus species	754	.877	.351	.000	.000	.000	.000	.000	.000	.000	.000	1.228
Sacosperma arboreum	790	.000	.000	.000	.000	.000	.175	.000	.000	.000	.000	.175
Schima wallichii	794	1.930	1.754	1.228	1.754	.877	1.053	.351	.000	.000	.175	9.123
Semecarpus anacardium	798	.526	.351	.000	.000	.000	.000	.000	.000	.000	.000	.877
Shorea robusta	802	25.614	20.351	16.667	7.719	.877	1.228	.702	.000	.175	.000	73.333
Spondias axillaris	811	.175	.000	.000	.000	.000	.175	.000	.000	.000	.000	.351
Spondias pinnata	812	.175	.000	.000	.000	.000	.000	.000	.000	.000	.000	.175
Symplocos laurina	839	.000	.351	.175	.000	.000	.000	.000	.000	.000	.000	.526
Symplocos species	841	.000	.000	.175	.000	.000	.000	.000	.000	.000	.000	.175
Syzygium cumini	843	.702	.000	.000	.000	.000	.000	.175	.000	.000	.000	.877
Talauma phellocarpa	855	.175	.000	.000	.000	.000	.000	.000	.000	.000	.000	.175
Tectona grandis	858	5.088	3.684	2.456	.351	.000	.000	.000	.000	.000	.000	11.579
Terminalia belerica	861	.526	.000	.000	.526	.175	.175	.000	.000	.000	.000	1.404
Terminalia chebula	864	.351	.351	.175	.351	.000	.000	.000	.000	.000	.000	1.228
Terminalia crenulata	866	.526	.175	.000	.000	.000	.000	.000	.000	.000	.000	.702
Terminalia myriocarpa	868	.351	.526	.702	.000	.000	.000	.000	.000	.000	.000	1.579
Tetrameles nudiflora	873	.000	.000	.351	.000	.000	.000	.000	.000	.000	.000	.351
Unidentified trees	944	6.140	1.754	1.228	.351	.000	.000	.000	.000	.000	.000	9.474
TOTAL		73.509	43.333	29.474	13.509	2.281	3.684	1.754	.526	.175	.175	168.421
PERCENTAGE		43.65	25.73	17.50	8.02	1.35	2.19	1.04	.31	.10	.10	100.00

Contents

TABLE NO.1.2.1.2

STEMS PER HACTARE(NO) BY SPECIES AND DIAMETER CLASSES(IN CM.)

STRATA-:I(UNRESERVED) DISTRICT - SOUTH SIKKIM

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Ailanthus altissima	39	.833	.000	.000	.000	.000	.000	.000	.000	.000	.000	.833
Albizzia procera	50	.833	.833	2.500	1.667	.000	.000	.000	.000	.000	.000	5.833
Albizzia species	51	8.333	2.500	1.667	.833	.000	.000	.833	.000	.000	.000	14.167
Alnus species	55	.000	.833	.000	.000	.000	.000	.000	.000	.000	.000	.833
Artocarpus species	94	.000	.000	.000	.833	.000	.000	.000	.000	.000	.000	.833
Betula alnoides	126	.000	.833	.000	.000	.000	.000	.000	.000	.000	.000	.833
Bischofia javanica	129	6.667	.833	.000	.000	.000	.833	.000	.000	.000	.000	8.333
Bombax ceiba	131	1.667	1.667	.833	.000	.000	.000	.000	.000	.000	.000	4.167
Callicarpa species	154	2.500	1.667	.833	.000	.000	.000	.000	.000	.000	.000	5.000
Cedrela serrata	197	.000	.000	.000	.000	.000	.833	.000	.000	.000	.000	.833
Diploknema butyracea	293	2.500	4.167	3.333	.000	.000	.000	.000	.000	.000	.000	10.000
Duabanga grandiflora	303	.000	.000	.000	.000	.000	.000	.000	.000	.000	.833	.833
Dysoxylum spp.	307	.000	1.667	.000	.000	.000	.000	.000	.000	.000	.000	1.667
Endospermum chinense	326	.000	.833	.000	.000	.000	.000	.000	.000	.000	.000	.833
Engelhardtia spicata	328	8.333	3.333	.000	.833	.000	.000	.000	.000	.000	.000	12.500
Erythrina species	342	.000	.000	.833	.000	.000	.000	.000	.000	.000	.000	.833
Ficus species	385	6.667	.833	.833	.000	.000	.000	.000	.000	.000	.000	8.333
Garuga pinnata	407	.000	.833	.000	.000	.000	.000	.000	.000	.000	.000	.833
Glochidion species	416	.833	.000	.000	.000	.000	.000	.000	.000	.000	.000	.833
Hovenia dulcis	465	.000	.833	.000	.000	.000	.000	.000	.000	.000	.000	.833
Juglans regia	487	.000	.833	.000	.000	.000	.000	.000	.000	.000	.000	.833
Litsaea species	541	.833	.000	.000	.000	.000	.000	.000	.000	.000	.000	.833
Macaranga species	550	.000	.833	.000	.000	.000	.000	.000	.000	.000	.000	.833

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CONT. OF TABLE NO.1.2.1.2

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Ostodes paniculata	652	5.000	2.500	2.500	.000	.000	.000	.000	.000	.000	.000	10.000
Phoebe attenuata	667	1.667	1.667	.000	.000	.000	.000	.000	.000	.000	.000	3.333
Rhus species	768	.833	.833	.000	.000	.000	.000	.000	.000	.000	.000	1.667
Sacosperma arboreum	790	4.167	.833	2.500	.000	.000	.000	.000	.000	.000	.000	7.500
Schima wallichii	794	22.500	15.000	4.167	.833	.000	.833	.000	.000	.000	.000	43.333
Shorea robusta	802	.833	.833	8.333	3.333	.000	.000	.000	.000	.000	.000	13.333
Spondias species	813	.000	.000	.833	.000	.000	.000	.000	.000	.000	.000	.833
Sterculia urens	820	.833	.000	.000	.000	.000	.000	.000	.000	.000	.000	.833
Stereospermum personatum	824	.833	.000	.000	.000	.000	.000	.000	.000	.000	.000	.833
Syzygium cumini	843	.833	.000	.000	.000	.000	.000	.000	.000	.000	.000	.833
Syzygium gardneri	844	.000	.000	.833	.833	.000	.000	.000	.000	.000	.000	1.667
Terminalia myriocarpa	868	.833	.833	.000	.833	.000	.000	.000	.000	.000	.000	2.500
Unidentified trees	944	9.167	1.667	1.667	.000	.000	.833	.000	.000	.000	.000	13.333
TOTAL		87.500	47.500	31.667	10.000	.000	3.333	.833	.000	.000	.833	181.667
PERCENTAGE		48.17	26.15	17.43	5.50	.00	1.83	.46	.00	.00	.46	100.00

Contents

TABLE NO.1.2.2.1

STEMS PER HACTARE(NO) BY SPECIES AND DIAMETER CLASSES(IN CM.)

STRATA-:II(RESERVED) DISTRICT - SOUTH SIKKIM

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Acer oblongum	19	.000	.385	.385	.000	.000	.000	.000	.000	.000	.000	.769
Acer species	21	.000	.000	.385	.000	.000	.000	.000	.000	.000	.000	.385
Albizzia procera	50	.000	.385	.000	.769	.769	.000	.000	.000	.000	.000	1.923
Albizzia species	51	1.538	.769	.385	.000	.000	.000	.000	.000	.000	.000	2.692
Alnus nepalensis	53	4.615	3.077	1.538	1.538	.000	.000	.000	.000	.000	.000	10.769
Alnus species	55	1.154	.385	.000	.000	.000	.000	.000	.000	.000	.000	1.538
Amoora rohituka	63	.385	.000	.000	.000	.000	.000	.000	.000	.000	.000	.385
Amoora wallichii	64	.000	.769	.000	.000	.000	.000	.000	.000	.000	.000	.769
Castanopsis indica	192	.000	.000	.000	.000	.000	.769	.000	.000	.000	.000	.769
Castanopsis species	194	.385	.385	.385	.000	.000	.000	.000	.000	.000	.000	1.154
Toona ciliata	198	.385	.000	.000	.000	.000	.000	.000	.000	.000	.000	.385
Cryptomeria japonica	256	1.923	.000	.000	.000	.000	.000	.000	.000	.000	.000	1.923
Diploknema butyracea	293	.385	.000	.000	.000	.000	.000	.000	.000	.000	.000	.385
Engelhardtia spicata	328	5.000	2.308	.769	1.538	.000	1.538	.000	.000	.000	.000	11.153
Erythrina species	342	.000	.769	.000	.000	.000	.000	.000	.000	.000	.000	.769
Eurya japonica	367	.000	.769	.385	.000	.000	.000	.000	.000	.000	.000	1.154
Ficus elastica	378	.769	.000	.000	.000	.000	.000	.000	.000	.000	.000	.769
Ficus species	385	.385	1.154	.000	.385	.000	.000	.000	.000	.000	.000	1.923
Garuga pinnata	407	1.154	.385	.000	.000	.000	.000	.000	.000	.000	.000	1.538
Gmelina arborea	420	.000	.000	.385	.000	.000	.000	.000	.000	.000	.000	.385
Juglans regia	487	.000	.385	.385	.385	.000	.385	.000	.000	.000	.000	1.538
Lagerstroemia parviflora	505	.769	.000	.000	.000	.000	.000	.000	.000	.000	.000	.769
Lithocarpus spicatus	528	.000	.385	.000	.000	.000	.000	.000	.000	.000	.000	.385

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CONT. OF TABLE NO. 1.2.2.1

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Macaranga species	550	1.538	1.154	.000	.385	.000	.000	.000	.000	.000	.000	3.077
Machilus species	559	.769	.769	.000	.769	.000	.000	.000	.000	.000	.000	2.308
Mallotus philippinensis	565	.385	.000	.000	.000	.000	.000	.000	.000	.000	.000	.385
Michelia champaca	595	.000	.769	.000	.000	.000	.000	.000	.000	.000	.000	.769
Michelia species	602	6.923	.000	.000	.000	.000	.000	.000	.000	.000	.000	6.923
Nyssa javanica	638	.769	2.308	.769	.769	.000	.000	.000	.000	.000	.000	4.615
Ostodes paniculata	652	1.538	.769	.000	.000	.000	.000	.000	.000	.000	.000	2.308
Phoebe attenuata	667	1.538	.000	.000	.000	.000	.000	.000	.000	.000	.000	1.538
Quercus lanceaefolia	745	.385	.385	1.154	.000	.000	.000	.000	.000	.000	.000	1.923
Quercus species	754	.769	.000	.000	.000	.000	.000	.000	.000	.000	.000	.769
Rhus species	768	1.154	.000	.000	.000	.769	.000	.000	.000	.000	.000	1.923
Saurauia nepaulensis	791	3.077	.000	.000	.000	.000	.000	.000	.000	.000	.000	3.077
Schima wallichii	794	23.076	15.384	3.461	.769	.000	.000	.000	.769	.000	.000	43.460
Semecarpus anacardium	798	.769	.000	.000	.000	.000	.000	.000	.000	.000	.000	.769
Spondias axillaris	811	.769	.000	.385	.000	.000	.000	.000	.000	.000	.000	1.154
Symplocos laurina	839	1.154	.385	.000	.000	.000	.000	.000	.000	.000	.000	1.538
Symploces theifolia	840	.385	.000	.000	.000	.000	.000	.000	.000	.000	.000	.385
Syzygium cumini	843	.769	2.308	.000	.000	.000	.000	.000	.000	.000	.000	3.077
Terminalia chebula	864	.385	.385	.000	.000	.000	.000	.000	.000	.000	.000	.769
Terminalia myriocarpa	868	.385	.385	.385	.000	.000	.000	.000	.000	.000	.000	1.154
Viburnum species	896	3.077	.000	.000	.000	.000	.000	.000	.000	.000	.000	3.077
Unidentified trees	944	19.615	2.692	.000	.000	.000	.000	.000	.000	.000	.000	22.307
TOTAL		88.073	39.998	11.153	7.307	1.538	2.692	.000	.769	.000	.000	151.532
PERCENTAGE		58.12	26.40	7.36	4.82	1.02	1.78	.00	.51	.00	.00	100.00

Contents

TABLE NO.1.2.2.2

STEMS PER HACTARE(NO) BY SPECIES AND DIAMETER CLASSES(IN CM.)

STRATA-:II(UNRESERVED) DISTRICT - SOUTH SIKKIM

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Acer oblongum	19	.156	.000	.000	.000	.000	.000	.000	.000	.000	.000	.156
Acer species	21	.156	.000	.000	.000	.000	.000	.000	.000	.000	.000	.156
Ailanthus altissima	39	.000	.156	.000	.000	.000	.000	.000	.000	.000	.000	.156
Alangium salvifolium	42	.781	.000	.000	.000	.000	.000	.000	.000	.000	.000	.781
Albizzia odorotissima	49	.156	.000	.000	.000	.000	.000	.000	.000	.000	.000	.156
Albizzia procera	50	.313	.938	.313	.313	.156	.000	.000	.000	.000	.000	2.031
Albizzia species	51	1.719	.781	.156	.000	.156	.000	.000	.000	.000	.000	2.813
Alnus nepalensis	53	.625	.156	.313	.781	.469	.313	.000	.000	.000	.000	2.656
Alnus species	55	5.000	4.688	.938	.313	.000	.000	.000	.000	.000	.000	10.938
Amoora wallichii	64	.313	.000	.000	.000	.000	.000	.000	.000	.000	.000	.313
Artocarpus species	94	.156	.000	.000	.000	.000	.000	.000	.000	.000	.000	.156
Bauhinia species	118	.156	.000	.000	.000	.000	.000	.000	.000	.000	.000	.156
Beilschimiedia roxburghiana	120	.781	.469	.469	.156	.156	.000	.000	.000	.000	.000	2.031
Betula alnoides	126	.000	.000	.156	.000	.000	.000	.000	.000	.000	.000	.156
Bombax ceiba	131	.000	.156	.156	.000	.000	.000	.000	.000	.000	.000	.313
Brassiopsis speciosa	135	1.406	.000	.000	.000	.000	.000	.000	.000	.000	.000	1.406
Brassaiopsis mitis	136	.938	.469	.000	.000	.000	.000	.000	.000	.000	.000	1.406
Callicarpa arborea	150	.156	.000	.000	.000	.000	.000	.000	.000	.000	.000	.156
Callicarpa species	154	.313	.000	.000	.000	.000	.000	.000	.000	.000	.000	.313
Casearia species	185	.469	.313	.000	.000	.000	.000	.000	.000	.000	.000	.781
Castanopsis hystrix	191	.156	.000	.000	.000	.156	.313	.000	.156	.156	.156	1.094
Castanopsis species	194	5.781	1.563	1.094	.156	.156	.156	.313	.156	.000	.000	9.375
Cedrela serrata	197	.156	.313	.000	.000	.000	.000	.000	.000	.000	.000	.469

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CONT. OF TABLE NO.1.2.2.2

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Toona ciliata	198	.469	.625	.000	.000	.000	.000	.000	.000	.000	.000	1.094
Cinnamomum species	216	.000	.000	.156	.000	.000	.000	.000	.000	.000	.000	.156
Cordia myxa	236	.000	.156	.000	.000	.000	.000	.000	.000	.000	.000	.156
Eelaeocarpus lanceaefolius	313	1.094	.313	.000	.000	.000	.000	.000	.000	.000	.000	1.406
Elengium lamarchi	324	.156	.000	.000	.000	.000	.000	.000	.000	.000	.000	.156
Emblica officinalis	325	.156	.000	.000	.000	.000	.156	.000	.000	.000	.000	.313
Engelhardtia spicata	328	16.250	3.750	1.406	.625	.938	.625	.000	.156	.000	.156	23.906
Eriobotrya petiolata	331	.000	.000	.156	.000	.000	.000	.000	.000	.000	.000	.156
Erythrina species	342	.469	.156	.000	.000	.000	.000	.000	.000	.000	.000	.625
Eugenia frondosa	351	.000	.156	.000	.000	.000	.156	.000	.000	.000	.000	.313
Eugenia formosa	352	.313	.313	.469	.781	.000	.000	.000	.000	.000	.000	1.875
Eugenia grandis	353	.000	.000	.000	.000	.000	.000	.156	.000	.000	.000	.156
Eurya japonica	367	6.250	3.125	1.250	.938	.313	.000	.000	.000	.000	.000	11.875
Evodia fraxinifolia	368	.000	.156	.000	.000	.000	.000	.000	.000	.000	.000	.156
Ficus species	385	5.781	1.094	.313	.156	.000	.000	.156	.000	.000	.000	7.500
Firmiana colorata	388	.156	.000	.000	.000	.000	.000	.000	.000	.000	.000	.156
Garuga pinnata	407	.156	.000	.000	.000	.000	.000	.000	.000	.000	.000	.156
Glochidion species	416	.000	.156	.000	.000	.000	.000	.000	.000	.000	.000	.156
Hovenia dulcis	465	.469	.156	.156	.000	.000	.000	.000	.000	.000	.000	.781
Juglans regia	487	1.250	.469	.156	.156	.000	.156	.000	.000	.000	.000	2.188
Leucosceptrum spp.	513	2.969	.469	.313	.000	.000	.000	.000	.000	.000	.000	3.750
Lithocarpus spicatus	528	.469	.156	.000	.156	.000	.000	.000	.000	.000	.000	.781
Litsaea species	541	.156	.000	.000	.000	.000	.000	.000	.000	.000	.000	.156
Macranga peltata	548	.156	.000	.000	.000	.000	.000	.000	.000	.000	.000	.156
Macaranga species	550	6.250	1.250	.469	.469	.156	.000	.000	.000	.000	.000	8.594
Machilus odoratissima	556	.000	.000	.000	.000	.156	.000	.000	.000	.000	.000	.156
Machilus species	559	.938	.156	.469	.156	.000	.000	.000	.000	.000	.000	1.719
Michelia champaca	595	.156	.000	.000	.000	.156	.156	.156	.000	.000	.000	.625
Michelia doltsopa	596	.156	.000	.000	.000	.000	.000	.000	.000	.000	.000	.156
Michelia species	602	.156	.000	.156	.000	.000	.000	.000	.000	.000	.000	.313

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CONT. OF TABLE NO.1.2.2.2

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Mimusops elengi	609	.000	.156	.000	.000	.000	.000	.000	.000	.000	.000	.156
Nyssa javanica	638	.156	.156	.625	.625	.000	.000	.000	.000	.000	.000	1.563
Ostodes paniculata	652	.938	.156	.156	.000	.000	.000	.000	.000	.000	.000	1.250
Phoebe attenuata	667	4.688	.469	.469	.156	.000	.156	.000	.000	.000	.000	5.938
Prunus species	718	.781	1.094	.781	.313	.000	.000	.000	.000	.000	.000	2.969
Pyrularia edulis	735	.469	.000	.000	.000	.000	.000	.000	.000	.000	.000	.469
Quercus spicata	753	.781	.156	.000	.000	.000	.000	.000	.000	.000	.000	.938
Quercus species	754	.313	.156	.000	.000	.000	.000	.000	.000	.000	.000	.469
Rhododendron species	765	.313	.000	.000	.000	.000	.000	.000	.000	.000	.000	.313
Rhus species	768	2.031	.469	.469	.313	.000	.000	.000	.000	.000	.000	3.281
Sacosperma arboreum	790	.156	.000	.156	.000	.156	.000	.000	.000	.000	.000	.469
Saurauia nepaulensis	791	.000	.781	.156	.000	.000	.000	.000	.000	.000	.000	.938
Schima wallichii	794	15.781	5.156	2.031	1.875	.156	.000	.000	.156	.000	.000	25.156
Semecarpus anacardium	798	.156	.000	.000	.000	.000	.000	.000	.000	.000	.000	.156
Sloanea dasycarpa	806	.000	.156	.000	.156	.000	.000	.000	.156	.000	.000	.469
Spondias axillaris	811	.156	.000	.000	.000	.000	.000	.000	.000	.000	.000	.156
Spondias species	813	.156	.000	.000	.000	.000	.000	.000	.000	.000	.000	.156
Symingtonia populnea	836	.000	.000	.000	.000	.000	.000	.000	.000	.313	.000	.313
Symploces theifolia	840	.000	.938	.625	.469	.000	.000	.000	.000	.000	.000	2.031
Terminalia myriocarpa	868	.781	.469	.156	.000	.000	.000	.000	.000	.000	.000	1.406
Viburnum species	896	8.750	1.094	.000	.000	.000	.000	.000	.000	.000	.000	9.844
Zanthoxylum budrunga/rhetsa	924	.313	.000	.000	.000	.000	.000	.000	.000	.000	.000	.313
Unidentified trees	944	8.906	3.125	1.875	1.406	.156	.156	.156	.156	.000	.000	15.938
TOTAL		109.688	37.188	16.563	10.469	3.438	2.344	.938	.938	.469	.313	182.344
PERCENTAGE		60.15	20.39	9.08	5.74	1.89	1.29	.51	.51	.26	.17	100.00

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TABLE NO.1.2.3.1

STEMS PER HACTARE(NO) BY SPECIES AND DIAMETER CLASSES(IN CM.)

STRATA-:III(RESERVED) DISTRICT - SOUTH SIKKIM

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Acer compbellii	16	.370	.185	.185	.185	.000	.185	.000	.000	.000	.000	1.111
Acer oblongum	19	.370	.000	.000	.000	.000	.000	.000	.000	.000	.000	.370
Acer species	21	.926	.185	.000	.185	.000	.000	.000	.000	.000	.000	1.296
Actinodaphne sikkimensis	25	.185	.926	.000	.185	.000	.000	.000	.000	.000	.000	1.296
Alnus nepalensis	53	.000	.000	.000	.370	.000	.000	.000	.000	.000	.000	.370
Alnus species	55	.185	.185	.000	.000	.000	.185	.000	.000	.000	.000	.556
Amoora wallichii	64	.556	.185	.370	.000	.000	.000	.000	.000	.000	.000	1.111
Beilschimiedia roxburghiana	120	.000	.370	.556	.185	.000	.185	.370	.000	.000	.000	1.667
Betula alnoides	126	.185	.000	.000	.000	.000	.000	.000	.000	.000	.000	.185
Brassiopsis speciosa	135	.000	.185	.000	.000	.000	.000	.000	.000	.000	.000	.185
Brassaiopsis mitis	136	.370	.741	.000	.000	.000	.000	.000	.000	.000	.000	1.111
Callicarpa species	154	.370	.370	.000	.000	.000	.000	.000	.000	.000	.000	.741
Castanopsis hystrix	191	.000	.370	.370	.185	.741	.556	.185	.000	.000	.000	2.407
Castanopsis indica	192	.000	.000	.185	.000	.185	.000	.000	.000	.000	.000	.370
Castanopsis species	194	2.222	2.963	.926	.556	.741	.926	1.296	.556	.556	.556	11.296
Toona ciliata	198	.000	.185	.000	.000	.000	.000	.000	.000	.000	.000	.185
Cinnamomum species	216	.185	.185	.185	.370	.000	.000	.000	.556	.000	.000	1.481
Cryptomeria japonica	256	11.481	1.296	.185	.000	.000	.000	.000	.000	.000	.000	12.963
Echinocarpus dasycarpus	308	.000	.000	.000	.000	.000	.000	.185	.000	.000	.000	.185
Eelaeocarpus lanceaefolius	313	.000	.000	.185	.000	.000	.000	.000	.000	.000	.000	.185
Engelhardtia spicata	328	1.111	.000	.370	.000	.000	.000	.000	.000	.000	.000	1.481
Eriobotrya petiolata	331	.000	.185	.185	.000	.000	.000	.000	.000	.000	.000	.370

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CONT.OF TABLE NO.1.2.3.1

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Erythrina species	342	.556	.185	.000	.000	.000	.000	.000	.000	.000	.000	.741
Eurya japonica	367	9.074	1.852	.926	.556	.000	.000	.000	.000	.000	.000	12.407
Evodia species	370	.370	.000	.000	.000	.000	.000	.000	.000	.000	.000	.370
Fagara budrunga	372	.185	.000	.000	.000	.000	.000	.000	.000	.000	.000	.185
Ficus elastica	378	.185	.000	.000	.000	.000	.000	.000	.000	.000	.000	.185
Ficus species	385	1.296	.370	.000	.000	.000	.000	.000	.000	.000	.000	1.667
Ilex species	478	.741	.000	.000	.000	.000	.000	.000	.000	.000	.000	.741
Juglans regia	487	.000	3.333	1.481	.000	.000	.000	.000	.000	.000	.000	4.815
Leucosceptrum spp.	513	5.556	.185	.000	.000	.000	.000	.000	.000	.000	.000	5.741
Lithocarpus elegans	526	.000	.185	.185	.000	.000	.000	.000	.000	.000	.000	.370
Litsaea species	541	5.741	3.148	1.296	.556	.370	.185	.000	.000	.000	.000	11.296
Macaranga species	550	1.111	.000	.185	.000	.000	.000	.000	.000	.000	.000	1.296
Machilus gammieana	551	.000	.185	.000	.185	.000	.185	.000	.185	.000	.000	.741
Machilus odoratissima	556	.000	.185	.185	.000	.000	.000	.000	.000	.000	.000	.370
Machilus species	559	4.074	1.481	1.852	.926	1.111	.556	.741	.370	.556	.000	11.667
Michelia champaca	595	.185	.185	.000	.000	.000	.000	.000	.000	.000	.000	.370
Michelia doltsopa	596	1.481	2.222	.185	.185	.000	.000	.000	.000	.000	.000	4.074
Michelia species	602	.370	.000	.000	.000	.000	.000	.000	.000	.000	.000	.370
Nauclea griffithii	632	.000	.000	.185	.185	.000	.000	.000	.000	.000	.000	.370
Nyssa javanica	638	.185	.370	.370	.185	.000	.000	.000	.000	.000	.000	1.111
Ostodes paniculata	652	1.111	.000	.000	.000	.000	.000	.000	.000	.000	.000	1.111
Persea owdenii	666	.000	.185	.370	.000	.185	.185	.000	.000	.000	.000	.926
Phoebe attenuata	667	8.333	7.037	2.037	.556	.000	.185	.000	.000	.000	.000	18.148
Phoebe species	673	.000	.741	.000	.000	.000	.000	.000	.000	.000	.000	.741
Prunus species	718	.185	.370	.000	.000	.000	.000	.000	.000	.000	.000	.556
Pyrularia edulis	735	.000	.000	.000	.185	.000	.000	.000	.000	.000	.000	.185
Quercus lamellosa	744	.556	.926	.185	.185	.000	.185	.370	.185	.000	1.296	3.889
Quercus lanceaefolia	745	.370	.185	.185	.556	.000	.185	.185	.556	.000	.185	2.407
Quercus pachyphylla	749	.185	.000	.000	.000	.000	.000	.000	.000	.000	.000	.185
Quercus spicata	753	.185	.185	.370	.185	.000	.185	.000	.000	.000	.000	1.111

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CONT.OF TABLE NO.1.2.3.1

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Quercus species	754	.741	.926	.556	.000	.000	.556	.556	.000	.000	.185	3.519
Rhododendron arboreum	760	.741	2.222	.556	.185	.000	.000	.000	.000	.000	.000	3.704
Rhododendron species	765	.370	.370	.185	.000	.000	.000	.000	.000	.000	.000	.926
Rhus species	768	1.667	.370	.370	.000	.000	.000	.185	.000	.000	.000	2.593
Saurauia nepaulensis	791	1.667	.370	.000	.000	.000	.000	.000	.000	.000	.000	2.037
Schima wallichii	794	.556	.370	.185	.000	.000	.000	.000	.000	.000	.185	1.296
Sloanea dasycarpa	806	.000	.185	.000	.000	.000	.000	.000	.185	.000	.000	.370
Symingtonia populnea	836	.370	.741	.000	.000	.185	.000	.185	.000	.000	.000	1.481
Symplocos laurina	839	.370	.556	.000	.000	.000	.000	.000	.000	.000	.000	.926
Symploces theifolia	840	28.148	10.370	2.037	.185	.000	.000	.000	.000	.000	.000	40.741
Symplocos species	841	4.815	.185	.000	.000	.000	.000	.000	.000	.000	.000	5.000
Viburnum species	896	9.444	.926	.000	.000	.000	.000	.000	.000	.000	.000	10.370
Unidentified trees	944	5.926	2.037	.556	.370	.000	.370	.000	.000	.000	.000	9.259
TOTAL		115.370	51.667	18.148	7.407	3.519	4.815	4.259	2.593	1.111	2.407	211.296
PERCENTAGE		54.60	24.45	8.59	3.51	1.67	2.28	2.02	1.23	.53	1.14	100.00

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TABLE NO.1.2.3.2

STEMS PER HACTARE(NO) BY SPECIES AND DIAMETER CLASSES(IN CM.)

STRATA-:III(UNRESERVED) DISTRICT - SOUTH SIKKIM

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Alnus nepalensis	53	21.905	8.095	.952	.476	.000	.000	.000	.000	.000	.000	31.429
Alnus species	55	1.429	6.667	.476	.952	.476	.476	.000	.000	.000	.000	10.476
Betula alnoides	126	1.429	2.381	.000	.000	.000	.000	.000	.000	.000	.000	3.810
Castanopsis species	194	4.762	5.714	1.905	2.857	1.429	.476	.952	.476	.476	.952	20.000
Cedrela serrata	197	.000	.000	.476	.000	.000	.000	.000	.000	.000	.000	.476
Cinnamomum species	216	.476	.000	.000	.000	.000	.000	.000	.000	.000	.000	.476
Cryptomeria japonica	256	2.857	13.810	11.905	1.429	.000	.000	.000	.000	.000	.000	30.000
Cupressus species	260	.476	.000	.000	.000	.000	.000	.000	.000	.000	.000	.476
Eelaeocarpus lanceaefolius	313	.000	.952	.000	.000	.000	.000	.000	.000	.000	.000	.952
Engelhardtia spicata	328	9.524	4.286	2.381	.000	.000	.000	.000	.000	.000	.000	16.190
Eurya japonica	367	27.143	5.238	2.381	.000	.000	.000	.000	.000	.000	.000	34.762
Ficus species	385	2.857	1.429	.476	.952	.000	.000	.000	.000	.000	.000	5.714
Ilex species	478	.952	1.429	.000	.000	.000	.000	.000	.000	.000	.000	2.381
Macaranga species	550	.476	.000	.476	.000	.000	.000	.000	.000	.000	.000	.952
Machilus gammieana	551	.000	.000	.000	.000	.000	.476	.000	.000	.000	.000	.476
Machilus odoratissima	556	.000	.000	.000	.000	.000	.476	.000	.000	.000	.000	.476
Machilus species	559	4.762	.952	.000	.000	.000	.000	.000	.000	.000	.000	5.714
Michelia species	602	1.905	.000	.952	.476	.000	.000	.000	.000	.000	.000	3.333

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CONT. OF TABLE NO.1.2.3.2

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Nyssa javanica	638	.476	.000	.000	.000	.000	.000	.000	.000	.000	.000	.476
Phoebe attenuata	667	4.762	4.762	1.905	.476	.000	.000	.000	.000	.000	.000	11.905
Prunus species	718	.952	1.429	.000	.000	.000	.000	.000	.000	.000	.000	2.381
Pyrularia edulis	735	1.429	.000	.000	.000	.000	.000	.000	.000	.000	.000	1.429
Quercus lamellosa	744	.000	.000	.000	.000	.000	.000	.000	.476	.000	.476	.952
Quercus species	754	.476	1.429	.000	.000	.000	.476	.000	.000	.000	.000	2.381
Rhododendron species	765	.000	2.381	.000	.000	.000	.000	.000	.000	.000	.000	2.381
Rhus species	768	.952	.952	.476	.000	.000	.000	.000	.000	.000	.000	2.381
Saurauia nepaulensis	791	4.286	.952	.000	.000	.000	.000	.000	.000	.000	.000	5.238
Schima wallichii	794	.952	.952	.000	.476	.000	.000	.000	.000	.476	.000	2.857
Symingtonia populnea	836	.000	.000	.476	.476	.000	.000	.000	.000	.000	.000	.952
Symploces theifolia	840	12.857	4.762	.476	.000	.000	.000	.000	.000	.000	.000	18.095
Viburnum species	896	29.524	1.429	.000	.000	.000	.000	.000	.000	.000	.000	30.952
Unidentified trees	944	2.857	.476	.952	.000	.000	.000	.000	.000	.000	.000	4.286
TOTAL		140.476	70.476	26.667	8.571	1.905	2.381	.952	.952	.952	1.429	254.762
PERCENTAGE		55.14	27.66	10.47	3.36	.75	.93	.37	.37	.37	.56	100.00

Contents

TABLE NO.1.2.4.1

STEMS PER HACTARE(NO) BY SPECIES AND DIAMETER CLASSES(IN CM.)

STRATA-:IV(RESERVED) DISTRICT - SOUTH SIKKIM

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Alangium salvifolium	42	2.500	.000	.000	.000	.000	.000	.000	.000	.000	.000	2.500
Betula cylindrostachys	127	2.500	2.500	2.500	.000	2.500	.000	.000	.000	.000	.000	10.000
Castanopsis species	194	.000	.000	.000	.000	.000	.000	.000	.000	.000	2.500	2.500
Drypetes lancifolia	302	.000	.000	2.500	2.500	.000	.000	.000	.000	.000	.000	5.000
Litsaea species	541	42.500	27.500	7.500	7.500	2.500	.000	.000	.000	.000	.000	87.500
Machilus gammieana	551	.000	.000	.000	2.500	.000	.000	.000	.000	.000	.000	2.500
Machilus odoratissima	556	.000	.000	.000	2.500	.000	.000	2.500	.000	.000	.000	5.000
Machilus species	559	15.000	5.000	5.000	5.000	.000	.000	.000	.000	.000	.000	30.000
Quercus spicata	753	.000	.000	.000	2.500	.000	.000	.000	.000	.000	.000	2.500
Quercus species	754	15.000	5.000	5.000	10.000	.000	5.000	2.500	5.000	.000	2.500	50.000
Rhododendron species	765	20.000	7.500	2.500	.000	.000	.000	.000	.000	.000	.000	30.000
Symploces theifolia	840	30.000	10.000	.000	.000	.000	.000	.000	.000	.000	.000	40.000
Unidentified trees	944	7.500	2.500	.000	.000	.000	.000	.000	.000	.000	.000	10.000
TOTAL		135.000	60.000	25.000	32.500	5.000	5.000	5.000	5.000	.000	5.000	277.500
PERCENTAGE		48.65	21.62	9.01	11.71	1.80	1.80	1.80	1.80	.00	1.80	100.00

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TABLE NO.2.1.1.1

TOTAL STEMS(IN NO) BY SPECIES AND DIAMETER CLASSES(IN CM.)

STRATA-: RESERVE1 DISTRICT : WEST SIKKIM

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Ailanthus excelsa	40	0	949	0	0	0	0	0	0	0	0	949
Alangium salvifolium	42	0	949	0	0	0	0	0	0	0	0	949
Albizzia procera	50	949	0	0	0	0	0	0	0	0	0	949
Alstonia scholaris	57	9499	0	0	949	0	0	0	0	0	0	10450
Bauhinia species	118	949	949	0	0	0	0	0	0	0	0	1900
Bischofia javanica	129	0	4750	949	0	0	0	0	0	0	0	5700
Bombax ceiba	131	949	0	0	0	0	0	0	0	0	0	949
Chukrasia vellutina	208	0	0	0	0	949	0	0	0	0	0	949
Diploknema butyracea	293	0	1900	1900	1900	0	0	0	0	0	0	5700
Duabanga grandiflora	303	0	1900	949	0	0	0	0	0	0	0	2850
Eugenia species	358	0	949	0	0	0	0	0	0	0	0	949
Ficus species	385	1900	0	0	0	0	0	0	0	0	0	1900
Garuga pinnata	407	7600	0	1900	1900	0	0	0	0	0	0	11400
Mallotus philippinensis	565	1900	3799	0	0	0	0	0	0	0	0	5700
Morus laevigata	617	0	0	0	949	0	0	0	0	0	0	949
Pinus species	686	0	0	0	949	0	0	949	0	0	0	1900
Schima wallichii	794	6649	949	0	949	2850	0	0	0	0	0	11400
Semecarpus anacardium	798	949	1900	1900	949	0	0	0	0	0	0	5700
Shorea robusta	802	47500	14250	9499	9499	3799	0	0	0	0	0	84549
Syzygium cumini	843	949	0	0	0	0	0	0	0	0	0	949
Tetrameles nudiflora	873	0	0	0	1900	2850	949	0	0	0	0	5700
Vepris bilocularis	894	0	0	949	0	0	0	0	0	0	0	949
Unidentified trees	944	949	949	0	0	0	0	0	0	0	0	1900
TOTAL		80749	34200	18049	19950	10450	949	949	0	0	0	165298

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TABLE NO.2.1.1.2

TOTAL STEMS(IN NO) BY SPECIES AND DIAMETER CLASSES(IN CM.)

STRATA-:1(UNRESERVE) DISTRICT: WEST SIKKIM

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Albizzia procera	50	7125	0	0	0	0	0	0	0	0	0	7125
Chukrasia vellutina	208	7125	0	0	0	0	0	0	0	0	0	7125
Engelhardtia spicata	328	7125	0	0	0	0	0	0	0	0	0	7125
Schima wallichii	794	71250	0	0	0	0	0	0	0	0	0	71250
Shorea robusta	802	0	0	0	42750	21375	0	0	0	0	0	64125
TOTAL		92625	0	0	42750	21375	0	0	0	0	0	156750

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TABLE NO.2.1.2.1.

TOTAL STEMS(IN NO) BY SPECIES AND DIAMETER CLASSES(IN CM.)

STRATA-: RESERVE2 DISTRICT : WEST SIKKIM

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Acer compbellii	16	430	0	430	0	0	0	0	0	0	0	858
Albizzia lebbek	46	858	0	430	0	0	0	0	0	0	0	1289
Albizzia procera	50	2147	430	430	430	0	0	0	0	0	0	3437
Albizzia species	51	430	430	0	0	0	0	0	0	0	0	858
Alnus nepalensis	53	3006	9452	2578	3006	858	0	0	0	0	0	18902
Betula alnoides	126	4295	1289	0	0	0	0	0	0	0	0	5585
Betula cylindrostachys	127	0	0	430	0	0	0	0	0	0	0	430
Bridelia retusa	138	0	430	0	0	0	0	0	0	0	0	430
Callicarpa arborea	150	858	0	0	0	0	0	0	0	0	0	858
Castanopsis hystrix	191	0	0	0	0	430	0	0	0	0	0	430
Castanopsis indica	192	14607	3437	1717	858	430	0	0	430	0	0	21481
Castanopsis species	194	16324	9022	10311	2578	858	0	0	0	0	0	39095
Cedrela serrata	197	430	1289	0	430	430	0	0	0	0	0	2578
Toona ciliata	198	0	0	430	0	0	0	0	0	0	0	430
Cinnamomum species	216	858	0	0	858	0	0	0	0	0	0	1717
Cryptomeria japonica	256	49406	4726	1717	3437	3437	0	858	0	0	0	63582
Eelaeocarpus lanceaefolius	313	858	0	0	0	0	0	0	0	0	0	858
Engelhardtia spicata	328	9880	5585	1717	858	0	0	858	0	0	430	19333
Eugenia formosa	352	0	858	1289	0	0	0	0	0	0	0	2147
Eurya japonica	367	8591	3867	858	0	0	0	0	0	0	0	13317
Evodia species	370	430	0	0	0	0	0	0	0	0	0	430
Ficus elastica	378	430	0	0	0	0	0	0	0	0	0	430
Firmiana colorata	388	430	430	0	0	0	0	0	0	0	0	858
Juglans regia	487	0	430	0	0	0	0	0	0	0	0	430
Lannea coromandelica	509	858	0	0	0	0	0	0	0	0	0	858
Macranga peltata	548	1289	0	858	0	0	0	0	0	0	0	2147
Macaranga species	550	0	430	0	0	0	0	0	0	0	0	430
M ilus species	559	858	430	0	0	0	0	0	0	0	0	1289
M otus philippinensis	565	430	0	0	0	0	0	0	0	0	0	430
M elia champaca	595	0	430	0	858	0	0	0	0	0	0	1289

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CONT OF TABLE NO.2.1.2.1.

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Michelia species	602	430	0	0	430	0	0	0	0	0	0	858
Ostodes paniculata	652	8591	3437	430	430	0	0	0	0	0	0	12887
Perishia species	665	1289	0	0	0	0	430	0	0	0	0	1717
Phoebe attenuata	667	12459	1717	430	0	0	0	0	0	0	0	14607
Prunus species	718	430	430	0	0	0	0	0	0	0	0	858
Putranjiva roxburghii	734	0	0	430	0	0	0	0	0	0	0	430
Quercus lamellosa	744	6015	1289	430	430	0	0	0	430	430	430	9452
Quercus pachyphylla	749	430	858	430	0	0	0	0	0	0	0	1717
Rhododendron arboreum	760	430	0	0	0	0	0	0	0	0	0	430
Saurauia nepaulensis	791	430	0	0	0	0	0	0	0	0	0	430
Schima wallichii	794	21050	11170	3437	2147	0	0	0	0	0	0	37805
Semecarpus anacardium	798	430	0	0	0	0	0	0	0	0	0	430
Spondias axillaris	811	430	430	0	0	0	0	0	0	0	0	858
Symingtonia populnea	836	430	0	0	0	0	0	0	0	0	0	430
Symploces theifolia	840	2147	0	0	0	0	0	0	0	0	0	2147
Syzygium cumini	843	858	0	0	0	0	0	0	0	0	0	858
Syzygium species	850	430	0	0	0	0	0	0	0	0	0	430
Viburnum species	896	2578	430	0	0	0	0	0	0	0	0	3006
Woodfordia floribunda	909	430	0	0	0	0	0	0	0	0	0	430
Unidentified trees	944	16324	6443	1717	430	0	0	0	0	0	0	24918
TOTAL		193327	69167	30503	17185	6443	430	1717	858	430	858	320921

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TABLE NO.2.1.2.2

TOTAL STEMS(IN NO) BY SPECIES AND DIAMETER CLASSES(IN CM.)

STRATA-:2(UNRESERVE) DISTRICT: WEST SIKKIM

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Acer oblongum	19	2937	0	0	0	0	0	0	0	0	0	2937
Albizzia procera	50	38212	2937	0	0	0	0	0	0	0	0	41150
Albizzia species	51	0	2937	0	0	0	0	0	0	0	0	2937
Alnus nepalensis	53	41150	32331	5881	0	0	0	0	0	0	0	79368
Bauhinia species	118	5881	0	0	0	0	0	0	0	0	0	5881
Betula alnoides	126	2937	0	0	0	0	0	0	0	0	0	2937
Bombax ceiba	131	5881	0	0	0	0	0	0	0	0	0	5881
Brassaiopsis mitis	136	11756	0	0	0	0	0	0	0	0	0	11756
Callicarpa arborea	150	0	2937	2937	2937	0	0	0	0	0	0	8818
Castanopsis indica	192	2937	2937	0	5881	0	2937	0	0	0	0	14699
Castanopsis species	194	158731	17637	2937	2937	0	0	0	0	0	0	182249
Toona ciliata	198	2937	0	0	0	0	0	0	0	0	0	2937
Cinnamomum species	216	0	0	0	0	0	0	0	0	0	2937	2937
Diploknema butyracea	293	0	2937	0	0	0	0	0	0	0	0	2937
Eelaeocarpus lanceaefolius	313	2937	0	0	2937	0	2937	0	0	0	0	8818
Emblica officinalis	325	2937	0	0	0	0	0	0	0	0	0	2937
Engelhardtia spicata	328	35274	20575	11756	14699	2937	0	0	0	0	0	85243
Eugenia formosa	352	2937	0	0	0	0	0	0	0	0	0	2937
Eurya japonica	367	35274	32331	8818	0	0	0	0	0	0	0	76425
Evodia species	370	0	5881	0	0	0	0	0	0	0	0	5881
Juglans regia	487	2937	0	0	0	0	0	0	0	0	0	2937
Macranga peltata	548	2937	0	0	0	0	0	0	0	0	0	2937
Macaranga species	550	38212	17637	5881	0	0	0	0	0	0	0	61731
Nyctanthes arbortristis	637	0	2937	0	0	0	0	0	0	0	0	2937

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CONT. OF TABLE NO.2.1.2.2.

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Oroxylum indicum	650	2937	0	0	0	0	0	0	0	0	0	2937
Ostodes paniculata	652	23518	5881	11756	5881	0	0	0	0	0	0	47031
Persea owdenii	666	2937	0	0	0	0	0	0	0	0	0	2937
Phoebe attenuata	667	0	0	5881	0	0	0	0	0	0	0	5881
Prunus species	718	5881	0	0	0	0	0	0	0	0	0	5881
Rhus species	768	14699	0	0	2937	0	0	0	0	0	0	17637
Schima wallichii	794	126399	79368	47031	14699	2937	8818	2937	0	0	0	282187
Semecarpus anacardium	798	2937	0	0	0	0	0	0	0	0	0	2937
Shorea robusta	802	2937	0	8818	23518	5881	0	0	0	0	0	41150
Symploces theifolia	840	2937	0	0	0	0	0	0	0	0	0	2937
Symplocos species	841	11756	0	0	2937	0	0	0	0	0	0	14699
Terminalia belerica	861	2937	0	0	0	0	0	0	0	0	0	2937
Viburnum species	896	23518	0	0	0	0	0	0	0	0	0	23518
Unidentified trees	944	5881	0	2937	0	0	0	0	0	0	0	8818
TOTAL		626106	229281	114637	79368	11756	14699	2937	0	0	2937	1081725

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TABLE NO.2.1.3.1

TOTAL STEMS(IN NO) BY SPECIES AND DIAMETER CLASSES(IN CM.)

STRATA-: 3(RESERVE) DISTRICT : WEST SIKKIM

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Acer compbellii	16	0	0	3327	0	0	0	0	0	0	0	3327
Alnus nepalensis	53	146568	86607	69956	9995	0	0	3327	0	0	0	316456
Beilschimiedia roxburghiana	120	6667	0	0	0	0	0	0	0	0	0	6667
Betula alnoides	126	0	0	0	3327	0	0	0	0	0	0	3327
Castanopsis indica	192	13323	3327	0	0	0	0	0	0	0	0	16651
Castanopsis species	194	13323	19991	6667	6667	16651	13323	6667	6667	0	23318	113254
Toona ciliata	198	3327	0	0	0	0	0	0	0	0	0	3327
Cinnamomum species	216	9995	0	0	3327	0	0	0	0	0	0	13323
Cryptomeria japonica	256	36642	0	0	0	0	0	0	0	0	0	36642
Cupressus species	260	26646	93275	3327	0	3327	0	0	0	0	0	126577
Eelaeocarpus lanceaefolius	313	3327	0	0	0	0	0	0	0	0	0	3327
Engelhardtia spicata	328	26646	3327	0	0	0	0	0	0	0	0	29974
Eurya japonica	367	89935	63288	13323	3327	0	0	0	0	0	0	169887
Ficus elastica	378	9995	3327	0	0	0	0	0	0	0	0	13323
Ficus species	385	13323	6667	0	0	0	0	0	0	0	0	19991
Glochidion species	416	0	0	3327	0	0	0	0	0	0	0	3327
Juglans regia	487	3327	6667	0	0	0	0	0	0	0	0	9995
Leucosceptrum spp.	513	16651	6667	0	0	0	0	0	0	0	0	23318
Macranga peltata	548	0	0	3327	0	0	0	0	0	0	0	3327
Macaranga species	550	36642	9995	0	0	0	0	0	0	0	0	46637
Machilus species	559	13323	0	3327	0	3327	0	0	0	0	0	19991
Michelia champaca	595	3327	0	0	0	0	3327	0	0	0	0	6667
Michelia doltsopa	596	0	6667	0	0	0	0	0	0	0	0	6667
M elia species	602	9995	6667	0	3327	0	0	0	0	0	0	19991
M agyna parviflora	611	3327	0	0	0	0	0	0	0	0	0	3327

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CONT. OF TABLE NO.2.1.3.1.

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Nyssa javanica	638	0	0	0	0	0	0	0	3327	0	0	3327
Perishia species	665	0	0	3327	0	0	0	0	0	0	3327	6667
Phoebe attenuata	667	9995	29974	0	0	0	0	0	0	0	0	39969
Prunus species	718	6667	0	0	0	0	0	0	0	0	0	6667
Quercus lamellosa	744	56633	16651	3327	9995	9995	6667	6667	13323	0	23318	146568
Quercus lanceaefolia	745	3327	0	0	0	6667	3327	3327	0	0	0	16651
Quercus lineata	748	0	0	0	0	0	0	3327	0	0	0	3327
Quercus spicata	753	0	0	0	0	0	0	0	0	0	9995	9995
Quercus species	754	186538	113254	0	0	0	0	0	0	6667	0	306461
Rhododendron arboreum	760	3327	0	0	0	0	0	0	0	0	0	3327
Rhododendron species	765	0	6667	0	0	0	0	0	0	0	0	6667
Rhus species	768	13323	3327	3327	0	0	0	0	0	0	0	19991
Schima wallichii	794	13323	6667	3327	3327	3327	3327	0	0	0	0	33314
Semecarpus anacardium	798	9995	0	0	6667	0	0	0	0	0	0	16651
Symingtonia populnea	836	3327	0	0	0	0	0	0	0	0	0	3327
Symploces theifolia	840	219853	113254	19991	3327	0	0	0	0	0	0	356426
Viburnum species	896	139901	43310	3327	0	0	0	0	0	0	0	186538
Woodfordia floribunda	909	16651	6667	0	0	0	0	0	0	0	0	23318
Unidentified trees	944	129917	9995	0	3327	0	0	0	0	0	0	143241
TOTAL		1299116	666215	143241	56633	43310	29974	23318	23318	6667	59961	2351745

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TABLE NO.2.1.3.2.

TOTAL STEMS(IN NO) BY SPECIES AND DIAMETER CLASSES(IN CM.)

STRATA-:3(UNRESERVE) DISTRICT: WEST SIKKIM

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Abies pindrow	1	12324	0	0	0	0	0	0	0	0	0	12324
Alnus nepalensis	53	86268	18486	0	0	0	0	0	0	0	0	104754
Beilschimiedia roxburghiana	120	0	0	6162	0	0	0	0	0	0	0	6162
Calophyllum polyanthum	157	6162	0	0	0	0	0	0	0	0	0	6162
Castanopsis indica	192	0	0	0	0	0	0	0	6162	0	6162	12324
Castanopsis species	194	6162	0	0	0	0	0	6162	0	18486	0	30810
Engelhardtia spicata	328	24648	6162	0	0	0	0	0	0	12324	0	43134
Eurya japonica	367	18486	6162	18486	0	0	0	0	0	0	0	43134
Macaranga species	550	12324	6162	0	0	0	0	0	0	0	0	18486
Michelia species	602	0	0	0	6162	0	0	0	0	0	0	6162
Ostodes paniculata	652	6162	0	6162	0	0	0	0	0	0	0	12324
Phoebe attenuata	667	73944	6162	0	0	0	0	0	0	0	0	80106
Quercus lamellosa	744	0	0	0	6162	0	0	0	0	0	6162	12324
Rhododendron arboreum	760	30810	0	0	0	0	0	0	0	0	0	30810
Schima wallichii	794	0	6162	6162	0	0	6162	6162	0	0	6162	30810
Semecarpus anacardium	798	0	18486	0	0	0	0	0	0	0	0	18486
Symploces theifolia	840	36972	6162	0	0	0	0	0	0	0	0	43134
Viburnum species	896	67782	43134	12324	6162	0	0	0	0	0	0	129402
Woodfordia floribunda	909	24648	0	0	0	0	0	0	0	0	0	24648
Unidentified trees	944	0	0	6162	6162	0	0	0	0	0	0	12324
TOTAL		406692	117078	55458	24648	0	6162	12324	6162	30810	18486	677820

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TABLE NO.2.1.4.1.
TOTAL STEMS(IN NO) BY SPECIES AND DIAMETER CLASSES(IN CM.)
STRATA-: 4(RESERVE) DISTRICT : WEST SIKKIM

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Abies pindrow	1	0	0	0	0	24768	49572	0	49572	49572	74340	247790
Acer compbellii	16	123877	123877	148681	24768	0	24768	0	24768	0	0	470778
Beilschimiedia roxburghiana	120	0	0	49572	0	0	0	0	0	0	0	49572
Betula alnoides	126	0	24768	24768	24768	0	0	0	0	0	0	74340
Betula cylindrostachys	127	0	24768	0	0	0	0	0	0	0	0	24768
Eelaeocarpus lanceaefolius	313	0	24768	0	0	0	0	0	0	0	0	24768
Eurya japonica	367	123877	0	0	24768	0	0	0	0	0	0	148681
Machilus species	559	49572	74340	49572	24768	49572	0	24768	24768	0	0	297328
Michelia champaca	595	0	0	49572	0	0	0	24768	0	0	0	74340
Michelia species	602	24768	99109	173450	173450	123877	123877	24768	0	0	0	743372
Premna tomentosa	708	0	0	0	24768	0	0	0	0	0	0	24768
Prunus species	718	0	24768	0	0	24768	0	0	0	0	0	49572
Quercus lamellosa	744	74340	0	0	24768	0	24768	74340	24768	0	49572	272559
Quercus lanceaefolia	745	0	24768	0	49572	0	99109	24768	74340	24768	24768	322131
Quercus species	754	0	0	0	24768	24768	0	0	24768	24768	24768	123877
Rhododendron arboreum	760	594690	272559	198218	24768	0	0	0	0	0	0	1090272
Rhododendron barbatum	761	322131	123877	24768	24768	0	0	0	0	0	0	495581
Rhododendron hodgsoni	762	743372	0	0	0	0	0	0	0	0	0	743372
Rhododendron griffithianum	763	1214150	123877	74340	0	0	0	0	0	0	0	1412368
Rhododendron species	765	148681	123877	272559	198218	123877	49572	0	0	0	0	916822
Saurauia nepaulensis	791	0	24768	0	0	0	0	0	0	0	0	24768
Symplocos laurina	839	371668	223022	24768	0	0	0	0	0	0	0	619459
Symploces theifolia	840	74340	0	0	0	0	0	0	0	0	0	74340
Taxus baccata	857	0	0	0	0	99109	74340	0	24768	24768	0	223022
Viburnum species	896	421240	0	0	0	0	0	0	0	0	0	421240
Unidentified trees	944	322131	49572	0	49572	0	0	0	0	0	0	421240
TOTAL		4608809	1362831	1090272	693800	470778	446009	173450	247790	123877	173450	9391068

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TABLE NO.2.2.1.1.

TOTAL STEMS(IN NO) BY SPECIES AND DIAMETER CLASSES(IN CM.)

STRATA-:1(RESERVE) DISTRICT: SOUTH SIKKIM

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Acer species	21	666	1336	0	0	0	0	0	0	0	0	2002
Ailanthus altissima	39	2002	666	0	0	0	0	0	0	0	0	2672
Albizzia lucida	47	1336	0	0	0	0	0	0	0	0	0	1336
Albizzia procera	50	666	2002	0	0	0	0	0	0	0	0	2672
Albizzia species	51	4674	2002	2672	2002	0	666	666	666	0	0	13358
Alstonia scholaris	57	1336	0	0	666	0	666	0	666	0	0	3338
Amoora rohituka	63	2002	2002	1336	0	0	0	0	0	0	0	5345
Bauhinia racemosa	115	0	666	0	0	0	0	0	0	0	0	666
Bauhinia species	118	3338	666	0	0	0	0	0	0	0	0	4008
Betula alnoides	126	3338	0	0	0	0	0	0	0	0	0	3338
Bischofia javanica	129	666	0	0	0	0	0	0	0	0	0	666
Boehmeria species	130	2672	0	0	0	0	0	0	0	0	0	2672
Bombax ceiba	131	666	2672	666	0	0	666	666	0	0	0	5345
Callicarpa arborea	150	3338	2672	1336	0	0	0	0	0	0	0	7347
Cedrela serrata	197	0	2672	1336	666	0	0	0	0	0	0	4674
Chukrasia vellutina	208	0	2002	0	0	0	0	0	0	0	0	2002
Eelonix ellate	272	666	2002	2672	0	0	0	0	0	0	0	5345
Diploknema butyracea	293	2002	1336	2002	0	0	0	0	0	0	0	5345
Drypetes lancifolia	302	0	1336	0	0	0	0	0	0	0	0	1336
Duabanga grandiflora	303	0	1336	666	666	0	1336	666	666	0	0	5345
Engelhardtia spicata	328	0	0	1336	666	0	0	0	0	0	0	2002
Erythrina variegata	341	0	0	0	0	666	0	0	0	0	0	666
Eucalyptus hybrid	346	666	0	0	0	0	0	0	0	0	0	666
Eucalyptus species	348	1336	1336	666	0	0	0	0	0	0	0	3338
Eurya japonica	367	0	666	0	0	0	0	0	0	0	0	666

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CONT. OF TABLE NO.2.2.1.1.

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Ficus species	385	4008	0	0	0	0	0	0	0	0	0	4008
Garuga pinnata	407	16031	3338	4674	2002	666	0	0	0	0	0	26717
Gynocordia odorata	437	0	0	666	0	0	0	0	0	0	0	666
Hollarrhena antidysenterica	452	4674	0	0	0	0	0	0	0	0	0	4674
Juglans regia	487	666	0	0	0	0	0	0	0	0	0	666
Lagerstroemia parviflora	505	14695	1336	1336	0	0	0	0	0	0	0	17363
Lannea coromandelica	509	0	2002	666	0	0	0	0	0	0	0	2672
Macaranga species	550	666	0	0	0	0	0	0	0	0	0	666
Mallotus philippinensis	565	24711	8683	1336	666	0	0	0	0	0	0	35397
Nauclea griffithii	632	1336	2672	0	0	0	0	0	0	0	0	4008
Ostodes paniculata	652	17363	6011	666	1336	0	0	0	0	0	0	25381
Pinus roxburghii	685	0	0	0	666	0	0	0	0	0	0	666
Quercus lanceaefolia	745	0	666	0	0	0	0	0	0	0	0	666
Quercus species	754	3338	1336	0	0	0	0	0	0	0	0	4674
Sacosperma arboreum	790	0	0	0	0	0	666	0	0	0	0	666
Schima wallichii	794	7347	6677	4674	6677	3338	4008	1336	0	0	666	34731
Semecarpus anacardium	798	2002	1336	0	0	0	0	0	0	0	0	3338
Shorea robusta	802	97512	77476	63451	29386	3338	4674	2672	0	666	0	279178
Spondias axillaris	811	666	0	0	0	0	666	0	0	0	0	1336
Spondias pinnata	812	666	0	0	0	0	0	0	0	0	0	666
Symplocos laurina	839	0	1336	666	0	0	0	0	0	0	0	2002
Symplocos species	841	0	0	666	0	0	0	0	0	0	0	666
Syzygium cumini	843	2672	0	0	0	0	0	666	0	0	0	3338
Talauma phellocarpa	855	666	0	0	0	0	0	0	0	0	0	666
Tectona grandis	858	19370	14024	9349	1336	0	0	0	0	0	0	44081
Terminalia belerica	861	2002	0	0	2002	666	666	0	0	0	0	5345
Terminalia chebula	864	1336	1336	666	1336	0	0	0	0	0	0	4674
Terminalia crenulata	866	2002	666	0	0	0	0	0	0	0	0	2672
Terminalia myriocarpa	868	1336	2002	2672	0	0	0	0	0	0	0	6011
Tetrameles nudiflora	873	0	0	1336	0	0	0	0	0	0	0	1336
Unidentified trees	944	23374	6677	4674	1336	0	0	0	0	0	0	36067
TOTAL		279848	164968	112207	51428	8683	14024	6677	2002	666	666	641178

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TABLE NO.2.2.1.2.

TOTAL STEMS(IN NO) BY SPECIES AND DIAMETER CLASSES(IN CM.)

STRATA-:1(UNRESERVE) DISTRICT: SOUTH SIKKIM

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100-	TOTAL
Ailanthus altissima	39	599	0	0	0	0	0	0	0	0	0	599
Albizzia procera	50	599	599	1800	1200	0	0	0	0	0	0	4199
Albizzia species	51	5999	1800	1200	599	0	0	599	0	0	0	10200
Alnus species	55	0	599	0	0	0	0	0	0	0	0	599
Artocarpus species	94	0	0	0	599	0	0	0	0	0	0	599
Betula alnoides	126	0	599	0	0	0	0	0	0	0	0	599
Bischofia javanica	129	4800	599	0	0	0	599	0	0	0	0	5999
Bombax ceiba	131	1200	1200	599	0	0	0	0	0	0	0	3000
Callicarpa species	154	1800	1200	599	0	0	0	0	0	0	0	3600
Cedrela serrata	197	0	0	0	0	0	599	0	0	0	0	599
Diploknema butyracea	293	1800	3000	2399	0	0	0	0	0	0	0	7200
Duabanga grandiflora	303	0	0	0	0	0	0	0	0	0	599	599
Dysoxylum spp.	307	0	1200	0	0	0	0	0	0	0	0	1200
Endospermum chinense	326	0	599	0	0	0	0	0	0	0	0	599
Engelhardtia spicata	328	5999	2399	0	599	0	0	0	0	0	0	9000
Erythrina species	342	0	0	599	0	0	0	0	0	0	0	599
Ficus species	385	4800	599	599	0	0	0	0	0	0	0	5999
Garuga pinnata	407	0	599	0	0	0	0	0	0	0	0	599
Glochidion species	416	599	0	0	0	0	0	0	0	0	0	599
Hovenia dulcis	465	0	599	0	0	0	0	0	0	0	0	599
Juglans regia	487	0	599	0	0	0	0	0	0	0	0	599
Litsaea species	541	599	0	0	0	0	0	0	0	0	0	599

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CONT. OF TABLE NO.2.2.1.2.

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Macaranga species	550	0	599	0	0	0	0	0	0	0	0	599
Ostodes paniculata	652	3600	1800	1800	0	0	0	0	0	0	0	7200
Phoebe attenuata	667	1200	1200	0	0	0	0	0	0	0	0	2399
Rhus species	768	599	599	0	0	0	0	0	0	0	0	1200
Sacosperma arboreum	790	3000	599	1800	0	0	0	0	0	0	0	5400
Schima wallichii	794	16200	10800	3000	599	0	599	0	0	0	0	31199
Shorea robusta	802	599	599	5999	2399	0	0	0	0	0	0	9599
Spondias species	813	0	0	599	0	0	0	0	0	0	0	599
Sterculia urens	820	599	0	0	0	0	0	0	0	0	0	599
Stereospermum personatum	824	599	0	0	0	0	0	0	0	0	0	599
Syzygium cumini	843	599	0	0	0	0	0	0	0	0	0	599
Syzygium gardneri	844	0	0	599	599	0	0	0	0	0	0	1200
Terminalia myriocarpa	868	599	599	0	599	0	0	0	0	0	0	1800
Unidentified trees	944	6600	1200	1200	0	0	599	0	0	0	0	9599
TOTAL		62988	34200	22800	7133	0	2396	599	0	0	599	130737

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TABLE NO.2.2.2.1.

TOTAL STEMS(IN NO) BY SPECIES AND DIAMETER CLASSES(IN CM.)

STRATA-:2(RESERVE) DISTRICT: SOUTH SIKKIM

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Acer oblongum	19	0	565	565	0	0	0	0	0	0	0	1128
Acer species	21	0	0	565	0	0	0	0	0	0	0	565
Albizzia procera	50	0	565	0	1128	1128	0	0	0	0	0	2822
Albizzia species	51	2257	1128	565	0	0	0	0	0	0	0	3951
Alnus nepalensis	53	6774	4517	2257	2257	0	0	0	0	0	0	15808
Alnus species	55	1694	565	0	0	0	0	0	0	0	0	2257
Amoora rohituka	63	565	0	0	0	0	0	0	0	0	0	565
Amoora wallichii	64	0	1128	0	0	0	0	0	0	0	0	1128
Castanopsis indica	192	0	0	0	0	0	1128	0	0	0	0	1128
Castanopsis species	194	565	565	565	0	0	0	0	0	0	0	1694
Toona ciliata	198	565	0	0	0	0	0	0	0	0	0	565
Cryptomeria japonica	256	2822	0	0	0	0	0	0	0	0	0	2822
Diploknema butyracea	293	565	0	0	0	0	0	0	0	0	0	565
Engelhardtia spicata	328	7340	3388	1128	2257	0	2257	0	0	0	0	16372
Erythrina species	342	0	1128	0	0	0	0	0	0	0	0	1128
Eurya japonica	367	0	1128	565	0	0	0	0	0	0	0	1694
Ficus elastica	378	1128	0	0	0	0	0	0	0	0	0	1128
Ficus species	385	565	1694	0	565	0	0	0	0	0	0	2822
Garuga pinnata	407	1694	565	0	0	0	0	0	0	0	0	2257
Gmelina arborea	420	0	0	565	0	0	0	0	0	0	0	565
Juglans regia	487	0	565	565	565	0	565	0	0	0	0	2257
Lagerstroemia parviflora	505	1128	0	0	0	0	0	0	0	0	0	1128
Lithocarpus spicatus	528	0	565	0	0	0	0	0	0	0	0	565
Macaranga species	550	2257	1694	0	565	0	0	0	0	0	0	4517
Machilus species	559	1128	1128	0	1128	0	0	0	0	0	0	3388
Mallotus philippinensis	565	565	0	0	0	0	0	0	0	0	0	565
Michelia champaca	595	0	1128	0	0	0	0	0	0	0	0	1128
Michelia species	602	10162	0	0	0	0	0	0	0	0	0	10162
Nyssa javanica	638	1128	3388	1128	1128	0	0	0	0	0	0	6774
Osmanthus paniculata	652	2257	1128	0	0	0	0	0	0	0	0	3388

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CONT. OF TABLE NO.2.2.2.1.

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Phoebe attenuata	667	2257	0	0	0	0	0	0	0	0	0	2257
Quercus lanceaefolia	745	565	565	1694	0	0	0	0	0	0	0	2822
Quercus species	754	1128	0	0	0	0	0	0	0	0	0	1128
Rhus species	768	1694	0	0	0	1128	0	0	0	0	0	2822
Saurauia nepaulensis	791	4517	0	0	0	0	0	0	0	0	0	4517
Schima wallichii	794	33875	22583	5080	1128	0	0	0	1128	0	0	63799
Semecarpus anacardium	798	1128	0	0	0	0	0	0	0	0	0	1128
Spondias axillaris	811	1128	0	565	0	0	0	0	0	0	0	1694
Symplocos laurina	839	1694	565	0	0	0	0	0	0	0	0	2257
Symploces theifolia	840	565	0	0	0	0	0	0	0	0	0	565
Syzygium cumini	843	1128	3388	0	0	0	0	0	0	0	0	4517
Terminalia chebula	864	565	565	0	0	0	0	0	0	0	0	1128
Terminalia myriocarpa	868	565	565	565	0	0	0	0	0	0	0	1694
Viburnum species	896	4517	0	0	0	0	0	0	0	0	0	4517
Unidentified trees	944	28794	3951	0	0	0	0	0	0	0	0	32746
TOTAL		129291	58717	16372	10726	2257	3951	0	1128	0	0	222448

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TABLE NO.2.2.2.2.

TOTAL STEMS(IN NO) BY SPECIES AND DIAMETER CLASSES(IN CM.)

STRATA-:2(UNRESERVE) DISTRICT: SOUTH SIKKIM

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Acer oblongum	19	392	0	0	0	0	0	0	0	0	0	392
Acer species	21	392	0	0	0	0	0	0	0	0	0	392
Ailanthus altissima	39	0	392	0	0	0	0	0	0	0	0	392
Alangium salvifolium	42	1964	0	0	0	0	0	0	0	0	0	1964
Albizzia odorotissima	49	392	0	0	0	0	0	0	0	0	0	392
Albizzia procera	50	787	2360	787	787	392	0	0	0	0	0	5109
Albizzia species	51	4325	1964	392	0	392	0	0	0	0	0	7077
Alnus nepalensis	53	1572	392	787	1964	1180	787	0	0	0	0	6682
Alnus species	55	12580	11795	2360	787	0	0	0	0	0	0	27520
Amoora wallichii	64	787	0	0	0	0	0	0	0	0	0	787
Artocarpus species	94	392	0	0	0	0	0	0	0	0	0	392
Bauhinia species	118	392	0	0	0	0	0	0	0	0	0	392
Beilschimiedia roxburghiana	120	1964	1180	1180	392	392	0	0	0	0	0	5109
Betula alnoides	126	0	0	392	0	0	0	0	0	0	0	392
Bombax ceiba	131	0	392	392	0	0	0	0	0	0	0	787
Brassiopsis speciosa	135	3537	0	0	0	0	0	0	0	0	0	3537
Brassaiopsis mitis	136	2360	1180	0	0	0	0	0	0	0	0	3537
Callicarpa arborea	150	392	0	0	0	0	0	0	0	0	0	392
Callicarpa species	154	787	0	0	0	0	0	0	0	0	0	787
Casearia species	185	1180	787	0	0	0	0	0	0	0	0	1964
Castanopsis hystrix	191	392	0	0	0	392	787	0	392	392	392	2752
Castanopsis species	194	14544	3932	2752	392	392	392	787	392	0	0	23587
Cedrela serrata	197	392	787	0	0	0	0	0	0	0	0	1180
Toona ciliata	198	1180	1572	0	0	0	0	0	0	0	0	2752
Cinnamomum species	216	0	0	392	0	0	0	0	0	0	0	392
Cordia myxa	236	0	392	0	0	0	0	0	0	0	0	392
Eelaeocarpus lanceaefolius	313	2752	787	0	0	0	0	0	0	0	0	3537
Elengium lamarchi	324	392	0	0	0	0	0	0	0	0	0	392
Emblica officinalis	325	392	0	0	0	0	392	0	0	0	0	787
Engelhardtia spicata	328	40885	9435	3537	1572	2360	1572	0	392	0	392	60147

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CONT. OF TABLE NO.2.2.2.2.

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Acer oblEriobotrya petiolata	331	0	0	392	0	0	0	0	0	0	0	392
Erythrina species	342	1180	392	0	0	0	0	0	0	0	0	1572
Eugenia frondosa	351	0	392	0	0	0	392	0	0	0	0	787
Eugenia formosa	352	787	787	1180	1964	0	0	0	0	0	0	4717
Eugenia grandis	353	0	0	0	0	0	0	392	0	0	0	392
Eurya japonica	367	15725	7862	3145	2360	787	0	0	0	0	0	29877
Evodia fraxinifolia	368	0	392	0	0	0	0	0	0	0	0	392
Ficus species	385	14544	2752	787	392	0	0	392	0	0	0	18870
Firmiana colorata	388	392	0	0	0	0	0	0	0	0	0	392
Garuga pinnata	407	392	0	0	0	0	0	0	0	0	0	392
Glochidion species	416	0	392	0	0	0	0	0	0	0	0	392
Hovenia dulcis	465	1180	392	392	0	0	0	0	0	0	0	1964
Juglans regia	487	3145	1180	392	392	0	392	0	0	0	0	5505
Leucosceptrum spp.	513	7470	1180	787	0	0	0	0	0	0	0	9435
Lithocarpus spicatus	528	1180	392	0	392	0	0	0	0	0	0	1964
Litsaea species	541	392	0	0	0	0	0	0	0	0	0	392
Macranga peltata	548	392	0	0	0	0	0	0	0	0	0	392
Macaranga species	550	15725	3145	1180	1180	392	0	0	0	0	0	21622
Machilus odoratissima	556	0	0	0	0	392	0	0	0	0	0	392
Machilus species	559	2360	392	1180	392	0	0	0	0	0	0	4325
Michelia champaca	595	392	0	0	0	392	392	392	0	0	0	1572
Michelia doltsopa	596	392	0	0	0	0	0	0	0	0	0	392
Michelia species	602	392	0	392	0	0	0	0	0	0	0	787
Mimusops elengi	609	0	392	0	0	0	0	0	0	0	0	392
Nyssa javanica	638	392	392	1572	1572	0	0	0	0	0	0	3932
Ostodes paniculata	652	2360	392	392	0	0	0	0	0	0	0	3145
P be attenuata	667	11795	1180	1180	392	0	392	0	0	0	0	14940
P us species	718	1964	2752	1964	787	0	0	0	0	0	0	7470

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CONT. OF TABLE NO.2.2.2.2.

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Pyrularia edulis	735	1180	0	0	0	0	0	0	0	0	0	1180
Quercus spicata	753	1964	392	0	0	0	0	0	0	0	0	2360
Quercus species	754	787	392	0	0	0	0	0	0	0	0	1180
Rhododendron species	765	787	0	0	0	0	0	0	0	0	0	787
Rhus species	768	5109	1180	1180	787	0	0	0	0	0	0	8254
Sacosperma arboreum	790	392	0	392	0	392	0	0	0	0	0	1180
Saurauia nepaulensis	791	0	1964	392	0	0	0	0	0	0	0	2360
Schima wallichii	794	39704	12972	5109	4717	392	0	0	392	0	0	63292
Semecarpus anacardium	798	392	0	0	0	0	0	0	0	0	0	392
Sloanea dasycarpa	806	0	392	0	392	0	0	0	392	0	0	1180
Spondias axillaris	811	392	0	0	0	0	0	0	0	0	0	392
Spondias species	813	392	0	0	0	0	0	0	0	0	0	392
Symingtonia populnea	836	0	0	0	0	0	0	0	0	787	0	787
Symploces theifolia	840	0	2360	1572	1180	0	0	0	0	0	0	5109
Terminalia myriocarpa	868	1964	1180	392	0	0	0	0	0	0	0	3537
Viburnum species	896	22015	2752	0	0	0	0	0	0	0	0	24767
Zanthoxylum budrunga/rhets	924	787	0	0	0	0	0	0	0	0	0	787
Unidentified trees	944	22407	7862	4717	3537	392	392	392	392	0	0	40100
TOTAL		275975	93565	41672	26340	8650	5897	2360	2360	1181	787	458777

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TABLE NO.2.2.3.1.

TOTAL STEMS(IN NO) BY SPECIES AND DIAMETER CLASSES(IN CM.)

STRATA-:3(RESERVE) DISTRICT: SOUTH SIKKIM

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Acer compbellii	16	3589	1794	1794	1794	0	1794	0	0	0	0	10776
Acer oblongum	19	3589	0	0	0	0	0	0	0	0	0	3589
Acer species	21	8982	1794	0	1794	0	0	0	0	0	0	12571
Actinodaphne sikkimensis	25	1794	8982	0	1794	0	0	0	0	0	0	12571
Alnus nepalensis	53	0	0	0	3589	0	0	0	0	0	0	3589
Alnus species	55	1794	1794	0	0	0	1794	0	0	0	0	5393
Amoora wallichii	64	5393	1794	3589	0	0	0	0	0	0	0	10776
Beilschimiedia roxburghiana	120	0	3589	5393	1794	0	1794	3589	0	0	0	16169
Betula alnoides	126	1794	0	0	0	0	0	0	0	0	0	1794
Brassiopsis speciosa	135	0	1794	0	0	0	0	0	0	0	0	1794
Brassaiopsis mitis	136	3589	7187	0	0	0	0	0	0	0	0	10776
Callicarpa species	154	3589	3589	0	0	0	0	0	0	0	0	7187
Castanopsis hystrix	191	0	3589	3589	1794	7187	5393	1794	0	0	0	23347
Castanopsis indica	192	0	0	1794	0	1794	0	0	0	0	0	3589
Castanopsis species	194	21553	28741	8982	5393	7187	8982	12571	5393	5393	5393	109571
Toona ciliata	198	0	1794	0	0	0	0	0	0	0	0	1794
Cinnamomum species	216	1794	1794	1794	3589	0	0	0	5393	0	0	14365
Cryptomeria japonica	256	111365	12571	1794	0	0	0	0	0	0	0	125741
Echinocarpus dasycarpus	308	0	0	0	0	0	0	1794	0	0	0	1794
Eelaeocarpus lanceaefolius	313	0	0	1794	0	0	0	0	0	0	0	1794
Engelhardtia spicata	328	10776	0	3589	0	0	0	0	0	0	0	14365
Eriobotrya petiolata	331	0	1794	1794	0	0	0	0	0	0	0	3589
Erythrina species	342	5393	1794	0	0	0	0	0	0	0	0	7187
Eurya japonica	367	88017	17964	8982	5393	0	0	0	0	0	0	120347
Evodia species	370	3589	0	0	0	0	0	0	0	0	0	3589
Fagara budrunga	372	1794	0	0	0	0	0	0	0	0	0	1794
Ficus elastica	378	1794	0	0	0	0	0	0	0	0	0	1794
Ficus species	385	12571	3589	0	0	0	0	0	0	0	0	16169
I species	478	7187	0	0	0	0	0	0	0	0	0	7187
J ans regia	487	0	32330	14365	0	0	0	0	0	0	0	46705

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CONT. OF TABLE NO. 2.2.3.1.

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Leucosceptrum spp.	513	53893	1794	0	0	0	0	0	0	0	0	55687
Lithocarpus elegans	526	0	1794	1794	0	0	0	0	0	0	0	3589
Litsaea species	541	55687	30535	12571	5393	3589	1794	0	0	0	0	109571
Macaranga species	550	10776	0	1794	0	0	0	0	0	0	0	12571
Machilus gammieana	551	0	1794	0	1794	0	1794	0	1794	0	0	7187
Machilus odoratissima	556	0	1794	1794	0	0	0	0	0	0	0	3589
Machilus species	559	39517	14365	17964	8982	10776	5393	7187	3589	5393	0	113169
Michelia champaca	595	1794	1794	0	0	0	0	0	0	0	0	3589
Michelia doltsopa	596	14365	21553	1794	1794	0	0	0	0	0	0	39517
Michelia species	602	3589	0	0	0	0	0	0	0	0	0	3589
Nauclea griffithii	632	0	0	1794	1794	0	0	0	0	0	0	3589
Nyssa javanica	638	1794	3589	3589	1794	0	0	0	0	0	0	10776
Ostodes paniculata	652	10776	0	0	0	0	0	0	0	0	0	10776
Persea owdenii	666	0	1794	3589	0	1794	1794	0	0	0	0	8982
Phoebe attenuata	667	80830	68258	19758	5393	0	1794	0	0	0	0	176035
Phoebe species	673	0	7187	0	0	0	0	0	0	0	0	7187
Prunus species	718	1794	3589	0	0	0	0	0	0	0	0	5393
Pyrularia edulis	735	0	0	0	1794	0	0	0	0	0	0	1794
Quercus lamellosa	744	5393	8982	1794	1794	0	1794	3589	1794	0	12571	37723
Quercus lanceaefolia	745	3589	1794	1794	5393	0	1794	1794	5393	0	1794	23347

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CONT. OF TABLE NO. 2.2.3.1.

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Quercus pachyphylla	749	1794	0	0	0	0	0	0	0	0	0	1794
Quercus spicata	753	1794	1794	3589	1794	0	1794	0	0	0	0	10776
Quercus species	754	7187	8982	5393	0	0	5393	5393	0	0	1794	34134
Rhododendron arboreum	760	7187	21553	5393	1794	0	0	0	0	0	0	35928
Rhododendron species	765	3589	3589	1794	0	0	0	0	0	0	0	8982
Rhus species	768	16169	3589	3589	0	0	0	1794	0	0	0	25152
Saurauia nepaulensis	791	16169	3589	0	0	0	0	0	0	0	0	19758
Schima wallichii	794	5393	3589	1794	0	0	0	0	0	0	1794	12571
Sloanea dasycarpa	806	0	1794	0	0	0	0	0	1794	0	0	3589
Symingtonia populnea	836	3589	7187	0	0	1794	0	1794	0	0	0	14365
Symplocos laurina	839	3589	5393	0	0	0	0	0	0	0	0	8982
Symploces theifolia	840	273035	100589	19758	1794	0	0	0	0	0	0	395187
Symplocos species	841	46705	1794	0	0	0	0	0	0	0	0	48500
Viburnum species	896	91606	8982	0	0	0	0	0	0	0	0	100589
Unidentified trees	944	57482	19758	5393	3589	0	3589	0	0	0	0	89812
TOTAL		1119089	501169	176035	71847	34134	46705	41312	25152	10776	23347	2049571

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TABLE NO.2.2.3.2.

TOTAL STEMS(IN NO) BY SPECIES AND DIAMETER CLASSES(IN CM.)

STRATA-:3(UNRESERVE) DISTRICT: SOUTH SIKKIM

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Alnus nepalensis	53	59493	21986	2585	1292	0	0	0	0	0	0	85361
Alnus species	55	3881	18107	1292	2585	1292	1292	0	0	0	0	28452
Betula alnoides	126	3881	6466	0	0	0	0	0	0	0	0	10347
Castanopsis species	194	12933	15519	5173	7759	3881	1292	2585	1292	1292	2585	54320
Cedrela serrata	197	0	0	1292	0	0	0	0	0	0	0	1292
Cinnamomum species	216	1292	0	0	0	0	0	0	0	0	0	1292
Cryptomeria japonica	256	7759	37507	32333	3881	0	0	0	0	0	0	81480
Cupressus species	260	1292	0	0	0	0	0	0	0	0	0	1292
Eelaeocarpus lanceaefolius	313	0	2585	0	0	0	0	0	0	0	0	2585
Engelhardtia spicata	328	25867	11640	6466	0	0	0	0	0	0	0	43972
Eurya japonica	367	73720	14226	6466	0	0	0	0	0	0	0	94413
Ficus species	385	7759	3881	1292	2585	0	0	0	0	0	0	15519
Ilex species	478	2585	3881	0	0	0	0	0	0	0	0	6466
Macaranga species	550	1292	0	1292	0	0	0	0	0	0	0	2585
Machilus gammieana	551	0	0	0	0	0	1292	0	0	0	0	1292
Machilus odoratissima	556	0	0	0	0	0	1292	0	0	0	0	1292
Machilus species	559	12933	2585	0	0	0	0	0	0	0	0	15519

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CONT. OF TABLE NO.2.2.3.2.

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Michelia species	602	5173	0	2585	1292	0	0	0	0	0	0	9052
Nyssa javanica	638	1292	0	0	0	0	0	0	0	0	0	1292
Phoebe attenuata	667	12933	12933	5173	1292	0	0	0	0	0	0	32333
Prunus species	718	2585	3881	0	0	0	0	0	0	0	0	6466
Pyrularia edulis	735	3881	0	0	0	0	0	0	0	0	0	3881
Quercus lamellosa	744	0	0	0	0	0	0	0	1292	0	1292	2585
Quercus species	754	1292	3881	0	0	0	1292	0	0	0	0	6466
Rhododendron species	765	0	6466	0	0	0	0	0	0	0	0	6466
Rhus species	768	2585	2585	1292	0	0	0	0	0	0	0	6466
Saurauia nepaulensis	791	11640	2585	0	0	0	0	0	0	0	0	14226
Schima wallichii	794	2585	2585	0	1292	0	0	0	0	1292	0	7759
Symingtonia populnea	836	0	0	1292	1292	0	0	0	0	0	0	2585
Symploces theifolia	840	34919	12933	1292	0	0	0	0	0	0	0	49146
Viburnum species	896	80187	3881	0	0	0	0	0	0	0	0	84065
Unidentified trees	944	7759	1292	2585	0	0	0	0	0	0	0	11640
TOTAL		381532	191412	72427	23278	5173	6466	2585	2585	2585	3881	691933

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TABLE NO.2.2.4.1

TOTAL STEMS(IN NO) BY SPECIES AND DIAMETER CLASSES(IN CM.)

STRATA-:4(RESERVED) DISTRICT: SOUTH SIKKIM

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Alangium salvifolium	42	26722	0	0	0	0	0	0	0	0	0	26722
Betula cylindrostachys	127	26722	26722	26722	0	26722	0	0	0	0	0	106890
Castanopsis species	194	0	0	0	0	0	0	0	0	0	26722	26722
Drypetes lancifolia	302	0	0	26722	26722	0	0	0	0	0	0	53445
Litsaea species	541	454282	293947	80167	80167	26722	0	0	0	0	0	935287
Machilus gammieana	551	0	0	0	26722	0	0	0	0	0	0	26722
Machilus odoratissima	556	0	0	0	26722	0	0	26722	0	0	0	53445
Machilus species	559	160335	53445	53445	53445	0	0	0	0	0	0	320670
Quercus spicata	753	0	0	0	26722	0	0	0	0	0	0	26722
Quercus species	754	160335	53445	53445	106890	0	53445	26722	53445	0	26722	534450
Rhododendron species	765	213780	80167	26722	0	0	0	0	0	0	0	320670
Symploces theifolia	840	320670	106890	0	0	0	0	0	0	0	0	427560
Unidentified trees	944	80167	26722	0	0	0	0	0	0	0	0	106890
TOTAL		1443015	641340	267225	347392	53445	53445	53445	53445	0	53445	2966197

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TABLE NO.3.1.1.1.

VOLUME(IN M3) PER HECTARE BY SPECIES AND DIAMETER CLASSES(IN CM.)

DISTRICT- WEST SIKKIM STRATA-I(RESERVED)

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Ailanthus excelsa	40	.000	.255	.000	.000	.000	.000	.000	.000	.000	.000	.255
Alangium salvifolium	42	.000	.099	.000	.000	.000	.000	.000	.000	.000	.000	.099
Albizzia procera	50	.093	.000	.000	.000	.000	.000	.000	.000	.000	.000	.093
Alstonia scholaris	57	.745	.000	.000	.910	.000	.000	.000	.000	.000	.000	1.655
Bauhinia species	118	.081	.126	.000	.000	.000	.000	.000	.000	.000	.000	.207
Bischofia javanica	129	.000	.974	.421	.000	.000	.000	.000	.000	.000	.000	1.395
Bombax ceiba	131	.072	.000	.000	.000	.000	.000	.000	.000	.000	.000	.072
Chukrasia vellutina	208	.000	.000	.000	.000	1.609	.000	.000	.000	.000	.000	1.609
Diploknema butyracea	293	.000	.457	.697	2.609	.000	.000	.000	.000	.000	.000	3.763
Duabanga grandiflora	303	.000	.511	.421	.000	.000	.000	.000	.000	.000	.000	.932
Eugenia species	358	.000	.161	.000	.000	.000	.000	.000	.000	.000	.000	.161
Ficus species	385	.186	.000	.000	.000	.000	.000	.000	.000	.000	.000	.186
Garuga pinnata	407	.600	.000	1.279	2.196	.000	.000	.000	.000	.000	.000	4.075
Mallotus philippinensis	565	.186	.573	.000	.000	.000	.000	.000	.000	.000	.000	.758
Morus laevigata	617	.000	.000	.000	.742	.000	.000	.000	.000	.000	.000	.742
Pinus species	686	.000	.000	.000	.971	.000	.000	3.885	.000	.000	.000	4.856
Schima wallichii	794	.578	.181	.000	1.098	4.364	.000	.000	.000	.000	.000	6.221
Semecarpus anacardium	798	.075	.340	1.092	.852	.000	.000	.000	.000	.000	.000	2.359
Shorea robusta	802	4.109	2.302	4.970	9.237	6.262	.000	.000	.000	.000	.000	26.881
Syzygium cumini	843	.070	.000	.000	.000	.000	.000	.000	.000	.000	.000	.070
Tetrameles nudiflora	873	.000	.000	.000	1.591	5.680	2.518	.000	.000	.000	.000	9.789
Vepris bilocularis	894	.000	.000	.384	.000	.000	.000	.000	.000	.000	.000	.384
Unidentified trees	944	.070	.181	.000	.000	.000	.000	.000	.000	.000	.000	.251
TOTAL		6.864	6.160	9.265	20.206	17.915	2.518	3.885	.000	.000	.000	66.813

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TABLE NO.3.1.1.2.

VOLUME(IN M3) PER HECTARE BY SPECIES AND DIAMETERCLASSES(IN CM.)

DISTRICT- WEST SIKKIM STRATA-I(UNRESERVED)

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Albizzia procera	50	.487	.000	.000	.000	.000	.000	.000	.000	.000	.000	.487
Chukrasia vellutina	208	.557	.000	.000	.000	.000	.000	.000	.000	.000	.000	.557
Engelhardtia spicata	328	.402	.000	.000	.000	.000	.000	.000	.000	.000	.000	.402
Schima wallichii	794	4.857	.000	.000	.000	.000	.000	.000	.000	.000	.000	4.857
Shorea robusta	802	.000	.000	.000	32.260	28.515	.000	.000	.000	.000	.000	60.775
TOTAL		6.303	.000	.000	32.260	28.515	.000	.000	.000	.000	.000	67.078

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TABLE NO.3.1.2.1.

VOLUME(IN M3) PER HECTARE BY SPECIES AND DIAMETERCLASSES(IN CM.)

DISTRICT- WEST SIKKIM STRATA-II(RESERVED)

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Acer compbellii	16	.054	.000	.330	.000	.000	.000	.000	.000	.000	.000	.384
Albizzia lebbek	46	.086	.000	.146	.000	.000	.000	.000	.000	.000	.000	.231
Albizzia procera	50	.182	.118	.252	.602	.000	.000	.000	.000	.000	.000	1.154
Albizzia species	51	.043	.118	.000	.000	.000	.000	.000	.000	.000	.000	.161
Alnus nepalensis	53	.543	3.600	2.899	5.919	2.372	.000	.000	.000	.000	.000	15.333
Betula alnoides	126	.282	.468	.000	.000	.000	.000	.000	.000	.000	.000	.750
Betula cylindrostachys	127	.000	.000	.318	.000	.000	.000	.000	.000	.000	.000	.318
Bridelia retusa	138	.000	.051	.000	.000	.000	.000	.000	.000	.000	.000	.051
Callicarpa arborea	150	.074	.000	.000	.000	.000	.000	.000	.000	.000	.000	.074
Castanopsis hystrix	191	.000	.000	.000	.000	.636	.000	.000	.000	.000	.000	.636
Castanopsis indica	192	1.185	.488	.867	1.014	.636	.000	.000	2.291	.000	.000	6.482
Castanopsis species	194	1.235	2.751	6.796	3.442	1.866	.000	.000	.000	.000	.000	16.089
Cedrela serrata	197	.035	.185	.000	.342	.743	.000	.000	.000	.000	.000	1.305
Toona ciliata	198	.000	.000	.177	.000	.000	.000	.000	.000	.000	.000	.177
Cinnamomum species	216	.072	.000	.000	.900	.000	.000	.000	.000	.000	.000	.972
Cryptomeria japonica	256	4.131	.649	1.227	3.904	6.809	.000	3.586	.000	.000	.000	20.307
Eelaeocarpus lanceaefolius	313	.066	.000	.000	.000	.000	.000	.000	.000	.000	.000	.066
Engelhardtia spicata	328	.757	1.183	1.142	1.025	.000	.000	4.085	.000	.000	3.889	12.082
Eugenia formosa	352	.000	.180	.500	.000	.000	.000	.000	.000	.000	.000	.680
Eurya japonica	367	.749	.712	.393	.000	.000	.000	.000	.000	.000	.000	1.854
Evodia species	370	.032	.000	.000	.000	.000	.000	.000	.000	.000	.000	.032
Ficus elastica	378	.037	.000	.000	.000	.000	.000	.000	.000	.000	.000	.037
Firmiana colorata	388	.043	.058	.000	.000	.000	.000	.000	.000	.000	.000	.101
Juglans regia	487	.000	.143	.000	.000	.000	.000	.000	.000	.000	.000	.143
Lannea coromandelica	509	.072	.000	.000	.000	.000	.000	.000	.000	.000	.000	.072
M anga peltata	548	.118	.000	.398	.000	.000	.000	.000	.000	.000	.000	.515
M ranga species	550	.000	.204	.000	.000	.000	.000	.000	.000	.000	.000	.204
M ilus species	559	.076	.118	.000	.000	.000	.000	.000	.000	.000	.000	.194

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CONT. OF TABLE NO.3.1.2.1.

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Mallotus philippinensis	565	.033	.000	.000	.000	.000	.000	.000	.000	.000	.000	.033
Michelia champaca	595	.000	.118	.000	.900	.000	.000	.000	.000	.000	.000	1.018
Michelia species	602	.043	.000	.000	.420	.000	.000	.000	.000	.000	.000	.463
Ostodes paniculata	652	.718	.690	.146	.342	.000	.000	.000	.000	.000	.000	1.896
Perishia species	665	.103	.000	.000	.000	.000	1.209	.000	.000	.000	.000	1.312
Phoebe attenuata	667	1.072	.231	.146	.000	.000	.000	.000	.000	.000	.000	1.449
Prunus species	718	.037	.074	.000	.000	.000	.000	.000	.000	.000	.000	.112
Putranjiva roxburghii	734	.000	.000	.146	.000	.000	.000	.000	.000	.000	.000	.146
Quercus lamellosa	744	.602	.315	.289	.437	.000	.000	.000	2.873	3.400	3.720	11.637
Quercus pachyphylla	749	.027	.294	.289	.000	.000	.000	.000	.000	.000	.000	.610
Rhododendron arboreum	760	.036	.000	.000	.000	.000	.000	.000	.000	.000	.000	.036
Saurauia nepaulensis	791	.034	.000	.000	.000	.000	.000	.000	.000	.000	.000	.034
Schima wallichii	794	1.800	1.929	1.594	2.428	.000	.000	.000	.000	.000	.000	7.752
Semecarpus anacardium	798	.039	.000	.000	.000	.000	.000	.000	.000	.000	.000	.039
Spondias axillaris	811	.033	.066	.000	.000	.000	.000	.000	.000	.000	.000	.099
Symingtonia populnea	836	.025	.000	.000	.000	.000	.000	.000	.000	.000	.000	.025
Symploces theifolia	840	.070	.000	.000	.000	.000	.000	.000	.000	.000	.000	.070
Syzygium cumini	843	.066	.000	.000	.000	.000	.000	.000	.000	.000	.000	.066
Syzygium species	850	.025	.000	.000	.000	.000	.000	.000	.000	.000	.000	.025
Viburnum species	896	.226	.074	.000	.000	.000	.000	.000	.000	.000	.000	.300
Woodfordia floribunda	909	.032	.000	.000	.000	.000	.000	.000	.000	.000	.000	.032
Unidentified trees	944	1.402	1.165	.800	.342	.000	.000	.000	.000	.000	.000	3.709
TOTAL		16.295	15.985	18.853	22.018	13.061	1.209	7.672	5.164	3.400	7.609	111.266

Contents

TABLE NO.3.1.2.2.

VOLUME(IN M3) PER HECTARE BY SPECIES AND DIAMETERCLASSES(IN CM.)

DISTRICT-WEST SIKKIM STRATA-II(UNRESERVED)

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Acer oblongum	19	.053	.000	.000	.000	.000	.000	.000	.000	.000	.000	.053
Albizzia procera	50	.667	.101	.000	.000	.000	.000	.000	.000	.000	.000	.768
Albizzia species	51	.000	.114	.000	.000	.000	.000	.000	.000	.000	.000	.114
Alnus nepalensis	53	.777	2.417	1.424	.000	.000	.000	.000	.000	.000	.000	4.618
Bauhinia species	118	.092	.000	.000	.000	.000	.000	.000	.000	.000	.000	.092
Betula alnoides	126	.025	.000	.000	.000	.000	.000	.000	.000	.000	.000	.025
Bombax ceiba	131	.101	.000	.000	.000	.000	.000	.000	.000	.000	.000	.101
Brassaiopsis mitis	136	.197	.000	.000	.000	.000	.000	.000	.000	.000	.000	.197
Callicarpa arborea	150	.000	.180	.242	.824	.000	.000	.000	.000	.000	.000	1.246
Castanopsis indica	192	.048	.090	.000	1.232	.000	1.998	.000	.000	.000	.000	3.367
Castanopsis species	194	2.925	.751	.458	.846	.000	.000	.000	.000	.000	.000	4.980
Toona ciliata	198	.049	.000	.000	.000	.000	.000	.000	.000	.000	.000	.049
Cinnamomum species	216	.000	.000	.000	.000	.000	.000	.000	.000	.000	4.866	4.866
Diploknema butyracea	293	.000	.063	.000	.000	.000	.000	.000	.000	.000	.000	.063
Eelaeocarpus lanceaefolius	313	.046	.000	.000	.575	.000	1.527	.000	.000	.000	.000	2.148
Emblica officinalis	325	.049	.000	.000	.000	.000	.000	.000	.000	.000	.000	.049
Engelhardtia spicata	328	.624	.908	1.273	3.821	1.031	.000	.000	.000	.000	.000	7.657
Eugenia formosa	352	.059	.000	.000	.000	.000	.000	.000	.000	.000	.000	.059
Eurya japonica	367	.612	1.012	.824	.000	.000	.000	.000	.000	.000	.000	2.448
Evodia species	370	.000	.125	.000	.000	.000	.000	.000	.000	.000	.000	.125
Juglans regia	487	.016	.000	.000	.000	.000	.000	.000	.000	.000	.000	.016
Macranga peltata	548	.049	.000	.000	.000	.000	.000	.000	.000	.000	.000	.049
Macaranga species	550	.513	1.118	.943	.000	.000	.000	.000	.000	.000	.000	2.574

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CONT. OF TABLE NO. 3.1.2.2.

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Nyctanthes arbortristis	637	.000	.129	.000	.000	.000	.000	.000	.000	.000	.000	.129
Oroxylum indicum	650	.056	.000	.000	.000	.000	.000	.000	.000	.000	.000	.056
Ostodes paniculata	652	.399	.159	1.017	1.150	.000	.000	.000	.000	.000	.000	2.725
Persea owdenii	666	.044	.000	.000	.000	.000	.000	.000	.000	.000	.000	.044
Phoebe attenuata	667	.000	.000	.726	.000	.000	.000	.000	.000	.000	.000	.726
Prunus species	718	.098	.000	.000	.000	.000	.000	.000	.000	.000	.000	.098
Rhus species	768	.271	.000	.000	.503	.000	.000	.000	.000	.000	.000	.773
Schima wallichii	794	2.134	2.837	5.038	2.515	.870	4.586	2.534	.000	.000	.000	20.515
Semecarpus anacardium	798	.049	.000	.000	.000	.000	.000	.000	.000	.000	.000	.049
Shorea robusta	802	.059	.000	1.092	4.617	1.991	.000	.000	.000	.000	.000	7.758
Symploces theifolia	840	.059	.000	.000	.000	.000	.000	.000	.000	.000	.000	.059
Symplocos species	841	.196	.000	.000	.503	.000	.000	.000	.000	.000	.000	.699
Terminalia belerica	861	.059	.000	.000	.000	.000	.000	.000	.000	.000	.000	.059
Viburnum species	896	.389	.000	.000	.000	.000	.000	.000	.000	.000	.000	.389
Unidentified trees	944	.112	.000	.266	.000	.000	.000	.000	.000	.000	.000	.378
TOTAL		10.824	10.004	13.305	16.584	3.892	8.111	2.534	.000	.000	4.866	70.120

Contents

TABLE NO.3.1.3.1

VOLUME(IN M3) PER HECTARE BY SPECIES AND DIAMETERCLASSES(IN CM.)

DISTRICT- WEST SIKKIM STRATA-III(RESERVED)

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Acer compbellii	16	.000	.000	.232	.000	.000	.000	.000	.000	.000	.000	.232
Alnus nepalensis	53	1.193	3.686	6.544	1.473	.000	.000	2.033	.000	.000	.000	14.929
Beilschimiedia roxburghiana	120	.043	.000	.000	.000	.000	.000	.000	.000	.000	.000	.043
Betula alnoides	126	.000	.000	.000	.530	.000	.000	.000	.000	.000	.000	.530
Castanopsis indica	192	.103	.036	.000	.000	.000	.000	.000	.000	.000	.000	.139
Castanopsis species	194	.113	.425	.347	.823	3.162	3.892	3.002	3.988	.000	18.301	34.052
Toona ciliata	198	.023	.000	.000	.000	.000	.000	.000	.000	.000	.000	.023
Cinnamomum species	216	.078	.000	.000	.295	.000	.000	.000	.000	.000	.000	.373
Cryptomeria japonica	256	.296	.000	.000	.000	.000	.000	.000	.000	.000	.000	.296
Cupressus species	260	.203	1.349	.102	.000	.447	.000	.000	.000	.000	.000	2.101
Eelaeocarpus lanceaefolius	313	.023	.000	.000	.000	.000	.000	.000	.000	.000	.000	.023
Engelhardtia spicata	328	.166	.064	.000	.000	.000	.000	.000	.000	.000	.000	.230
Eurya japonica	367	.680	.961	.526	.258	.000	.000	.000	.000	.000	.000	2.426
Ficus elastica	378	.077	.032	.000	.000	.000	.000	.000	.000	.000	.000	.109
Ficus species	385	.101	.068	.000	.000	.000	.000	.000	.000	.000	.000	.169
Glochidion species	416	.000	.000	.137	.000	.000	.000	.000	.000	.000	.000	.137
Juglans regia	487	.046	.354	.000	.000	.000	.000	.000	.000	.000	.000	.400
Leucosceptrum spp.	513	.133	.073	.000	.000	.000	.000	.000	.000	.000	.000	.206
Macranga peltata	548	.000	.000	.125	.000	.000	.000	.000	.000	.000	.000	.125
Macaranga species	550	.314	.359	.000	.000	.000	.000	.000	.000	.000	.000	.672
Machilus species	559	.096	.000	.163	.000	.447	.000	.000	.000	.000	.000	.706
Michelia champaca	595	.026	.000	.000	.000	.000	.817	.000	.000	.000	.000	.843
Michelia doltsopa	596	.000	.186	.000	.000	.000	.000	.000	.000	.000	.000	.186
Michelia species	602	.072	.088	.000	.276	.000	.000	.000	.000	.000	.000	.436
Mitragyna parviflora	611	.025	.000	.000	.000	.000	.000	.000	.000	.000	.000	.025
Nyssa javanica	638	.000	.000	.000	.000	.000	.000	.000	1.410	.000	.000	1.410
Perishia species	665	.000	.000	.149	.000	.000	.000	.000	.000	.000	2.499	2.648
Phoebe attenuata	667	.074	.471	.000	.000	.000	.000	.000	.000	.000	.000	.546

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CONT.FROM TABLE NO.3.1.3.1

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Prunus species	718	.060	.000	.000	.000	.000	.000	.000	.000	.000	.000	.060
Quercus lamellosa	744	.482	.425	.203	1.153	2.152	2.016	2.796	7.254	.000	18.301	34.781
Quercus lanceaefolia	745	.026	.000	.000	.000	.894	.884	1.101	.000	.000	.000	2.905
Quercus lineata	748	.000	.000	.000	.000	.000	.000	1.501	.000	.000	.000	1.501
Quercus spicata	753	.000	.000	.000	.000	.000	.000	.000	.000	.000	7.496	7.496
Quercus species	754	1.469	1.686	.000	.000	.000	.000	.000	.000	3.905	.000	7.060
Rhododendron arboreum	760	.026	.000	.000	.000	.000	.000	.000	.000	.000	.000	.026
Rhododendron species	765	.000	.166	.000	.000	.000	.000	.000	.000	.000	.000	.166
Rhus species	768	.104	.036	.113	.000	.000	.000	.000	.000	.000	.000	.253
Schima wallichii	794	.108	.064	.137	.276	.496	.817	.000	.000	.000	.000	1.899
Semecarpus anacardium	798	.079	.000	.000	.658	.000	.000	.000	.000	.000	.000	.737
Symingtonia populnea	836	.018	.000	.000	.000	.000	.000	.000	.000	.000	.000	.018
Symploces theifolia	840	1.618	2.684	.983	.244	.000	.000	.000	.000	.000	.000	5.529
Viburnum species	896	1.089	.746	.113	.000	.000	.000	.000	.000	.000	.000	1.948
Woodfordia floribunda	909	.134	.120	.000	.000	.000	.000	.000	.000	.000	.000	.254
Unidentified trees	944	1.000	.124	.000	.423	.000	.000	.000	.000	.000	.000	1.547
TOTAL		10.099	14.206	9.874	6.409	7.598	8.425	10.433	12.651	3.905	46.596	130.196

Contents

TABLE NO.3.1.3.2.

VOLUME(IN M3) PER HECTARE BY SPECIES AND DIAMETERCLASSES(IN CM.)

DISTRICT- WEST SIKKIM STRATA-III(UNRESERVED)

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Abies pindrow	1	.204	.000	.000	.000	.000	.000	.000	.000	.000	.000	.204
Alnus nepalensis	53	1.679	1.323	.000	.000	.000	.000	.000	.000	.000	.000	3.002
Beilschimiedia roxburghiana	120	.000	.000	.552	.000	.000	.000	.000	.000	.000	.000	.552
Calophyllum polyanthum	157	.087	.000	.000	.000	.000	.000	.000	.000	.000	.000	.087
Castanopsis indica	192	.000	.000	.000	.000	.000	.000	.000	6.307	.000	9.246	15.552
Castanopsis species	194	.095	.000	.000	.000	.000	.000	5.716	.000	24.533	.000	30.344
Engelhardtia spicata	328	.351	.163	.000	.000	.000	.000	.000	.000	18.880	.000	19.394
Eurya japonica	367	.260	.217	2.160	.000	.000	.000	.000	.000	.000	.000	2.638
Macaranga species	550	.410	.283	.000	.000	.000	.000	.000	.000	.000	.000	.692
Michelia species	602	.000	.000	.000	.955	.000	.000	.000	.000	.000	.000	.955
Ostodes paniculata	652	.087	.000	.506	.000	.000	.000	.000	.000	.000	.000	.593
Phoebe attenuata	667	1.157	.151	.000	.000	.000	.000	.000	.000	.000	.000	1.308
Quercus lamellosa	744	.000	.000	.000	1.873	.000	.000	.000	.000	.000	9.673	11.547
Rhododendron arboreum	760	.486	.000	.000	.000	.000	.000	.000	.000	.000	.000	.486
Schima wallichii	794	.000	.171	.461	.000	.000	3.270	4.216	.000	.000	9.246	17.365
Semecarpus anacardium	798	.000	.660	.000	.000	.000	.000	.000	.000	.000	.000	.660
Symploces theifolia	840	.323	.456	.000	.000	.000	.000	.000	.000	.000	.000	.779
Viburnum species	896	1.088	1.892	.924	.890	.000	.000	.000	.000	.000	.000	4.794
Woodfordia floribunda	909	.381	.000	.000	.000	.000	.000	.000	.000	.000	.000	.381
Unidentified trees	944	.000	.000	.655	1.022	.000	.000	.000	.000	.000	.000	1.678
TOTAL		6.608	5.316	5.258	4.741	.000	3.270	9.934	6.307	43.412	28.164	113.009

Contents

TABLE NO.3.1.4.1.

VOLUME(IN M3) PER HECTARE BY SPECIES AND DIAMETERCLASSES(IN CM.)

DISTRICT- WEST SIKKIM STRATA-IV(RESERVED)

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Abies pindrow	1	.000	.000	.000	.000	1.245	4.494	.000	9.137	10.455	19.312	45.143
Acer compbellii	16	.632	1.945	4.939	1.647	.000	3.550	.000	6.009	.000	.000	18.721
Beilschimiedia roxburghiana	120	.000	.000	1.282	.000	.000	.000	.000	.000	.000	.000	1.282
Betula alnoides	126	.000	.513	.722	1.400	.000	.000	.000	.000	.000	.000	2.635
Betula cylindrostachys	127	.000	.219	.000	.000	.000	.000	.000	.000	.000	.000	.219
Eelaeocarpus lanceaefolius	313	.000	.196	.000	.000	.000	.000	.000	.000	.000	.000	.196
Eurya japonica	367	.334	.000	.000	.832	.000	.000	.000	.000	.000	.000	1.166
Machilus species	559	.124	.473	.724	.730	2.970	.000	3.330	3.895	.000	.000	12.246
Michelia champaca	595	.000	.000	.975	.000	.000	.000	3.664	.000	.000	.000	4.639
Michelia species	602	.060	.620	3.289	6.265	7.766	10.981	3.779	.000	.000	.000	32.759
Premna tomentosa	708	.000	.000	.000	.941	.000	.000	.000	.000	.000	.000	.941
Prunus species	718	.000	.096	.000	.000	1.594	.000	.000	.000	.000	.000	1.690
Quercus lamellosa	744	.279	.000	.000	.972	.000	2.341	11.448	5.336	.000	13.319	34.194
Quercus lanceaefolia	745	.000	.244	.000	1.318	.000	9.177	3.117	13.030	5.434	6.604	38.924
Quercus species	754	.000	.000	.000	1.118	1.746	.000	.000	4.632	5.160	6.604	19.260
Rhododendron arboreum	760	1.529	1.326	3.222	.682	.000	.000	.000	.000	.000	.000	6.759
Rhododendron barbatum	761	.883	.773	.395	.682	.000	.000	.000	.000	.000	.000	2.733
Rhododendron hodgsoni	762	1.934	.000	.000	.000	.000	.000	.000	.000	.000	.000	1.934
Rhododendron griffithianum	763	3.336	.687	1.021	.000	.000	.000	.000	.000	.000	.000	5.044
Rhododendron species	765	.374	.772	4.507	6.698	6.571	4.144	.000	.000	.000	.000	23.066
Saurauia nepaulensis	791	.000	.096	.000	.000	.000	.000	.000	.000	.000	.000	.096
Symplocos laurina	839	1.033	1.268	.329	.000	.000	.000	.000	.000	.000	.000	2.630
Symploces theifolia	840	.113	.000	.000	.000	.000	.000	.000	.000	.000	.000	.113
Taxus baccata	857	.000	.000	.000	.000	5.805	6.665	.000	4.505	5.160	.000	22.134
Viburnum species	896	1.243	.000	.000	.000	.000	.000	.000	.000	.000	.000	1.243
Unidentified trees	944	.897	.327	.000	2.056	.000	.000	.000	.000	.000	.000	3.279
TOTAL		12.770	9.554	21.404	25.341	27.698	41.351	25.337	46.544	26.209	46.838	283.047

Contents

TABLE NO.3.2.1.1.

VOLUME(IN M3) PER HECTARE BY SPECIES AND DIAMETERCLASSES(IN CM.)

DISTRICT- SOUTH SIKKIM STRATA-I(RESERVED)

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Acer species	21	.019	.053	.000	.000	.000	.000	.000	.000	.000	.000	.072
Ailanthus altissima	39	.050	.030	.000	.000	.000	.000	.000	.000	.000	.000	.080
Albizzia lucida	47	.039	.000	.000	.000	.000	.000	.000	.000	.000	.000	.039
Albizzia procera	50	.015	.104	.000	.000	.000	.000	.000	.000	.000	.000	.119
Albizzia species	51	.116	.130	.311	.526	.000	.642	.766	1.076	.000	.000	3.567
Alstonia scholaris	57	.033	.000	.000	.275	.000	.468	.000	.957	.000	.000	1.732
Amoora rohituka	63	.049	.126	.170	.000	.000	.000	.000	.000	.000	.000	.345
Bauhinia racemosa	115	.000	.030	.000	.000	.000	.000	.000	.000	.000	.000	.030
Bauhinia species	118	.087	.021	.000	.000	.000	.000	.000	.000	.000	.000	.108
Betula alnoides	126	.148	.000	.000	.000	.000	.000	.000	.000	.000	.000	.148
Bischofia javanica	129	.016	.000	.000	.000	.000	.000	.000	.000	.000	.000	.016
Boehmeria species	130	.062	.000	.000	.000	.000	.000	.000	.000	.000	.000	.062
Bombax ceiba	131	.017	.221	.081	.000	.000	.642	.928	.000	.000	.000	1.889
Callicarpa arborea	150	.080	.162	.212	.000	.000	.000	.000	.000	.000	.000	.454
Cedrela serrata	197	.000	.158	.240	.179	.000	.000	.000	.000	.000	.000	.578
Chukrasia vellutina	208	.000	.121	.000	.000	.000	.000	.000	.000	.000	.000	.121
Eelonix ellate	272	.016	.126	.336	.000	.000	.000	.000	.000	.000	.000	.478
Diploknema butyracea	293	.054	.047	.277	.000	.000	.000	.000	.000	.000	.000	.379
Drypetes lancifolia	302	.000	.086	.000	.000	.000	.000	.000	.000	.000	.000	.086
Duabanga grandiflora	303	.000	.060	.145	.260	.000	1.018	.872	1.045	.000	.000	3.400
Engelhardtia spicata	328	.000	.000	.272	.263	.000	.000	.000	.000	.000	.000	.535
Erythrina variegata	341	.000	.000	.000	.000	.429	.000	.000	.000	.000	.000	.429
Eucalyptus hybrid	346	.015	.000	.000	.000	.000	.000	.000	.000	.000	.000	.015
Eucalyptus species	348	.032	.050	.081	.000	.000	.000	.000	.000	.000	.000	.162
Eurya japonica	367	.000	.038	.000	.000	.000	.000	.000	.000	.000	.000	.038
Ficus species	385	.094	.000	.000	.000	.000	.000	.000	.000	.000	.000	.094
G ga pinnata	407	.393	.140	.516	.615	.290	.000	.000	.000	.000	.000	1.954
G cordia odorata	437	.000	.000	.089	.000	.000	.000	.000	.000	.000	.000	.089
H arrhena antidysenterica	452	.120	.000	.000	.000	.000	.000	.000	.000	.000	.000	.120

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CONT. OF TABLE NO. 3.2.1.1.

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Juglans regia	487	.003	.000	.000	.000	.000	.000	.000	.000	.000	.000	.003
Lagerstroemia parviflora	505	.347	.051	.234	.000	.000	.000	.000	.000	.000	.000	.631
Lannea coromandelica	509	.000	.120	.106	.000	.000	.000	.000	.000	.000	.000	.225
Macaranga species	550	.015	.000	.000	.000	.000	.000	.000	.000	.000	.000	.015
Mallotus philippinensis	565	.612	.365	.170	.156	.000	.000	.000	.000	.000	.000	1.303
Nauclea griffithii	632	.029	.108	.000	.000	.000	.000	.000	.000	.000	.000	.138
Ostodes paniculata	652	.422	.261	.066	.397	.000	.000	.000	.000	.000	.000	1.146
Pinus roxburghii	685	.000	.000	.000	.218	.000	.000	.000	.000	.000	.000	.218
Quercus lanceaefolia	745	.000	.026	.000	.000	.000	.000	.000	.000	.000	.000	.026
Quercus species	754	.081	.068	.000	.000	.000	.000	.000	.000	.000	.000	.148
Sacosperma arboreum	790	.000	.000	.000	.000	.000	.488	.000	.000	.000	.000	.488
Schima wallichii	794	.181	.395	.649	2.339	1.836	3.016	1.455	.000	.000	1.622	11.493
Semecarpus anacardium	798	.047	.098	.000	.000	.000	.000	.000	.000	.000	.000	.145
Shorea robusta	802	2.394	4.382	9.378	8.884	1.651	3.737	2.990	.000	1.475	.000	34.890
Spondias axillaris	811	.015	.000	.000	.000	.000	.530	.000	.000	.000	.000	.545
Spondias pinnata	812	.017	.000	.000	.000	.000	.000	.000	.000	.000	.000	.017
Symplocos laurina	839	.000	.096	.066	.000	.000	.000	.000	.000	.000	.000	.163
Symplocos species	841	.000	.000	.066	.000	.000	.000	.000	.000	.000	.000	.066
Syzygium cumini	843	.067	.000	.000	.000	.000	.000	.690	.000	.000	.000	.757
Talauma phellocarpa	855	.020	.000	.000	.000	.000	.000	.000	.000	.000	.000	.020
Tectona grandis	858	.486	.702	1.248	.427	.000	.000	.000	.000	.000	.000	2.863
Terminalia belerica	861	.050	.000	.000	.517	.374	.509	.000	.000	.000	.000	1.449
Terminalia chebula	864	.033	.053	.106	.411	.000	.000	.000	.000	.000	.000	.602
Terminalia crenulata	866	.054	.021	.000	.000	.000	.000	.000	.000	.000	.000	.074
Terminalia myriocarpa	868	.035	.098	.362	.000	.000	.000	.000	.000	.000	.000	.495
Tetrameles nudiflora	873	.000	.000	.249	.000	.000	.000	.000	.000	.000	.000	.249
Unidentified trees	944	.591	.281	.666	.401	.000	.000	.000	.000	.000	.000	1.939
TOTAL		6.953	8.829	16.096	15.867	4.580	11.051	7.701	3.078	1.475	1.622	77.250

Contents

TABLE NO.3.2.1.2.

VOLUME(IN M3) PER HECTARE BY SPECIES AND DIAMETERCLASSES(IN CM.)

DISTRICT- SOUTH SIKKIM STRATA-I(UNRESERVED)

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Ailanthus altissima	39	.073	.000	.000	.000	.000	.000	.000	.000	.000	.000	.073
Albizzia procera	50	.073	.142	1.630	2.156	.000	.000	.000	.000	.000	.000	4.001
Albizzia species	51	.777	.568	.940	.910	.000	.000	3.279	.000	.000	.000	6.475
Alnus species	55	.000	.255	.000	.000	.000	.000	.000	.000	.000	.000	.255
Artocarpus species	94	.000	.000	.000	.852	.000	.000	.000	.000	.000	.000	.852
Betula alnoides	126	.000	.272	.000	.000	.000	.000	.000	.000	.000	.000	.272
Bischofia javanica	129	.616	.111	.000	.000	.000	2.725	.000	.000	.000	.000	3.452
Bombax ceiba	131	.166	.323	.384	.000	.000	.000	.000	.000	.000	.000	.873
Callicarpa species	154	.231	.254	.461	.000	.000	.000	.000	.000	.000	.000	.945
Cedrela serrata	197	.000	.000	.000	.000	.000	2.725	.000	.000	.000	.000	2.725
Diploknema butyracea	293	.217	.863	1.505	.000	.000	.000	.000	.000	.000	.000	2.585
Duabanga grandiflora	303	.000	.000	.000	.000	.000	.000	.000	.000	.000	7.705	7.705
Dysoxylum spp.	307	.000	.396	.000	.000	.000	.000	.000	.000	.000	.000	.396
Endospermum chinense	326	.000	.229	.000	.000	.000	.000	.000	.000	.000	.000	.229
Engelhardtia spicata	328	.779	.644	.000	1.178	.000	.000	.000	.000	.000	.000	2.601
Erythrina species	342	.000	.000	.690	.000	.000	.000	.000	.000	.000	.000	.690
Ficus species	385	.640	.099	.640	.000	.000	.000	.000	.000	.000	.000	1.379
Garuga pinnata	407	.000	.181	.000	.000	.000	.000	.000	.000	.000	.000	.181
Glochidion species	416	.070	.000	.000	.000	.000	.000	.000	.000	.000	.000	.070
Hovenia dulcis	465	.000	.181	.000	.000	.000	.000	.000	.000	.000	.000	.181
Juglans regia	487	.000	.655	.000	.000	.000	.000	.000	.000	.000	.000	.655
Litsaea species	541	.035	.000	.000	.000	.000	.000	.000	.000	.000	.000	.035
Macaranga species	550	.000	.544	.000	.000	.000	.000	.000	.000	.000	.000	.544
Ostodes paniculata	652	.452	.527	1.304	.000	.000	.000	.000	.000	.000	.000	2.283

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CONT. OF TABLE NO. 3.2.1.2.

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Phoebe attenuata	667	.170	.211	.000	.000	.000	.000	.000	.000	.000	.000	.381
Rhus species	768	.089	.099	.000	.000	.000	.000	.000	.000	.000	.000	.188
Sacosperma arboreum	790	.379	.142	1.083	.000	.000	.000	.000	.000	.000	.000	1.604
Schima wallichii	794	2.119	3.033	2.028	1.304	.000	2.725	.000	.000	.000	.000	11.210
Shorea robusta	802	.075	.204	4.644	3.304	.000	.000	.000	.000	.000	.000	8.227
Spondias species	813	.000	.000	.592	.000	.000	.000	.000	.000	.000	.000	.592
Sterculia urens	820	.075	.000	.000	.000	.000	.000	.000	.000	.000	.000	.075
Stereospermum personatum	824	.070	.000	.000	.000	.000	.000	.000	.000	.000	.000	.070
Syzygium cumini	843	.070	.000	.000	.000	.000	.000	.000	.000	.000	.000	.070
Syzygium gardneri	844	.000	.000	.502	.910	.000	.000	.000	.000	.000	.000	1.413
Terminalia myriocarpa	868	.077	.126	.000	1.304	.000	.000	.000	.000	.000	.000	1.508
Unidentified trees	944	.797	.293	.963	.000	.000	2.725	.000	.000	.000	.000	4.777
TOTAL		8.050	10.353	17.365	11.920	.000	10.899	3.279	.000	.000	7.705	69.571

Contents

TABLE NO.3.2.2.1

VOLUME(IN M3) PER HECTARE BY SPECIES AND DIAMETERCLASSES(IN CM.)

DISTRICT- SOUTH SIKKIM STRATA-II(RESERVED)

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Acer oblongum	19	.000	.074	.295	.000	.000	.000	.000	.000	.000	.000	.369
Acer species	21	.000	.000	.318	.000	.000	.000	.000	.000	.000	.000	.318
Albizzia procera	50	.000	.074	.000	.963	1.412	.000	.000	.000	.000	.000	2.449
Albizzia species	51	.137	.263	.295	.000	.000	.000	.000	.000	.000	.000	.695
Alnus nepalensis	53	.494	1.429	1.830	3.293	.000	.000	.000	.000	.000	.000	7.046
Alnus species	55	.102	.058	.000	.000	.000	.000	.000	.000	.000	.000	.160
Amoora rohituka	63	.043	.000	.000	.000	.000	.000	.000	.000	.000	.000	.043
Amoora wallichii	64	.000	.236	.000	.000	.000	.000	.000	.000	.000	.000	.236
Castanopsis indica	192	.000	.000	.000	.000	.000	2.052	.000	.000	.000	.000	2.052
Castanopsis species	194	.037	.129	.247	.000	.000	.000	.000	.000	.000	.000	.412
Toona ciliata	198	.036	.000	.000	.000	.000	.000	.000	.000	.000	.000	.036
Cryptomeria japonica	256	.178	.000	.000	.000	.000	.000	.000	.000	.000	.000	.178
Diploknema butyracea	293	.036	.000	.000	.000	.000	.000	.000	.000	.000	.000	.036
Engelhardtia spicata	328	.505	.431	.388	2.275	.000	4.924	.000	.000	.000	.000	8.522
Erythrina species	342	.000	.236	.000	.000	.000	.000	.000	.000	.000	.000	.236
Eurya japonica	367	.000	.131	.161	.000	.000	.000	.000	.000	.000	.000	.292
Ficus elastica	378	.079	.000	.000	.000	.000	.000	.000	.000	.000	.000	.079
Ficus species	385	.036	.273	.000	.342	.000	.000	.000	.000	.000	.000	.651
Garuga pinnata	407	.111	.051	.000	.000	.000	.000	.000	.000	.000	.000	.163
Gmelina arborea	420	.000	.000	.177	.000	.000	.000	.000	.000	.000	.000	.177
Juglans regia	487	.000	.204	.359	.797	.000	1.714	.000	.000	.000	.000	3.074
Lagerstroemia parviflora	505	.071	.000	.000	.000	.000	.000	.000	.000	.000	.000	.071
Lithocarpus spicatus	528	.000	.066	.000	.000	.000	.000	.000	.000	.000	.000	.066
Macaranga species	550	.166	.577	.000	.754	.000	.000	.000	.000	.000	.000	1.497
Machilus species	559	.077	.211	.000	.815	.000	.000	.000	.000	.000	.000	1.103
Mallotus philippinensis	565	.043	.000	.000	.000	.000	.000	.000	.000	.000	.000	.043
M elia champaca	595	.000	.131	.000	.000	.000	.000	.000	.000	.000	.000	.131
M elia species	602	.690	.000	.000	.000	.000	.000	.000	.000	.000	.000	.690
N a javanica	638	.074	.565	.572	.860	.000	.000	.000	.000	.000	.000	2.072
O des paniculata	652	.142	.164	.000	.000	.000	.000	.000	.000	.000	.000	.306

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CONT. FROM TABLE NO. 3.2.2.1

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Phoebe attenuata	667	.151	.000	.000	.000	.000	.000	.000	.000	.000	.000	.151
Quercus lanceaefolia	745	.032	.106	.779	.000	.000	.000	.000	.000	.000	.000	.917
Quercus species	754	.082	.000	.000	.000	.000	.000	.000	.000	.000	.000	.082
Rhus species	768	.120	.000	.000	.000	1.412	.000	.000	.000	.000	.000	1.533
Saurauia nepaulensis	791	.318	.000	.000	.000	.000	.000	.000	.000	.000	.000	.318
Schima wallichii	794	2.194	3.120	1.646	.841	.000	.000	.000	4.451	.000	.000	12.253
Semecarpus anacardium	798	.071	.000	.000	.000	.000	.000	.000	.000	.000	.000	.071
Spondias axillaris	811	.067	.000	.232	.000	.000	.000	.000	.000	.000	.000	.298
Symplocos laurina	839	.103	.066	.000	.000	.000	.000	.000	.000	.000	.000	.169
Symploces theifolia	840	.008	.000	.000	.000	.000	.000	.000	.000	.000	.000	.008
Syzygium cumini	843	.075	.495	.000	.000	.000	.000	.000	.000	.000	.000	.570
Terminalia chebula	864	.036	.118	.000	.000	.000	.000	.000	.000	.000	.000	.154
Terminalia myriocarpa	868	.036	.094	.177	.000	.000	.000	.000	.000	.000	.000	.307
Viburnum species	896	.314	.000	.000	.000	.000	.000	.000	.000	.000	.000	.314
Unidentified trees	944	1.920	.487	.000	.000	.000	.000	.000	.000	.000	.000	2.407
TOTAL -		8.582	9.788	7.476	10.940	2.824	8.689	.000	4.451	.000	.000	52.752

Contents

TABLE NO.3.2.2.2

VOLUME(IN M3) PER HECTARE BY SPECIES AND DIAMETERCLASSES(IN CM.)

DISTRICT- SOUTH SIKKIM STRATA-II(UNRESERVED)

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Acer oblongum	19	.013	.000	.000	.000	.000	.000	.000	.000	.000	.000	.013
Acer species	21	.017	.000	.000	.000	.000	.000	.000	.000	.000	.000	.017
Ailanthus altissima	39	.000	.027	.000	.000	.000	.000	.000	.000	.000	.000	.027
Alangium salvifolium	42	.079	.000	.000	.000	.000	.000	.000	.000	.000	.000	.079
Albizzia odorotissima	49	.017	.000	.000	.000	.000	.000	.000	.000	.000	.000	.017
Albizzia procera	50	.032	.207	.170	.364	.399	.000	.000	.000	.000	.000	1.173
Albizzia species	51	.161	.148	.059	.000	.349	.000	.000	.000	.000	.000	.717
Alnus nepalensis	53	.062	.044	.280	1.695	1.514	1.473	.000	.000	.000	.000	5.067
Alnus species	55	.475	.848	.502	.333	.000	.000	.000	.000	.000	.000	2.158
Amoora wallichii	64	.030	.000	.000	.000	.000	.000	.000	.000	.000	.000	.030
Artocarpus species	94	.017	.000	.000	.000	.000	.000	.000	.000	.000	.000	.017
Bauhinia species	118	.013	.000	.000	.000	.000	.000	.000	.000	.000	.000	.013
Beilschimiedia roxburghiana	120	.078	.120	.319	.262	.424	.000	.000	.000	.000	.000	1.203
Betula alnoides	126	.000	.000	.146	.000	.000	.000	.000	.000	.000	.000	.146
Bombax ceiba	131	.000	.030	.111	.000	.000	.000	.000	.000	.000	.000	.141
Brassiopsis speciosa	135	.142	.000	.000	.000	.000	.000	.000	.000	.000	.000	.142
Brassaiopsis mitis	136	.085	.085	.000	.000	.000	.000	.000	.000	.000	.000	.170
Callicarpa arborea	150	.014	.000	.000	.000	.000	.000	.000	.000	.000	.000	.014
Callicarpa species	154	.035	.000	.000	.000	.000	.000	.000	.000	.000	.000	.035
Casearia species	185	.045	.059	.000	.000	.000	.000	.000	.000	.000	.000	.104
Castanopsis hystrix	191	.017	.000	.000	.000	.317	.888	.000	.958	1.189	1.445	4.814
Castanopsis species	194	.551	.458	.826	.238	.307	.634	1.546	.919	.000	.000	5.480
Cedrela serrata	197	.014	.047	.000	.000	.000	.000	.000	.000	.000	.000	.061
Toona ciliata	198	.041	.133	.000	.000	.000	.000	.000	.000	.000	.000	.174
Cinnamomum species	216	.000	.000	.086	.000	.000	.000	.000	.000	.000	.000	.086
Cordia myxa	236	.000	.034	.000	.000	.000	.000	.000	.000	.000	.000	.034
[illegible]aeocarpus lanceaefolius	313	.111	.072	.000	.000	.000	.000	.000	.000	.000	.000	.183
[illegible]ngium lamarchi	324	.017	.000	.000	.000	.000	.000	.000	.000	.000	.000	.017

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CONT. OF TABLE NO. 3.2.2.2

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Emblica officinalis	325	.013	.000	.000	.000	.000	.511	.000	.000	.000	.000	.524
Engelhardtia spicata	328	1.466	1.003	1.103	.892	2.137	2.209	.000	1.005	.000	1.580	11.395
Eriobotrya petiolata	331	.000	.000	.111	.000	.000	.000	.000	.000	.000	.000	.111
Erythrina species	342	.044	.030	.000	.000	.000	.000	.000	.000	.000	.000	.074
Eugenia frondosa	351	.000	.034	.000	.000	.000	.511	.000	.000	.000	.000	.545
Eugenia formosa	352	.026	.087	.264	.823	.000	.000	.000	.000	.000	.000	1.201
Eugenia grandis	353	.000	.000	.000	.000	.000	.000	.682	.000	.000	.000	.682
Eurya japonica	367	.600	.655	.608	1.139	.574	.000	.000	.000	.000	.000	3.575
Evodia fraxinifolia	368	.000	.038	.000	.000	.000	.000	.000	.000	.000	.000	.038
Ficus species	385	.543	.188	.137	.160	.000	.000	.615	.000	.000	.000	1.643
Firmiana colorata	388	.017	.000	.000	.000	.000	.000	.000	.000	.000	.000	.017
Garuga pinnata	407	.014	.000	.000	.000	.000	.000	.000	.000	.000	.000	.014
Glochidion species	416	.000	.019	.000	.000	.000	.000	.000	.000	.000	.000	.019
Hovenia dulcis	465	.045	.021	.059	.000	.000	.000	.000	.000	.000	.000	.125
Juglans regia	487	.097	.263	.171	.324	.000	.696	.000	.000	.000	.000	1.551
Leucosceptrum spp.	513	.276	.108	.144	.000	.000	.000	.000	.000	.000	.000	.528
Lithocarpus spicatus	528	.043	.043	.000	.231	.000	.000	.000	.000	.000	.000	.317
Litsaea species	541	.008	.000	.000	.000	.000	.000	.000	.000	.000	.000	.008
Macranga peltata	548	.014	.000	.000	.000	.000	.000	.000	.000	.000	.000	.014
Macaranga species	550	.647	.622	.525	.818	.670	.000	.000	.000	.000	.000	3.283
Machilus odoratissima	556	.000	.000	.000	.000	.317	.000	.000	.000	.000	.000	.317
Machilus species	559	.085	.021	.210	.245	.000	.000	.000	.000	.000	.000	.560
Michelia champaca	595	.017	.000	.000	.000	.287	.511	.801	.000	.000	.000	1.617
Michelia doltsopa	596	.019	.000	.000	.000	.000	.000	.000	.000	.000	.000	.019
Michelia species	602	.017	.000	.094	.000	.000	.000	.000	.000	.000	.000	.112
M usops elengi	609	.000	.019	.000	.000	.000	.000	.000	.000	.000	.000	.019
M sa javanica	638	.010	.047	.419	.734	.000	.000	.000	.000	.000	.000	1.211
(odes paniculata	652	.089	.024	.059	.000	.000	.000	.000	.000	.000	.000	.172
I ebe attenuata	667	.443	.072	.289	.206	.000	.511	.000	.000	.000	.000	1.520

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CONT. OF TABLE NO. 3.2.2.2

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Prunus species	718	.074	.241	.549	.400	.000	.000	.000	.000	.000	.000	1.263
Pyrularia edulis	735	.041	.000	.000	.000	.000	.000	.000	.000	.000	.000	.041
Quercus spicata	753	.074	.019	.000	.000	.000	.000	.000	.000	.000	.000	.093
Quercus species	754	.028	.034	.000	.000	.000	.000	.000	.000	.000	.000	.062
Rhododendron species	765	.031	.000	.000	.000	.000	.000	.000	.000	.000	.000	.031
Rhus species	768	.192	.083	.264	.364	.000	.000	.000	.000	.000	.000	.903
Sacosperma arboreum	790	.013	.000	.129	.000	.272	.000	.000	.000	.000	.000	.415
Saurauia nepaulensis	791	.000	.155	.111	.000	.000	.000	.000	.000	.000	.000	.266
Schima wallichii	794	1.468	.978	1.219	2.122	.333	.000	.000	.852	.000	.000	6.972
Semecarpus anacardium	798	.013	.000	.000	.000	.000	.000	.000	.000	.000	.000	.013
Sloanea dasycarpa	806	.000	.034	.000	.218	.000	.000	.000	.852	.000	.000	1.104
Spondias axillaris	811	.013	.000	.000	.000	.000	.000	.000	.000	.000	.000	.013
Spondias species	813	.017	.000	.000	.000	.000	.000	.000	.000	.000	.000	.017
Symingtonia populnea	836	.000	.000	.000	.000	.000	.000	.000	.000	3.685	.000	3.685
Symploces theifolia	840	.000	.317	.432	.423	.000	.000	.000	.000	.000	.000	1.172
Terminalia myriocarpa	868	.072	.076	.072	.000	.000	.000	.000	.000	.000	.000	.220
Viburnum species	896	.838	.159	.000	.000	.000	.000	.000	.000	.000	.000	.997
Zanthoxylum budrunga/rhetsa	924	.031	.000	.000	.000	.000	.000	.000	.000	.000	.000	.031
Unidentified trees	944	.841	.583	1.022	1.730	.258	.551	.659	.985	.000	.000	6.631
TOTAL		10.349	8.286	10.491	13.722	8.157	8.495	4.303	5.572	4.874	3.024	77.272

Contents

TABLE NO.3.2.3.1

VOLUME(IN M3) PER HECTARE BY SPECIES AND DIAMETERCLASSES(IN CM.)

DISTRICT- SOUTH SIKKIM STRATA-III(RESERVED)

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Acer compbellii	16	.028	.146	.159	.384	.000	1.126	.000	.000	.000	.000	1.843
Acer oblongum	19	.036	.000	.000	.000	.000	.000	.000	.000	.000	.000	.036
Acer species	21	.092	.045	.000	.189	.000	.000	.000	.000	.000	.000	.326
Actinodaphne sikkimensis	25	.016	.194	.000	.290	.000	.000	.000	.000	.000	.000	.499
Alnus nepalensis	53	.000	.000	.000	.993	.000	.000	.000	.000	.000	.000	.993
Alnus species	55	.016	.028	.000	.000	.000	.606	.000	.000	.000	.000	.649
Amoora wallichii	64	.055	.051	.197	.000	.000	.000	.000	.000	.000	.000	.302
Beilschimiedia roxburghiana	120	.000	.107	.392	.218	.000	.690	2.122	.000	.000	.000	3.529
Betula alnoides	126	.003	.000	.000	.000	.000	.000	.000	.000	.000	.000	.003
Brassiopsis speciosa	135	.000	.032	.000	.000	.000	.000	.000	.000	.000	.000	.032
Brassaiopsis mitis	136	.035	.169	.000	.000	.000	.000	.000	.000	.000	.000	.204
Callicarpa species	154	.035	.071	.000	.000	.000	.000	.000	.000	.000	.000	.107
Castanopsis hystrix	191	.000	.096	.140	.274	1.382	1.748	.755	.000	.000	.000	4.396
Castanopsis indica	192	.000	.000	.085	.000	.473	.000	.000	.000	.000	.000	.558
Castanopsis species	194	.190	1.050	.734	.781	2.015	3.245	6.087	3.551	4.541	5.374	27.569
Toona ciliata	198	.000	.028	.000	.000	.000	.000	.000	.000	.000	.000	.028
Cinnamomum species	216	.016	.025	.131	.354	.000	.000	.000	3.221	.000	.000	3.747
Cryptomeria japonica	256	1.108	.270	.121	.000	.000	.000	.000	.000	.000	.000	1.500
Echinocarpus dasycarpus	308	.000	.000	.000	.000	.000	.000	.880	.000	.000	.000	.880
Eelaeocarpus lanceaefolius	313	.000	.000	.153	.000	.000	.000	.000	.000	.000	.000	.153
Engelhardtia spicata	328	.087	.000	.280	.000	.000	.000	.000	.000	.000	.000	.367
Eriobotrya petiolata	331	.000	.063	.085	.000	.000	.000	.000	.000	.000	.000	.149
Erythrina species	342	.061	.057	.000	.000	.000	.000	.000	.000	.000	.000	.118
Eurya japonica	367	.861	.283	.436	.607	.000	.000	.000	.000	.000	.000	2.188
E[illegible]la species	370	.033	.000	.000	.000	.000	.000	.000	.000	.000	.000	.033
F[illegible]ra budrunga	372	.016	.000	.000	.000	.000	.000	.000	.000	.000	.000	.016
F[illegible]s elastica	378	.019	.000	.000	.000	.000	.000	.000	.000	.000	.000	.019
F[illegible]s species	385	.116	.079	.000	.000	.000	.000	.000	.000	.000	.000	.195

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CONT. OF TABLE NO. 3.2.3.1

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Ilex species	478	.068	.000	.000	.000	.000	.000	.000	.000	.000	.000	.068
Juglans regia	487	.000	1.883	1.659	.000	.000	.000	.000	.000	.000	.000	3.542
Leucosceptrum spp.	513	.543	.032	.000	.000	.000	.000	.000	.000	.000	.000	.574
Lithocarpus elegans	526	.000	.032	.077	.000	.000	.000	.000	.000	.000	.000	.109
Litsaea species	541	.403	.714	.797	.665	.724	.554	.000	.000	.000	.000	3.858
Macaranga species	550	.098	.000	.251	.000	.000	.000	.000	.000	.000	.000	.349
Machilus gammieana	551	.000	.069	.000	.173	.000	.516	.000	1.073	.000	.000	1.830
Machilus odoratissima	556	.000	.031	.162	.000	.000	.000	.000	.000	.000	.000	.194
Machilus species	559	.394	.288	.917	1.179	2.262	1.637	3.241	2.313	4.084	.000	16.314
Michelia champaca	595	.017	.036	.000	.000	.000	.000	.000	.000	.000	.000	.052
Michelia doltsopa	596	.220	.757	.128	.227	.000	.000	.000	.000	.000	.000	1.333
Michelia species	602	.038	.000	.000	.000	.000	.000	.000	.000	.000	.000	.038
Nauclea griffithii	632	.000	.000	.153	.177	.000	.000	.000	.000	.000	.000	.330
Nyssa javanica	638	.024	.072	.256	.184	.000	.000	.000	.000	.000	.000	.536
Ostodes paniculata	652	.101	.000	.000	.000	.000	.000	.000	.000	.000	.000	.101
Persea owdenii	666	.000	.051	.253	.000	.453	.537	.000	.000	.000	.000	1.294
Phoebe attenuata	667	.780	1.438	.973	.570	.000	.537	.000	.000	.000	.000	4.299
Phoebe species	673	.000	.150	.000	.000	.000	.000	.000	.000	.000	.000	.150
Prunus species	718	.018	.050	.000	.000	.000	.000	.000	.000	.000	.000	.068
Pyrularia edulis	735	.000	.000	.000	.290	.000	.000	.000	.000	.000	.000	.290
Quercus lamellosa	744	.047	.277	.173	.347	.000	.702	1.634	1.315	.000	12.539	17.033
Quercus lanceaefolia	745	.038	.051	.094	.657	.000	.703	.980	3.639	.000	1.712	7.873
Quercus pachyphylla	749	.026	.000	.000	.000	.000	.000	.000	.000	.000	.000	.026
Quercus spicata	753	.017	.036	.263	.216	.000	.494	.000	.000	.000	.000	1.026
Quercus species	754	.064	.161	.267	.000	.000	1.817	2.763	.000	.000	1.712	6.784
Rhododendron arboreum	760	.065	.509	.358	.189	.000	.000	.000	.000	.000	.000	1.122
Rhododendron species	765	.037	.056	.142	.000	.000	.000	.000	.000	.000	.000	.235
Rhus species	768	.149	.047	.263	.000	.000	.000	.892	.000	.000	.000	1.351
S[illegible]auia nepaulensis	791	.157	.065	.000	.000	.000	.000	.000	.000	.000	.000	.222
S[illegible]ma wallichii	794	.051	.044	.077	.000	.000	.000	.000	.000	.000	1.712	1.885
S[illegible]nea dasycarpa	806	.000	.022	.000	.000	.000	.000	.000	1.168	.000	.000	1.190
S[illegible]ngtonia populnea	836	.090	.277	.000	.000	.795	.000	1.474	.000	.000	.000	2.636
S[illegible]locos laurina	839	.032	.104	.000	.000	.000	.000	.000	.000	.000	.000	.135

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CONT. OF TABLE NO. 3.2.3.1

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Symploces theifolia	840	1.891	3.079	1.108	.185	.000	.000	.000	.000	.000	.000	6.263
Symplocos species	841	.457	.051	.000	.000	.000	.000	.000	.000	.000	.000	.507
Viburnum species	896	.903	.118	.000	.000	.000	.000	.000	.000	.000	.000	1.021
Unidentified trees	944	.559	.377	.287	.405	.000	1.211	.000	.000	.000	.000	2.838
TOTAL		10.112	13.669	11.575	9.554	8.103	16.123	20.827	16.278	8.625	23.050	137.916

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TABLE NO.3.2.3.2

VOLUME(IN M3) PER HECTARE BY SPECIES AND DIAMETERCLASSES(IN CM.)

DISTRICT- SOUTH SIKKIM STRATA-III(UNRESERVED)

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Alnus nepalensis	53	2.489	3.440	.853	1.098	.000	.000	.000	.000	.000	.000	7.879
Alnus species	55	.139	1.223	.180	1.111	1.014	1.557	.000	.000	.000	.000	5.224
Betula alnoides	126	.250	1.003	.000	.000	.000	.000	.000	.000	.000	.000	1.253
Castanopsis species	194	.547	1.828	1.414	4.338	3.394	1.742	4.270	3.209	4.112	9.213	34.068
Cedrela serrata	197	.000	.000	.338	.000	.000	.000	.000	.000	.000	.000	.338
Cinnamomum species	216	.042	.000	.000	.000	.000	.000	.000	.000	.000	.000	.042
Cryptomeria japonica	256	.271	3.044	6.531	1.673	.000	.000	.000	.000	.000	.000	11.519
Cupressus species	260	.053	.000	.000	.000	.000	.000	.000	.000	.000	.000	.053
Eelaeocarpus lanceaefolius	313	.000	.185	.000	.000	.000	.000	.000	.000	.000	.000	.185
Engelhardtia spicata	328	.881	1.180	1.470	.000	.000	.000	.000	.000	.000	.000	3.531
Eurya japonica	367	2.561	.938	1.061	.000	.000	.000	.000	.000	.000	.000	4.561
Ficus species	385	.282	.266	.180	.978	.000	.000	.000	.000	.000	.000	1.707
Ilex species	478	.084	.393	.000	.000	.000	.000	.000	.000	.000	.000	.477
Macaranga species	550	.053	.000	.644	.000	.000	.000	.000	.000	.000	.000	.698
Machilus gammieana	551	.000	.000	.000	.000	.000	1.326	.000	.000	.000	.000	1.326
Machilus odoratissima	556	.000	.000	.000	.000	.000	1.425	.000	.000	.000	.000	1.425
Machilus species	559	.435	.226	.000	.000	.000	.000	.000	.000	.000	.000	.662
Michelia species	602	.172	.000	.593	.520	.000	.000	.000	.000	.000	.000	1.285
Nyssa javanica	638	.020	.000	.000	.000	.000	.000	.000	.000	.000	.000	.020
Phoebe attenuata	667	.439	1.198	1.024	.424	.000	.000	.000	.000	.000	.000	3.084

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CONT. OF TABLE NO. 3.2.3.2

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Prunus species	718	.097	.380	.000	.000	.000	.000	.000	.000	.000	.000	.477
Pyrularia edulis	735	.133	.000	.000	.000	.000	.000	.000	.000	.000	.000	.133
Quercus lamellosa	744	.000	.000	.000	.000	.000	.000	.000	2.800	.000	4.606	7.406
Quercus species	754	.053	.266	.000	.000	.000	1.381	.000	.000	.000	.000	1.700
Rhododendron species	765	.000	.481	.000	.000	.000	.000	.000	.000	.000	.000	.481
Rhus species	768	.088	.222	.287	.000	.000	.000	.000	.000	.000	.000	.598
Saurauia nepaulensis	791	.407	.180	.000	.000	.000	.000	.000	.000	.000	.000	.587
Schima wallichii	794	.095	.145	.000	.424	.000	.000	.000	.000	3.906	.000	4.569
Symingtonia populnea	836	.000	.000	.520	1.156	.000	.000	.000	.000	.000	.000	1.676
Symploces theifolia	840	1.123	1.073	.407	.000	.000	.000	.000	.000	.000	.000	2.603
Viburnum species	896	2.721	.202	.000	.000	.000	.000	.000	.000	.000	.000	2.923
Unidentified trees	944	.260	.064	.460	.000	.000	.000	.000	.000	.000	.000	.784
TOTAL		13.696	17.937	15.963	11.722	4.408	7.431	4.270	6.010	8.019	13.819	103.276

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TABLE NO.3.2.4.1

VOLUME(IN M3) PER HECTARE BY SPECIES AND DIAMETERCLASSES(IN CM.)

DISTRICT- SOUTH SIKKIM STRATA-IV(RESERVED)

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Alangium salvifolium	42	.218	.000	.000	.000	.000	.000	.000	.000	.000	.000	.218
Betula cylindrostachys	127	.226	.686	1.046	.000	5.322	.000	.000	.000	.000	.000	7.280
Castanopsis species	194	.000	.000	.000	.000	.000	.000	.000	.000	.00024	.183	24.183
Drypetes lancifolia	302	.000	.000	1.507	3.100	.000	.000	.000	.000	.000	.000	4.607
Litsaea species	541	2.789	6.933	4.446	8.432	5.066	.000	.000	.000	.000	.000	27.666
Machilus gammieana	551	.000	.000	.000	2.337	.000	.000	.000	.000	.000	.000	2.337
Machilus odoratissima	556	.000	.000	.000	3.845	.000	.000	8.871	.000	.000	.000	12.716
Machilus species	559	1.450	1.155	3.413	5.137	.000	.000	.000	.000	.000	.000	11.155
Quercus spicata	753	.000	.000	.000	3.913	.000	.000	.000	.000	.000	.000	3.913
Quercus species	754	1.344	.675	3.276	13.101	.00017	.327	12.03929	.400	.00023	.114	100.275
Rhododendron species	765	1.947	1.570	1.264	.000	.000	.000	.000	.000	.000	.000	4.780
Symploces theifolia	840	1.932	2.219	.000	.000	.000	.000	.000	.000	.000	.000	4.151
Unidentified trees	944	.708	.543	.000	.000	.000	.000	.000	.000	.000	.000	1.251
TOTAL		10.612	13.781	14.952	39.866	10.388	17.327	20.910	29.400	.00047	.297	204.533

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TABLE NO.4.1.1.1

TOTAL VOLUME(IN M3) BY SPECIES AND DIAMETER CLASSES(IN CM.)

DISTRICT- WEST SIKKIM STRATA-I(RESERVED)

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Ailanthus excelsa	40	0	291	0	0	0	0	0	0	0	0	291
Alangium salvifolium	42	0	113	0	0	0	0	0	0	0	0	113
Albizzia procera	50	105	0	0	0	0	0	0	0	0	0	105
Alstonia scholaris	57	849	0	0	1037	0	0	0	0	0	0	1886
Bauhinia species	118	92	143	0	0	0	0	0	0	0	0	235
Bischofia javanica	129	0	1110	480	0	0	0	0	0	0	0	1590
Bombax ceiba	131	81	0	0	0	0	0	0	0	0	0	81
Chukrasia vellutina	208	0	0	0	0	1834	0	0	0	0	0	1834
Diploknema butyracea	293	0	521	794	2974	0	0	0	0	0	0	4289
Duabanga grandiflora	303	0	582	480	0	0	0	0	0	0	0	1062
Eugenia species	358	0	183	0	0	0	0	0	0	0	0	183
Ficus species	385	211	0	0	0	0	0	0	0	0	0	211
Garuga pinnata	407	683	0	1458	2503	0	0	0	0	0	0	4644
Mallotus philippinensis	565	211	652	0	0	0	0	0	0	0	0	863
Morus laevigata	617	0	0	0	845	0	0	0	0	0	0	845
Pinus species	686	0	0	0	1106	0	0	4429	0	0	0	5535
Schima wallichii	794	658	206	0	1251	4975	0	0	0	0	0	7090
Semecarpus anacardium	798	85	387	1244	971	0	0	0	0	0	0	2687
Shorea robusta	802	4684	2624	5666	10530	7138	0	0	0	0	0	30642
Syzygium cumini	843	79	0	0	0	0	0	0	0	0	0	79
Tetrameles nudiflora	873	0	0	0	1814	6474	2870	0	0	0	0	11158
Vepris bilocularis	894	0	0	437	0	0	0	0	0	0	0	437
Unidentified trees	944	80	206	0	0	0	0	0	0	0	0	286
TOTAL		7818	7018	10559	23031	20421	2870	4429	0	0	0	76146

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TABLE NO.4.1.1.2

TOTAL VOLUME(IN M3) BY SPECIES AND DIAMETER CLASSES(IN CM.)

DISTRICT- WEST SIKKIM STRATA-I(UNRESERVED

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Albizzia procera	50	694	0	0	0	0	0	0	0	0	0	694
Chukrasia vellutina	208	793	0	0	0	0	0	0	0	0	0	793
Engelhardtia spicata	328	573	0	0	0	0	0	0	0	0	0	573
Schima wallichii	794	6920	0	0	0	0	0	0	0	0	0	6920
Shorea robusta	802	0	0	0	45971	40633	0	0	0	0	0	86604
TOTAL		8980	0	0	45971	40633	0	0	0	0	0	95584

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TABLE NO.4.1.2.1

TOTAL VOLUME(IN M3) BY SPECIES AND DIAMETER CLASSES(IN CM.)

DISTRICT- WEST SIKKIM STRATA-II(RESERVED)

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Acer compbellii	16	59	0	368	0	0	0	0	0	0	0	427
Albizzia lebbek	46	95	0	162	0	0	0	0	0	0	0	257
Albizzia procera	50	203	131	281	672	0	0	0	0	0	0	1287
Albizzia species	51	47	131	0	0	0	0	0	0	0	0	178
Alnus nepalensis	53	606	4021	3237	6611	2649	0	0	0	0	0	17124
Betula alnoides	126	314	523	0	0	0	0	0	0	0	0	837
Betula cylindrostachys	127	0	0	355	0	0	0	0	0	0	0	355
Bridelia retusa	138	0	57	0	0	0	0	0	0	0	0	57
Callicarpa arborea	150	83	0	0	0	0	0	0	0	0	0	83
Castanopsis hystrix	191	0	0	0	0	710	0	0	0	0	0	710
Castanopsis indica	192	1323	545	968	1133	710	0	0	2559	0	0	7238
Castanopsis species	194	1379	3072	7590	3844	2084	0	0	0	0	0	17969
Cedrela serrata	197	38	207	0	382	829	0	0	0	0	0	1456
Toona ciliata	198	0	0	197	0	0	0	0	0	0	0	197
Cinnamomum species	216	80	0	0	1005	0	0	0	0	0	0	1085
Cryptomeria japonica	256	4614	725	1370	4360	7605	0	4006	0	0	0	22680
Eelaeocarpus lanceaefoliu	313	73	0	0	0	0	0	0	0	0	0	73
Engelhardtia spicata	328	845	1321	1275	1144	0	0	4563	0	0	4343	13491
Eugenia formosa	352	0	200	558	0	0	0	0	0	0	0	758
Eurya japonica	367	836	795	438	0	0	0	0	0	0	0	2069
Evodia species	370	35	0	0	0	0	0	0	0	0	0	35
Ficus elastica	378	41	0	0	0	0	0	0	0	0	0	41
Firmiana colorata	388	47	64	0	0	0	0	0	0	0	0	111
Juglans regia	487	0	160	0	0	0	0	0	0	0	0	160
Lannea coromandelica	509	80	0	0	0	0	0	0	0	0	0	80
M[illegible]anga peltata	548	131	0	444	0	0	0	0	0	0	0	575
M[illegible]ranga species	550	0	228	0	0	0	0	0	0	0	0	228

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CONT. OF TABLE NO. 4.1.2.1

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Machilus species	559	84	131	0	0	0	0	0	0	0	0	215
Mallotus philippinensis	565	36	0	0	0	0	0	0	0	0	0	36
Michelia champaca	595	0	131	0	1005	0	0	0	0	0	0	1136
Michelia species	602	47	0	0	469	0	0	0	0	0	0	516
Ostodes paniculata	652	801	771	162	382	0	0	0	0	0	0	2116
Perishia species	665	114	0	0	0	0	1350	0	0	0	0	1464
Phoebe attenuata	667	1197	258	162	0	0	0	0	0	0	0	1617
Prunus species	718	41	82	0	0	0	0	0	0	0	0	123
Putranjiva roxburghii	734	0	0	162	0	0	0	0	0	0	0	162
Quercus lamellosa	744	672	351	322	488	0	0	0	3209	3797	4155	12994
Quercus pachyphylla	749	30	328	322	0	0	0	0	0	0	0	680
Rhododendron arboreum	760	39	0	0	0	0	0	0	0	0	0	39
Saurauia nepaulensis	791	37	0	0	0	0	0	0	0	0	0	37
Schima wallichii	794	2010	2155	1780	2712	0	0	0	0	0	0	8657
Semecarpus anacardium	798	43	0	0	0	0	0	0	0	0	0	43
Spondias axillaris	811	36	73	0	0	0	0	0	0	0	0	109
Symingtonia populnea	836	27	0	0	0	0	0	0	0	0	0	27
Symploces theifolia	840	78	0	0	0	0	0	0	0	0	0	78
Syzygium cumini	843	73	0	0	0	0	0	0	0	0	0	73
Syzygium species	850	27	0	0	0	0	0	0	0	0	0	27
Viburnum species	896	252	82	0	0	0	0	0	0	0	0	334
Woodfordia floribunda	909	35	0	0	0	0	0	0	0	0	0	35
Unidentified trees	944	1566	1301	893	382	0	0	0	0	0	0	4142
TOTAL		18174	17843	21046	24589	14587	1350	8569	5768	3797	5498	124221

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TABLE NO.4.1.2.2

TOTAL VOLUME(IN M3) BY SPECIES AND DIAMETER CLASSES(IN CM.)

DISTRICT-WEST SIKKIM STRATA-II(UNRESERVED)

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Acer oblongum	19	296	0	0	0	0	0	0	0	0	0	296
Albizzia procera	50	3722	566	0	0	0	0	0	0	0	0	4288
Albizzia species	51	0	638	0	0	0	0	0	0	0	0	638
Alnus nepalensis	53	4341	13496	7955	0	0	0	0	0	0	0	25792
Bauhinia species	118	513	0	0	0	0	0	0	0	0	0	513
Betula alnoides	126	136	0	0	0	0	0	0	0	0	0	136
Bombax ceiba	131	561	0	0	0	0	0	0	0	0	0	561
Brassaiopsis mitis	136	1097	0	0	0	0	0	0	0	0	0	1097
Callicarpa arborea	150	0	1003	1354	4601	0	0	0	0	0	0	6958
Castanopsis indica	192	265	501	0	6878	0	11159	0	0	0	0	18803
Castanopsis species	194	16337	4195	2558	4722	0	0	0	0	0	0	27812
Toona ciliata	198	272	0	0	0	0	0	0	0	0	0	272
Cinnamomum species	216	0	0	0	0	0	0	0	0	0	27176	27176
Diploknema butyracea	293	0	350	0	0	0	0	0	0	0	0	350
Eelaeocarpus lanceaefolius	313	256	0	0	3211	0	8527	0	0	0	0	11994
Emblica officinalis	325	272	0	0	0	0	0	0	0	0	0	272
Engelhardtia spicata	328	3486	5069	7111	21340	5758	0	0	0	0	0	42764
Eugenia formosa	352	327	0	0	0	0	0	0	0	0	0	327
Eurya japonica	367	3415	5653	4604	0	0	0	0	0	0	0	13672
Evodia species	370	0	700	0	0	0	0	0	0	0	0	700
Juglans regia	487	91	0	0	0	0	0	0	0	0	0	91
Macranga peltata	548	272	0	0	0	0	0	0	0	0	0	272
Macaranga species	550	2864	6244	5264	0	0	0	0	0	0	0	14372
Nyctanthes arbortristis	637	0	718	0	0	0	0	0	0	0	0	718
Oroxylum indicum	650	314	0	0	0	0	0	0	0	0	0	314
O des paniculata	652	2227	886	5680	6422	0	0	0	0	0	0	15215

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CONT. OF TABLE NO. 4.1.2.2

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Persea owdenii	666	246	0	0	0	0	0	0	0	0	0	246
Phoebe attenuata	667	0	0	4057	0	0	0	0	0	0	0	4057
Prunus species	718	545	0	0	0	0	0	0	0	0	0	545
Rhus species	768	1511	0	0	2806	0	0	0	0	0	0	4317
Schima wallichii	794	11920	15845	28134	14048	4858	25612	14154	0	0	0	114571
Semecarpus anacardium	798	272	0	0	0	0	0	0	0	0	0	272
Shorea robusta	802	327	0	6100	25784	11116	0	0	0	0	0	43327
Symploces theifolia	840	331	0	0	0	0	0	0	0	0	0	331
Symplocos species	841	1095	0	0	2806	0	0	0	0	0	0	3901
Terminalia belerica	861	327	0	0	0	0	0	0	0	0	0	327
Viburnum species	896	2172	0	0	0	0	0	0	0	0	0	2172
Unidentified trees	944	623	0	1486	0	0	0	0	0	0	0	2109
TOTAL		60433	55864	74303	92618	21732	45298	14154	0	0	27176	391578

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TABLE NO.4.1.3.1

TOTAL VOLUME(IN M3) BY SPECIES AND DIAMETER CLASSES(IN CM.)

DISTRICT- WEST SIKKIM STRATA-III(RESERVED)

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Acer compbellii	16	0	0	2858	0	0	0	0	0	0	0	2858
Alnus nepalensis	53	14709	45431	80656	18149	0	0	25055	0	0	0	184000
Beilschimiedia roxburghiana	120	529	0	0	0	0	0	0	0	0	0	529
Betula alnoides	126	0	0	0	6530	0	0	0	0	0	0	6530
Castanopsis indica	192	1272	445	0	0	0	0	0	0	0	0	1717
Castanopsis species	194	1394	5234	4278	10149	38976	47965	36996	49146	0	225555	419693
Toona ciliata	198	280	0	0	0	0	0	0	0	0	0	280
Cinnamomum species	216	959	0	0	3638	0	0	0	0	0	0	4597
Cryptomeria japonica	256	3645	0	0	0	0	0	0	0	0	0	3645
Cupressus species	260	2500	16630	1261	0	5506	0	0	0	0	0	25897
Eelaeocarpus lanceaefolius	313	285	0	0	0	0	0	0	0	0	0	285
Engelhardtia spicata	328	2044	793	0	0	0	0	0	0	0	0	2837
Eurya japonica	367	8382	11847	6487	3180	0	0	0	0	0	0	29896
Ficus elastica	378	948	396	0	0	0	0	0	0	0	0	1344
Ficus species	385	1244	842	0	0	0	0	0	0	0	0	2086
Glochidion species	416	0	0	1684	0	0	0	0	0	0	0	1684
Juglans regia	487	568	4358	0	0	0	0	0	0	0	0	4926
Leucosceptrum spp.	513	1638	899	0	0	0	0	0	0	0	0	2537
Macranga peltata	548	0	0	1534	0	0	0	0	0	0	0	1534
Macaranga species	550	3865	4419	0	0	0	0	0	0	0	0	8284
Machilus species	559	1186	0	2007	0	5506	0	0	0	0	0	8699
Michelia champaca	595	324	0	0	0	0	10064	0	0	0	0	10388
Michelia doltsopa	596	0	2291	0	0	0	0	0	0	0	0	2291
Michelia species	602	882	1087	0	3405	0	0	0	0	0	0	5374
M agyna parviflora	611	309	0	0	0	0	0	0	0	0	0	309
N a javanica	638	0	0	0	0	0	0	0	17372	0	0	17372
P shia species	665	0	0	1841	0	0	0	0	0	0	30797	32638

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CONT.FROM TABLE NO. 4.1.3.1

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Phoebe attenuata	667	916	5808	0	0	0	0	0	0	0	0	6724
Prunus species	718	742	0	0	0	0	0	0	0	0	0	742
Quercus lamellosa	744	5938	5232	2503	14207	26526	24851	34457	89404	0	225555	428673
Quercus lanceaefolia	745	324	0	0	0	11012	10891	13574	0	0	0	35801
Quercus lineata	748	0	0	0	0	0	0	18498	0	0	0	18498
Quercus spicata	753	0	0	0	0	0	0	0	0	0	92392	92392
Quercus species	754	18100	20784	0	0	0	0	0	0	48123	0	87007
Rhododendron arboreum	760	324	0	0	0	0	0	0	0	0	0	324
Rhododendron species	765	0	2050	0	0	0	0	0	0	0	0	2050
Rhus species	768	1278	445	1393	0	0	0	0	0	0	0	3116
Schima wallichii	794	1337	793	1684	3405	6115	10064	0	0	0	0	23398
Semecarpus anacardium	798	971	0	0	8111	0	0	0	0	0	0	9082
Symingtonia populnea	836	216	0	0	0	0	0	0	0	0	0	216
Symploces theifolia	840	19946	33081	12111	3003	0	0	0	0	0	0	68141
Viburnum species	896	13419	9199	1393	0	0	0	0	0	0	0	24011
Woodfordia floribunda	909	1654	1481	0	0	0	0	0	0	0	0	3135
Unidentified trees	944	12321	1532	0	5214	0	0	0	0	0	0	19067
TOTAL		124449	175077	121690	78991	93641	103835	128580	155922	48123	574299	1604607

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TABLE NO.4.1.3.2

TOTAL VOLUME(IN M3) BY SPECIES AND DIAMETER CLASSES(IN CM.)

DISTRICT- WEST SIKKIM STRATA-III(UNRESERVED)

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Abies pindrow	1	1258	0	0	0	0	0	0	0	0	0	1258
Alnus nepalensis	53	10343	8155	0	0	0	0	0	0	0	0	18498
Beilschimiedia roxburghiana	120	0	0	3401	0	0	0	0	0	0	0	3401
Calophyllum polyanthum	157	537	0	0	0	0	0	0	0	0	0	537
Castanopsis indica	192	0	0	0	0	0	0	0	38862	0	56970	95832
Castanopsis species	194	587	0	0	0	0	0	35219	0	151169	0	186975
Engelhardtia spicata	328	2162	1005	0	0	0	0	0	0	116337	0	119504
Eurya japonica	367	1604	1339	13312	0	0	0	0	0	0	0	16255
Macaranga species	550	2524	1741	0	0	0	0	0	0	0	0	4265
Michelia species	602	0	0	0	5883	0	0	0	0	0	0	5883
Ostodes paniculata	652	537	0	3115	0	0	0	0	0	0	0	3652
Phoebe attenuata	667	7128	929	0	0	0	0	0	0	0	0	8057
Quercus lamellosa	744	0	0	0	11544	0	0	0	0	0	59606	71150
Rhododendron arboreum	760	2993	0	0	0	0	0	0	0	0	0	2993
Schima wallichii	794	0	1050	2838	0	0	20148	25992	0	0	56970	106998
Semecarpus anacardium	798	0	4064	0	0	0	0	0	0	0	0	4064
Symploces theifolia	840	1990	2810	0	0	0	0	0	0	0	0	4800
Viburnum species	896	6702	11657	5693	5483	0	0	0	0	0	0	29535
Woodfordia floribunda	909	2346	0	0	0	0	0	0	0	0	0	2346
Unidentified trees	944	0	0	4037	6299	0	0	0	0	0	0	10336
TOTAL		40711	32750	32396	29209	0	20148	61211	38862	267506	173546	696339

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TABLE NO.4.1.4.1

TOTAL VOLUME(IN M3) BY SPECIES AND DIAMETER CLASSES(IN CM.)

DISTRICT- WEST SIKKIM STRATA-IV(RESERVED)

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Abies pindrow	1	0	0	0	0	43192	155887	0	316963362700		687270	1566012
Acer compbellii	16	21919	67454	171319	57143	0	123145	0	208465	0	0	649445
Beilschimiedia roxburghiana	120	0	0	44455	0	0	0	0	0	0	0	44455
Betula alnoides	126	0	17792	25043	48576	0	0	0	0	0	0	91411
Betula cylindrostachys	127	0	7596	0	0	0	0	0	0	0	0	7596
Eelaeocarpus lanceaefolius	313	0	6797	0	0	0	0	0	0	0	0	6797
Eurya japonica	367	11573	0	0	28865	0	0	0	0	0	0	40438
Machilus species	559	4288	16420	25116	25332	103022	0115526		135119	0	0	424823
Michelia champaca	595	0	0	33828	0	0	0127095		0	0	0	160923
Michelia species	602	2075	21518	114086	217319	269418	380927	131076	0	0	0	1136419
Premna tomentosa	708	0	0	0	32646	0	0	0	0	0	0	32646
Prunus species	718	0	3313	0	0	55298	0	0	0	0	0	58611
Quercus lamellosa	744	9678	0	0	33718	0	81192	397115	185094	0	479375	1186172
Quercus lanceaefolia	745	0	8457	0	45710	0	318365	108126	452020	188507	229090	1350275
Quercus species	754	0	0	0	38787	60578	0	0	160690	178985	229090	668130
Rhododendron arboreum	760	53042	45998	111785	23660	0	0	0	0	0	0	234485
Rhododendron barbatum	761	30630	26830	13700	23660	0	0	0	0	0	0	94820
Rhododendron hodgsoni	762	67104	0	0	0	0	0	0	0	0	0	67104
Rhododendron griffithianum	763	115729	23833	35420	0	0	0	0	0	0	0	174982
Rhododendron species	765	12978	26768	156343	232356	227945	143769	0	0	0	0	800159
Saurauia nepaulensis	791	0	3313	0	0	0	0	0	0	0	0	3313
Symplocos laurina	839	35827	43992	11415	0	0	0	0	0	0	0	91234
Symploces theifolia	840	3914	0	0	0	0	0	0	0	0	0	3914
Taxus baccata	857	0	0	0	0201389		231192	0	156272	178985	0	767838
V rnum species	896	43106	0	0	0	0	0	0	0	0	0	43106
U entified trees	944	31110	11334	0	71309	0	0	0	0	0	0	113753
TOTAL		442973	331415	742510	879081	960842	1434466	878938	1614611	9091771	624810	9818861

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TABLE NO.4.2.1.1.

TOTAL VOLUME(IN M3) BY SPECIES AND DIAMETER CLASSES(IN CM.)

DISTRICT- SOUTH SIKKIM STRATA-I(RESERVED)

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Acer species	21	71	203	0	0	0	0	0	0	0	0	274
Ailanthus altissima	39	190	113	0	0	0	0	0	0	0	0	303
Albizzia lucida	47	148	0	0	0	0	0	0	0	0	0	148
Albizzia procera	50	56	396	0	0	0	0	0	0	0	0	452
Albizzia species	51	443	496	1182	2003	0	2445	2914	4094	0	0	13577
Alstonia scholaris	57	124	0	0	1045	0	1781	0	3642	0	0	6592
Amoora rohituka	63	185	480	648	0	0	0	0	0	0	0	1313
Bauhinia racemosa	115	0	113	0	0	0	0	0	0	0	0	113
Bauhinia species	118	332	79	0	0	0	0	0	0	0	0	411
Betula alnoides	126	561	0	0	0	0	0	0	0	0	0	561
Bischofia javanica	129	60	0	0	0	0	0	0	0	0	0	60
Boehmeria species	130	237	0	0	0	0	0	0	0	0	0	237
Bombax ceiba	131	65	842	307	0	0	2445	3533	0	0	0	7192
Callicarpa arborea	150	306	615	805	0	0	0	0	0	0	0	1726
Cedrela serrata	197	0	601	915	682	0	0	0	0	0	0	2198
Chukrasia vellutina	208	0	460	0	0	0	0	0	0	0	0	460
Eelonix ellate	272	60	478	1280	0	0	0	0	0	0	0	1818
Diploknema butyracea	293	206	180	1054	0	0	0	0	0	0	0	1440
Drypetes lancifolia	302	0	328	0	0	0	0	0	0	0	0	328
Duabanga grandiflora	303	0	229	552	988	0	3875	3320	3979	0	0	11943
Engelhardtia spicata	328	0	0	1036	1000	0	0	0	0	0	0	2036
Erythrina variegata	341	0	0	0	0	1632	0	0	0	0	0	1632
Eucalyptus hybrid	346	55	0	0	0	0	0	0	0	0	0	55
Eucalyptus species	348	120	190	307	0	0	0	0	0	0	0	617
Eurya japonica	367	0	145	0	0	0	0	0	0	0	0	145
Ficus species	385	359	0	0	0	0	0	0	0	0	0	359
G[illegible]ga pinnata	407	1496	532	1962	2340	1104	0	0	0	0	0	7434
G[illegible]cordia odorata	437	0	0	337	0	0	0	0	0	0	0	337
H[illegible]arrhena antidysenterica	452	458	0	0	0	0	0	0	0	0	0	458
J[illegible]ans regia	487	12	0	0	0	0	0	0	0	0	0	12

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CONT. OF TABLE NO.4.2.1.1.

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Lagerstroemia parviflora	305	1319	193	890	0	0	0	0	0	0	0	2402
Lannea coromandelica	309	0	455	402	0	0	0	0	0	0	0	857
Macaranga species	350	58	0	0	0	0	0	0	0	0	0	58
Mallotus philippinensis	365	2330	1389	645	594	0	0	0	0	0	0	4958
Nauclea griffithii	632	112	411	0	0	0	0	0	0	0	0	523
Ostodes paniculata	652	1604	994	252	1511	0	0	0	0	0	0	4361
Pinus roxburghii	685	0	0	0	828	0	0	0	0	0	0	828
Quercus lanceaefolia	745	0	100	0	0	0	0	0	0	0	0	100
Quercus species	754	306	257	0	0	0	0	0	0	0	0	563
Sacosperma arboreum	790	0	0	0	0	0	1858	0	0	0	0	1858
Schima wallichii	794	688	1505	2468	8903	6990	11481	5539	0	0	6175	43749
Semecarpus anacardium	798	179	373	0	0	0	0	0	0	0	0	552
Shorea robusta	802	9112	16681	35701	33821	6284	14226	11383	0	5614	0	132822
Spondias axillaris	811	58	0	0	0	0	2018	0	0	0	0	2076
Spondias pinnata	812	65	0	0	0	0	0	0	0	0	0	65
Symplocos laurina	839	0	366	252	0	0	0	0	0	0	0	618
Symplocos species	841	0	0	252	0	0	0	0	0	0	0	252
Syzygium cumini	843	255	0	0	0	0	0	2627	0	0	0	2882
Talauma phellocarpa	855	74	0	0	0	0	0	0	0	0	0	74
Tectona grandis	858	1849	2672	4749	1626	0	0	0	0	0	0	10896
Terminalia belerica	861	189	0	0	1966	1421	1937	0	0	0	0	5513
Terminalia chebula	864	125	201	402	1562	0	0	0	0	0	0	2290
Terminalia crenulata	866	203	79	0	0	0	0	0	0	0	0	282
Terminalia myriocarpa	868	133	371	1379	0	0	0	0	0	0	0	1883
Tetrameles nudiflora	873	0	0	948	0	0	0	0	0	0	0	948
Unidentified trees	944	2248	1069	2535	1527	0	0	0	0	0	0	7379
TOTAL		26451	33596	61260	60396	17431	42066	29316	11715	5614	6175	294020

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TABLE NO.4.2.1.2.

TOTAL VOLUME(IN M3) BY SPECIES AND DIAMETER CLASSES(IN CM.)

DISTRICT- SOUTH SIKKIM STRATA-I(UNRESERVED)

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Ailanthus altissima	39	52	0	0	0	0	0	0	0	0	0	52
Albizzia procera	50	52	102	1173	1552	0	0	0	0	0	0	2879
Albizzia species	51	559	409	677	655	0	0	2360	0	0	0	4660
Alnus species	55	0	183	0	0	0	0	0	0	0	0	183
Artocarpus species	94	0	0	0	613	0	0	0	0	0	0	613
Betula alnoides	126	0	195	0	0	0	0	0	0	0	0	195
Bischofia javanica	129	443	80	0	0	0	1961	0	0	0	0	2484
Bombax ceiba	131	119	232	276	0	0	0	0	0	0	0	627
Callicarpa species	154	166	182	331	0	0	0	0	0	0	0	679
Cedrela serrata	197	0	0	0	0	0	1961	0	0	0	0	1961
Diploknema butyracea	293	155	621	1083	0	0	0	0	0	0	0	1859
Duabanga grandiflora	303	0	0	0	0	0	0	0	0	0	5547	5547
Dysoxylum spp.	307	0	285	0	0	0	0	0	0	0	0	285
Endospermum chinense	326	0	164	0	0	0	0	0	0	0	0	164
Engelhardtia spicata	328	560	463	0	848	0	0	0	0	0	0	1871
Erythrina species	342	0	0	496	0	0	0	0	0	0	0	496
Ficus species	385	461	71	460	0	0	0	0	0	0	0	992
Garuga pinnata	407	0	130	0	0	0	0	0	0	0	0	130
Glochidion species	416	50	0	0	0	0	0	0	0	0	0	50
Hovenia dulcis	465	0	130	0	0	0	0	0	0	0	0	130
Juglans regia	487	0	471	0	0	0	0	0	0	0	0	471
Litsaea species	541	25	0	0	0	0	0	0	0	0	0	25
Macaranga species	550	0	391	0	0	0	0	0	0	0	0	391

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CONT. OF TABLE NO. 4.2.1.2.

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Ostodes paniculata	652	325	379	938	0	0	0	0	0	0	0	1642
Phoebe attenuata	667	122	151	0	0	0	0	0	0	0	0	273
Rhus species	768	64	71	0	0	0	0	0	0	0	0	135
Sacosperma arboreum	790	272	102	780	0	0	0	0	0	0	0	1154
Schima wallichii	794	1525	2184	1460	939	0	1961	0	0	0	0	8069
Shorea robusta	802	54	146	3343	2378	0	0	0	0	0	0	5921
Spondias species	813	0	0	426	0	0	0	0	0	0	0	426
Sterculia urens	820	54	0	0	0	0	0	0	0	0	0	54
Stereospermum personatum	824	50	0	0	0	0	0	0	0	0	0	50
Syzygium cumini	843	50	0	0	0	0	0	0	0	0	0	50
Syzygium gardneri	844	0	0	361	655	0	0	0	0	0	0	1016
Terminalia myriocarpa	868	55	90	0	939	0	0	0	0	0	0	1084
Unidentified trees	944	573	210	693	0	0	1961	0	0	0	0	3437
TOTAL		5786	7442	12497	8579	0	7844	2360	0	0	5547	50055

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TABLE NO.4.2.2.1.

TOTAL VOLUME(IN M3) BY SPECIES AND DIAMETER CLASSES(IN CM.)

DISTRICT- SOUTH SIKKIM STRATA-II(RESERVED)

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Acer oblongum	19	0	108	433	0	0	0	0	0	0	0	541
Acer species	21	0	0	467	0	0	0	0	0	0	0	467
Albizzia procera	50	0	108	0	1412	2072	0	0	0	0	0	3592
Albizzia species	51	200	385	433	0	0	0	0	0	0	0	1018
Alnus nepalensis	53	725	2098	2686	4833	0	0	0	0	0	0	10342
Alnus species	55	150	85	0	0	0	0	0	0	0	0	235
Amoora rohituka	63	62	0	0	0	0	0	0	0	0	0	62
Amoora wallichii	64	0	346	0	0	0	0	0	0	0	0	346
Castanopsis indica	192	0	0	0	0	0	3012	0	0	0	0	3012
Castanopsis species	194	53	188	362	0	0	0	0	0	0	0	603
Toona ciliata	198	52	0	0	0	0	0	0	0	0	0	52
Cryptomeria japonica	256	261	0	0	0	0	0	0	0	0	0	261
Diploknema butyracea	293	52	0	0	0	0	0	0	0	0	0	52
Engelhardtia spicata	328	741	633	568	3339	0	7227	0	0	0	0	12508
Erythrina species	342	0	346	0	0	0	0	0	0	0	0	346
Eurya japonica	367	0	192	236	0	0	0	0	0	0	0	428
Ficus elastica	378	115	0	0	0	0	0	0	0	0	0	115
Ficus species	385	52	400	0	502	0	0	0	0	0	0	954
Garuga pinnata	407	163	75	0	0	0	0	0	0	0	0	238
Gmelina arborea	420	0	0	260	0	0	0	0	0	0	0	260
Juglans regia	487	0	300	526	1170	0	2515	0	0	0	0	4511
Lagerstroemia parviflora	505	104	0	0	0	0	0	0	0	0	0	104
Lithocarpus spicatus	528	0	96	0	0	0	0	0	0	0	0	96
Macaranga species	550	243	847	0	1106	0	0	0	0	0	0	2196
Machilus species	559	112	309	0	1196	0	0	0	0	0	0	1617
Mallotus philippinensis	565	62	0	0	0	0	0	0	0	0	0	62
Michelia champaca	595	0	192	0	0	0	0	0	0	0	0	192

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CONT. OF TABLE NO. 4.2.2.1.

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Michelia species	602	1012	0	0	0	0	0	0	0	0	0	1012
Nyssa javanica	638	108	829	840	1263	0	0	0	0	0	0	3040
Ostodes paniculata	652	208	240	0	0	0	0	0	0	0	0	448
Phoebe attenuata	667	221	0	0	0	0	0	0	0	0	0	221
Quercus lanceaefolia	745	47	154	1143	0	0	0	0	0	0	0	1344
Quercus species	754	119	0	0	0	0	0	0	0	0	0	119
Rhus species	768	176	0	0	0	2072	0	0	0	0	0	2248
Saurauia nepaulensis	791	467	0	0	0	0	0	0	0	0	0	467
Schima wallichii	794	3220	4580	2416	1234	0	0	0	6534	0	0	17984
Semecarpus anacardium	798	104	0	0	0	0	0	0	0	0	0	104
Spondias axillaris	811	97	0	340	0	0	0	0	0	0	0	437
Symplocos laurina	839	150	96	0	0	0	0	0	0	0	0	246
Symploces theifolia	840	11	0	0	0	0	0	0	0	0	0	11
Syzygium cumini	843	109	727	0	0	0	0	0	0	0	0	836
Terminalia chebula	864	52	173	0	0	0	0	0	0	0	0	225
Terminalia myriocarpa	868	52	138	260	0	0	0	0	0	0	0	450
Viburnum species	896	460	0	0	0	0	0	0	0	0	0	460
Unidentified trees	944	2818	714	0	0	0	0	0	0	0	0	3532
TOTAL		12578	14359	10970	16055	4144	12754	0	6534	0	0	77394

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TABLE NO.4.2.2.2

TOTAL VOLUME(IN M3) BY SPECIES AND DIAMETER CLASSES(IN CM.)

DISTRICT- SOUTH SIKKIM STRATA-II(UNRESERVED)

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Acer oblongum	19	33	0	0	0	0	0	0	0	0	0	33
Acer species	21	42	0	0	0	0	0	0	0	0	0	42
Ailanthus altissima	39	0	67	0	0	0	0	0	0	0	0	67
Alangium salvifolium	42	199	0	0	0	0	0	0	0	0	0	199
Albizzia odorotissima	49	42	0	0	0	0	0	0	0	0	0	42
Albizzia procera	50	80	521	427	916	1004	0	0	0	0	0	2948
Albizzia species	51	404	372	148	0	877	0	0	0	0	0	1801
Alnus nepalensis	53	156	111	704	4263	3808	3705	0	0	0	0	12747
Alnus species	55	1194	2134	1262	837	0	0	0	0	0	0	5427
Amoora wallichii	64	75	0	0	0	0	0	0	0	0	0	75
Artocarpus species	94	43	0	0	0	0	0	0	0	0	0	43
Bauhinia species	118	33	0	0	0	0	0	0	0	0	0	33
Beilschimiedia roxburghiana	120	196	303	801	658	1066	0	0	0	0	0	3024
Betula alnoides	126	0	0	366	0	0	0	0	0	0	0	366
Bombax ceiba	131	0	75	279	0	0	0	0	0	0	0	354
Brassiopsis speciosa	135	357	0	0	0	0	0	0	0	0	0	357
Brassaiopsis mitis	136	214	213	0	0	0	0	0	0	0	0	427
Callicarpa arborea	150	36	0	0	0	0	0	0	0	0	0	36
Callicarpa species	154	87	0	0	0	0	0	0	0	0	0	87
Casearia species	185	114	148	0	0	0	0	0	0	0	0	262
Castanopsis hystrix	191	43	0	0	0	797	2234	0	2410	2990	3634	12108
Castanopsis species	194	1386	1153	2079	598	773	1595	3888	2311	0	0	13783
Cedrela serrata	197	34	118	0	0	0	0	0	0	0	0	152
Toona ciliata	198	104	334	0	0	0	0	0	0	0	0	438
Cinnamomum species	216	0	0	217	0	0	0	0	0	0	0	217
Cordia myxa	236	0	85	0	0	0	0	0	0	0	0	85
E[illegible]eocarpus lanceaefolius	313	279	181	0	0	0	0	0	0	0	0	460
E[illegible]gium lamarchi	324	42	0	0	0	0	0	0	0	0	0	42
E[illegible]ica officinalis	325	32	0	0	0	0	1285	0	0	0	0	1317

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CONT. OF TABLE NO. 4.2.2.2

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Engelhardtia spicata	328	3687	2523	2775	2244	5375	5556	0	2529	0	3974	23663
Eriobotrya petiolata	331	0	0	279	0	0	0	0	0	0	0	279
Erythrina species	342	109	75	0	0	0	0	0	0	0	0	184
Eugenia frondosa	351	0	85	0	0	0	1285	0	0	0	0	1370
Eugenia formosa	352	66	219	664	2071	0	0	0	0	0	0	3020
Eugenia grandis	353	0	0	0	0	0	0	1715	0	0	0	1715
Eurya japonica	367	1508	1648	1528	2866	1443	0	0	0	0	0	8993
Evodia fraxinifolia	368	0	96	0	0	0	0	0	0	0	0	96
Ficus species	385	1366	473	345	401	0	0	1546	0	0	0	4131
Firmiana colorata	388	42	0	0	0	0	0	0	0	0	0	42
Garuga pinnata	407	36	0	0	0	0	0	0	0	0	0	36
Glochidion species	416	0	46	0	0	0	0	0	0	0	0	46
Hovenia dulcis	465	113	52	148	0	0	0	0	0	0	0	313
Juglans regia	487	244	662	429	814	0	1751	0	0	0	0	3900
Leucosceptrum spp.	513	694	271	363	0	0	0	0	0	0	0	1328
Lithocarpus spicatus	528	108	107	0	581	0	0	0	0	0	0	796
Litsaea species	541	21	0	0	0	0	0	0	0	0	0	21
Macranga peltata	548	34	0	0	0	0	0	0	0	0	0	34
Macaranga species	550	1628	1566	1320	2058	1686	0	0	0	0	0	8258
Machilus odoratissima	556	0	0	0	0	796	0	0	0	0	0	796
Machilus species	559	214	52	527	615	0	0	0	0	0	0	1408
Michelia champaca	595	43	0	0	0	721	1285	2016	0	0	0	4065
Michelia doltsopa	596	48	0	0	0	0	0	0	0	0	0	48
Michelia species	602	43	0	236	0	0	0	0	0	0	0	279
Mimusops elengi	609	0	46	0	0	0	0	0	0	0	0	46
Nyssa javanica	638	24	119	1055	1847	0	0	0	0	0	0	3045

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CONT. OF TABLE NO. 4.2.2.2

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Ostodes paniculata	652	225	59	148	0	0	0	0	0	0	0	432
Phoebe attenuata	667	1114	180	726	517	0	1285	0	0	0	0	3822
Prunus species	718	185	605	1381	1005	0	0	0	0	0	0	3176
Pyrularia edulis	735	102	0	0	0	0	0	0	0	0	0	102
Quercus spicata	753	186	46	0	0	0	0	0	0	0	0	232
Quercus species	754	69	85	0	0	0	0	0	0	0	0	154
Rhododendron species	765	78	0	0	0	0	0	0	0	0	0	78
Rhus species	768	482	208	663	915	0	0	0	0	0	0	2268
Sacosperma arboreum	790	32	0	325	0	685	0	0	0	0	0	1042
Saurauia nepaulensis	791	0	389	279	0	0	0	0	0	0	0	668
Schima wallichii	794	3693	2460	3066	5339	836	0	0	2143	0	0	17537
Semecarpus anacardium	798	32	0	0	0	0	0	0	0	0	0	32
Sloanea dasycarpa	806	0	85	0	549	0	0	0	2143	0	0	2777
Spondias axillaris	811	33	0	0	0	0	0	0	0	0	0	33
Spondias species	813	43	0	0	0	0	0	0	0	0	0	43
Symingtonia populnea	836	0	0	0	0	0	0	0	0	9272	0	9272
Symploces theifolia	840	0	798	1086	1063	0	0	0	0	0	0	2947
Terminalia myriocarpa	868	181	191	181	0	0	0	0	0	0	0	553
Viburnum species	896	2108	399	0	0	0	0	0	0	0	0	2507
Zanthoxylum budrunga/rhetsa	924	78	0	0	0	0	0	0	0	0	0	78
Unidentified trees	944	2115	1467	2572	4353	649	1387	1658	2479	0	0	16680
TOTAL		26009	20827	26379	34510	20516	21368	10823	14015	12262	7608	194317

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TABLE NO.4.2.3.1

TOTAL VOLUME(IN M3) BY SPECIES AND DIAMETER CLASSES(IN CM.)

DISTRICT- SOUTH SIKKIM STRATA-III(RESERVED)

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Acer compbellii	16	273	1412	1541	3722	0	10925	0	0	0	0	17873
Acer oblongum	19	351	0	0	0	0	0	0	0	0	0	351
Acer species	21	888	439	0	1836	0	0	0	0	0	0	3163
Actinodaphne sikkimensis	25	151	1878	0	2811	0	0	0	0	0	0	4840
Alnus nepalensis	53	0	0	0	9627	0	0	0	0	0	0	9627
Alnus species	55	151	270	0	0	0	5873	0	0	0	0	6294
Amoora wallichii	64	530	492	1910	0	0	0	0	0	0	0	2932
Beilschimiedia roxburghiana	120	0	1038	3802	2113	0	6695	20583	0	0	0	34231
Betula alnoides	126	33	0	0	0	0	0	0	0	0	0	33
Brassiopsis speciosa	135	0	306	0	0	0	0	0	0	0	0	306
Brassaiopsis mitis	136	337	1638	0	0	0	0	0	0	0	0	1975
Callicarpa species	154	343	692	0	0	0	0	0	0	0	0	1035
Castanopsis hystrix	191	0	932	1360	2658	13407	16958	7320	0	0	0	42635
Castanopsis indica	192	0	0	827	0	4589	0	0	0	0	0	5416
Castanopsis species	194	1845	10183	7123	7578	19540	31481	59048	34441	44046	52127	267412
Toona ciliata	198	0	270	0	0	0	0	0	0	0	0	270
Cinnamomum species	216	154	240	1275	3435	0	0	0	31239	0	0	36343
Cryptomeria japonica	256	10751	2620	1176	0	0	0	0	0	0	0	14547
Echinocarpus dasycarpus	308	0	0	0	0	0	0	8534	0	0	0	8534
Eelaeocarpus lanceaefolius	313	0	0	1486	0	0	0	0	0	0	0	1486
Engelhardtia spicata	328	844	0	2719	0	0	0	0	0	0	0	3563
Eriobotrya petiolata	331	0	613	827	0	0	0	0	0	0	0	1440
Erythrina species	342	592	550	0	0	0	0	0	0	0	0	1142
Eurya japonica	367	8355	2747	4232	5891	0	0	0	0	0	0	21225
[illegible]lia species	370	323	0	0	0	0	0	0	0	0	0	323
[illegible]ra budrunga	372	156	0	0	0	0	0	0	0	0	0	156

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CONT. OF TABLE NO. 4.2.3.1

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100-	TOTAL
Ficus elastica	378	181	0	0	0	0	0	0	0	0	0	181
Ficus species	385	1129	764	0	0	0	0	0	0	0	0	1893
Ilex species	478	659	0	0	0	0	0	0	0	0	0	659
Juglans regia	487	0	18265	16089	0	0	0	0	0	0	0	34354
Leucosceptrum spp.	513	5264	306	0	0	0	0	0	0	0	0	5570
Lithocarpus elegans	526	0	306	751	0	0	0	0	0	0	0	1057
Litsaea species	541	3909	6927	7730	6450	7025	5376	0	0	0	0	37417
Macaranga species	550	953	0	2430	0	0	0	0	0	0	0	3383
Machilus gammieana	551	0	666	0	1678	0	5001	0	10406	0	0	17751
Machilus odoratissima	556	0	304	1575	0	0	0	0	0	0	0	1879
Machilus species	559	3825	2795	8893	11438	21937	15877	31435	22432	39611	0	158243
Michelia champaca	595	162	346	0	0	0	0	0	0	0	0	508
Michelia doltsopa	596	2137	7347	1239	2202	0	0	0	0	0	0	12925
Michelia species	602	373	0	0	0	0	0	0	0	0	0	373
Nauclea griffithii	632	0	0	1486	1715	0	0	0	0	0	0	3201
Nyssa javanica	638	231	694	2483	1785	0	0	0	0	0	0	5193
Ostodes paniculata	652	977	0	0	0	0	0	0	0	0	0	977
Persea owdenii	666	0	492	2452	0	4391	5211	0	0	0	0	12546
Phoebe attenuata	667	7569	13952	9439	5527	0	5211	0	0	0	0	41698
Phoebe species	673	0	1451	0	0	0	0	0	0	0	0	1451
Prunus species	718	174	484	0	0	0	0	0	0	0	0	658
Pyrularia edulis	735	0	0	0	2811	0	0	0	0	0	0	2811
Quercus lamellosa	744	455	2684	1676	3365	0	6806	15846	12753	0	121631	165216
Quercus lanceaefolia	745	367	492	908	6372	0	6819	9502	35294	0	16607	76361
Quercus pachyphylla	749	255	0	0	0	0	0	0	0	0	0	255

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CONT. OF TABLE NO. 4.2.3.1

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Quercus spicata	53	162	346	2555	2092	0	4792	0	0	0	0	9947
Quercus species	54	623	1563	2590	0	0	17620	26802	0	0	16607	65805
Rhododendron arboreum	60	629	4941	3477	1836	0	0	0	0	0	0	10883
Rhododendron species	65	356	541	1378	0	0	0	0	0	0	0	2275
Rhus species	68	1448	454	2550	0	0	0	8650	0	0	0	13102
Saurauia nepaulensis	91	1526	630	0	0	0	0	0	0	0	0	2156
Schima wallichii	94	498	427	751	0	0	0	0	0	0	16607	18283
Sloanea dasycarpa	306	0	213	0	0	0	0	0	11328	0	0	11541
Symingtonia populnea	336	869	2689	0	0	7707	0	14300	0	0	0	25565
Symplocos laurina	339	307	1004	0	0	0	0	0	0	0	0	1311
Symploces theifolia	340	18345	29866	10747	1792	0	0	0	0	0	0	60750
Symplocos species	341	4429	492	0	0	0	0	0	0	0	0	4921
Viburnum species	396	8756	1148	0	0	0	0	0	0	0	0	9904
Unidentified trees	344	5419	3656	2783	3924	0	11746	0	0	0	0	27528
TOTAL		98064	132565	112260	92658	78596	156391	202020	157893	83657	223579	1337683

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TABLE NO.4.2.3.2

TOTAL VOLUME(IN M3) BY SPECIES AND DIAMETER CLASSES(IN CM.)

DISTRICT- SOUTH SIKKIM STRATA-III(UNRESERVED)

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Alnus nepalensis	53	6759	9341	2316	2982	0	0	0	0	0	0	21398
Alnus species	55	378	3322	489	3016	2753	4228	0	0	0	0	14186
Betula alnoides	126	678	2724	0	0	0	0	0	0	0	0	3402
Castanopsis species	194	1486	4964	3840	11782	9219	4730	11598	8716	11169	25121	92525
Cedrela serrata	197	0	0	918	0	0	0	0	0	0	0	918
Cinnamomum species	216	112	0	0	0	0	0	0	0	0	0	112
Cryptomeria japonica	256	737	8268	17738	4542	0	0	0	0	0	0	31285
Cupressus species	260	144	0	0	0	0	0	0	0	0	0	144
Eelaeocarpus lanceaefolius	313	0	501	0	0	0	0	0	0	0	0	501
Engelhardtia spicata	328	2392	3206	3991	0	0	0	0	0	0	0	9589
Eurya japonica	367	6954	2548	2882	0	0	0	0	0	0	0	12384
Ficus species	385	765	722	489	2657	0	0	0	0	0	0	4633
Ilex species	478	228	1067	0	0	0	0	0	0	0	0	1295
Macaranga species	550	144	0	1750	0	0	0	0	0	0	0	1894
Machilus gammieana	551	0	0	0	0	0	3601	0	0	0	0	3601
Machilus odoratissima	556	0	0	0	0	0	3871	0	0	0	0	3871
Machilus species	559	1182	614	0	0	0	0	0	0	0	0	1796

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CONT. OF TABLE NO. 4.2.3.2

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Michelia species	602	467	0	1611	1412	0	0	0	0	0	0	3490
Nyssa javanica	638	53	0	0	0	0	0	0	0	0	0	53
Phoebe attenuata	667	1193	3252	2780	1150	0	0	0	0	0	0	8375
Prunus species	718	264	1032	0	0	0	0	0	0	0	0	1296
Pyrularia edulis	735	360	0	0	0	0	0	0	0	0	0	360
Quercus lamellosa	744	0	0	0	0	0	0	0	7605	0	12510	20115
Quercus species	754	144	722	0	0	0	3752	0	0	0	0	4618
Rhododendron species	765	0	1307	0	0	0	0	0	0	0	0	1307
Rhus species	768	239	603	779	0	0	0	0	0	0	0	1621
Saurauia nepaulensis	791	1105	489	0	0	0	0	0	0	0	0	1594
Schima wallichii	794	256	393	0	1150	0	0	0	0	10609	0	12408
Symingtonia populnea	836	0	0	1411	3139	0	0	0	0	0	0	4550
Symploces theifolia	840	3051	2913	1106	0	0	0	0	0	0	0	7070
Viburnum species	896	7390	547	0	0	0	0	0	0	0	0	7937
Unidentified trees	944	707	172	1249	0	0	0	0	0	0	0	2128
TOTAL		37188	48707	43349	31830	11972	20182	11598	16321	21778	37531	280456

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TABLE NO.4.2.4.1

TOTAL VOLUME(IN M3) BY SPECIES AND DIAMETER CLASSES(IN CM.)

DISTRICT- SOUTH SIKKIM STRATA-IV(RESERVED) .

SPECIES NAME	CODE	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	TOTAL
Alangium salvifolium	42	2332	0	0	0	0	0	0	0	0	0	2332
Betula cylindrostachys	127	2414	7330	11180	0	56891	0	0	0	0	0	77815
Castanopsis species	194	0	0	0	0	0	0	0	0	0258492		258492
Drypetes lancifolia	302	0	0	16107	33135	0	0	0	0	0	0	49242
Litsaea species	541	29807	74110	47524	90133	54150	0	0	0	0	0	295724
Machilus gammieana	551	0	0	0	24975	0	0	0	0	0	0	24975
Machilus odoratissima	556	0	0	0	41100	0	0	94820	0	0	0	135920
Machilus species	559	15499	12344	36482	54910	0	0	0	0	0	0	119235
Quercus spicata	753	0	0	0	41830	0	0	0	0	0	0	41830
Quercus species	754	14361	7213	35015	140037	0185210		128681314253		0247062		1071832
Rhododendron species	765	20806	16779	13509	0	0	0	0	0	0	0	51094
Symploces theifolia	840	20651	23720	0	0	0	0	0	0	0	0	44371
Unidentified trees	944	7562	5808	0	0	0	0	0	0	0	0	13370
TOTAL		113432	147304	159817	426120	111041185210		223501314253		0505554		2186232

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