

CENSUS OF INDIA

REGIONAL DIVISIONS OF INDIA -A CARTOGRAPHIC ANALYSIS

OCCASIONAL PAPERS

SERIES-1

VOLUME-X

KERALA

Planning & Supervision
B. K. ROY, M. A., Ph. D.
Deputy Registrar General (Map)

General Direction & Editing
VIJAY S. VERMA
of the Indian Administrative Service
Registrar General & Census Commissioner, India
2-A, Mansingh Road, New Delhi

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The boundary of Meghalaya shown on the map of India is as interpreted from the North-eastern areas (Reorganisation) Act, 1971, but has yet to be verified (applicable to India map only).

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गृह मंत्री
भारत
नई दिल्ली-११०००१
HOME MINISTER
INDIA
NEW DELHI-110001
Oct. 26, 1988

FOREWORD

Experience has taught us that planning has to be related to the situation in the field in order to better respond to local aspirations and for better utilization of local resources. A lot of planning has, of necessity, to be for larger areas, encompassing an agglomeration of administrative units. Even such macro planning has, in order to be realistic, to be cognisant of the realities at the micro level. Correspondingly, such plans for bigger areas and involving larger outlays have also to be administered from a suitably high threshold of administrative authority and by a wide network of administrative hierarchy.

Nevertheless, there is a whole corpus of activities which can be and are, in fact, better planned, conducted and financed at the lower or local levels. I think the essence of decentralized planning, which for operational convenience is, essentially, District level planning, i.e. planning for the District and its constituent smaller units at those levels, consists of just this : allowing what is best taken care of at the local level to be so taken care of.

But, all planning, from the national to the sub-micro level, does need, as already stated, a careful study of the situation in the field. And this study also calls for a knowledge of the natural regions, demarcated as per the various physiogeographic characteristics, for a proper appreciation of the planning and developmental matrix and for suggesting the appropriate spatial unit for local and higher area planning.

From this point of view, the present study, done by the Indian Census, is extremely useful as it provides a framework, a backdrop and also a ground-plan on which other studies and data-sets can be built. I congratulate Shri Vijay S. Verma, Registrar General & Census Commissioner, India, Dr. B.K. Roy, Deputy Registrar General (Map) and their colleagues for this fine and timely series.

(BUTA SINGH)

PREFACE

Regions can be carved out with varying criteria for varying purposes. Basically, however, we could, perhaps, distinguish between natural regions–areas which nature intended to be or marks out as separate, homogeneous units–and human intervention regions–areas which have to be or are treated together for different purposes, with varying degrees of consideration for the natural regions.

Thus, special purpose regions may or may not coincide with natural regions. Administrative units represent special purpose regions of a kind and their boundaries, too, may or may not be in conformity with those of natural regions.

But there are further elements making for complexity, even confusion : there are regions within regions–there may be fields with different types of soil calling for different types of treatment even within a village–and different natural yardsticks or criteria may not always converge and coalesce to yield natural regions valid from the point of view of each of the criteria considered or used. Thus, ground water availability and soil texture may not necessarily indicate the same delineation; in theory an area may be thickly wooded and, in reality, quite denuded.

And then comes the final heartbreak for the region-delineator : all the factors and manifestations of nature may point in one direction but the perceptions and the aspirations of the people inhabiting that region may desire something else: nature may cry out for afforestation, rather reafforestation; the people may want to have more and more area under a marginally remunerative agriculture.

The question then arises: why then try to carve out natural regions? How valid and how usable are they going to be?

As in most areas of human endeavour, no one can hope either for totally foolproof delineation or immediate and whole hog adoption thereof for purposes of administration and development planning. And yet, all such exercises, should, I think, be welcome as contributive to the filling out of the complex scenario which serves as the essential backdrop for the formidable task of development planning in India to which a new dimension and fresh urgency have been added by the current, renewed emphasis on local area planning.

This study of ours seeks to take the work of delineation to reaches lower than hitherto attempted, mutating Districts in terms of natural regions, with the village as the constituent unit of each region. One could, of course, go still lower, carving out regions within Blocks, Taluqs or Thanas, may be with hamlets as the constituent units, and by using the appropriate fine-edged criteria for such sub, sub-micro delineation. Obviously, however, such a study will call for a staggered approach and a much deeper acquaintance with the situation on the ground.

Pending this, the present study which covers the whole of India and posits a scheme comprising of four levels of delineation is, I think, not an inconsiderable step forward and we may not be wrong, I hope, in deriving some satisfaction from its accomplishment. The Census of India is so multi-faceted and so prolific in its output that some aspects of its corporate personality can go at times un or under recognized. One such aspect is cartography. Among other things, I hope, the present series will lead to a better appreciation of the scale and variety of our cartographic output.

The work has been done as a Plan scheme so graciously and thoughtfully sanctioned by the Planning Commission. The foundations of the work were laid under the able stewardship of my predecessor Shri P. Padmanabha. It has been my privilege to steer the work to completion through a time-bound programme. Dr. B.K. Roy, Deputy Registrar General (Map), is one of the stalwarts who have made the Indian Census what it is. This project owes a great deal to him and I have a feeling that he, too, is going to cherish this association. This is not to forget the contribution made by a whole band of able and dedicated officers and cartographers of various ranks at the headquarters and in our Directorates. This contribution is being acknowledged separately. Shri B.P. Jain, Deputy Director of Census Operations, has ensured speedy printing.

We have been extremely fortunate in as much as Hon'ble Shri Buta Singh, Home Minister of India, has always been able to spare time for Census-related matters even though the claimants for his attention have naturally been innumerable. By kindly consenting to contribute a perspicacious Foreword to this series he has deepened the debt of gratitude the organization owes to him. As indicated by him, a follow up project could, perhaps, take care of compiling and presenting data-sets, comprising of demographic and other parameters, in terms of the regions herein presented.

(VIJAY S. VERMA)
Registrar General &
Census Commissioner, India

New Delhi
2nd of January, 1989

REGIONAL DIVISIONS : KERALA
Technical staff of the RGI Headquarters and Directorate of Census Operations, Kerala, associated with the project

Planning & Supervision	Dr. B.K. Roy Deputy Registrar General (Map)
Progress & Monitoring	Smt. Minati Ghosh Assistant Registrar General (Map) and B.T. Pillai Joint Director, DCO, Kerala
Drafting	S. Jayashankar Deputy Director, DCO, Kerala
Cartographic Supervision & other associated work	S.D. Tyagi, Map Officer Mahesh Ram, Research Officer (Map) P.S. Chhikara, Map Analyst R.P. Mishra, Sr. Geographer P.T. Deshpande, Sr. Drawing Assistant Prem Chand, Geographer Dr. R.C.S. Taragi, Cartographer Pooran Singh, Cartographer P.K. Patnaik, Sr. Artist Anwar Hussain, Sr. Artist Smt. Anuradha, Sr. Artist Kum. Suyog, Artist V.P. Singh, Artist P.K. Mandal, Artist
Initial analysis of maps & cartographic work, DCO, Kerala	R. Joseph, Cartographer S. Krishna Pillai, Sr. Artist Smt. C. Kamalam, Investigator M.T. Pillai, Artist N. Venu Nair, Artist Smt. R. Krishna Kumari, Computer A. Sadasivan Achari, Draftsman V. Thulaseedharan, Draftsman A. Michel Gomez, Draftsman Smt. P. Premakumari Amma, Asstt. Compiler

Reprographic Assistance	S.K. Mukherjee, Sr. Artist R.R. Chakraborty, Sr. Artist V. Dayal, Ferro Typer S.R. Panicker, Sr. Gestetner Operator
Secretarial work	Smt. E.C. Philomina, Sr. Stenographer, DCO, Kerala Smt. C. Sarojini Amma, Upper Division Clerk, DCO, Kerala Smt. Parveender Kaur, Asstt. Compiler
Printing arrangement and Proof Reading	B.P. Jain Deputy Director and his team.

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PART - I
GENERAL NOTE

REGIONAL DIVISIONS OF INDIA--A CARTOGRAPHIC ANALYSIS

GENERAL NOTE

The regional spatial patterns, variations of resources, heterogeneous physio-geographic factors and problems in development bring out the necessity for a regional approach to planning. Delineation of physio-geographic regions of a country of sub-continental size like India with an area of 3,287,263 Km^2, extending between latitudes 8^0 4'28" and 37^0 17'53" North and longitudes 68^0 7'53" and 97° 24'47" East and having a great range geographic environment, is a gigantic task. During the past 30 years, the macro level planning at the national level and meso level planning at the state level have been duly emphasised. Micro level planning needs, perhaps, to be further emphasised For this to happen, one requirement consists of homogeneous regions, with natural boundaries, forming viable units of planning.

Thus, there was a need to delineate micro regions to suit the requirements of micro level regional plans within the frame-work of the national plan. To achieve this end, we need micro regions which are valid on physio-geographic considerations and also definable in terms of administrative units and boundaries in order to facilitate plan formulation and plan execution. For carving out such natural regions, the following considerations *inter alia*, are to be kept in view:

(i) contiguous geographical area,
(ii) homogeneous administrative machinery capable of formulating and implementing integrated area plans,
(iii) reliable statistical data base,
(iv) existence of nodal regions; and
(v) amenability of the natural boundaries to marginal adjustments so that the former, may, by and large, conform to administrative boundaries at given points of time.

In India, the district is the major universal administrative unit below the State level. The administrative boundaries of the districts usually, however, cut across those of the homogeneous natural regions though some district boundaries do coincide with the natural sub-regional boundaries and most of the districts have nodal regions. In cases of extreme heterogeneity, however, we may have to think of adjustments in such district boundaries to suit the sub-regional planning to the extent possible. This kind of adjustment was worked out methodologically by V.L.S.P. Rao and L.S. Bhat for the old Mysore State. Also, at the district level, we have an administrative set up which is competent to formulate and implement sub-regional plans. Moreover, a reliable statistical data base (both Census and non-Census) is available at the district level for the purposes of sub-regional planning.

The Earlier Efforts

In regional planning of one type or the other, the delineation of proper regional boundaries has always remained a rather difficult task. A number of schemes for delineating natural regions in India have been put forward by scholars from time to time during this century. The first attempt was made by T.H. Holdich in 1904. He made a very berief and sweeping generalisation and formed rather broad geographical zones of India on the basis of geological information only. Later, during the 1921-31 decade regional delineations were done mostly from the point of view of geological structure and stratigraphy. During 1922-24, L.D. Stamp produced a more substantive and well known work. Stamp

adopted physiography and structure at the primary level and climate for the second order regions. He divided the country into 3 primary or macro level regions and 22 sub-regions and designated them as 'natural regions'. Almost simultaneously, but independent of Stamp's work, J.N.L. Baker, following the work on natural regions initiated by Wood, proposed another scheme of natural regions. It was in close agreement with Stamp's regional scheme. Later on, M.B. Pithawala, Kazi S. Ahmad and O.E. Baker also proposed their schemes of regional divisions. O.H.K. Spate gave a more comprehensive treatment to this scheme. He was in general agreement with the schemes proposed by Stamp and Baker. He divided the sub-continent into three paramount macro level regions on the basis of geological structure. The regional scheme proposed by Spate is empirically derived. He divided India into 35 regions of the first order (under the three macro regions excluding the islands), 74 of the second order with 225 sub-divisions.

The traditional divisions of the country into mountains, plateaus and plains and further regional division as envisaged by Stamp and later on improved by Spate provided a base for the study of regional physical conditions. During 1931--1941, the regional studies so developed could not be elucidated or enlarged mainly due to the politically unstable conditions of the sub-continent. M.W.M. Yeatts in the General Report of Census of India, 1941, proposed a broad division of the country into four regions demarcated according to economic and geographic principles. However, it was only after 1951 that with the help of more elaborate geological surveys and geographical mapping, by foreign as well as Indian geographers, the work on major natural regions could be reoriented. The 1951 Census of India report gave considerable impetus to the progress of studies of natural regionalisations as for the first time the Census data were interpreted in geographical context in some details. The map of major natural regions of India of 1951 census was rather sketchy in character. However, it served the purpose well and was laudable for its time considering the resources then available to the Census Organisation. Subsequently, at the time of the 1961 census, more maps and ideas from foreign as well as Indian geographers were obtained in carving out the natural regions of India for development purposes. S.P. Chatterjee divided India on the basis of physiography and geological structure. A.Mitra, grouped various districts of India into four categories on the basis of their development levels. Late (Miss) P.Sengupta suggested a scheme of Geographical Economic Regions of India which was utilised in the Census of India monograph entitled "Economic Regionalisation of India, Problems and Approaches" and Census of India Atlas of 1961. The basis for this classification was mainly in the works of Spate and Chatterjee as well as in those of the previous scholars referred to above.

However, all these schemes proposed by the various scholars did not provide a base for mapping and for statistical analysis of the Census data at sub-micro level. They did not also provide precise boundaries or relate the regions to administrative boundaries. In case a scheme was based on the district as the basic unit, as was the case with that proposed by Mitra and Sengupta, it did not take into consideration the intra-district details. The subsequent availability of fairly intensive data, specially on the distribution of soils, forests, geological formations, climatic conditions and large number of maps produced by various national and international organisations, encouraged B.K. Roy to revise the then existing framework of natural regions. A map of India showing Physio-geographic Regions was included in the National Volume of Census Atlas, 1971 wherein three tiers of regional boundaries (Macro, Meso and Micro) have been precisely adjusted with the district boundaries. The important materials consulted for revising the scheme were the maps published by the Geological Survey of India, Chief Soil Survey Office of the Indian Agricultural Research Institute and the book, 'India -- A Regional Geography' edited by R.L. Singh.

The Present Study

The above work was welcomed by scholars, geographers and planners both in India and abroad. To

further refine such delineation and also to get it done on a comprehensive scale, the Government of India sanctioned a plan scheme to the Census Organisation on "Regional Divisions of India -A Cartographic Analysis". It aimed at working out a viable grouping of Census villages and towns on a large scale map keeping in view their physio-geographical characteristics in order to bring out viable homogeneous regions at the sub-micro level within the districts. Broadly, the physio-geographical factors which have been kept in view while undertaking this exercise are (i) Physiography, (ii) Geological structure, (iii) Forest coverage, (iv) Climatic conditions and (v) Soils These sub-micro regions have been further pulled up on uniform scale to provide a framework for mapping and cartographic evaluation of Census as well as non-Census data to enlarge the scope of the Census Atlases of the country and also to help in the interpretations of population data in terms of sub-micro regions which are physio-geographically homogeneous in character and have similar problems and prospects requiring uniform application of planning strategies for better utilisation of resources and for providing amenities to the inhabitants. Since each sub-micro region has been clearly defined in so far as its rural and urban constituents are concerned, the demographic characteristics and other statistics can be generated for the past Censuses also to the extent to which village-wise/town-wise data are available. The sub-micro regions have been delineated within the district. In case the boundaries of the district experience any change in future, due to administrative or any other reason, the required scores can be obtained by compilation of data as we know their consituent units. The sub-micro regions of the districts will play an important role in the implementation of the plan at the grass root level within the framework of the State plan which, in turn, is a part of the overall National plan. Agricultural development in India is dependent upon the regional approach because of wide areal spread and the resultant contrasts in cropping patterns arising mainly from the regional variations in physical conditions. Since the landuse pattern should be adopted as per physical conditions of the region, the demarcation of physio-geographic regions will help in the long-term planning for the country. It is hoped that this scheme, the first of its kind in the history of the Census in India, besides enlarging the scope of Census Atlases, would serve as a useful framework for administrators, planners, researchers and other data users.

The Procedure Followed

The procedure for delineation of the sub-micro regions encompassed the following steps and considerations:

Since the aim was to delineate sub-micro regions within the district, the number of sheets covering the areal spread on standard topographical sheets either on 1:50,000 or 1:250,000 scale, as available, were consulted. These sheets were mosaiced to ascertain the boundary of the district concerned. In case of change in the district boundaries between the 1971 and 1981 Censuses, the updated map of the district as per 1981 Census was consulted. Similarly, Tahsil/Taluk/P.S./C.D. Block/Circle boundaries were reoriented. As the second step, the villages alongwith their Census location code numbers were marked on the topographical sheets for evaluation of the environs of the group of villages with reference to the physical details The delineation of sub-micro, i.e. the fourth order regions followed. In this exercise physio-geographical details of contours, drainage, spot heights, bench marks, watersheds as well as the distribution of high land and low land (land levels in broader perspective) were examined. This gave further suitable background for the delineation of a group of villages in one viable unit. Simultaneously, names were assigned to particular zones on the basis of major and minor rivers/rivulets, names of mountain ranges forests or on the consideration of bigger census villages and popular geographic names of local importance which may be acceptable in view of the regional geographical pattern of the particular region. At times one could feel that the contours or drainage designs are so complex as to complicate geographical thinking for the regions. In such cases, drainage patterns were worked out separately to ascertain their alignment in the formation of

sub-micro regions. Similarly, due to the complexity of contour lines on topographical maps, profiles were drawn to arrive at a particular conclusion whether the physio-geographical landscape of the area was consistent with reference to valleys or rivulets of the regions at higher altitudes for zoning of the sub-micro regions. This method provided a decision making criterion to streamline the regions.

While operating on the above system, step 3 required the consulting of maps on geology to further streamline the region-forming factors in the delineation of sub-micro areas. Where the micro relief and the micro physiographic elements on such considerations corresponded fully, the viable region in the district gave a precise zoning. Further, the forest spread on the maps helped to reorient the sub-micro regional boundaries. In addition, rainfall (isohyetal) maps also helped in the delineation of these boundaries. Thus, all the factors as envisaged in the programme have been synthesised judiciously and to the extent possible to carve out the sub-micro regions within the districts throughout the country.

Code Structure for the Regions and the Scheme of the Contents

The map 'Regional Divisions of India' included in this volume depicts 3 digit codes. The first digit stands for the macro regions, the second digit for the meso regions and the third for the micro regions. The four macro regions have been numbered as: the Northern Mountains (1), the Great Plains (2), the Deccan Plateau (3) and the Coastal Plains and Islands (4). In the 3 digit code 2.1.1 on the map, the first digit (2) stands for the macro region-the Great Plains, second digit (1) for the meso region-the Punjab Plain and the third digit (1) stands for the micro region-Ravi-Beas Inter-fluvial Plain. In this frame, 4 macro, 28 meso and 101 micro regions are outlined for the country and the same have been briefly described in the later part. Within this frame of micro regions, sub-micro regions have been delineated within the district under this scheme. These sub-micro regions are given 4th digit code and this 4th digit has been repeated, district-wise, from 1 to the number of sub-micro regions in the district.

After finalization of the sub-micro regions and their code numbers, list of villages and towns were prepared for each sub-micro region and basic data pertaining to area and population were generated. In addition, some physio-cultural characteristics are also highlighted. Part II of this volume incorporates brief description of physio-cultural aspects supplemented by maps and basic data at state level while Part III gives information for each sub-micro region within each district of the state.

It will be seen that the tables included in Parts II and III approach the configuration from the point of view of the administrative unit, i.e., State/District/Taluk/P.S./C.D Block, Village. In other words, these tables give the position of these units with reference to the natural regions in which they fall, as determined at these respective levels. It will be perceived, however, that the same region or a similar region under a different name may be transcending the administrative boundaries of states and districts and there may be a legitimate enquiry seeking the total geographical spread of the same region or similar regions across and beyond such administrative boundaries but in terms of such administrative units. For purposes of planning it is as necessary to know as to what natural regions comprise a state or a district as to know the position from the opposite point of view as to what state and district or segments thereof comprise one region or similar adjoining regions.

To serve this latter purpose, we have added to each state/union territory volume an appendix which presents administrative constituents of similar regions which extend beyond district and state boundaries. In the case of the adjoining states/union territories, this exercise is, naturally, restricted to the limits of region/regions transcending the boundaries of the concerned state/union territory to which a particular volume in this series is devoted. For getting fuller details with regard to these "extended areas" in terms of their constituents the reader is invited to refer to the volumes dealing with the concerned states/union territories.

BRIEF CHARACTERISTICS OF REGIONAL DIVISIONS

1.THE NORTHERN MOUNTAINS

The Northern Mountains corresponding with the Himalayan zone facing the northern frontier of the sub-continent comprise Jammu and Kashmir, Himachal Pradesh, Northern Uttar Pradesh, Sikkim, Northern West Bengal, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura, Meghalaya and part of Assam The Northern Mountains have been divided primarily according to the geology and forest cover. The relief and drainage, however, have also played a dominant role in establishing various sub-divisions within the Himalayan zone. This macro region has been divided into 5 sub-regions(meso) and 24 divisions (micro) on the basis of above mentioned factors.

These sub-regions are:

1.1 Jammu and Kashmir Himalaya

This sub-region covers the entire Jammu and Kashmir and is furthur divided into following three divisions (micro regions):

1.1.1 Ladakh
1.1.2 Kashmir Valley
1.1.3 Jammu

In these divisions the relief presents remarkable variations. The grouping of the districts has been made in conformity with the geological structure, elevation and forest cover. Other factors do not play significant role in delineating these divisions. However, sub-montane soil (Podsolic) is dominant in the Kashmir Valley and brown hill soil is seen in the southern part of Jammu and Kashmir. Ladakh region is fully predominated by mountain meadow soils as well as glaciers and eternal snow. Forest is mostly alpine type in the northern regions and sub-alpine in the southern regions.

1.2 Himachal Pradesh Himalaya

Himachal Pradesh state entirely falls under this sub-region. It has been further divided into the following 4 divisions:

1.2.1 Northern Himachal Pradesh
1.2.2 Trans-Himalayan Zone
1.2.3 Central Himachal Pradesh
1.2.4 Southern Himachal Pradesh

Geologically, it is almost similar to that of Jammu and Kashmir Himalaya. However, this sub-region is characterised by marked variations in the relief features, mainly on the consideration of micro-relief, and little variations in soils.

1.3 Uttar Pradesh Himalaya

This sub-region has been divided into three divisions viz.

1.3.1 Kumaon Himalaya--North
1.3.2 Western Kumaon Himalaya, Siwalik and Doons
1.3.3 Kumaon Himalaya--East

In these areas, the elevation has been taken as the main basis for classification, Geology and forest have also been taken into account The soils are mostly of brown hill type in the sub-region with marked differences in the southern Siwalik zone, locally known as 'Tarai' and 'Bhur soils The Kumaon Himalaya--North has important peaks like Nanda Devi, Kamet and Badrinath The Ganga and the Yamuna have their sources in this region. The Western Kumaon Himalaya, Siwalik and Doons cover Dehra Dun, Garhwal and Tehri Garhwal districts, and have an elevation of 900 to 1000 m. The Kumaon Himalaya - East which comprises Almora

and Nainital districts is marked with some narrow valleys on high altitudes.

1.4 North Eastern Himalaya

This region includes 4 sub-regions extending over Sikkim, Darjiling and 'Duar' areas of West Bengal and Arunachal Pradesh. The Darjiling section of the Himalayan zone rises abruptly from 'Duar' plains of West Bengal. Three high peaks, namely, Siwalik Phu (3630m), Sabargam (3546m) and Phalut (3596m) are located in this section of Himalayan zone. Similarly, the lofty ranges of about 5000m with intermittent summits are the chief characteristics of Arunachal Pradesh. Weather is damp and cold and the forests are dense. Annual rainfall ranges between 250 and 350 cm. The drainage is in evolutionary stage and immature. This region has been divided into 4 divisions as below:--

1.4.1 Sikkim Himalaya
1.4.2 Darjiling Himalaya including 'Duars'
1.4.3 Western Arunachal Pradesh Himalaya
1.4.4 Eastern Arunachal Pradesh Himalaya

1.5 Eastern Hill Zone

This region represents the eastern section of Himalayan zone extending over Nagaland, Manipur, Mizoram, Tripura, part of Assam and Meghalaya. This region is interspersed with plains especially in Silchar, North Cachar Hills and adjoining areas. Topographically it is rugged. The slopes are quite steep. Over the Tripura region the topography has interspersed ranges and valleys. Consequently communication is difficult.

The Khasi and Jaintia Hills in Meghalaya is like a table land. Geologically it is an eastward extension of the massive block of the Peninsular region broken by the alluvium of Bengal basin. In its long geological history this region is said to have submerged during Mesozoic and early Tertiary times due to marine transqression which was further uplifted at the time of Himalayan orogenesis.

The region has been divided into 10 divisions as below:

1.5.1 Nagaland Hills
1.5.2 Manipur Hills
1.5.3 Imphal Valley
1.5.4 Hill Zone
1.5.5 Tripura Plain
1.5.6 Tripura Hills
1.5.7 Cachar Plain
1.5.8 Karbi Anglong & North Cachar Hills
1.5.9 Eastern Meghalaya
1.5.10 Western Meghalaya

2. THE GREAT PLAINS

This is the most important zone in view of human concentration and it stretches from Rajasthan via Punjab, Haryana, Uttar Pradesh, Bihar, West Bengal to the eastern section of Brahmaputra valley. It is an enclosed vast basin of various small and large rivers separated by 'alluvial divides'.

The western section comprising of arid Rajasthan, Punjab, Haryana, Chandigarh, Delhi and Western Uttar Pradesh is slightly higher in elevation over 150m, than the eastern section of the plain. However, according to elevation, this plain shows three levels of relief configuration, between 0 to 75m in the eastern section, 75 to 150 m in the Central Uttar Pradesh and 150 to 300 m in western zone with the exception of a small zone in eastern Jaisalmer district where the elevation is below 75 m. Geologically, the whole region is made of alluvium brought by rivers from Himalayas and this is a gradational plain formed during Pleistocene and Recent geological times. On the basis of drainage, soils and rainfall, the region has been divided into 7 sub-regions and 24 divisions:-

2.1 Punjab Plain

In this plain 4 divisions as listed below have been delineated on the basis of soils and rainfall. Soils are alluvial with variations of *bangar* and *khadar* Agriculturally, this is the most important region.

2.1.1 Ravi - Beas Interfluvial Plain
2.1.2 Hoshiarpur-Chandigarh Sub-montane Plain
2.1.3 Beas--Satluj Doab
2.1.4 Punjab-Malwa Plain

2.2 Haryana Plain

In this region which also includes Delhi, three divisions have been delineated on the basis of topography and distribution of soils which are sandy and calcareous.

2.2.1 Eastern Haryana Plain
2.2.2 Western Haryana Plain
2.2.3 Southern Haryana Plain

2.3 Arid Rajasthan Plain

This meso region receives an average annual rainfall of less than 40 cm. It has been divided into four micro regions mainly on the basis of distribution of rainfall which are:-

2.3.1 Ghaggar Plain
2.3.2 Rajasthan *Bagar*
2.3.3 Extremely Arid Tract
2.3.4 Luni Valley

2.4 Upper Ganga Plain

This is the vast stretch of the Ganga Plain where the rivers are playing important role in carrying out definite influence area of their own. In general, the soil is alluvial but variations have developed on the upland and the low land areas. The Upper Ganga Plain has been divided into 2 divisions, viz.

2.4.1 Northern Upper Ganga Plain
2.4.2 Southern Upper Ganga Plain

2.5 Middle Ganga Plain

This is the transitional zone between the Upper Ganga Plain and the Lower Ganga Plain and has been divided into two divisions, voz.

2.5.1 Middle Ganga Plain - West
2.5.2 Middle Ganga Plain - East

2.6 Lower Ganga Plain

The characteristics of the landscape in the Ganga Plain change abruptly in Lower Ganga Plain extending over Bihar and West Bengal due to high rainfall. It has an elevation of below 75 m and has been further divided into following six micro regions:

2.6.1 North Bihar Plain
2.6.2 South Bihar Plain
2.6.3 Barind Tract
2.6.4 Moriband Delta
2.6.5 Proper Delta
2.6.6 Rarh Plain

2.7 Brahmaputra Valley

The Brahmaputra Valley presents typical geographical features. In general, the valley has an elevation of below 75 m. The eastern section is more undulating. Rainfall is very high and river pattern is braided in various sections of the Brahmaputra. The tributaries joining the main river Brahmaputra discharge large amount of water during the monsoon period and hence cause floods in the valley region. It is also covered with luxuriant vegetation throughout. Hence, on this basis this valley has been divided into three divisions with definite characteristics.

2.7.1 Western Brahmaputra Valley
2.7.2 Central Brahmaputra Valley
2.7.3 Eastern Brahmaputra Valley

3. THE DECCAN PLATEAU

The Deccan Plateau represents the whole of South Indian tableland. From the point of view of geology, the whole region is composed of metamorphic rocks of pre-Cambrian age. Considering drainage, elevation, forest cover, soils and rainfall, sub-divisions were delineated. In general, the elevation rises to over 1000 m in the south while it hardly

exceeds 500 m in the north. The rivers of this region have mostly reached their base level of erosion which have carved wide valleys in various regions of considerable importance. This region has been divided into 12 sub-regions and 33 divisions.

3.1 Semi-Arid Rajasthan

This portion of Rajasthan is marked with intervening valleys where the soils are red, yellow and mixed red-black in character. The regional characteristics of this region are different from those of the arid zone of Rajasthan (2.3). The annual rainfall here varies from 35 to 45 cm. Besides, the vegetation is partly developed over the hills and slopes which mostly belong to semi-arid type; while the arid plains are infested with thorny scrub and bushy vegetation. This region has further been divided into three divisions.

- 3.1.1 Aravalli Range and the Associated Uplands
- 3.1.2 Semi-Arid Uplands of Eastern Rajasthan
- 3.1.3 Banas - Chambal Basin

3.2 Uttar Pradesh Uplands

Uttar Pradesh Uplands represent well defined zone of Vindhyan System in the south. The average elevation is 500-600 m and slopes towards the plain in the north. The divisions made in this meso region are:

- 3.2.1 Jhansi Uplands
- 3.2.2 Mirzapur Uplands

Jhansi Uplands are comparatively dry while the Mirzapur Uplands are wet.

3.3 Bihar - West Bengal Uplands

Bihar - West Bengal Uplands region is one of the most interesting regions for the studies in geomorphology and cultural geography. The whole region belongs to the unclassified crystalline rocks. The elevation of the Bihar Highlands known as Chotanagpur Plateau is in the range of 300-900 m. which is often high above 900 m. at places in the form of rounded hills. Soils in this region are mainly red and yellow and red sandy. Red and black soils are predominant in Singhbhum region. The drainage is radial. Forests are dense in Palamu, Ranchi and Hazaribag areas, while it becomes sparse in Puruliya on account of degenerated soils on the uplands. On the basis of elevation and nature of topography the region has been divided into 4 divisions.

- 3.3.1 Ranchi Plateau
- 3.3.2 Hazaribag Plateau
- 3.3.3 Puruliya Uplands
- 3.3.4 Singhbhum Plateau

3.4 Northern Madhya Pradesh Uplands

The Northern Madhya Pradesh Uplands region has been sub-divided into three divisions. In general, the elevation is between 300-600 m with numerous hills which are thickly forested. The northern Madhya Pradesh is typically a ravine and derelict land zone on account of erosion by the tributaries of Chambal system.The Northern Madhya Pradesh Uplands - East region represents the Vindhyas with well developed scarps. Three divisions made in this meso region are:

- 3.4.1 Northern Madhya Pradesh Ravine Uplands--West
- 3.4.2 Northern Madhya Pradesh Uplands-- Central
- 3.4.3 Northern Madhya Pradesh Uplands --East

3.5 Central Madhya Pradesh Plateau

The Central Madhya Pradesh Plateau inherits a complex geology. In general, gneisses - Vindhyans and Gondwanas are fairly represented here Forest is deciduous and present large varieties of sal Soils are primarily medium black to deep black types. The region has been sub-divided into three divisions:

- 3.5.1 Sagar Plateau

3.5.2 Bhopal Plateau
3.5.3 Ratlam Plateau

3.6 Southern Madhya Pradesh Uplands

The region in general represents black soil. Annual rainfall varies between 200-300 cm. The whole region is densely forested in general. According to the elevation, drainage and micro-orographic characteristics the region has been divided into three divisions.

3.6.1 Narmada Region including Flanks of Vindhya and Satpura
3.6.2 Mahanadi Basin
3.6.3 Madhya Pradesh Dandakaranya

3.7 Northern Maharashtra

The Northern Maharastra represents the major soil regions developed over 'Deccan flows'. In this region average annual rainfall ranges between 40 and 80 cm. The altitudinal characteristics are quite pronounced and hence the delineation of above regions is based on the 'Valleys and Divides' concept of orography of the region. It has been further divided into following two divisions:

3.7.1 Tapti - Purna Valley
3.7.2 Wardha--Penganga -- Wainganga Plain

3.8 Maharashtra Plateau

This meso region in general, has an altitude ranging between 300 and 900 m. and extends over basalts. Some high ranges like Ajanta range, Harischandra range, Mahadeo range and Balaghat range break the monotony and thus form a mosaic of plateau with protruded hills. Annual rainfall in general, varies between 80 and 100 cm. except in the central region of Maharashtra Plateau which generally gets less than 80 cm. rainfall. Forests cover, in general, is sparse and at places dense which is of dry deciduous type. Consequently two divisions have been made in this region,viz.

3.8.1 Eastern Plateau
3.8.2 Western Plateau with Protruded Hills

3.9 Karnataka Plateau

The Karnataka Plateau is a well defined plateau region of the Deccan over the unclassified crystalline rocks. In general, the northern portion is having an elevation of about 300 m. with a westward slope, while the southern portion is high (over 900 m) and slopes towards the southeast. Tungabhadra river cuts it into two regions. Average annual rainfall is around 80 cm. in major part of this region. Soils in the northern Karnataka are black while in the south these are mostly laterite, red sandy and red loamy. Forests are dense only in Malnad bordering Sahyadri where the main elevation reaches 1000 m. with heavy rainfall of 150 cm. per annum. Three divisions made on the above considerations in this region are:

3.9.1 Northern Karnataka Plateau
3.9.2 Central Karnataka Plateau
3.9.3 Southern Karnataka Plateau

3.10 Tamil Nadu Uplands

This region is the southern extension of unclassified crystalline rocks of Cambrian period and is marked with fairly wide valley of Cauvery and its tributaries. In general, the elevation is over 900 m. in the west due to southern Sahyadri and Nilgiri Hills. The western and the eastern flanks get an annual rainfall of about 80 - 200 cm. but the central part of the uplands is almost dry. Due to comparatively high rainfall the hilly areas are forested. On the basis of elevation two divisions have been carved out which are:

3.10.1 Eastern Flanks of Sahyadri
3.10.2 Tamil Nadu Uplands

3.11 Andhra Plateau

Andhra Plateau is another well-defined plateau

region over the Archaean gneissic rock of Southern India which is drained mostly by Godavari, Krishna and Penner river systems. Over the western margins, the soils are mostly medium black with intrusion of deep black soils in Krishna valley. The rest of the region is characterised by red sandy soils. The average annual rainfall is below 80 cm. in this region. The region is covered with deciduous forests. On the basis of elevation and other considerations, the region has been divided into four divisions identified as:

3.11.1 Godavari Depression
3.11.2 Telangana Plateau
3.11.3 Krishna Piedmont Plain
3.11.4 Rayalaseema

3.12 Orissa Highlands

The Orissa Highlands region is comprised of the north-eastern extension of unclassified crystalline rocks of the Deccan Plateau. Here the topography is rugged and elevation is about 1200 m in Koraput plateau. The Mahanadi and Brahmani rivers have carved out well defined valleys. Soils of the region are mostly red and sandy interspersed with red and yellow soils in some areas. The western portion of the region consists of deep valleys with spurs. In general, the southern portion is much more dissected and higher than the northern one, where the range of elevation is between 300 and 900 m. Average annual rainfall of the region is between 200 and 300 cm. The region has been divided into two well marked divisions according to elevation, viz.

3.12.1 Northern Orissa Highlands
3.12.2 Southern Orissa Highlands (Orissa Dandakaranya)

4. THE COASTAL PLAINS AND ISLANDS

Geologically, the Coastal Plain adjacent to the Peninsular region are mere 'Shore Facies' of the Deccan Trap. The region has attained a definite regional approach for classification on account of coastal alluvium characteristics hemmed in between the Sahyadri and Arabian Sea in the west and the Eastern Ghats and Bay of Bengal in the east. The rainfall varies in the sections which is high (above 300 cm.) in the Western Coastal Region and low (100 cm.) in the Eastern Coastal Region. The Coastal Plain has been sub-divided into 4 sub-regions and 20 divisions.

4.1 Gujarat Region

This region represents almost the whole of Gujarat state. This region is composed of 'Deccan Flows' and coastal Tertiary deposits. Gujarat Plain is drained by Sabarmati and Mahi rivers. Eastern Hilly Region is comprised of Panch Mahals and The Dangs districts; Kathiawar Peninsula is partly rocky having an elevation of above 75 m. Radial drainage is the chief characteristic feature of this zone.

Kachchh Peninsula solely corresponds with Kachchh district. The chief characteristic feature of the region is the sandy plain with isolated rocky hills. All these regions may typically be said as semi-arid while the Kachchh Peninsula is arid. The above mentioned four regions are as follows:

4.1.1 Gujarat Plain
4.1.2 Eastern Hilly Region
4.1.3 Kathiawar Peninsula
4.1.4 Kachchh Peninsula

4.2 Western Coastal Region

The Western Coastal Region lies just bordering the Sahydari (the Western Ghats). The width of the region is often very narrow in Karnataka Coastal Region which broadens further south in Kerala. Rainfall is quite heavy over 300 cm. per annum. Six divisions have been demarcated in this region which cover portions of Maharashtra, Karnataka, Kerala, Mahe district of Pondicherry and Goa district of Goa, Daman & Diu. The six divisions are:

4.2.1 Maharashtra Littoral
4.2.2 Goa Coast
4.2.3 Karnataka Coast
4.2.4 North Kerala Coast

4.2.5 Central Kerala Coast
4.2.6 South Kerala Coast

4.3 Eastern Coastal Region

The Eastern Coastal Region can be distinguished from the Western coast because the basic geographical factors of these two regions vary to great extent. The 100 cm. isohyetal line separates the eastern and western coastal aeas at the district level at Kanniyakumari. The Eastern Coastal Region is wide and the soils differ appreciably within this region. The big rivers carve out broader valleys or deltas which give further help in establishing the divisions in the Eastern Coastal Region. The Eastern Ghats are broken as they do not run as continuous geographical barrier. The region has been divided into 8 divisions, viz.,

4.3.1 Kanniyakumari Coast
4.3.2 Sandy Littoral
4.3.3 Coromandel Coast
4.3.4 Southern Andhra Coastal Plain
4.3.5 Krishna Delta
4.3.6 Godavari Delta
4.3.7 Northern Andhra Coastal Plain
4.3.8 Mahanadi Delta

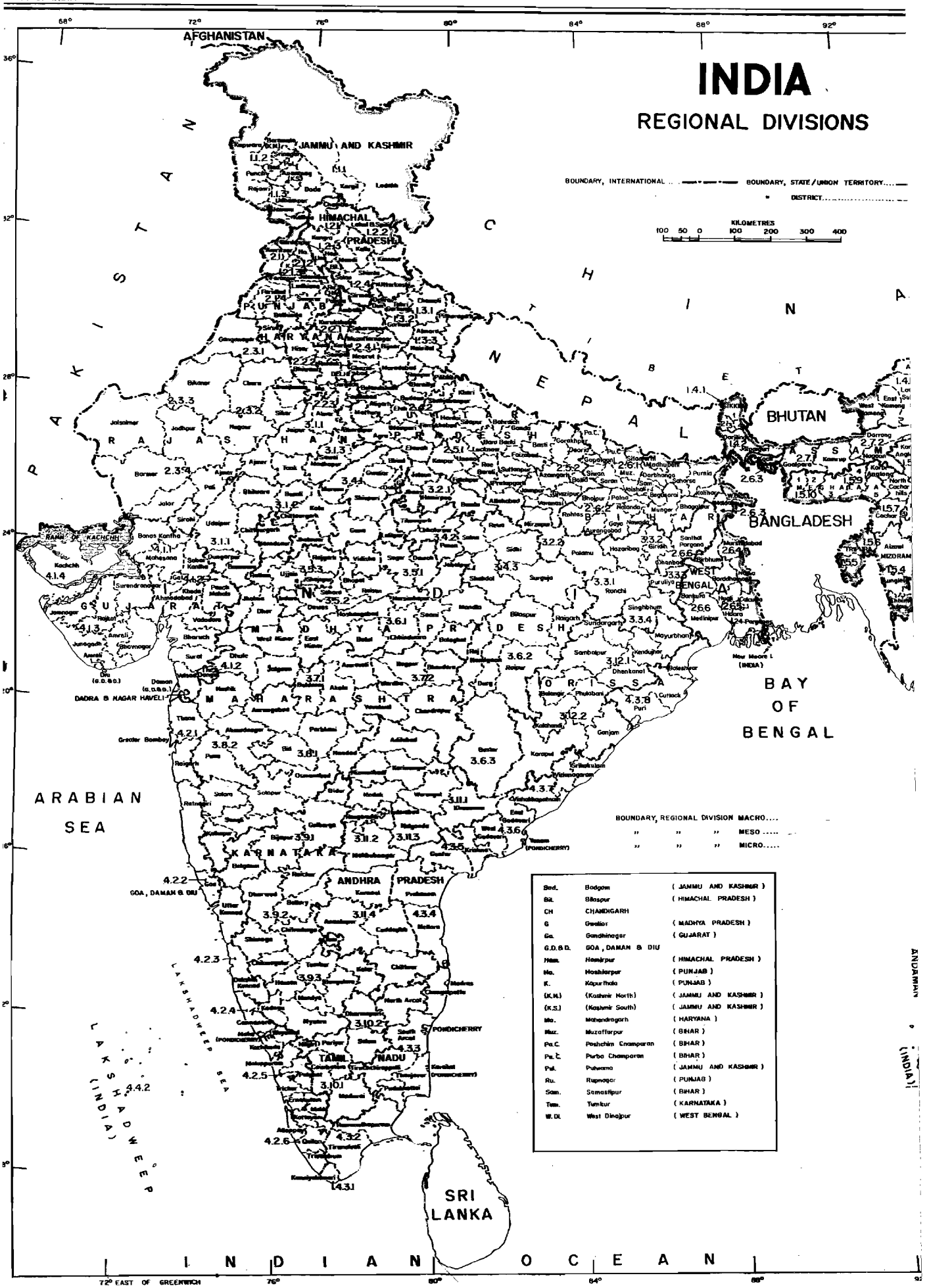
4.4 The Islands

The Andaman and Nicobar Islands in the Bay of Bengal and Lakshadweep in the Arabian Sea vary between themselves in the geographical location as well as in human geography and form two micro regions.

4.4.1 The Andaman and Nicobar Islands are composed of more than 300 named and unnamed Islands. Out of them 33 major islands are inhabited, while the remaining islands are uninhabited. Geologically, sandstone and shales of Eocene period predominate. Due to hot and humid climate, soils are lateritic and degenerated with luxuriant growth of vegetation cover. Coral formation is the chief characteristics of the islands and so the group of islands forms a definite entity of a region on these considerations.

4.4.2 The Lakshadweep--These islands have developed very near to the continental shelf of the Indian coast. The total number of islands is 27 out of which 10 are inhabited and the remaining 17 are uninhabited.

These two present a particular geographical environment, ecology and culture zone of India.


INDIA
REGIONAL DIVISIONS
BOUNDARY, INTERNATIONAL
BOUNDARY, STATE / UNION TERRITORY
DISTRICT
KILOMETRES
100 50 0 100 200 300 400
AFGHANISTAN
PAKISTAN
CHINA
NEPAL
BHUTAN
BANGLADESH
JAMMU AND KASHMIR
HIMACHAL PRADESH
PUNJAB
HARYANA
RAJASTHAN
UTTAR PRADESH
BIHAR
SIKKIM
ARUNACHAL PRADESH
NAGALAND
MANIPUR
TRIPURA
MIZORAM
MEGHALAYA
ASSAM
WEST BENGAL
ORISSA
MADHYA PRADESH
GUJARAT
MAHARASHTRA
ANDHRA PRADESH
KARNATAKA
TAMIL NADU
GOA, DAMAN & DIU
DADRA & NAGAR HAVELI
PONDICHERRY
ANDAMAN & NICOBAR (INDIA)
LAKSHADWEEP (INDIA)
LAKSHADWEEP SEA
ARABIAN SEA
BAY OF BENGAL
INDIAN OCEAN
SRI LANKA
BOUNDARY, REGIONAL DIVISION MACRO....
" " " MESO .....
" " " MICRO.....
Bod. Bodgam (JAMMU AND KASHMIR)
Bil. Bilaspur (HIMACHAL PRADESH)
CH CHANDIGARH
G Gwalior (MADHYA PRADESH)
Ga. Gandhinagar (GUJARAT)
G.D.&D. GOA, DAMAN & DIU
Hms. Hamirpur (HIMACHAL PRADESH)
Ho. Hoshiarpur (PUNJAB)
K. Kapurthala (PUNJAB)
(K.N.) (Kashmir North) (JAMMU AND KASHMIR)
(K.S.) (Kashmir South) (JAMMU AND KASHMIR)
Ma. Mahendragarh (HARYANA)
Muz. Muzaffarpur (BIHAR)
Pa.C. Paschim Champaran (BIHAR)
Pa.E. Purba Champaran (BIHAR)
Pul. Pulwama (JAMMU AND KASHMIR)
Ru. Rupnagar (PUNJAB)
Sam. Samastipur (BIHAR)
Tum. Tumkur (KARNATAKA)
W.Di. West Dinajpur (WEST BENGAL)
72° EAST OF GREENWICH

PHYSIO-GEOGRAPHIC REGIONS OF INDIA (REGIONAL DIVISIONS)

Regions with code No. (MACRO)	Sub-regions with code No. (MESO)	Divisions code No. (MICRO)	Districts	State/ Union Territory
1	2	3	4	5
1. The Northern Mountains	1.1 Jammu & Kashmir Himalaya	1.1.1 Ladakh	Ladakh and Kargil	Jammu & Kashmir.
		1.1.2 Kashmir Valley	Anantnag (KS), Baramula(KN), Pulwama, Badgam, Kupwara and Srinagar	Jammu & Kashmir
		1.1.3 Jammu	Doda, Jammu, Kathua, Rajauri, Punch and Udhampur	Jammu & Kashmir
	1.2 Himachal Pradesh Himalaya	1.2.1 Northern Himachal Pradesh	Chamba	Himachal Pradesh
		1.2.2 Trans-Himalayan Zone	Kinnaur and Lahul Spiti	Himachal Pradesh
		1.2.3 Central Himachal Pradesh	Kangra, Kullu, Una, Hamirpur and Mandi	Himachal Pradesh
		1.2.4. Southern Himachal Pradesh	Bilaspur, Solan, Shimla and Sirmaur	Himachal Pradesh
	1.3 Uttar Pradesh Himalaya	1.3.1 Kumaon Himalaya North	Chamoli, Pithoragarh and Uttarkashi	Uttar Pradesh
		1.3.2. Western Kumaon Himalaya Siwalik & Doons	Dehra Dun, Garhwal, Tehri Garhwal	Uttar Pradesh
		1.3.3 Kumaon Himalaya East	Almora, Nainitai	Uttar Pradesh
	1.4 North Eastern Himalaya	1.4.1 Sikkim Himalaya	North District West District, South District & East District	Sikkim

1	2		3	4	5
		1.4.2	Darjiling Himalaya including Duars	Darjiling & Jalpaiguri	West Bengal
		1.4.3	Western Arunachal Pradesh Himalaya	West Kameng, East Kameng, Lower Subansiri, Uppar Subansiri, West Siang East Siang	Arunachal Pradesh
		1.4.4	Eastern Arunachal Pradesh Himalaya	Dibang Valley, Lohit & Tirap	Arunachal Pradesh
	1.5 Eastern Hill Zone	1.5.1	Nagaland Hills	Kohima, Mokokchung, Mon, Wokha, Zunheboto, Phek and Tuensang.	Nagaland
		1.5.2	Manipur Hills	Manipur East, Manipur North, Manipur West, Pocket of Manipur Central & Manipur South	Manipur
		1.5.3	Imphal Valley	Manipur Central & Tengnoupal	Manipur
		1.5.4	Hill Zone	Aizawl, Lunglei & Chhimtuipui	Mizoram
		1.5.5	Tripura Plain	South Tripura & West Tripura	Tripura
		1.5.6	Tripura Hills	North Tripura	Tripura
		1.5.7	Cachar Plains	Cachar	Assam
		1.5.8	Karbi Anglong & North Cachar Hills	Karbi Anglong & North Cachar-Hills	Meghalaya
		1.5.9	Eastern Meghalaya	West Khasi Hills, East Khasi Hills & Jaintia Hills	Maghalaya
		1.5.10	Western Meghalaya	West Garo Hills & East Garo Hills	Meghalaya

1	2	3	4	5
The Great Plains	2.1 Punjab Plain	2.1.1 Ravi-Beas Inter-Fluvial Plain	Amritsar and Gurdaspur	Punjab
		2.1.2 Hoshiarpur, Chandigarh Sub-Montane Plain	Chandigarh, Hoshiarpur & Rupnagar	Chandigarh & Punjab
		2.1.3 Beas Satluj Doab	Jalandhar& Kapurthala	Punjab
		2.1.4 Punjab Malwa Plain	Bathinda, Firozpur, Ludhiana, Patiala, Sangrur & Faridkot	Punjab
	2.2 Haryana Plain	2.2.1 Eastern Haryana Plain	Ambala, Kurukshetra, Jind, Karnal, Rohtak and Sonipat.	Haryana
		2.2.2 Western Haryana Plain	Hissar, Sirsa and Bhiwani	Haryana
		2.2.3 Southern Haryana Plain	Delhi, Gurgaon, Mahendragarh and Faridabad	Delhi & Haryana
	2.3 Arid Rajasthan Plain	2.3.1 Ghaggar Plain	Ganganagar	Rajasthan
		2.3.2 Rajasthan Bagar	Churu, Jhunjhunun, Nagaur & Sikar	Rajasthan
		2.3.3 Extremely Arid Tract	Bikaner and Jaisalmer	Rajasthan
		2.3.4 Luni Valley	Barmer, Jalor, Jodhpur & Pali	Rajasthan
	2.4. Upper Ganga Plain	2.4.1 Northern Upper Ganga Plain	Bijnor, Ghaziabad, Meerut, Moradabad, Muzaffarnagar, Rampur & Saharanpur	Uttar Pradesh

1	2	3	4	5
		2.4.2 Southern Upper Ganga Plain	Aligarh, Agra, Bareilly, Badaun, Bulandshahr, Etah, Etawah, Farrukhabad, Kheri, Mainpuri, Mathura, Pilibhit and Shahjahanpur	Uttar Pradesh
	2.5. Middle Ganga Plain	2.5.1 Middle Ganga Plain West	Allahabad, Bahraich, Bara Banki, Faizabad, Fatehpur, Gonda, Hardoi, Kanpur, Lucknow, Pratapgarh, Rae Bareli, Sitapur, Sultanpur and Unnao	Uttar Pradesh
		2.5.2 Middle Ganga Plain East	Azamgarh, Ballia, Basti, Deoria, Gorakhpur, Varanasi, Jaunpur & Ghazipur	Uttar Pradesh
	2.6. Lower Ganga Plain	2.6.1 North Bihar Plain	Pashchim Champaran, Purba Champaran, Darbhanga, Muzaffarpur, Purnia, Saharsa, Saran, Sitamarhi, Madhubani, Katiahar, Samastipur, Begusarai, Vaishali, Siwan and Gopalganj	Bihar
		2.6.2 South Bihar Plain	Bhagalpur, Gaya, Munger, Patna, Bhojpur Nalanda, Nawada, Rohtas and Aurangabad	Bihar
		2.6.3 Barind Tract	Koch Bihar, Maldah & West Dinajpur	West Bengal
		2.6.4 Moriband Delta	Murshidabad and Nadia	West Bengal
		2.6.5 Proper Delta	Barddhaman, Calcutta, Hugli, Haora and Twentytour Parganas	West Bengal
		2.6.6 Rath Plain	Bankura, Birbhum & Medinipur	West Bengal
	2.7 Brahmaputra valley	2.7.1 Western Brahmaputra valley	Goalpara and Kamrup	Assam
		2.7.2 Central Brahmaputra valley	Darrang and Nagaon	Assam

1	2	3	4	5
		2.7.3 Eastern Brahmaputra Valley	Lakhimpur, Sibsagar & Dibrugarh	Assam
3. The Deccan Plateau	3.1 Semi Arid Rajasthan	3.1.1 Aravalli Range and the Associated Uplands	Ajmer, Alwar, Banswara, Chittaurgarh, Dungarpur, Jaipur, Sirohi & Udaipur	Rajasthan
		3.1.2 Semi-Arid Uplands of Eastern Rajasthan	Bhilwara, Bundi, Kota, Jhalawar & Tonk	Rajasthan
		3.1.3 Banas-Chambal Basin	Bharatpur & Sawai Madhopur	Rajasthan
	3.2 Uttar Pradesh Uplands	3.2.1 Jhansi Uplands	Banda, Hamirpur, Jalaun, Lalitpur and Jhansi	Uttar Pradesh
		3.2.2 Mirzapur Uplands	Mirzapur	Uttar Pradesh
	3.3 Bihar West Bengal Uplands	3.3.1 Ranchi Plateau	Palamu and Ranchi	Bihar
		3.3.2 Hazaribag Plateau	Dhanbad, Hazaribag, Giridih & Santhal Pargana	Bihar
		3.3.3 Puruliya Uplands	Puruliya	West Bengal
		3.3.4 Singhbhum Plateau	Singhbhum	Bihar
	3.4 Northern Madhya Pradesh Uplands	3.4.1 Northern Madhya Pradesh Ravine Uplands West	Bhind, Datia, Guna, Gwalior, Morena and Shivpuri	Madhya Pradesh
		3.4.2 Northern Madhya Pradesh Uplands Central	Chhatarpur, Panna and Tikamgarh	Madhya Pradesh
		3.4.3 Northern Madhya Pradesh Uplands East	Rewa, Satna, Shahdol, Sidhi and Surguja	Madhya Pradesh

1	2	3	4	5
	3.5 Central Madhya Pradesh plateau	3.5.1 Sagar Plateau	Damoh, Sagar and Vidisha	Madhya Pradesh
		3.5.2 Bhopal Plateau	Dewas, Indore, Raisen, Bhopal & Sehore,	Madhya Pradesh
		3.5.3 Ratlam Plateau	Dhar, Jhabua, Mandsaur, Ratlam, Rajgarh, Shajapur and Ujjain	Madhya Pradesh
	3.6 Southern Madhya Pradesh Uplands	3.6.1 Narmada Region including Flanks of Vindhya Satpura	Balaghat, Betul, Chhindwara, Hoshangabad, Jabalpur, West Nimar, East Nimar, Mandla, Narsimhapur, Seoni	Madhya Pradesh
		3.6.2 Mahanadi Basin	Bilaspur, Durg, Raigarh, Raj Nandgaon & Raipur	Madhya Pradesh
		3.6.3 Madhya Pradesh Dandakaranya	Bastar	Madhya Pradesh
	3.7 Northern Maharashtra	3.7.1 Tapti-Purna Valley	Amravati, Akola, Buldana, Dhule & Jalgaon	Maharashtra
		3.7.2 Wardha-Penganga Wainganga Plain	Bhandara, Chandrapur, Nagpur, Wardha & Yavatmal	Maharashtra
	3.8 Maharashtra Plateau	3.8.1 Eastern Plateau	Aurangabad, Bid, Kolhapur, Nanded, Osmanabad, Parbhani, Sangli & Solapur	Maharashtra
		3.8.2 Western Plateau with Protruded Hills	Ahmadnagar, Nashik, Pune and Satara	Maharashtra
	3.9 Karnataka Plateau	3.9.1 Northern Karnataka Plateau.	Belgaum, Bidar, Bijapur & Gulbarga	Karnataka
		3.9.2 Central Karnataka Plateau	Bellary, Chikmagalur, Chitradurga, Dharwad, Shimoga, Raichur and Pocket of Tumkur	Karnataka
		3.9.3 Southern Karnataka Plateau	Bangalore, Kodagu, Hassan, Kolar, Mandya, Mysore and Tumkur	Karnataka
	3.10 Tamil Nadu Uplands	3.10.1 Eastern Flanks of Sahyadri	Coimbatore, Madurai, Nilgiri and Periyar	Tamil Nadu

1	2	3	4	5
		3.10.2 Tamil Nadu Uplands	Dharmapuri, North Arcot & Salem	Tamil Nadu
	3.11 Andhra Plateau	3.11.1 Godavari Depression	Karimnagar, Khammam & Warangal	Andhra Pradesh
		3.11.2 Telangana Plateau	Adilabad, Hyderabad, Mahbubnagar, Medak, Nizamabad and Rangareddi	Andhra Pradesh
		3.11.3 Krishna Piedmont Plain	Nalgonda	Andhra Pradesh
		3.11.4 Rayalaseema	Anantapur, Chittoor, Cuddapah & Kurnool	Andhra Pradesh
	3.12 Orissa High-lands	3.12.1 Northern Orissa Highlands	Dhenkanal, Kendujhar, Mayurbhanj, Sambalpur and Sundergarh	Orissa
		3.12.2 Southern Orissa Highlands (Orissa Dandakaranya)	Bolangir, Ganjam, Phulabani, Kalahandi and Koraput	Orissa
4. The Coastal Plains & Islands	4.1 Gujarat Region	4.1.1 Gujarat Plain	Ahmadabad, Bharuch, Banas Kantha, Gandhi-nagar, Kheda, Mahesana, Sabar Kantha, Surat, Vadodara, Valsad, Dadra & Nagar Haveli and Daman	Gujarat, Dadra & Nagar Haveli & Goa, Daman & Diu
		4.1.2 Eastern Hilly Region	Panch Mahals and The Dangs	Gujarat
		4.1.3 Kathiawar Peninsula	Amreli, Bhavnagar, Jamnagar, Junagadh, Rajkot, Surendranagar and Diu	Gujarat and Goa, Daman & Diu
		4.1.4 Kachchh Peninsula	Kachchh	Gujarat
	4.2 Western Coastal Region	4.2.1 Maharashtra Littoral	Great Bombay, Raigarh, Ratnagiri and Thane	Maharashtra
		4.2.2 Goa Coast	Goa	Goa, Daman & Diu
		4.2.3 Karnataka Coast	Uttar Kannad & Dakshin Kannad	Karnataka

1	2	3		4	5
		4.2.4	North Kerala	Cannanore, Kozhikode, Wayanad and Mahe	Kerala & Pondicherry
		4.2.5	Central Kerala Coast	Eranakulam, Kottayam, Malappuram, Palghat, Trichur & Idukki	Kerala
		4.2.6	South Coast	Alleppey, Trivandrum & Quilon	Kerala
	4.3 Eastern Coastal Region	4.3.1	Kanniya kumari Coast	Kanniyakumari	Tamil Nadu
		4.3.2	Sandy Littoral	Ramanathapuram & Tirunelveli	Tamil Nadu
		4.3.3	Coromandel Coast	Chengalpattu, Madras, Thanjavur, Tiruchirapalli, South Arcot, Pudukkottai, Karaikal & Pondicherry	Pondicherry & Tamil Nadu
		4.3.4	Southern Andhra Coastal Plain	Nellore and Prakasam	Andhra Pradesh
		4.3.5	Krishna Delta	Guntur and Krishna	Andhra Pradesh
		4.3.6	Godavari Delta	East Godavari, West Godavari and Yanam	Andhra Pradesh & Pondicherry
		4.3.7	Northern Andhra Coastal Plain	Srikakulam, Vizianagaram and Vishakhapatnam	Andhra Pradesh
		4.3.8	Mahanadi Delta	Baleshwar, Cuttack & Puri	Orissa
	4.4 The Islands	4.4.1	Andaman & Nicobar Islands	Andaman, Nicobar	Andaman & Nicobar Islands
		4.4.2	Lakshadweep	Lakshadweep	Lakshadweep

PART-II

REGIONAL DIVISIONS

OF

KERALA

REGIONAL DIVISIONS OF KERALA

Introduction

Kerala known as the Spice Garden of India is a small lush green state lying on the south-west corner of the Indian sub-continent. It is bounded on the north and north-east by Dakshin Kannad, Kodagu and Mysore districts of Karnataka State; on the east by the Nilgiri, Coimbatore, Madurai, Ramanathapuram and Tirunelveli districts of Tamil Nadu and on the south by the Kanyakumari district of Tamil Nadu and on the west by the Lakshadweep sea. It has an area of 38,863 km^2 and a population of 25,453,680 according to the 1981 Census. Geographically Mahe, which forms part of the Union Territory of Pondicherry, is an enclave in the Kerala coastal region and has an area of 9 km^2 and a population of 23,134. Thus the total area and population of this region, comprising of Kerala and Mahe are 38,872 km^2 and 25,476,814 respectively. However this volume contains only details relating to the area falling under the Kerala State. The particulars of Mahe are dealt with in a similar volume published for the Union Territory of Pondicherry.

2. In contrast to the rest of the country, Kerala is a distinct physical and cultural entity. Hemmed in between the mighty Sahyadri on the east and the Lakshadweep sea on the west, the land is a beautiful tract with a salubrious climate. This narrow strip of land has a long sea coast of about 580 km^2. The width of the state at the northern extreme is about 16 km. and it gradually increases towards the central region of the state, the maximum width reaching across the latitude at Kodungallur with 102 km. Then it gradually tapers off and at the southernmost tip of Kerala its width reduces to 8 km.

3. Kerala has a hoary tradition. It is believed that Lord Parasurama, one of the ten *Avathars* or incarnations of Lord *Vishnu*, is said to have thrown his *Parasu* (battle axe) across the sea from Gokarna (in Uttar Kannad district in Karnataka state) to Kanyakumari (the land's end of India in Tamil Nadu) and made the water recede upto the point where it fell. This gift of the sea is known as *Bhargava kshetra* or *Parasurama kshetra.* The entire Kerala state falls in this picturesque region. Though the authenticity of this tradition is unknown, there are some references of this region in Kalidasa's *Reghuvamsa* (chapter iv, verse 53), *Thiruvilangad Plates* of Rajendra Chola (1012-44) and lastly in *Keralolthpathi*, (the Malayalam work compiled in the 18th or 19th Century). Whatever may be the truth in the above tradition, there is geological evidence that the land which now forms part of Kerala was at one time under the sea. The land might have been emerged from the sea as a result of either volcanic or seismological factors. Another version put forward by geologists is that large quantities of silt and mud brought down by the west-flowing rivers of the Sahyadri mountains and the sand washed in by the ocean currents have resulted in the formation of a new fertile tract with innumerable rivers, estuaries and backwaters. This is further substantiated by the existence of coral reefs below the alluvium found very close to the present Kerala coastal line. Even today the sea coast of Kerala is experiencing large scale sea erosion apart from the emergence of new islands. All these give further evidence of transgression and regression of the sea.

Natural Regions

4. This volume, which gives an epitome of the natural regions of the State, is based on the regional classifications designed by the Census Organization. As briefly indicated in Part-I of this volume, the state falls in the Western Coastal Region. According to the principle of delineation of

natural regions, the first tier is macro which is the Western Coastal Plains and Islands and code number assigned to it is 4. Within it includes four meso regions known as 2-tier. Of the four such meso regions Kerala falls under the Western coastal Region having code 4.2 which covers the coastal tract from Maharashtra to Kerala State. The meso region is further divided into 6 micro regions having 3-tier codes. The entire Kerala (inclusive of Mahe) falls in 3 such micro regions viz. 4.2.4 North Kerala Coast, 4.2.5 Central Kerala Coast and 4.2.6 South Kerala Coast. However, the details of Mahe which is part of the Union Territory of Pondicherry are not included in this volume. The micro region is further divided into sub-rnicro regions (4-tier) based on physio-geographical details of contours, drainage, spot heights, bench marks etc. The sub-micro regions were delineated keeping the district boundaries intact. The revenue villages in Kerala have as their constituent parts as *desoms* in the erstwhile Malabar region and Cochin State and *karas* in the former Travancore State. Therefore for delineating the sub-micro regions the desom/kara adopted as a unit for census purposes was taken as the basis. This is done as the desom/kara is the only comparable unit, both in respect of extent and population, with the revenue village in the rest of the country. Even then the desom/kara in Kerala is slightly larger in size in contrast to the village elsewhere in the country. Each sub-micro region was assigned a name based on certain principles, the consideration being the facility to identify the same on the basis of predominant locality and also its geographical configuration. The details of natural regions classified by 4-tier sub-micro regions are given overleaf:

NATURAL REGIONS OF KERALA

Code No.

Macro region		Meso region		Micro region	District (1981)		Sub-Micro region
1		2		3	4		5
4.	The Western Coastal Plains and Islands	4.2	Western Coastal Region	4.2.4	North Kerala Coast	Cannanore	4.2.4.1 Cannanore Coast
							4.2.4.2 Kasaragod Plateau
							4.2.4.3 Peringome-Mattannur Undulating Uplands
							4.2.4.4 Taliparamba-Kuthuparamba Plain
							4.2.4.5 Kannoth Forested Hills
						Wayanad	4.2.4.1 Wayanad Forested Hills
							4.2.4.2 Wayanad Plateau
						Kozhikode	4.2.4.1 Kozhikode Coast
							4.2.4.2 Nadapuram-Mavur Undulating Plain
							4.2.4.3 Kozhikode Forested Hills
				4.2.5	Central Kerala Coast	Malappuram	4.2.5.1 Malappuram Coast
							4.2.5.2 Malappuram Undulating Plain
							4.2.5.3 Chaliyar River Basin
							4.2.5.4 Nilmbur Forested Hills
							4.2.5.5 Perinthalmanna Undulating Uplands
						Palghat	4.2.5.1 Pattambi Undulating Plain
							4.2.5.2 Mannarghat-Palghat Forested Hills
							4.2.5.3 Palghat Gap
							4.2.5.4 Chittur Forested Hills
						Trichur	4.2.5.1 Trichur Coast
							4.2.5.2 Trichur Plain
							4.2.5.3 Wadakkancherry Uplands
							4.2.5.4 Kodasseri Forested Hills

Macro region	Meso region		Micro region	District (1981)		Sub-Micro region
1	2		3	4		5
				Ernakulam	4.2.5.1	Cochin Coast
					4.2.5.2	Periyar-Muvattupuzha Rolling Plain
					4.2.5.3	Malayattur Forested Hills
				Idukki	4.2.5.1	Anamalai Forested Hills
					4.2.5.2	Marayur Forested Hills
					4.2.5.3	Cardamom Hills
					4.2.5.4	Periyar River Basin
					4.2.5.5	Thekkadi Forested Hills
				Kottayam	4.2.5.1	Kumarakom Low Lying Plain
					4.2.5.2	Kottayam Rolling Plain
					4.2.5.3	Meenachil-Kanjirappally Uplands
					4.2.5.4	Ranni Forested Hills
		4.2.6	South Kerala Coast	Alleppey	4.2.6.1	Alleppey Coast
					4.2.6.2	Kuttanad Low Lying Plain
					4.2.6.3	Chengannur Rolling Plain
				Quilon	4.2.6.1	Quilon Coast
					4.2.6.2	Adoor Rolling Plain
					4.2.6.3	Kottarakkara Undulating Uplands
					4.2.6.4	Pamba-Kakki Forested Hills
					4.2.6.5	Kulathupuzha Forested Hills
				Trivandrum	4.2.6.1	Trivandrum Coast
					4.2.6.2	Attingal-Neyyattinkara Undulating Uplands
					4.2.6.3	Ponmudi-Agasthiar Forested Hills

Physiography of Kerala

5. The Kerala State can be divided into three longitudinal divisions viz. the alluvial coastal land (known as lowlands), low lateritic plateau and foothills (known as midland) and gneissic highlands. The coastal region has network of backwaters like Kumbla, Kalnad, Bekel, Chittari, Kavvayl, Veliyangod, Kodungallur, Vembanad, Kayamkulam, Asthamudi, Paravoor, Anchuthengu (Anjengo) and Veli besides the drainage areas of 44 rivers. Of the 41 west-flowing rivers, 11 exceed a length of hundred kilometres viz. Bharathapuzha (251 km.), Periyar (229), Pamba (177), Beypore or Chaliar (169), Chalakudy (145), Kadalundi (130), Achancoil (129), Muvattupuzha (121), Kallada (121), Valapattanam (113) and Chandragiri (105). Though these rivers discharge into the sea, no major delta is formed in its course. However, series of parallel, sub-parallel sand dune ridges are found in the coastal region, particularly between Cochin and Alleppey. This coastal belt is generally swampy and several parts are liable to be flooded during the monsoon inundations. This area has luxurient growth of coconut palms. To the east of the coastal belt is the midland region which stretches the entire length of the state. This region, characterised by plains and undulating valleys, broken intermittently by isolated hills, is a fertile tract. The highland region which borders the eastern boundary of the state is conspicuous by the presence of the mighty Sahyadri mountains, which stand as a natural barrier on the eastern side of the state with long spurs, extensive ravines, dense forests and tangled jungles. Its height generally varies between 900 and 2,500 metres. The highest peak in this mountainous region is Anamudi (2,695 m) situated in Idukki district. It is the highest peak in the Western Ghats and the highest in India outside the Himalayan mountains. Other important peaks which rise above 1,800 m. are Eravimala (2,402 m), Anginda (2,386 m), Kattumala (2,377 m), Vavul or Wayutmala or Camel's Hump (2,339 m), Chenthavara (2,336 m), Kumarikkal (2,298 m), Karimkulam (2,286 m), Vellaramala (2,244 m), Devimala (2,195 m), Balasur (2,061 m), Karimala (1,998 m), Agasthiarmala (1,896 m), Elambelerimala (1,839 m), Vallamala (1,829 m), Gundoormala (1,829 m), Devicolam (1,829 m) and Karimalakadakkal (1,821 m). There are some important passes in this mountain tract viz. Perambadi, Peria, Tamarasseri, Palghat gap, Valppara, Bodinaickannur, Kambam, Kumali and Arienkavu and all these facilitate inter-state contacts between Kerala and neighbouring states of Karnataka and Tamil Nadu. Of these, the Palghat Gap, which is 32 km wide, is the most striking one. William Logan, in his immortal work, the *Malabar Manual* describes the Palghat Gap thus: 'Here, by whatever great natural agency the break occurred, the mountains appear thrown back and heaped up, as if some overwhelming deluge, had burst through, sweeping them to left and right. On either hand tower the giant Nilgiris and Anamalais[1] over-topping the chain of ghats by several thousand feet, while through the gap the south-west winds bring pleasant moister air and grateful showers to the thirsty plains of Coimbatore, and roads and railway link through the Carnatic to Kerala'.

Physiographic characteristics of micro regions

(i) North Kerala Coast

6. This micro region extends over three districts (Cannanore, Wayanad and Kozhikode) of Kerala state and Mahe of the Pondicherry Union Territory. The total area of this region excluding Mahe is 9,435* km^2 and has a population of 5,602,758 (1981 census). The eastern border of this region has varying heights of 100 metres and above of which Wayanad plateau has a height of over 600 metres. This plateau lies on the top of the Sahyadri mountains. The Kasaragod plateau and Wayanad plateau are the continuation of the Karnataka

[1] Presently spelt as Anamala:

** The total 'geographical' area of the micro region is based on the district area figures supplied by the Surveyor General, India. The area figures of sub-micro regions are based on the land area figures supplied by Director of Survey and Land Records, Tahsildars and Local Bodies. Hence the sub-micro area figures when added up may not tally with the total area of the concerned micro regions.

Plateau. Sahyadri has scarp slopes, escarpments, deep gorges, waterfalls and rapids. Generally the region slopes from east to west with the exception of the Wayanad Plateau. The sloping is gradual and moderate. There are 24 rivers in this region of which 23 are west-flowing. Of these Chandragiri, Valapattanam and Chaliar are the more important rivers. The only east-flowing river Kabani originates from the western boundary of the Wayanad Plateau and flows eastward, crosses the state boundary, and joins as a tributary of Cauveri. The forest in this region consists of wet evergreen, moist deciduous and dry deciduous forests, and plantations. Sand dunes are found on the coastal strip north of Chandragiri river. The central part of this region has some outlying hills and laterite platforms.

(ii) Central Kerala Coast

7. This region spreads over six districts viz. Malappuram, Palghat, Trichur, Ernakulam, Idukki and Kottayam. It has an area of 20,733* km^2 (which accounts for about 53 per cent of the total area of Kerala State) and a population of 12,091,015 as per the 1981 Census. Physiographically the eastern tract is a continuous stretch of high ranges with a conspicuous gap of 32 km width known as Palghat Gap, which connects the Palghat district with the Coimbatore plateau. On either side of the Palghat Gap there are lofty hills, on the north by the Nilgiri mountains and on the south by the Anamalai mountains. The front of the Palghat Gap is very steep. The highest peak of this micro region is the Anamudi (2,695 m). There are 13 rivers in this region which include the longest river in the State viz. Bharathapuzha. The other important rivers are Kadalundi, Periyar, Chalakudy and Muvattupuzha. Two rivers viz. Bhavani and Pambar flow east-ward as the terrain in the eastern tract of Mannarghat taluk and north-eastern area of Devicolam taluk respectively tilt towards the east. This micro-region is a fertile tract especially in the longitudinal divisions of midland and highland and it has the largest extent of forest. Wet ever green forests are seen in Nilambur, Silent Valley, Parambikulam-Sholayar area, Malayattur, Kanthallur, Vattavada and in the Periyar Game Sanctuary area. Dry deciduous forest areas are seen in the Marayur area while moist-deciduous forests occur in patches all over the eastern region. Forest plantations (teak etc.) and other plantations of tea, coffee, rubber etc. are found in other areas.

(iii) South Kerala Coast

8. The South Kerala Coast micro region, with an extent of 8,695* km^2 and a population of 7,759,907 falls in three districts viz. Alleppey, Quilon and Trivandrum. There is a net work of backwaters, locally known as *kayals*, inter-connected by rivers and canals. The *kayals* are Vembanad, Sasthamcottah, Ashtamudi, Paravoor, Anchuthengu (Anjengo) and Veli. Of these, Sasthamcottah is a fresh water lake while all others are lagoons linked with the Lakshadweep sea. The waters of Manimala, Pamba and Achancoil rivers drain into the Vembanad lake while Kallada river falls into the Ashtamudi lake. Kuttanad, the granery of the state, falls in this tract. Paddy and coconut are the important crops of this region. The mode of cultivation of paddy in the Kuttanad region is very peculiar. The paddy fields lie at a lower level than the sea and are surrounded by *kayals*, rivers and canals. Since the paddy fields lie low huge and thick bunds are constructed on all sides to save them from saline water. However, in rainy season saline water inundates the fields and it is an impressive sight to see the pumping out of the vast expanse of water from the fields (each field having an area of 8 to 15 hectares) by using power-driven centrifugal pumps to the peripheral *kayals*, rivers or canals. To the east of this coastal tract is the undulating or rolling fertile plain having rich crops like cashew, paddy and tapioca. The eastern region comprises mainly of forests and plantations, particularly rubber and tea. This south Sahyadri region has an important peak known as Agasthiyar peak (1,869 m) named after the great sage Agasthya. Ariencavu

* Ibid

pass which connects the hinterland with the plains of Tirunelveli district of Tamil Nadu stands unique and provides as an important inter-state trade and travel route.

Soils

9. The soils of the state are broadly classified in common parlance into sandy, alluvial, laterite, red, black, peaty and forest & hill soils. Sandy soils occur as a narrow strip all along the coast. They are extremely deficient in all the major plant foods and lime. The alluvial soils are found in two regions viz. in Kuttanad taluk and in the *kole* lands of Trichur and Mukundapuram taluks. They are heavy in texture and are generally well supplied with organic matter, nitrogen and potash but are deficient in phosphate and lime. Laterite soil covers a large longitudinal belt of the entire state. Though less fertile they are characterised by a vesicular structure and the accumulation of hydrated oxides of iron and aluminum. These soils vary in depth from 2 to 3 metres and have a thick layer of kaolin clay below. Red soil occur in a small area south-west of Neyyattinkara taluk. The eastern portions of Palghat and Chittur taluks have black soils which are usually deficient in all major plant foods and are neutral or slightly alkaline in reaction. Peaty or *kari* soils occur in some parts of Ponnani, Kanayannur, Vaikom, Shertallai, Ambalapuzha and Kuttanad taluks. They are essentially clay soils with poor aeration and drainage and having characteristics of deep black colour, extremely high content of organic matter and very strong acidity. The entire eastern region is covered by forest and hill soils and are characterised by a surface layer of organic matter derived from forest growth. They are rich in nitrogen but low in phosphate content.

10. The soil map presented in this volume is based on the 'Soils of India' published by the Bureau of Soil Survey and Land use Planning (ICAR), Nagpur. The classifications adopted in it are based on sub-order associations and are different from the common and traditional nomenclature as adopted earlier. Attempt has been made to indicate the new soil classifications district-wise in the frame of micro divisions in tabular form with other details as well as for reference.

Geology

11. The geology of the state varies from the Pre-Cambian age (prior to 600 million years) to the recent age. There are five geological formations in Kerala State. They are Recent deposits, Pleistocene, Miocene, Lower Proterozoic and Archaean. Recent deposits consist of alluvial, marine and lacustrine deposits. They form a narrow strip on the coast of Kerala from the northern border upto the mouth of Bharathapuzha river and then it widens all along the western tract of Trichur district and again tapers off when proceeding to south. This area particularly in the Quilon coast contains all the valuable mineral sands of Kerala. The Pleistocene formation is found in a small area on the east of Recent deposits falling in between Beypore and Bharathpuzha rivers, between Chalakudi and Achancovil rivers and in small patches in Quilon and Trivandrum districts. The Miocene formation known as Quilon and Warkalli beds, lie east of Recent deposits as two small enclaves, one in Cannanore and the other as a small continuous strip from Thiruvalla to the southern border of the state touching the coastal line at Varkala and at Kovalam. It is very significant that these Warkalli beds are devoid of animal fossils. Lower Proterozoic (Dharwar) formation are found as a narrow belt from north-west to south-east from Taliparamba to the Gudalur boundary in Wayanad district. The Archaean formation consists of basic dykes, unclassified granite, charnockites, khondalities and cordierite gneiss, hornblende-biotite gneiss and other unclassified crystallines including younger segments. The high ranges of the state mostly fall under the ancient Pre-Cambian rocks consisting chiefly of charnockites, khondalites and different gneisses. Iron ore, crystalline limestone, limeshell, graphite, mica, chrysobery, bauxite, clays, placer deposits, glass sand and steatite are found in the state, though their commercial exploitation is limited to limeshell, clays and placer deposits which include monozite and ilmenite.

Climate

12. Kerala has a maritime tropical climate with little variance in temperature and humidity. Generally Kerala has a salubrious climate with uniform climate throughout the year. Though the high ranges experience a bracing cold climate, the plains in the state enjoy a temperate climate. The mean maximum temperature varies between 28°C and 34°C, while the mean minimum temperature varies between 20°C to 25°C. The zone of high temperature is in the middle region of Central Kerala falling in Malappuram, Palghat, Trichur, Ernakulam and Kottayam districts. Very low mean annual temperature is recorded in north eastern portion of Devicolam taluk, Silent Valley area of Palghat district and Kuttiyadi area of Kozhikode district.

13. Rain is available throughout the year though its precipitation varies considerably from season to season. In the cold weather season (December to February) the normal rainfall obtained is 3 per cent of the total precipitation in a year while in the hot weather season (March to May) the rainfall is 13 per cent. The maximum rainfall (67 per cent) is recorded during the south-west monsoon period (June to September) which is locally known as *Edavappathi*. On an average 350 centimetres of rainfall is recorded during this season in Kuttiyadi, Neriamangalam and Peermade areas. Very low rainfall is recorded in some pockets on the Sahyadri ridge which borders the Tamil Nadu. During the north-east monsoon period (October and November), otherwise known as *Thulavarsham*, the total availability of rainfall is 17 per cent of the normal rainfall in a year. Western portion of Idukki and central regions of Kottayam and Quilon districts get the largest precipitation during this season with over 90 centimetres.

14. There is considerable variation in wind speed between lowland and the highland regions. The inland metereological stations record more calm days due to the sheltering effect of Sahyadri mountains in contrast to the coastal stations which is very much influenced by the orographic features. The northern districts get north-westerly winds, particularly in the afternoons with more than 20 km. per hour. Generally mornings experience land breezes from north-east and east, while the afternoons get sea breezes from west and north-west directions. The wind speed notably decreases during the period from November to April.

Forests

15. Almost the entire eastern region of the state has forests, though its extent is dwindling at a faster pace due to the large-scale encroachments, colonization schemes, utilisation for other uses (such a hydro-electric schemes, offices, quarters for staff) etc. Further the deforestation affects to a great extent the soil conservation and climate of the region. Natural forests and plantations thrive in this area. Generally the forests of the state fall under six types viz. (i) tropical wet evergreen forests (found at an altitude of 1,200 metres above the mean sea level with a normal rainfall of 200 cm), (ii) tropical semi-evergreen forests (occuring at an elevation of 750-1,000m), (iii) sub-tropical wet evergreen forests (which thrive in ravines at an altitude of 1,200 metres having an annual normal rainfall of 190-250 cm), (iv) temperate shola forests (occurring in valleys of the high ranges), (v) the tropical moist deciduous forests (found at an elevation of less than 750 m with an annual rainfall of 200 cm) and (vi) the tropical dry deciduous forests (found in the eastern slopes of the Sahyadri mountains having an annual rainfall of less than 100 cm).

Flora and Fauna

16. The fertile soil, heavy rainfall and the temperate climate have contributed to the richness of flora in the State. There are innumerable species of valuable timber trees of which the most important are teak, rosewood, ebony, sandalwood, *anjili* (Artocarpus hirsuta), *thambagam* (Hopea parviflora), *venga* (Pterucarpus marsupium), *thembavu* (Terminalia tomentosa), white cedar, red cedar, *venthek* (Larger straemia lanceolata) and *irul* (Kodaxyliadolabriformis) etc., besides trees yielding

gums, resins and dyes. The avenue trees include banyan, *arasu* (Ficus religiosa) *njaval* (Eugenia jambolana), *poovarassu* (Thespesia populnea), casurina, tamarind, jack, mango, margosa, pine and cashew trees. There are also medicinal, flowering and ornamental plants apart from bamboos and reeds, plantation crops, spices, tuber crops, fruit plants and vegetables. The above list is not exhaustive but only illustrative.

17. Besides the usual domestic animals, there are some peculiar forests fauna which include elephants, lion-tailed macacque, Hanuman langur, Nilgiri Tahr, Nilgiri brown mongoose, leopards, elk, horned antelope, vulghan, toddy cat, Indian bear, bisons, squirrels of different types, black naped hare, sambur, spotted deer and Indian wild boar. Of the acquatic mammels the most important species are common otter, smooth Indian otter, clawless otter and Nilgiri marten. There are diverse species of birds in Kerala. Dr. Salim Ali in his famous book *Birds of Kerala* (Bombay, 1969) describes that 400 types of birds are found in Kerala of which 120 are migratory birds and the rest full-time residents. Hornbill is notified as the state bird of Kerala. Other common birds found here are owls, owlet, kingfishers, egrets, bulbuls, tailor birds, rails, coots, eagles, vultures, Indian darter, Indian koel, Indian cuckoos, larks, myna, fly catchers, magpie, robin, wag tails, honey suckers etc.

18. The coastal area contains large number of fishes of exotic varieties. The marine products act as a strong economic base of the state and play a dominant role in the industrial development of the state. The long coast line and network of backwaters give ample scope for fishing at sea and inland-fishing respectively.

People

19. The people of Kerala show rich diversity in their ethnic make up. Kerala has been through ages the cradle of varied cultures and ways of life. In early centuries the people in the state followed Dravidian practices which were not related to any particular philosophy. The early Dravidian society was an open society imbibed in the principles of social freedom and equality and free from untouchability. In the 3rd or 4th century B.C. Jainism, Buddhism and Brahminism made their presence in Kerala but only later in the 5th century Aryan culture exercised its dominant influence in the society particularly among its upper classes The early foreign trade contacts starting from the third millennium B.C. had their own impacts on the social and cultural history of the State. The Arabs, the Babylonians, the Phonecians, the Israelites, the Greeks, the Romans, the Chinese etc. had trade contacts with the people of Kerala. These contacts resulted in the introduction of many world religions into the soils of Kerala viz. Christianity (in 52 A.D.), Judaism (68 A.D.) and Islam (7th or 8th century). The rise of Hinduism from 5th century A.D. paved the way for the decline of Buddhism and Jainism, Sree Sankaracharya (788-812 A.D.), the greatest Hindu saint of India, was born at Kaladi in Kerala and his *advaita vedanta* philosophy purified Hinduism of its irrational formalities and established the supremacy of Vedanta and laid down the foundations of cultural synthesis. All these religions, whether indigenous or foreign, helped to mould the culture and communal harmony of Kerala.

20. Hinduism, Islam and Christianity are the three major religions of the State. As per the 1981 census the Hindus number 14.8 million (58.15 per cent), Muslims 5.4 million (21.25 per cent) and Christians 5.2 million (20.56 per cent). All these religions have followers in all the districts. However, Hindus constitute more than half of the population in all districts except Malappuram, Ernakulam and Kottayam. Muslims is the predominant religion in Malappuram district with 65.51 per cent of its population while in numerical strength Christians are the largest community in Ernakulam and Kottayam districts with 40.20 per cent and 47.48 per cent respectively. 'Other religions' and 'religion not stated' comprise of 0.02 per cent each. Jews had an intrinsic part in the cultural life of Cochin and its neighbourhood. Thousands of Jews settled here after the destruction of the Second Temple at

Jerusalem by the Romans in 70 A.D. However the birth of Israel state in 1948 led to the emigration of Jews to Israel and very few of them are left in Kerala now.

21. As per the 1981 census there were 25.48 lakhs scheduled castes which work out to 10.02 per cent of the total population of Kerala. Pulayan/Cherumar is returned as the largest community among scheduled castes with a population of 8.4 lakhs. Other scheduled caste communities which exceed one lakh persons are Cheruman (2.94 lakhs). Kuravan/Sidhanar (2.18), Thandan (2.02), Parayan/Sambavar (1.90), Kanakkan/Padanna (1.43) and Vettuvan (1.11). Scheduled castes live in all districts of Kerala, though in numerical strength they vary from 21 thousand in Wayanad district to 3.76 lakhs in Palghat district. The districts which have higher content of scheduled caste population and which equal to or exceed the state average are Palghat (18.41 per cent), Idukki (13.71), Trichur (12.38), Quilon (12.35), Trivandrum (10.93) and Alleppey (10.02). Most of the scheduled caste population live in rural areas. Coming to the taluks, Devicolam has the highest percentage of scheduled caste population (28.18 per cent) followed by Peermade (26.28), Ottappalam (22.26) and Alathur (20.38). Tellicherry records the lowest position with 1.64 per cent. At sub-micro region level Anamudi Forested Hills, Thekkadi Forested Hills and Marayur Forested Hills have more than one-fifth of their population as scheduled castes.

22. Scheduled tribes constitute 2.61 lakh persons in the state as per the 1981 census, which comes to 1.03 per cent of the total population of Kerala. The important community among scheduled tribes is Paniyan. Other communities which exceed a population of 10,000 are Malai Arayan, Marati, Kurichchan, Kurumans, Kanikaran/Kanikkar, Ulladan and Muthuvan/Mudugar/Muduvan. Scheduled tribes reside in all districts, though their number is less than one per cent in all districts except Wayanad (17.25 per cent), Idukki (3.98 per cent), Cannanore (1.42 per cent) and Palghat (1.41 per cent). Scheduled tribes mostly live in the forest areas and the hilly tract on the eastern side of the state. Only three taluks have more than one-tenth of the population under scheduled tribes. They are Mananthavady (19.80), Sultan's Battery (18.02) and Vythiri (14.06), all in Wayanad district. Coming to sub-micro level more than 15 per cent of scheduled tribe population are residing in Wayanad Plateau, Mannarghat-Palghat Forested Hills, Malayattur Forested Hills and Marayur Forested Hills.

Population distribution

23. Kerala has a population of 25.45 million of which 12.53 million are males and 12.92 million are females. Among the districts Quilon is the most populous with 2.81 million persons followed by Cannanore (2.80), Trivandrum (2.60) and Ernakulam (2.54). The least populous district in the state is Wayanad with only 0.55 million persons. Among taluks, Kozhikode has the largest population with over 11.73 lakhs while Kothamangalam has only a population of about 1.65 lakhs.

24. Population by natural regions indicate that the coastal sub-micro regions which lie as a continuous belt from north to south have a larger population content, the total being about 9 million. Those sub-micro regions bordering the Sahyadri mountains are sparsely populated. The sub-micro regions with less than 1 lakh population are Ranni Forested Hills (58,804), Chittur Forested Hills (50,222), Marayur Forested Hills (18,664) and Malayattur Forested Hills (222).

25. Of the total 25.45 million people 12.53 million live in rural areas which constitute 83.76 per cent. Out of 106 towns in Kerala in the 1981 census, 48 are statutory towns (3 corporations, 42 municipal towns, a cantonment and 2 townships) and 58 census towns. The number of towns is large in Cannanore district (26 towns). Trichur district with 25 towns ranks second while the 3rd rank is held by Ernakulam district with 16 towns. Twenty four towns touch the sea cost. Of the remaining towns, 63 towns lie within distances of less than 25 km. from

the coast line, 16 towns between 25 and 49 km. and 3 towns (Palghat, Chittur-Thathamangalam and Idukki) lie beyond 50 km. This distribution of towns indicate that the first human habitation in Kerala was on the west coast bordering the sea and on the banks of rivers and slowly moved towards east. The settlement pattern clearly holds good of this phenomenon. Kerala is unique in many respects. Each house is an independent entity, as most of these houses are surrounded by compound walls made up of laterite stones, burnt bricks, mud, cadjan leaves or bamboo thorn fence. People, except in certain pockets, do not like to live in rows of houses in a street or build fortification round their settlement, as is seen in other parts of the country. There is practically no isolation among the settlements as the entire state is a continuous ribbon of settlements, broken only by few patches of stony wastelands, backwaters, rivers, rivulets etc.

Density of population

26. The physical configuration of the state, early historical association and other social-cultural factors affect the pressure of population. The high desnity of the state is attributable to the small area under habitation due to the prevalence of dense forests and plantations which extend over one-fourth of the area of the state. At the turn of the century the density of population was only 165 persons per km^2. but it has spectacularly increased to 655 in 1981. Alleppey district has the largest density in the state in 1981 with 1,248 persons per km^2. The other districts with a density of more than 1,000 persons per km^2. are Trivandrum (1,184) and Ernakulam (1,053). Except 3 districts (Wayanad, Palghat and Idukki) all the other districts have a density ranging between 500 and 999. The lowest density is in Idukki (192), the district having large area under forest and plantations. The sharp rise in density during the present century is evident in Alleppey, Trivandrum, Ernakulam, Kozhikode and Kottayam districts.

27. The rural density of the state in 1981 is 558 as against 2,669 for the urban areas. The rural-urban differential in density is also considerable in all districts except in Malappuram and Idukki. The highest urban density is in Trivandrum district (3,961) followed by Kozhikode (3,821) and Quilon (3,156). In six districts the urban density ranges between 2,000 and 3,000 while three districts have a density of less than 1,000 persons. Alleppey is the sole district with a rural density of above 1,000. Cochin (3,201) tops other taluks in density followed by Trivandrum (2,950) Quilon (2,125) and Ambalapuzha (2,100). Twenty taluks have a density ranging between 1,000 and 1,999. Nineteen taluks fall in the density range of 500 and 999, while 15 taulks have a density of below 500 persons per km^2. Among towns, Quilon municipal town has the highest density with 7,464 persons per km^2.

28. The sub-micro region of Trivandrum coast has the largest density (2,567). The Kozhikode and Ernakulam sub-micro regions fall in the density range of 2,000-2,499. The sub-micro region falling in the entire eastern region bordering Sahyadri mountains with the exception of Palghat Gap has low density of population falling below 500.

Sex ratio

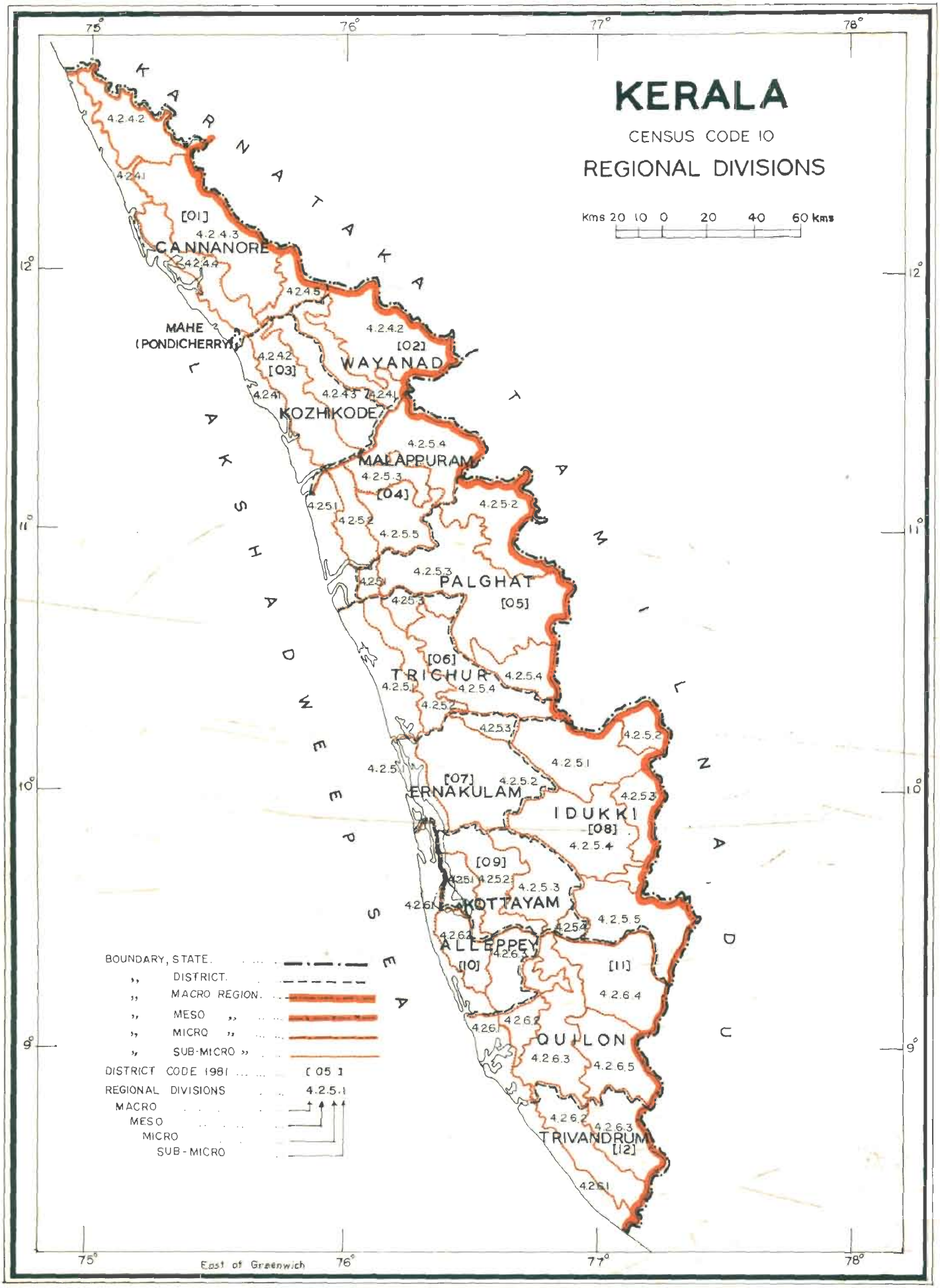
29. Kerala is unique with the predominance of females over males in all censuses in this century. In 1901 Kerala's position with respect to sex ratio was sixth among the states in India but slowly it moved up to the first place in 1961 and thereafter it tops all other states. The major factors which influenced the predominance of females in Kerala are higher status given to women in the state, the matrilineal system, higher female literacy, migration of males in search of livelihood to other States in India and abroad, low female infant mortality rate etc. Cannanore, Kozhikode, Malappuram, Palghat and Trichur districts have excess of females over males in all censuses from 1901 while Trivandrum recorded predominance of females from 1931 census onwards and Alleppey from 1941 census. Ernakulam showed excess of females only in 1951

census. Females in Quilon, on the other hand, outnumbered males in 1941, 1971 and 1981 censuses while the females in Kottayam district showed a slight edge over males in the 1981 census.

30. The difference in sex ratio between rural and urban areas is maximum in Trichur district (48 points) and minimum in Cannanore district (4 points). In Cannanore, Kottayam and Idukki districts sex ratios are higher in urban areas as compared to rural areas. Chavakkad (1,182) has recorded the highest sex ratio among the taluks of the state.In 43 out of 58 taluks females outnumber males. The predominance of males is seen in a contiguous zone comprising of Kanayannur, Kunnathunad, Muvattupuzha, Kothamangalam, Thodupuzha, Devicolam, Udumbanchola, Peermade, Kanjirappally, Kottayam and Meenachil apart from the taluks of Wayanad district and Neyyattinkara of Trivandrum district. Chavakkad town has the highest sex ratio (1,167) and Cannanore Cantonment the lowest (706).

Conclusion

31. In the foregoing paragraphs a brief analysis on the physio-geographic set-up with socio-cultural factors at the sub-micro region level of the State has been attempted. This preliminary exercise gives greater impetus and perspective to launch similar elaborate analytical studies involving more characteristics of population in the ensuing 1991 Census for the benefit of planners, administrators and other data users. It is hoped that these studies will emerge as a basis for planning and pave the way for a well-balanced economic development in every part of the State.


KERALA
CENSUS CODE 10
REGIONAL DIVISIONS
Kms 20 10 0 20 40 60 kms
KARNATAKA
TAMIL NADU
LAKSHADWEEP SEA
ARABIAN SEA
[01] CANNANORE
4.2.4.3
4.2.4.4
4.2.4.2
4.2.4.1
4.2.4.5
MAHE (PONDICHERRY)
[02] WAYANAD
4.2.4.2
[03] KOZHIKODE
4.2.4.3
4.2.4.1
[04] MALAPPURAM
4.2.5.4
4.2.5.3
4.2.5.1
4.2.5.2
4.2.5.5
[05] PALGHAT
4.2.5.3
4.2.5
[06] TRICHUR
4.2.5.4
4.2.5.1
4.2.5
[07] ERNAKULAM
4.2.5.3
4.2.5.2
4.2.5.1
4.2.5
[08] IDUKKI
4.2.5.3
4.2.5.4
[09] KOTTAYAM
4.2.5.2
4.2.5.1
4.2.5.3
4.2.6.1
[10] ALLEPPEY
4.2.5.4
4.2.5.5
4.2.6.2
4.2.6.3
[11] QUILON
4.2.6.4
4.2.6.5
4.2.6.1
4.2.6.3
[12] TRIVANDRUM
4.2.6.2
4.2.6.3
4.2.5.1
BOUNDARY, STATE
,, DISTRICT
,, MACRO REGION
,, MESO ,,
,, MICRO ,,
,, SUB-MICRO ,,
DISTRICT CODE 1981 [05]
REGIONAL DIVISIONS 4.2.5.1
MACRO
MESO
MICRO
SUB-MICRO
East of Greenwich
75°
76°
77°
78°
12°
11°
10°
9°

BASIC DATA ON REGIONAL DIVISIONS OF KERALA, 1981

Macro region with code number : 4. The Coastal Plains and Islands
Meso region with code number : 4.2. Western Coastal Region

District (with code number)		Sub-micro region (with code number)	Constituent units: Whole village	Part village (desoms/ karas)	Town(s)		Area in km^2	Population (1981)
1		2	3	4	5	6	7	8
		MICRO REGION: 4.2.4 NORTH KERALA COAST						
		TOTAL	220	101(269)	32	Total	9,388.24	5,602,758
						Rural	8,935.27	4,336,730
						Urban	452.97	1,266,028
Cannanore (01)	4.2.4.1	Cannanore Coast	29	12(16)	18	Total	849.99	1,110,891
						Rural	646.72	597,337
						Urban	203.27	513,554
	4.2.4.2	Kasaragod Plateau	22	5(7)	-	Total	893.96	247,493
						Rural	893.96	247,493
						Urban	—	—
	4.2.4.3	Peringome-Mattannur Undulating Upland	29	16(40)	-	Total	1,746.12	582,370
						Rural	1,746.12	582,370
						Urban	—	—
	4.2.4.4	Taliparamba-Kuthuparamba Plain	39	18(54)	8	Total	882.74	744,357
						Rural	792.73	602,115
						Urban	90.01	142,242
	4.2.4.5	Kannoth Forested Hills	4	4(9)	-	Total	556.45	118,356
						Rural	556.45	118,356
						Urban	—	—
Wayanad (102)	4.2.4.1	Wayanad Forested Hills	6	5(7)	-	Total	678.74	136,875
						Rural	678.74	136.875
						Urban	—	—
	4.2.4.2	Wayanad Plateau	20	5(9)	-	Total	1,446.94	417,151
						Rural	1,446.94	417,151
						Urban	—	—

1		2	3	4	5	6	7	8
Kozhikode (03)	4.2.4.1	Kozhikode Coast	19	10(36)	6	Total Rural Urban	505.43 345.74 159.69	1,137,050 526,818 610.232
	4.2.4.2	Nadapuram-Mavur Undulating Plain	43	18(72)	-	Total Rural Urban	937.86 937.86 -	871,457 871,457 -
	4.2.4.3	Kozhikode Forested Hills	9	8(19)	-	Total Rural Urban	890.01 890.01 -	236,758 236,758 -
		MICRO REGION: 4.2.5 CENTRAL KERALA COAST						
		TOTAL	608	123(329)	55	Total Rural Urban	20,715.42 19,794.33 921.09	12,091,015 9,985,161 2,105,854
Malappuram (04)	4.2.5.1	Malappuram Coast	35	4(9)	2	Total Rural Urban	654.22 628.33 25.89	925,547 841,518 84,029
	4.2.5.2	Malappuram Undulating Plain	19	10(23)	1	Total Rural Urban	515.08 481.48 33.60	471,021 431,235 39,786
	4.2.5.3	Chaliyar River Basin	13	7(20)	-	Total Rural Urban	461.35 461.35 -	286,315 286,315 -
	4.2.5.4	Nilambur Forested Hills	6	3(3)	-	Total Rural Urban	1,189.06 1,189.06 -	235,073 235,073 -
	4.2.5.5	Perintalmanna Undulating Upland	28	4(17)	1	Total Rural Urban	726.53 673.47 53.06	484,745 430,786 53,959
Palghat (05)	4.2.5.1	Pattambi Undulating Plain	15	3(8)	-	Total Rural Urban	336.66 333.66 -	273,130 273,130 -
	4.2.5.2	Mannarghat-Palghat Forested Hills	6	3(4)	-	Total Rural Urban	1,161.37 1,161.37 -	107,345 107,345 - -
	4.2.5.3	Palghat Gap	116	6(14)	4 &	Total	2,281.16	1,613,702

1		2	3	4	5	6	7	8
					1 OG	Rural	2,186.60	1,407,033
						Urban	94.56	206,669
	4.2.5.4	Chittur Forested Hills	3	-	-	Total	699.56	50,222
						Rural	699.56	50,222
						Urban	-	
Trichur (06)	4.2.5.1	Trichur Coast	84	8(15)	10	Total	832.69	1,149,042
						Rural	744.62	955,855
						Urban	88.07	193,187
	4.2.5.2	Trichur Plain	57	16(36)	15 & 1 OG	Total	658.80	872,692
						Rural	531.62	551,096
						Urban	127.18	321,596
	4.2.5.3	Wadakkancherry Upland	42	6(12)	-	Total	387.86	249,656
						Rural	387.86	249,656
						Urban	-	-
	4.2.5.4	Kodassery Forested Hills	12	7(34)	-	Total	1,114.63	168,153
						Rural	1,114.63	168,153
						Urban	-	-
Ernakulam (07)	4.2.5.1	Cochin Coast	13	3(13)	10	Total	463.91	1,154,852
						Rural	236.30	369,129
						Urban	227.61	785,723
	4.2.5.2	Periyar-Muvattupuzha Rolling Plain	63	3(10)	6 & 1 OG	Total	1,701.03	1,380,220
						Rural	1,551.07	1,163,051
						Urban	149.96	217,169
	4.2.5.3	Malayattur Forested Hills	@	@	@	Total	212.43	222
						Rural	212.43	222
						Urban	-	-
Idukki (08)	4.2.5.1	Anamalai Forested Hills	3	-	-	Total	1,433.87	137,308
						Rural	1,433.87	137,308
						Urban	-	-
	4.2.5.2	Marayur Forested Hills	5	-	-	Total	292.17	18,664
						Rural	292.17	18,664
						Urban	-	-
	4.2.5.3	Cardamom Hills	9	2(5)	-	Total	731.96	201,929
						Rural	731.96	201,929
						Urban	-	-
	4.2.5.4	Periyar River Basin	19	2(3)	2	Total	1,568.73	487,494
						Rural	1,501.28	442,865
						Urban	67.45	44,629
	4.2.5.5	Thekkadi Forested Hills	3	2(13)	-	Total	1,099.94	126,241
						Rural	1,099.94	126,241
						Urban	-	-

1		2	3	4	5	6	7	8
Kottayam (09)	4.2.5.1	Kumarakam Low-lying Plain	11	4(6)	-	Total Rural Urban	308.57 308.57 -	211,688 211,688 -
	4.2.5.2	Kottayam Rolling Plain	28	16(50)	4	Total Rural Urban	850.41 796.70 53.71	963,975 804,868 159,107
	4.2.5.3	Meenachil- Kanjirappally Upland	18	13(32)	-	Total Rural Urban	915.43 915.43 -	462,975 462,975 -
	4.2.5.4	Ranni Forested Hills	-	1(2)	-	Total Rural Urban	121.00 121.00 -	58,804 58,804 -
		MICRO REGION: 4.2.6 SOUTH KERALA COAST						
		TOTAL	224	113(376)	19 & 2 OG	Total Rural Urban	8,752.38 8,338.73 413.65	7,759,907 6,360,514 1,399,393
Alleppey (10)	4.2.6.1	Alleppey Coast	32	8(21)	4	Total Rural Urban	675.67 584.98 90.69	1,133,784 840,957 292,827
	4.2.6.2	Kuttanad Low-lying Plain	27	11(33)	2	Total Rural Urban	540.92 513.72 27.20	568,537 512,714 55,823
	4.2.6.3	Chengannur Rolling Plain	26	6(36)	1	Total Rural Urban	606.93 593.93 13.00	647,824 622,962 24,862
Quilon (11)	4.2.6.1	Quilon Coast	20	10(33)	4 & 1 OG	Total Rural Urban	475.79 416.63 59.16	995,558 701,444 294,114
	4.2.6.2	Adoor Rolling Plain	14	14(47)	-	Total Rural Urban	416.24 416.24 —	444,649 444,649 —
	4.2.6.3	Kottarakkara Undulating Upland	28	25(100)	1	Total Rural Urban	1,140.86 1,117.36 23.50	1,031,921 998,954 32,967
	4.2.6.4	Pampa-Kakki Forested Hills	2	4(8)	-	Total Rural Urban	1,635.06 1,635.06 —	133,460 133,460 —

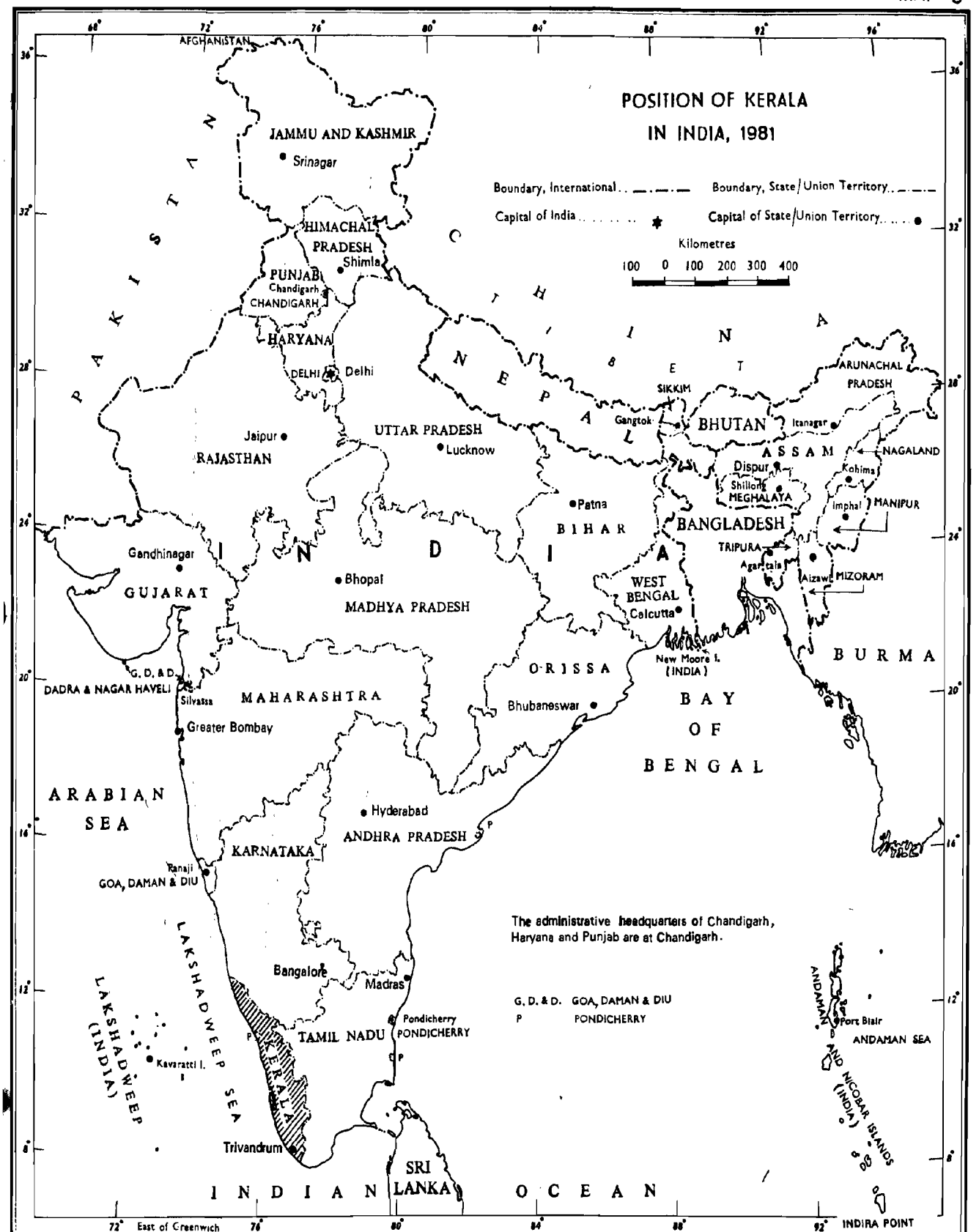
1		2	3	4	5	6	7	8
	4.2.6.5	Kulathupuzha Forested Hills	3	7(20)	1	Total Rural Urban	1,075.00 1,040.40 34.60	208,062 165,023 43,039
Trivandrum (12)	4.2.6.1	Trivandrum Coast	26	8(15)	3 & 1 OG	Total Rural Urban	543.35 434.23 109.12	1,394,808 840,674 554,134
	4.2.6.2	Attingal-Neyyattinkara Undulating Upland	38	14(44)	3	Total Rural Urban	874.54 818.16 56.38	982,463 880,836 101,627
	4.2.6.3	Ponmudi-Agasthiar Forested Hills	8	6(19)	-	Total Rural Urban	768.02 768.02 -	218,841 218,841 -

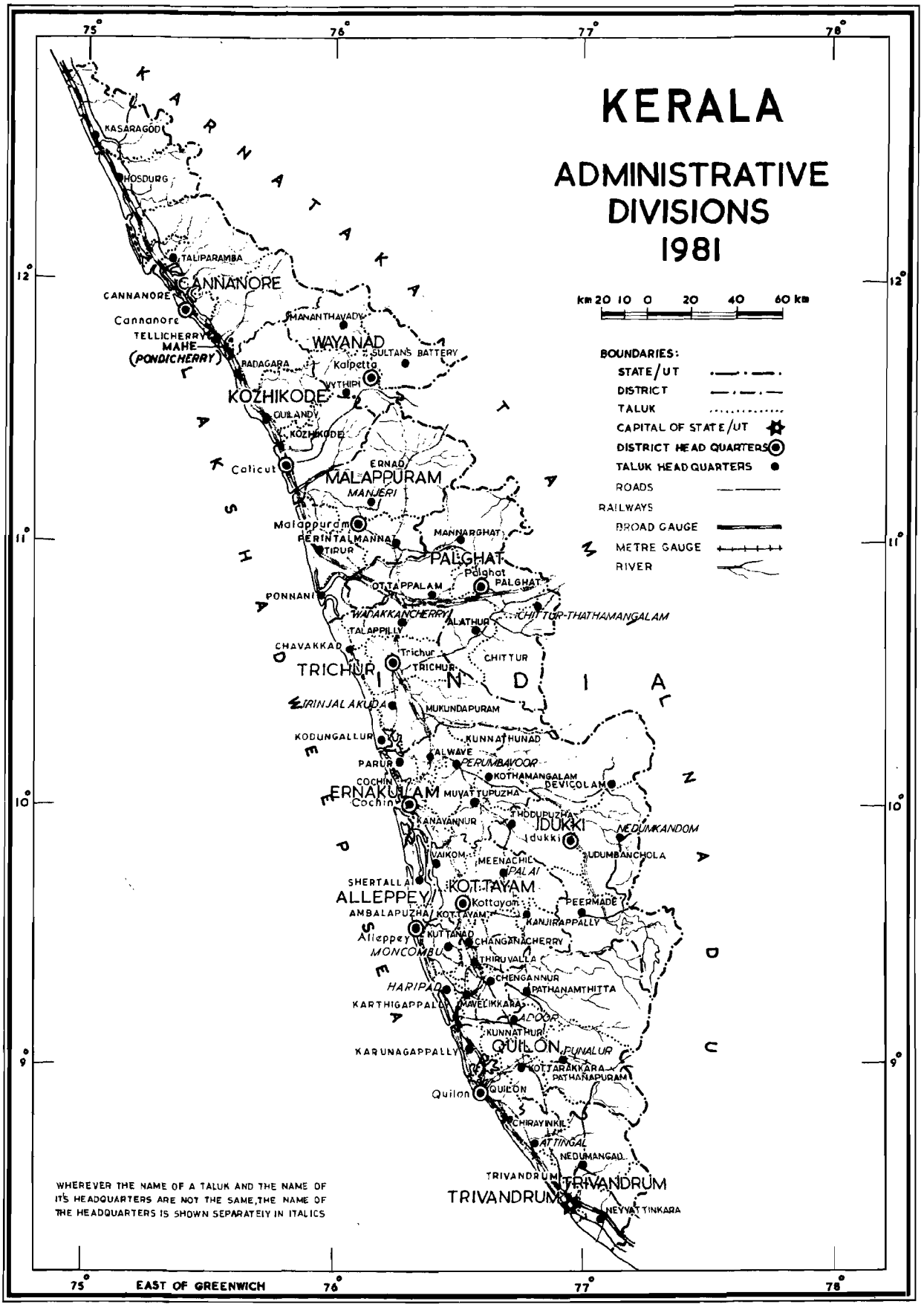
Note : 1. The figures given in col. 3, col. 4 and col. 5 are independent.

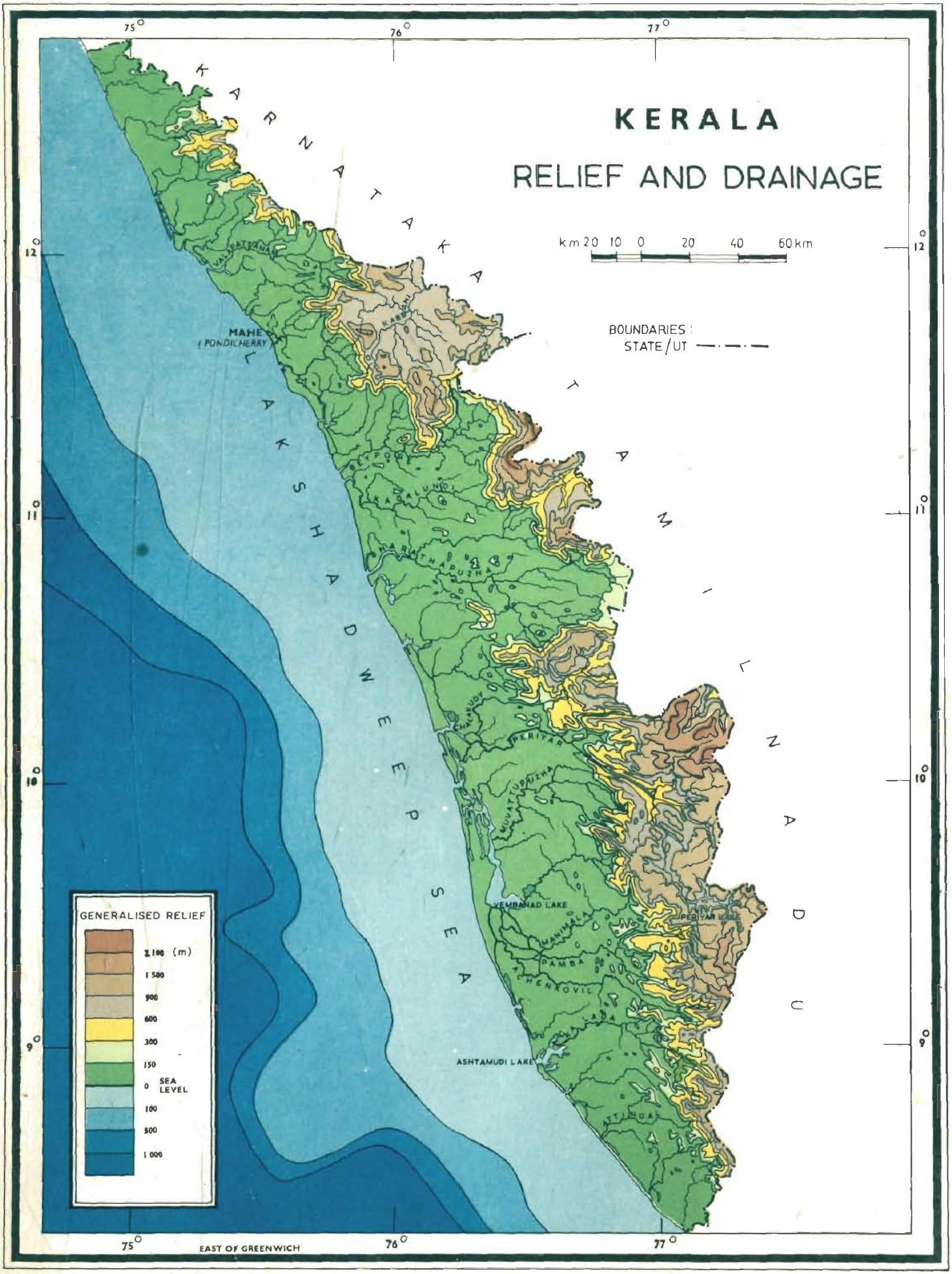
2. Urban Outgrowths (OG) which form part of the Urban Agglomerations are treated independently.

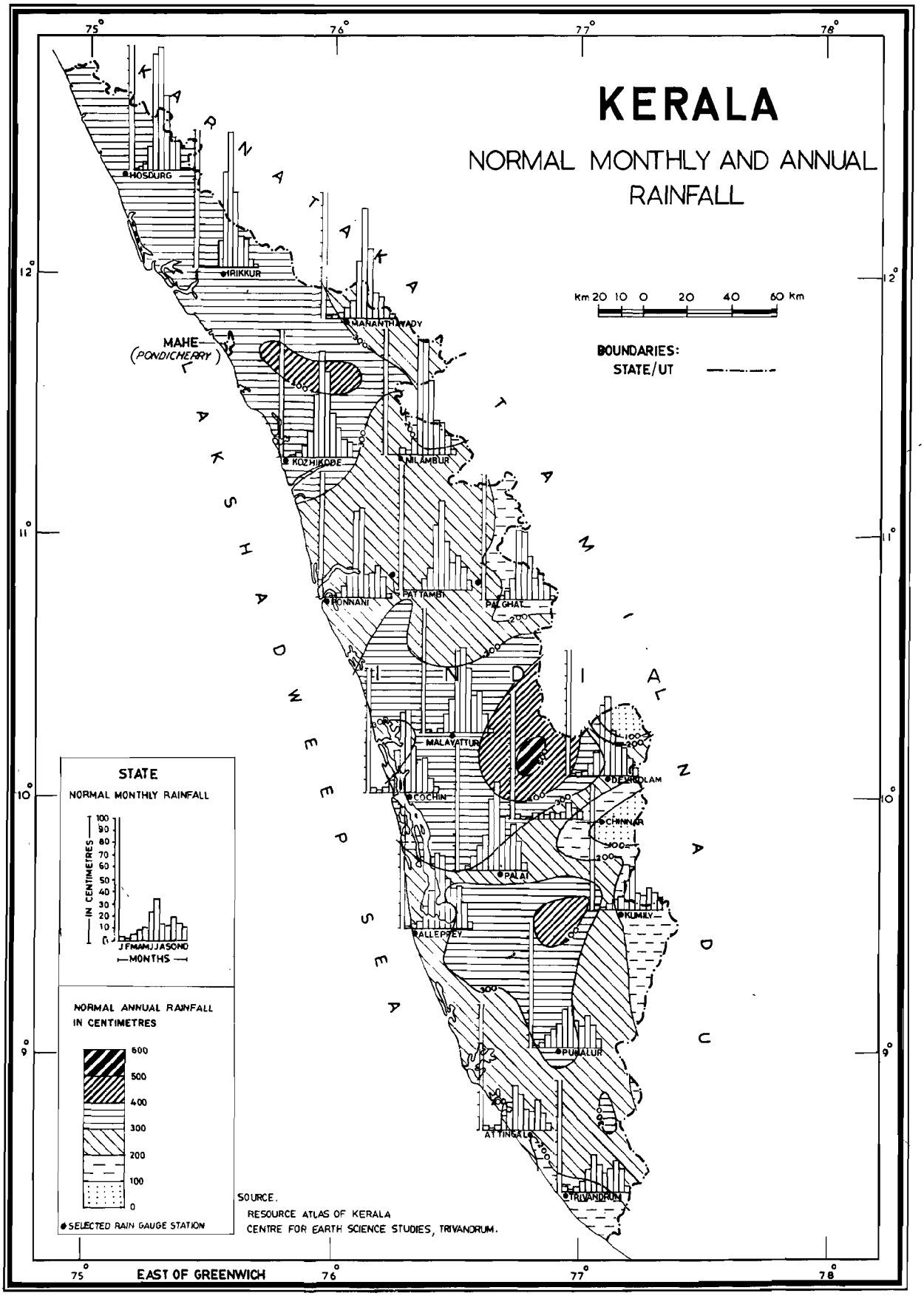
@ The sub-micro region of Malayattur Forested Hills lie entirely outside the village boundaries of Kunnathunad taluk.

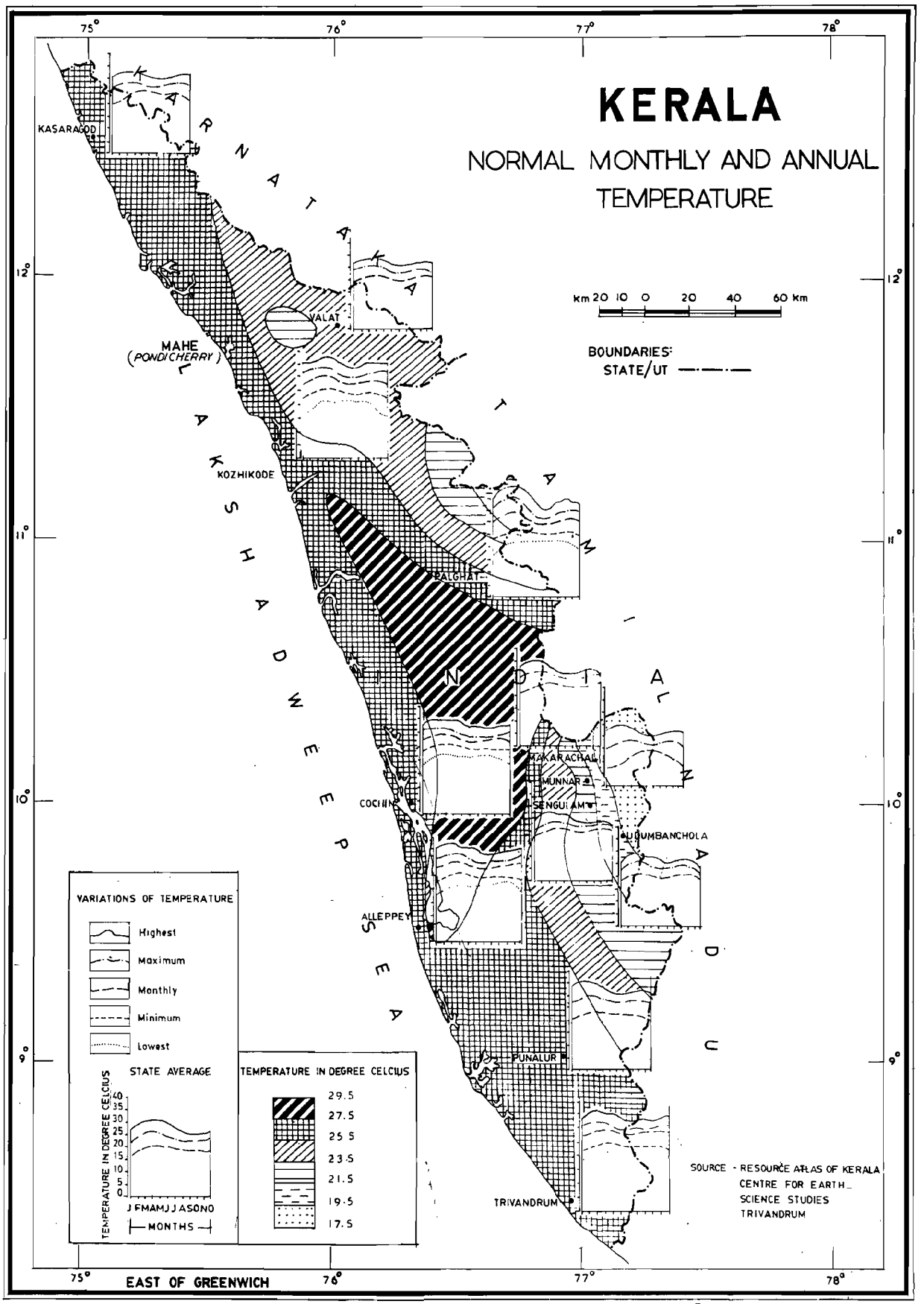
GENERAL MAPS

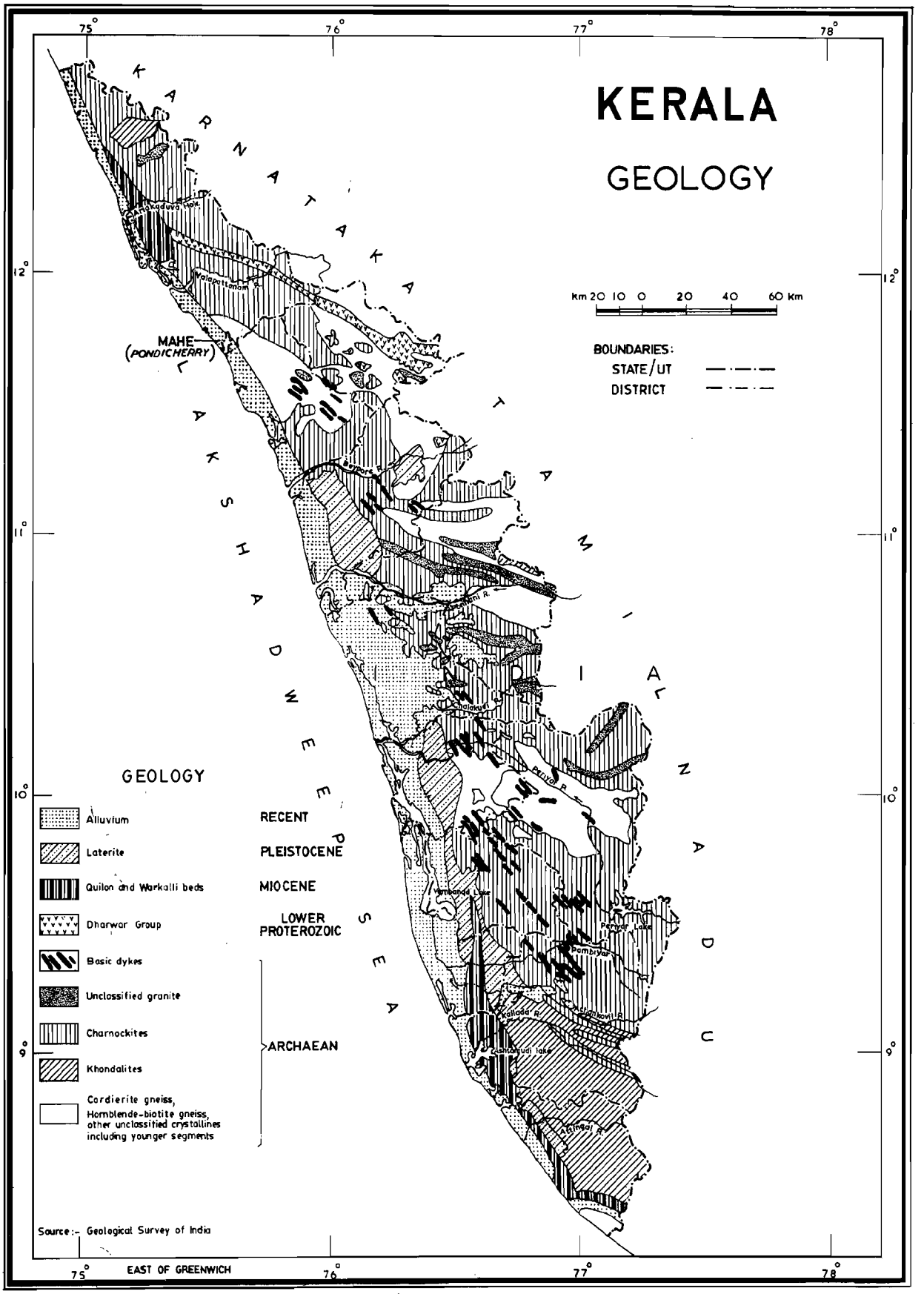

POSITION OF KERALA
IN INDIA, 1981
Boundary, International
Boundary, State/Union Territory
Capital of India
Capital of State/Union Territory
Kilometres
100 0 100 200 300 400
AFGHANISTAN
PAKISTAN
JAMMU AND KASHMIR
Srinagar
HIMACHAL PRADESH
Shimla
PUNJAB
Chandigarh
CHANDIGARH
HARYANA
DELHI
Delhi
Jaipur
RAJASTHAN
UTTAR PRADESH
Lucknow
NEPAL
CHINA
TIBET
SIKKIM
Gangtok
BHUTAN
Itanagar
ARUNACHAL PRADESH
ASSAM
NAGALAND
Dispur
Kohima
Shillong
MEGHALAYA
Imphal
MANIPUR
BANGLADESH
Patna
BIHAR
TRIPURA
Agartala
Aizawl
MIZORAM
WEST BENGAL
Calcutta
Gandhinagar
GUJARAT
Bhopal
MADHYA PRADESH
INDIA
BURMA
New Moore I. (INDIA)
G. D. & D.
DADRA & NAGAR HAVELI
Silvassa
MAHARASHTRA
Greater Bombay
ORISSA
Bhubaneswar
BAY OF BENGAL
ARABIAN SEA
Hyderabad
ANDHRA PRADESH
KARNATAKA
Panaji
GOA, DAMAN & DIU
LAKSHADWEEP SEA
LAKSHADWEEP (INDIA)
Kavaratti I.
Bangalore
Madras
Pondicherry
PONDICHERRY
TAMIL NADU
KERALA
Trivandrum
SRI LANKA
INDIAN OCEAN
ANDAMAN AND NICOBAR ISLANDS (INDIA)
Port Blair
ANDAMAN SEA
INDIRA POINT
The administrative headquarters of Chandigarh, Haryana and Punjab are at Chandigarh.
G. D. & D. GOA, DAMAN & DIU
P PONDICHERRY
East of Greenwich

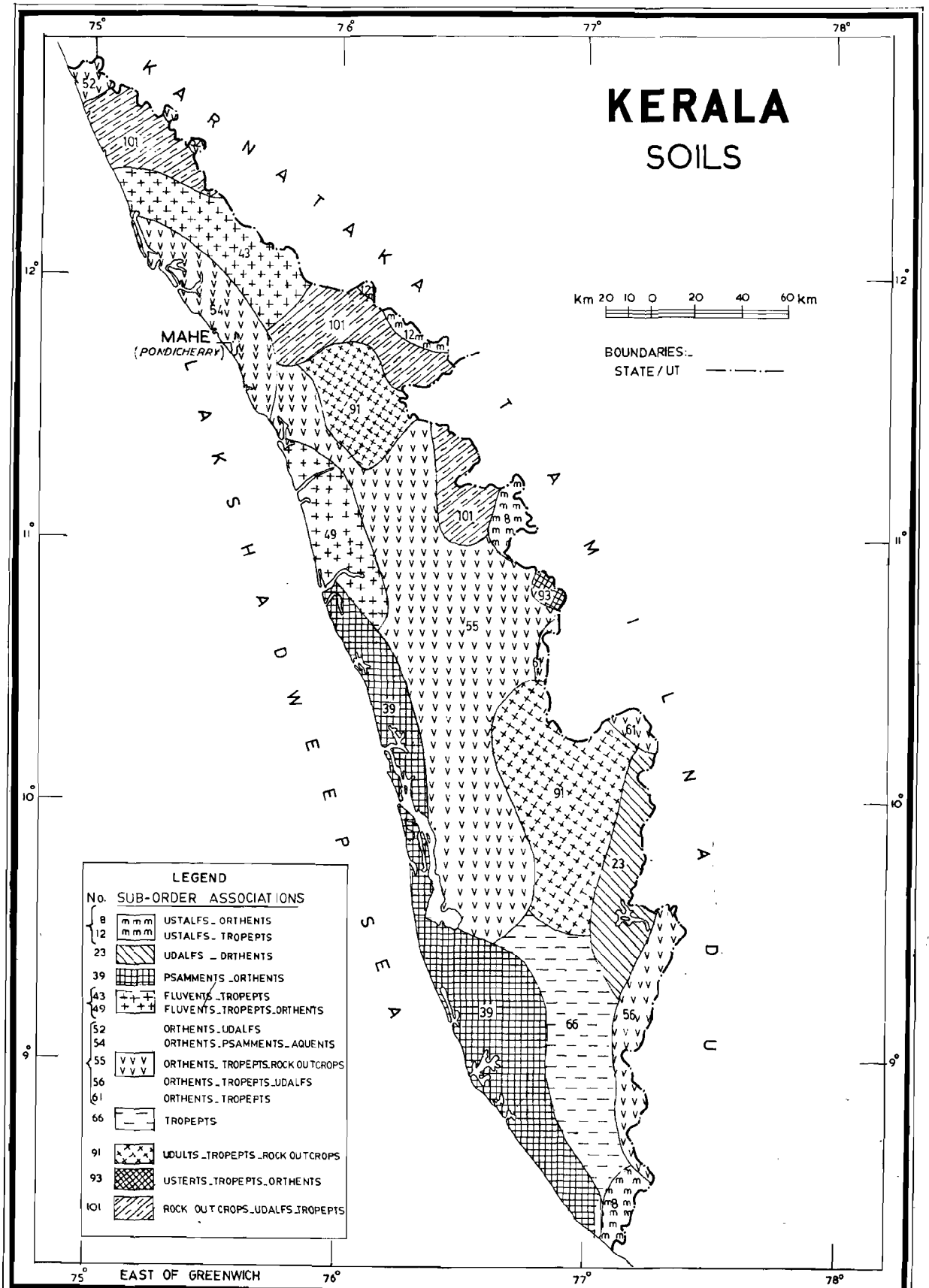

KERALA
ADMINISTRATIVE DIVISIONS 1981
km 20 10 0 20 40 60 km
BOUNDARIES:
STATE/UT
DISTRICT
TALUK
CAPITAL OF STATE/UT
DISTRICT HEAD QUARTERS
TALUK HEADQUARTERS
ROADS
RAILWAYS
BROAD GAUGE
METRE GAUGE
RIVER
KASARAGOD
HOSDURG
TALIPARAMBA
CANNANORE
Cannanore
TELLICHERRY
MAHE (PONDICHERRY)
MANANTHAVADY
WAYANAD
SULTANS BATTERY
Kalpetta
VYTHIRI
RADAGARA
KOZHIKODE
QUILANDY
KOZHIKODE
Calicut
ERNAD
MALAPPURAM
MANJERI
Malappuram
PERINTALMANNA
TIRUR
MANNARGHAT
PALGHAT
Palghat
OTTAPPALAM
PONNANI
WADAKKANCHERRY
ALATHUR
CHITTUR-THATHAMANGALAM
TALAPPILLY
CHAVAKKAD
Trichur
TRICHUR
CHITTUR
IRINJALAKUDA
MUKUNDAPURAM
KODUNGALLUR
KUNNATHUNAD
ALWAYE
PERUMBAVOOR
PARUR
KOTHAMANGALAM
DEVICOLAM
COCHIN
ERNAKULAM
Cochin
MUVATTUPUZHA
THODUPUZHA
KANAYANNUR
IDUKKI
Idukki
NEDUMKANDOM
VAIKOM
MEENACHIL
PALAI
UDUMBANCHOLA
SHERTALLAI
ALLEPPEY
KOTTAYAM
Kottayam
PEERMADE
AMBALAPUZHA
KOTTAYAM
KANJIRAPPALLY
Alleppey
KUTTANAD
CHANGANACHERRY
MONCOMBU
THIRUVALLA
CHENGANNUR
HARIPAD
PATHANAMTHITTA
KARTHIGAPPALLY
MAVELIKKARA
ADOOR
KUNNATHUR
QUILON
PUNALUR
KARUNAGAPPALLY
KOTTARAKKARA
PATHANAPURAM
Quilon
QUILON
CHIRAYINKIL
ATTINGAL
NEDUMANGAD
TRIVANDRUM
TRIVANDRUM
NEYYATTINKARA
WHEREVER THE NAME OF A TALUK AND THE NAME OF ITS HEADQUARTERS ARE NOT THE SAME, THE NAME OF THE HEADQUARTERS IS SHOWN SEPARATELY IN ITALICS
EAST OF GREENWICH
75°
76°
77°
78°
12°
11°
10°
9°
ARABIAN SEA
INDIA
TAMIL NADU
KARNATAKA

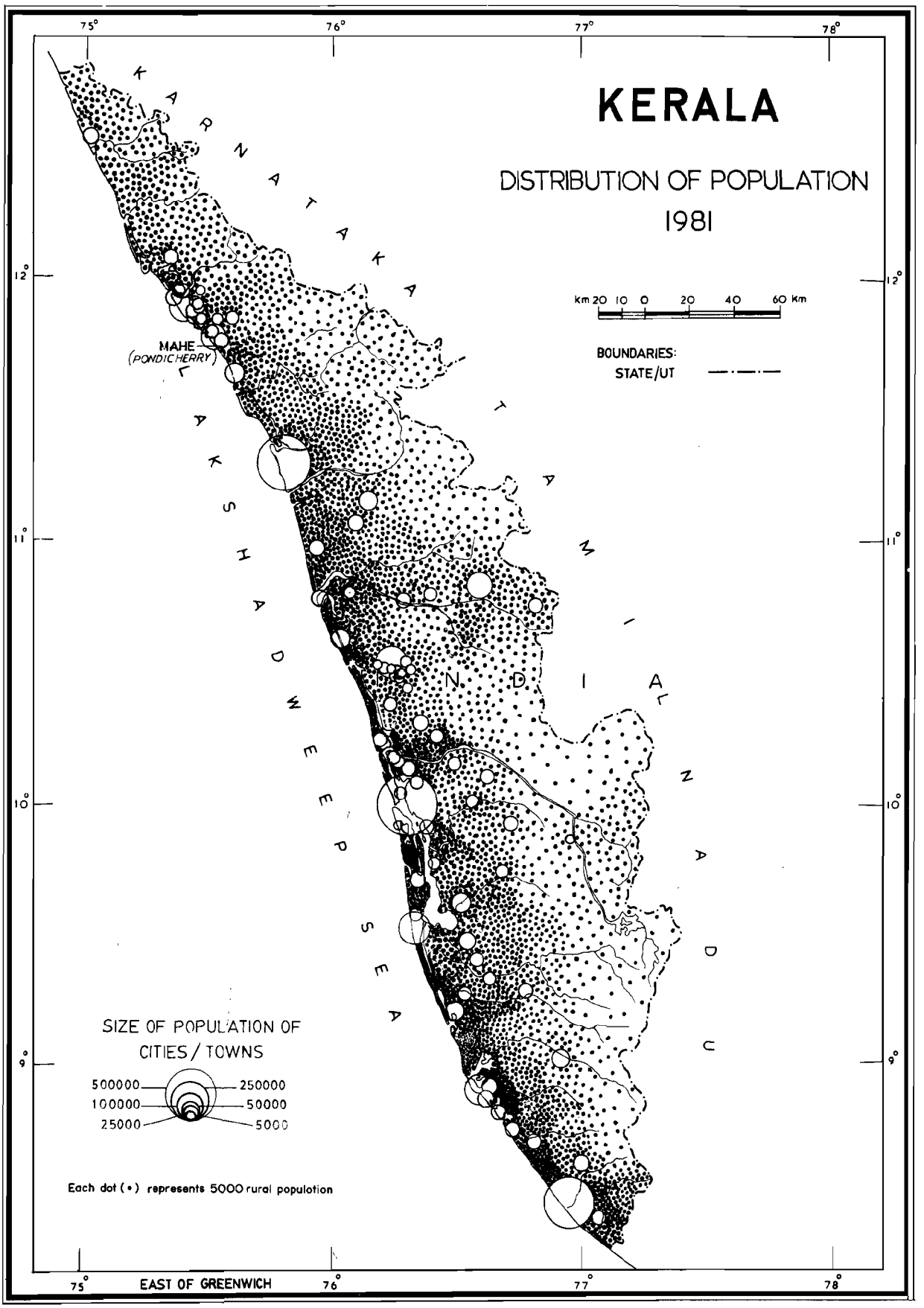

KERALA
RELIEF AND DRAINAGE
km 20 10 0 20 40 60 km
BOUNDARIES :
STATE/UT
MAHE
(PONDICHERRY)
KARNATAKA
LAKSHADWEEP SEA
TAMIL NADU
GENERALISED RELIEF
2 100 (m)
1 500
900
600
300
150
0 SEA LEVEL
100
300
1 000
VEMBANAD LAKE
ASHTAMUDI LAKE
PERIYAR
PAMBA
75°
76°
77°
12°
11°
10°
9°
EAST OF GREENWICH

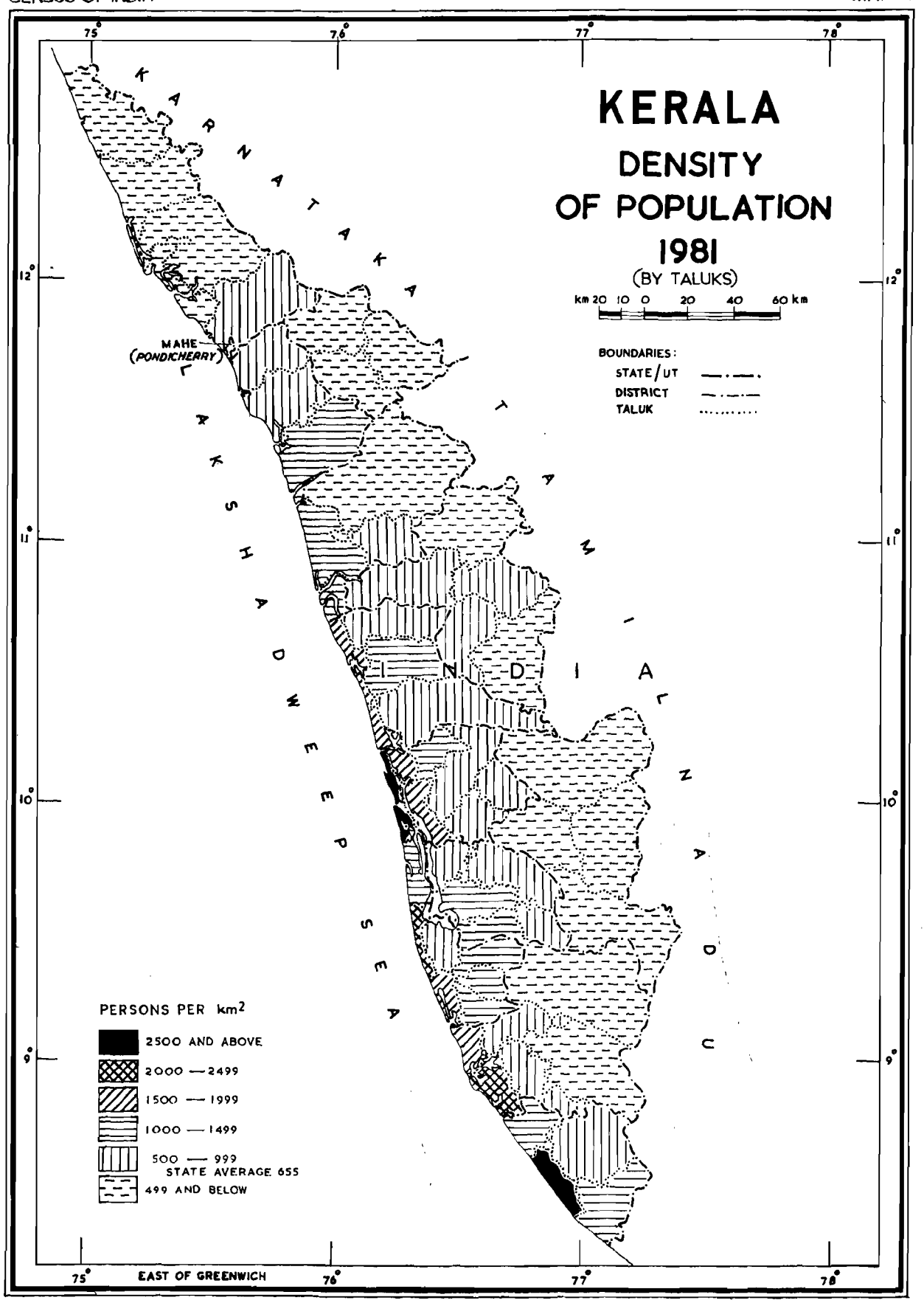

KERALA
NORMAL MONTHLY AND ANNUAL RAINFALL
Km 20 10 0 20 40 60 Km
BOUNDARIES:
STATE/UT
KARNATAKA
LAKSHADWEEP SEA
TAMIL NADU
HOSDURG
TRIKKUR
MANANTHAVADY
MAHE (PONDICHERRY)
KOZHIKODE
NILAMBUR
PONNANI
PATTAMBI
PALGHAT
MALAYATTUR
COCHIN
DEVIKOLAM
CHINNAR
PALAI
KUMILY
ALLEPPEY
PUNALUR
ATTINGAL
TRIVANDRUM
STATE
NORMAL MONTHLY RAINFALL
IN CENTIMETRES
J F M A M J J A S O N D
MONTHS
NORMAL ANNUAL RAINFALL
IN CENTIMETRES
600
500
400
300
200
100
0
SELECTED RAIN GAUGE STATION
SOURCE.
RESOURCE ATLAS OF KERALA
CENTRE FOR EARTH SCIENCE STUDIES, TRIVANDRUM.
EAST OF GREENWICH
75°
76°
77°
78°
12°
11°
10°
9°

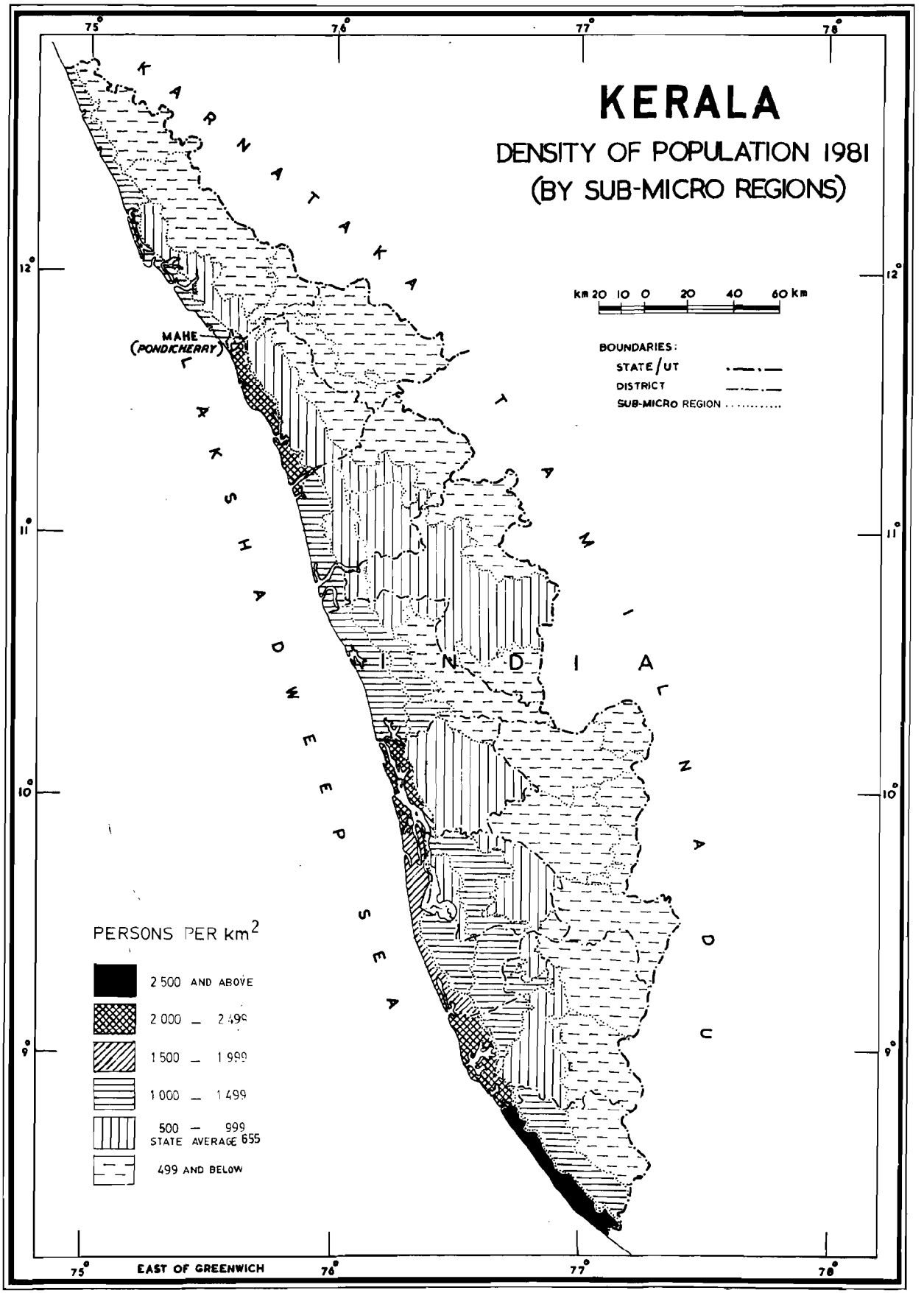

KERALA
NORMAL MONTHLY AND ANNUAL TEMPERATURE
75°
76°
77°
78°
12°
11°
10°
9°
KASARAGOD
VALAT
MAHE (PONDICHERRY)
KOZHIKODE
PALGHAT
MUNNAR
SENGULAM
COCHIN
ALLEPPEY
PUNALUR
TRIVANDRUM
KARNATAKA
LAKSHADWEEP SEA
TAMIL NADU
km 20 10 0 20 40 60 km
BOUNDARIES:
STATE/UT
VARIATIONS OF TEMPERATURE
Highest
Maximum
Monthly
Minimum
Lowest
STATE AVERAGE
TEMPERATURE IN DEGREE CELCIUS
J F M A M J J A S O N D
MONTHS
TEMPERATURE IN DEGREE CELCIUS
29.5
27.5
25.5
23.5
21.5
19.5
17.5
SOURCE - RESOURCE ATLAS OF KERALA
CENTRE FOR EARTH SCIENCE STUDIES
TRIVANDRUM
EAST OF GREENWICH

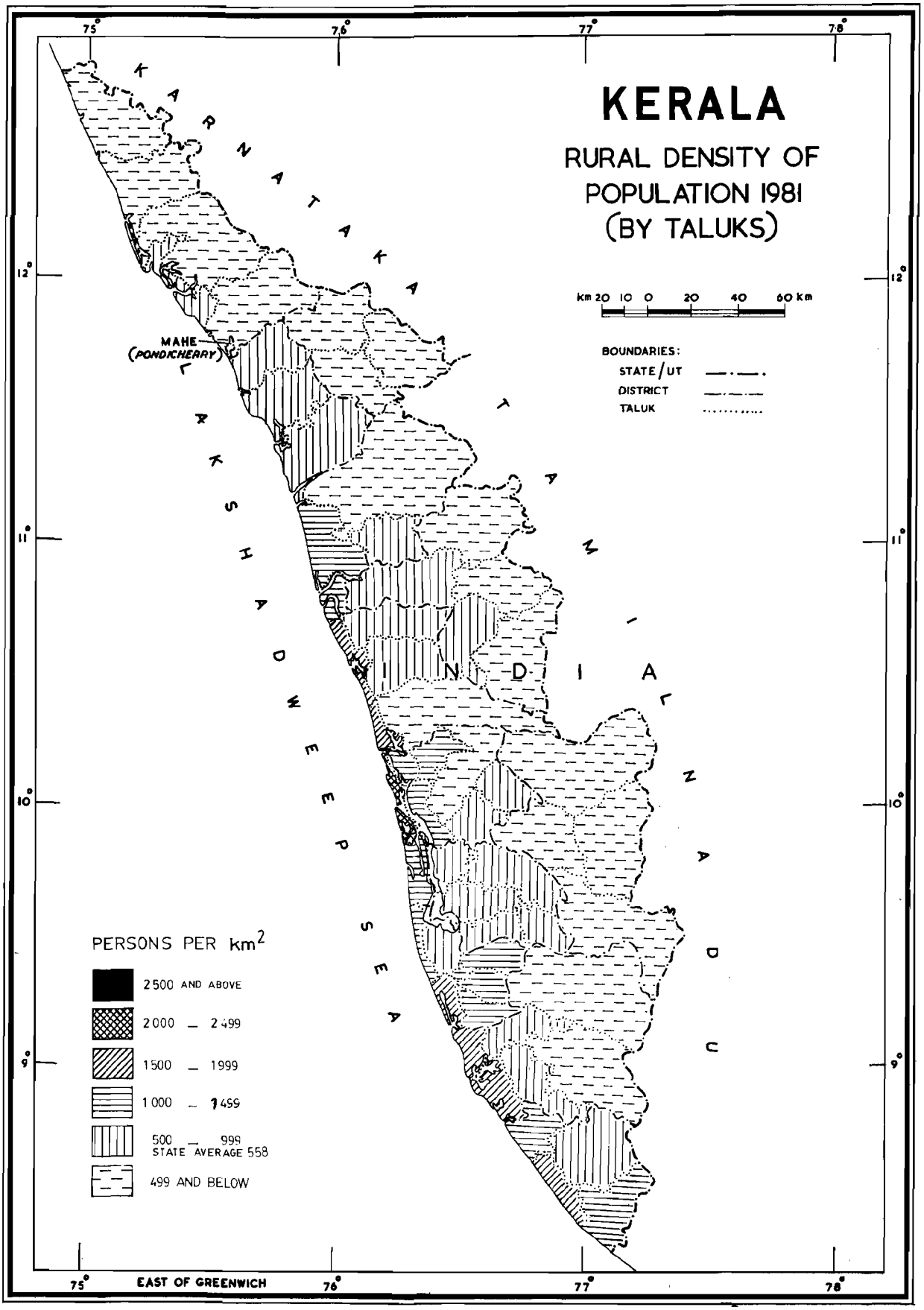

KERALA
GEOLOGY
75°
76°
77°
78°
12°
11°
10°
9°
KARNATAKA
TAMIL NADU
LAKSHADWEEP SEA
MAHE (PONDICHERRY)
km 20 10 0 20 40 60 km
BOUNDARIES:
STATE/UT
DISTRICT
GEOLOGY
Alluvium
Laterite
Quilon and Warkalli beds
Dharwar Group
Basic dykes
Unclassified granite
Charnockites
Khondalites
Cordierite gneiss, Hornblende-biotite gneiss, other unclassified crystallines including younger segments
RECENT
PLEISTOCENE
MIOCENE
LOWER PROTEROZOIC
ARCHAEAN
Source:- Geological Survey of India
EAST OF GREENWICH

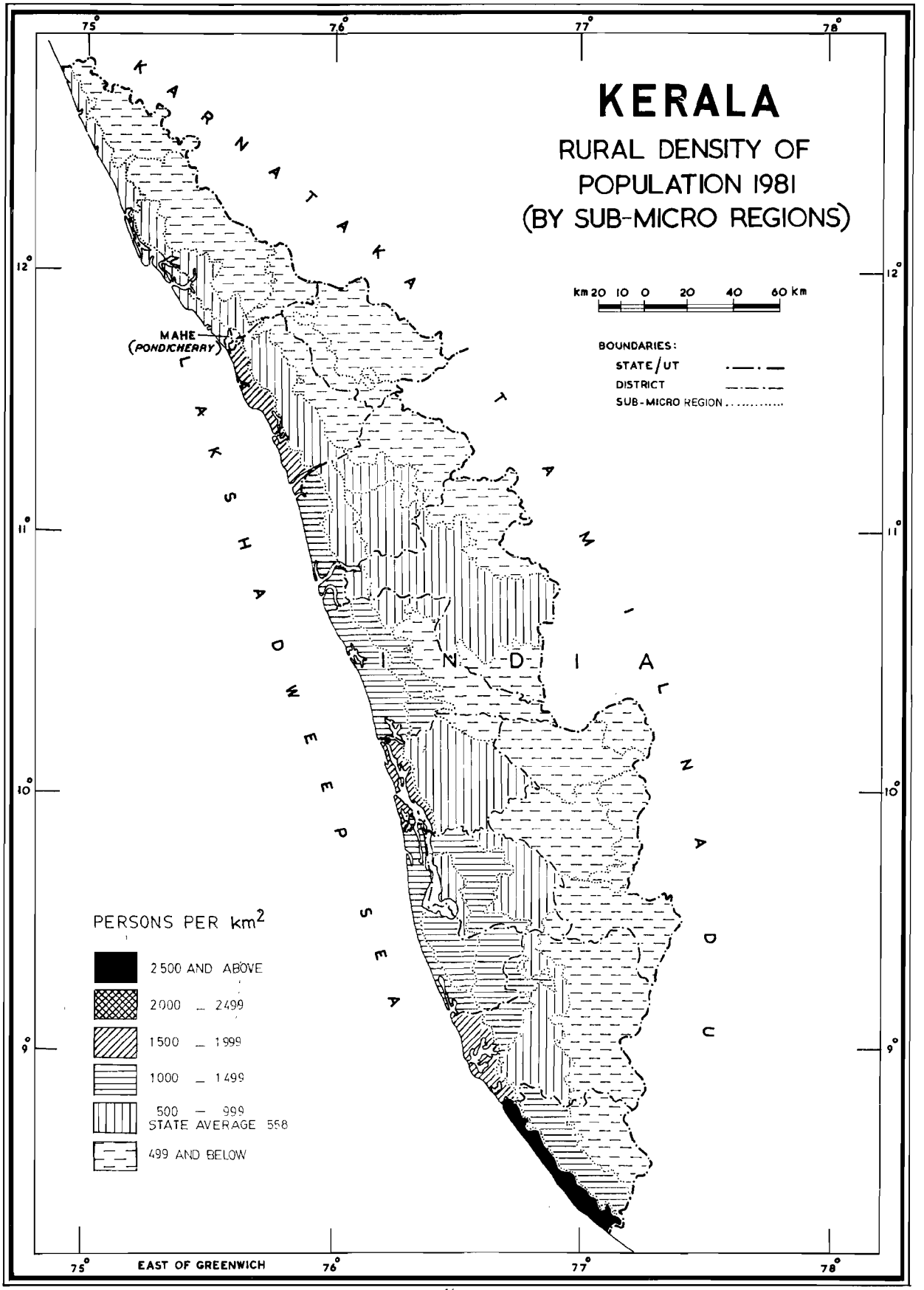

KERALA
SOILS
KARNATAKA
LAKSHADWEEP SEA
TAMIL NADU
MAHE
(PONDICHERRY)
km 20 10 0 20 40 60 km
BOUNDARIES:-
STATE / UT
LEGEND
No. SUB-ORDER ASSOCIATIONS
8 USTALFS_ORTHENTS
12 USTALFS_TROPEPTS
23 UDALFS _ ORTHENTS
39 PSAMMENTS _ORTHENTS
43 FLUVENTS_TROPEPTS
49 FLUVENTS_TROPEPTS_ORTHENTS
52 ORTHENTS_UDALFS
54 ORTHENTS_PSAMMENTS_AQUENTS
55 ORTHENTS_TROPEPTS_ROCK OUTCROPS
56 ORTHENTS_TROPEPTS_UDALFS
61 ORTHENTS_TROPEPTS
66 TROPEPTS
91 UDULTS_TROPEPTS_ROCK OUTCROPS
93 USTERTS_TROPEPTS_ORTHENTS
101 ROCK OUTCROPS_UDALFS_TROPEPTS
EAST OF GREENWICH
75° 76° 77° 78°
12° 11° 10° 9°

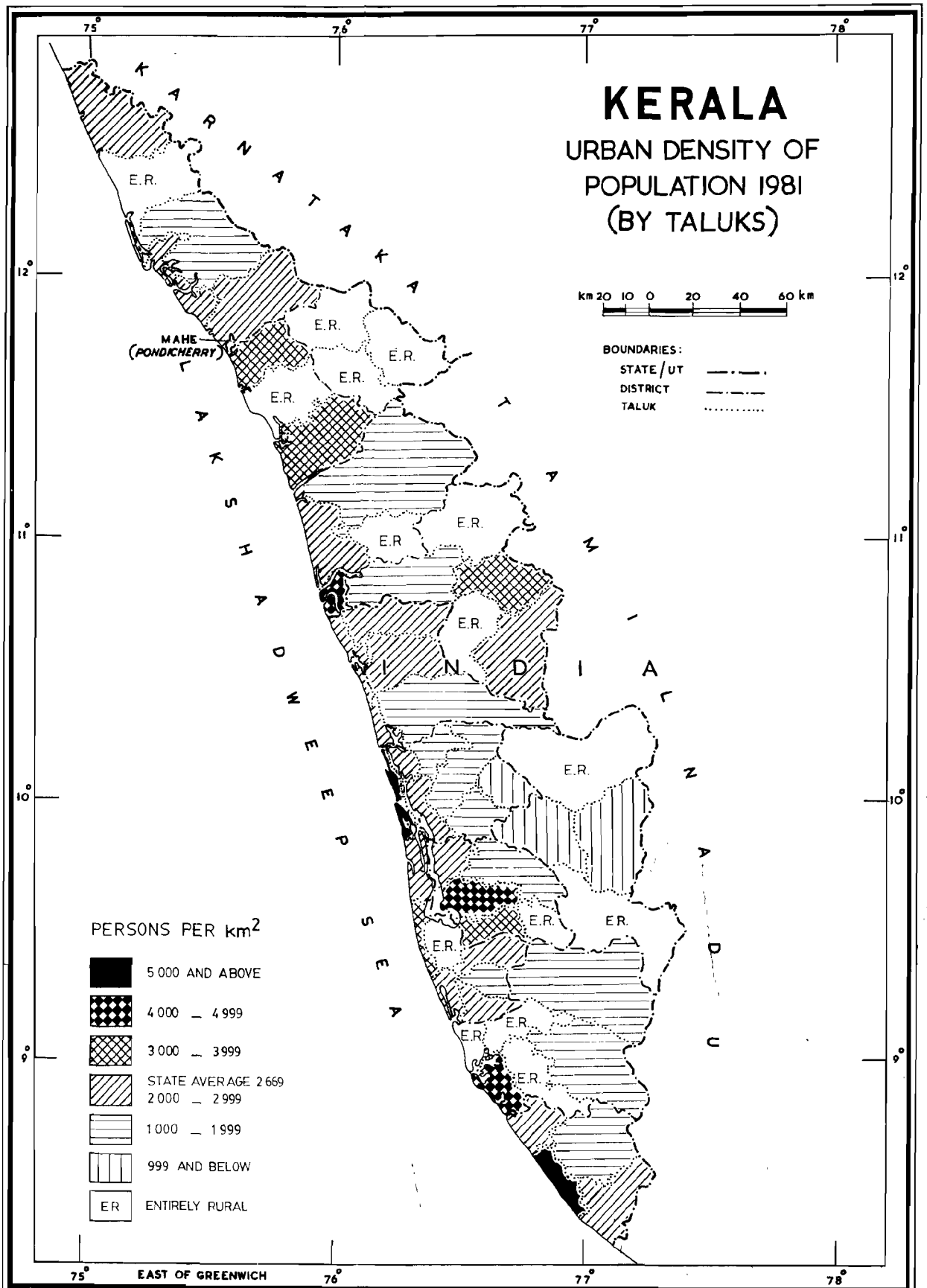

KERALA
DISTRIBUTION OF POPULATION
1981
75°
76°
77°
78°
12°
11°
10°
9°
KARNATAKA
LAKSHADWEEP SEA
INDIAN OCEAN
TAMIL NADU
km 20 10 0 20 40 60 km
BOUNDARIES:
STATE/UT
MAHE
(PONDICHERRY)
SIZE OF POPULATION OF
CITIES / TOWNS
500000
250000
100000
50000
25000
5000
Each dot (•) represents 5000 rural population
EAST OF GREENWICH

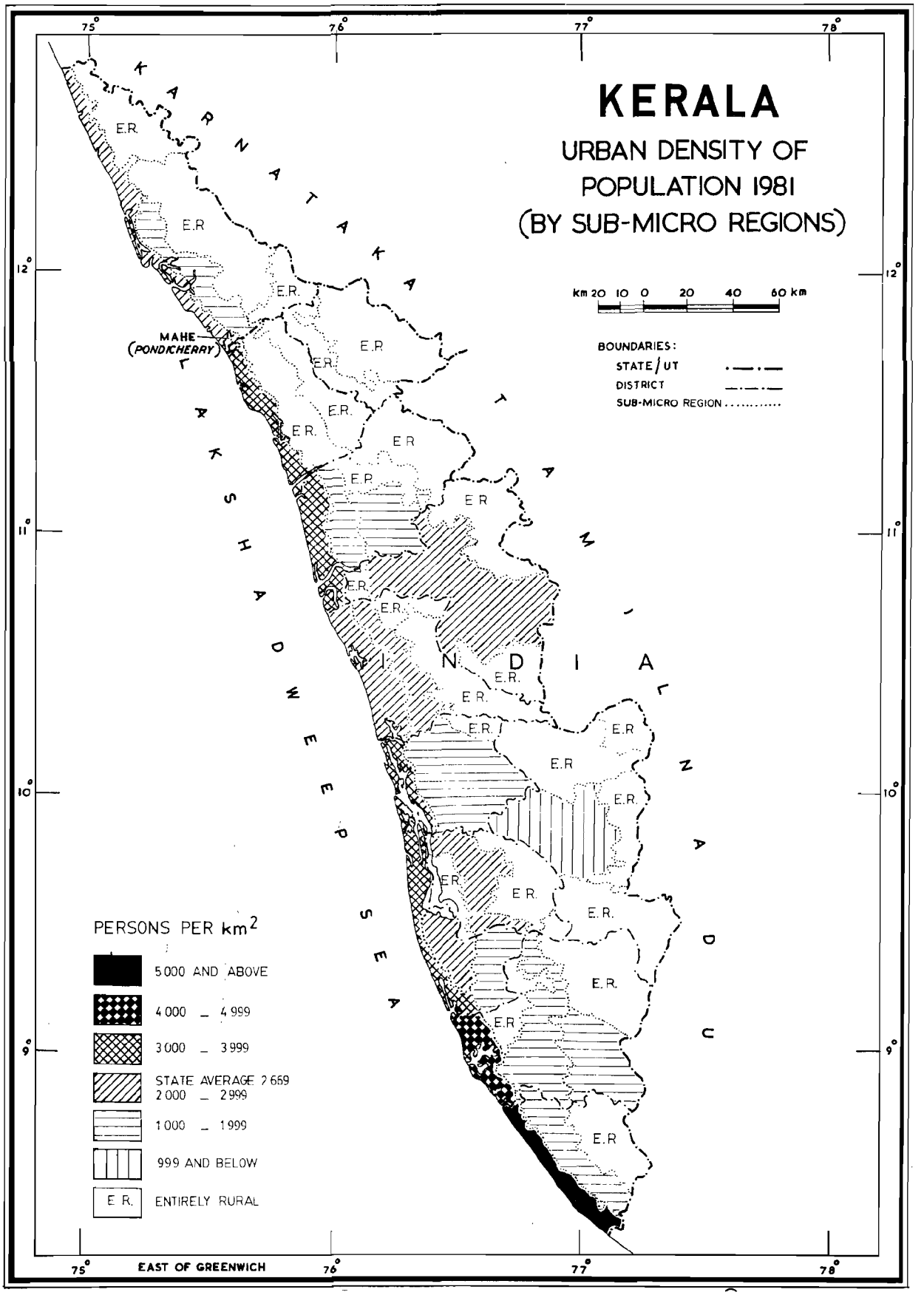

KERALA
DENSITY
OF POPULATION
1981
(BY TALUKS)
km 20 10 0 20 40 60 km
BOUNDARIES:
STATE/UT
DISTRICT
TALUK
MAHE
(PONDICHERRY)
KARNATAKA
LAKSHADWEEP SEA
INDIA
LAND
PERSONS PER km²
2500 AND ABOVE
2000 — 2499
1500 — 1999
1000 — 1499
500 — 999
STATE AVERAGE 655
499 AND BELOW
75°
76°
77°
78°
12°
11°
10°
9°
EAST OF GREENWICH


KERALA
DENSITY OF POPULATION 1981
(BY SUB-MICRO REGIONS)
km 20 10 0 20 40 60 km
BOUNDARIES:
STATE/UT
DISTRICT
SUB-MICRO REGION
MAHE
(PONDICHERRY)
KARNATAKA
TAMIL NADU
LAKSHADWEEP SEA
INDIA
PERSONS PER km²
2 500 AND ABOVE
2 000 — 2 499
1 500 — 1 999
1 000 — 1 499
500 — 999
STATE AVERAGE 655
499 AND BELOW
75°
76°
77°
78°
8°
9°
10°
11°
12°
EAST OF GREENWICH


KERALA
RURAL DENSITY OF POPULATION 1981 (BY TALUKS)
km 20 10 0 20 40 60 km
BOUNDARIES:
STATE/UT
DISTRICT
TALUK
MAHE (PONDICHERRY)
KARNATAKA
TAMIL NADU
LAKSHADWEEP SEA
INDIA
INDIAN OCEAN
PERSONS PER km²
2500 AND ABOVE
2000 – 2499
1500 – 1999
1000 – 1499
500 – 999
STATE AVERAGE 558
499 AND BELOW
75° 76° 77° 78°
12° 11° 10° 9°
EAST OF GREENWICH


KERALA
RURAL DENSITY OF POPULATION 1981
(BY SUB-MICRO REGIONS)
km 20 10 0 20 40 60 km
BOUNDARIES:
STATE/UT
DISTRICT
SUB-MICRO REGION
MAHE (PONDICHERRY)
KARNATAKA
TAMIL NADU
LAKSHADWEEP SEA
INDIA
PERSONS PER km2
2500 AND ABOVE
2000 – 2499
1500 – 1999
1000 – 1499
500 – 999
STATE AVERAGE 558
499 AND BELOW
75°
76°
77°
78°
12°
11°
10°
9°
EAST OF GREENWICH


KERALA
URBAN DENSITY OF POPULATION 1981 (BY TALUKS)
km 20 10 0 20 40 60 km
BOUNDARIES:
STATE / UT
DISTRICT
TALUK
MAHE (PONDICHERRY)
E.R.
KARNATAKA
LAKSHADWEEP SEA
INDIA
PERSONS PER km²
5 000 AND ABOVE
4 000 _ 4 999
3 000 _ 3999
STATE AVERAGE 2 669
2 000 _ 2 999
1 000 _ 1 999
999 AND BELOW
ER ENTIRELY RURAL
75° 76° 77° 78°
EAST OF GREENWICH
12° 11° 10° 9°


KERALA
URBAN DENSITY OF POPULATION 1981
(BY SUB-MICRO REGIONS)
km 20 10 0 20 40 60 km
BOUNDARIES:
STATE / UT
DISTRICT
SUB-MICRO REGION
MAHE (PONDICHERRY)
KARNATAKA
LAKSHADWEEP SEA
INDIA
ARABIAN
PERSONS PER km2
5000 AND ABOVE
4000 _ 4999
3000 _ 3999
STATE AVERAGE 2669
2000 _ 2999
1000 _ 1999
999 AND BELOW
E.R. ENTIRELY RURAL
EAST OF GREENWICH
75°
76°
77°
78°
12°
11°
10°
9°

PART-III

REGIONAL DIVISIONS OF DISTRICTS OF KERALA

CANNANORE DISTRICT
(CODE: 01)

Cannanore, the northernmost district of the State is hemmed in between the Western Ghats and the Lakshadweep sea. It has a long coast line of 152 km. Nineteen out of 41 west-flowing rivers of the state are in this district. They are from north to south Manjeshwar (16 km), Uppala (50 km), Shiriya (61 km), Kumbla (11 km), Mogral (34 km), Chandragiri (105 km), Kalnad (8 km), Bekal (11 km), Chittari (25 km), Nileshwar (47 km), Karingote (64 km), Kavvayi (23 km), Peruvamba (40 km), Ramapuram (19 km), Kuppam (71 km), Valapattanam (113 km), Anjarakandy (64 km), Tellicherry (29 km) and Mahe (55 km). The district slopes from east to west and falls under the micro region of North Kerala Coast (code: 4.2.4). Based on the physio-geographic conditions, the district is divided into five sub-micro regions viz. Cannanore Coast, Kasaragod Plateau, Peringome-Mattannur Undulating Upland, Taliparamba-Kuthuparamba Plain and Kannoth Forested Hills. All these sub-micro regions have their specified characteristics which are briefly described below.

4.2.4.1 Cannanore Coast

Cannanore Coast is a continuous coastal strip bordering the Lakshadweep Sea on the west. It is a longitudinal division of all the taluks of the district and comprises of 29 whole revenue villages, and 12 part villages (consisting of 16 whole desoms) and 18 towns. Major portion of the region is falling under Kasaragod, Hosdurg and Cannanore taluks. The total extent of this sub-micro region is 849.99 km^2 with a population of 1,110,891 persons as per the 1981 census. This works out to a density of 1,307 persons per km^2, which is the largest density among the sub-micro regions of the district. Further it has the largest content of urbanites and the most developed area among similar regions of the district. Its geology is of alluvium bed formation of recent origin and the soil is sandy alluvium of recent deposits. It has remnants of sand dunes and rocky cliff. The Ezhimala (260 m) which projects into the sea, is from very ancient times an important landmark in the maritime history of the state. The broad-gauge railway line from Calicut to Mangalore passes through this region, besides the National Highway 17.

4.2.4.2 Kasaragod Plateau

This sub-region falls in the north-eastern part of the district. It comprises of 22 whole villages and 5 part villages (consisting of 7 desoms). There is no town in this area. The total area of this sub-micro region is 893.96 km^2 (including area falling under forest lying outside village boundaries) with a population of 247,493 persons and a density of 277 persons per km^2. Geographically it is a conspicuous plateau and is a continuation of the Karnataka plateau (Deccan plateau). It ends abruptly into low hills with scarp slopes on the southern and western sides. Its average height varies between 250 and 300 metres. Uppala, Shiriya and Chandragiri rivers have their catchment areas in this table-land. This area is connected by roads with Kasaragod, in addition to motorable roads to Bantval, Puthur and Sulliya towns of Karnataka state. The Aduru Reserve Forest, falling under the tropical moist deciduous type, is in this region.

4.2.4.3 Peringome-Mattannur Undulating Upland

This large tract borders the Karnataka state on the east. The area falls under portions of Hosdurg, Taliparamba, Cannanore and Tellicherry taluks. This tract has undulated terrain dissected by many rivers which are structurally controlled. It lies in the

catchment area of Nileshwar, Karingote and Kuppam rivers which are of dentritic type. The area is highly erosion prone. Falling entirely in the rural areas, the region contains 29 whole villages and 16 part villages (comprising of 40 desoms). It has an area of 1,746.12 km^2 with a population of 582,370 persons and a density of 334 persons per km^2. Its geological bed is charnockite with the intrusion of Dharwar group. The soil types are laterite and riverine alluvium. Due to the modulated terrain, the transportation facilities are meagre and the settlements scattered.

4.2.4.4 Taliparamba-Kuthuparamba Plain

This rolling plain, which lies between the Cannanore Coast and Peringome-Mattannur Undulating Upland extends over the parts of Hosdurg, Taliparamba, Cannanore and Tellicherry taluks. It slopes towards west and the altitude varies between 150 and 265 metres. It forms the catchment area of Peruvamba (Vannetti), Karingote, Valapattanam, Kuppam, Anjarakandy, Tellicherry and Mahe rivers. The development of flood plain is quite significant. The flood plains as well as river terraces are flanked by moderate slopes. Subdued laterite hills occur here and there. This sub-micro region occupies an area of 882.74 km^2 in which 744,357 persons live with a density of 843 persons per km^2. It is comprised of 39 whole villages, 18 part villages (consisting of 54 desoms) and 8 towns. Its geological bed is charnockite and in small portion it has chordierite gneiss and hornblende-biotite gneiss. Its soil type is alluvial of recent age. Because of the Ezhimala hilly terrain, a bay is formed at the mouth of Peruvamba river (Vannettipuzha). Another visible feature is the development of marshes due to poor drainage of water particularly in the lower reaches of Valapattanam river. There is good transportation facilities in this tract and the area is highly populated.

4.2.4.5 Kannoth Forested Hills

Lying at the south-east corner of the district this sub-micro region falls entirely in Tellicherry taluk. Its steep slopes border the Wayanad plateau. The semi-ever green type forests found in this region form the catchment area of Valapattanam, Kabani and Anjarakandi rivers. Its height varies from 100 to 1,000 m. This region contains 4 whole villages and 4 part villages (consisting of 9 desoms) with a total extent of 556.45 km^2 and a population of 118,356 persons. This sub-micro region has a low density of 213 persons per km^2 which is due to the prevalence of dense forests and tangled jungles. The Tellicherry-Mananthavady road passes through this region.


KERALA
CANNANORE DISTRICT
CODE 01
REGIONAL DIVISIONS
km 10 5 0 5 10 km
FROM MANGALORE
TO BANTWAL
DAKSHIN KANNAD
(KARNATAKA)
KASARAGOD TALUK
4.2.4.2
KASARAGOD
Koipady
Kudlu
Perdala
Adoor
Muliyar
Bandadka
Bedadka
Kalanad
Pallikkara
Panayal
Pullur
Belur 14
Chithari
Hosdurg
Balla
Kinanur
Madikkai
HOSDURG TALUK
Eleri West
Eleri East
Kanhangad
Nileshwar
Cheruvathur
Padne
Trikkarippur North
Payyannur
Cherukunnu
Kannapuram
Ramanthali
CANNANORE TALUK
Puthiyangadi
Mattool
4.2.4.1
CANNANORE
TELLICHERRY
TO CALICUT
Pulingome
Arangam
Naduvil
KODAGU
TALIPARAMBA TALUK
Vayathur
Vilamana
Aralam
4.2.4.5
Kappad
TELLICHERRY TALUK
Mamba
4.2.4.4
Kolavallur
Mokeri
Menaprom
TO MANATHAVADY
WAYANAD DISTRICT
KOZHIKODE DISTRICT
BOUNDARY, STATE
" " DISTRICT
" " TALUK
DESOM HAVING 10000 & ABOVE POPULATION
URBAN AREA
NATIONAL HIGHWAY
STATE HIGHWAY
RAILWAY LINE WITH STATION (BROAD GAUGE)
RIVER
REGIONAL DIVISION
MACRO
MESO
MICRO
SUB-MICRO WITH BOUNDARY
[READ THE SEQUENCE OF REGIONAL DIVISIONS WITH REFERENCE TO THE ALL INDIA MAP CODES UP TO 3 TIER]
4.2.4.1 Cannanore Coast
4.2.4.2 Kasaragod Plateau
4.2.4.3 Peringome-Mattannur undulating Upland
4.2.4.4 Taliparamba_Kuthuparamba Plain
4.2.4.5 Kannoth Forested Hills
GEOLOGY
km 20 10 0 20 km
ALLUVIUM RECENT
DHARWAR GROUP LOWER PROTEROZOIC
QUILON AND WARKALLI BEDS MIOCENE
KHONDALITES
CHARNOCKITES
UNCLASSIFIED GRANITE
CORDIERITE GNEISS, HORNBLENDE-BIOTITE GNEISS, OTHER UNCLASSIFIED CRYSTALLINES INCLUDING YOUNGER SEGMENTS
ARCHAEAN
SOILS
km 20 10 0 km
FLUVENTS_TROPEPTS
ORTHENTS_UDALFS
ORTHENTS_PSAMMENTS_AQUENTS
ROCK OUTCROPS - UDALFS_TROPEPTS

BASIC DATA ON SUB-MICRO REGIONS, 1981

CANNANORE DISTRICT

(CODE : 01)

Macro region 4 The Coastal Plains & Islands
Meso region 4.2 Western Coastal Region
Micro region 4.2.4 North Kerala Coast

Sub-Micro region Number & name	Taluk	No. of constituent units: Whole Village	Part Village & (desoms) *	Town	Total Rural Urban	Area in km^2	Population 1981 Census)
1	2	3	4	5	6	7	8
4.2.4.1 Cannanore Coast		29	12(16)	18	Total	849.99	1,110,891
					Rural	646.72	597,337
					Urban	203.27	513,554
	Kasargod (Part)	12	4(4)	1	Total	273.48	231,949
					Rural	256.80	188,812
					Urban	16.68	43,137
	Hosdurg (Part)	12	2(2)	-	Total	261.31	244,389
					Rural	261.31	244,389
					Urban	-	-
	Taliparamba (Part)	-	2(4)	-	Total	24.14	17,772
					Rural	24.14	17,772
					Urban	-	-
	Cannanore (Part)	4	2(2)	14	Total	224.19	435,317
					Rural	75.05	96,194
					Urban	149.14	339,123
	Tellicherry (Part)	1	2(4)	3	Total	66.87	181,464
					Rural	29.42	50,170
					Urban	37.45	131,294
4.2.4.2 Kasargod Plateau		22	5(7)	-	Total	893.96	247,493
		22	5(7)	-	Rural	893.96	247,493
					Urban	-	-
	Kassaragod (Part)	20	4(6)	-	Total	699.11	205,529
					Rural	699.11	205,529
					Urban	-	-

1	2	3	4	5	6	7	8
	Hosdurg (Part)	2	1(1)	-	Total	194.85	41,964
					Rural	194.85	41,964
					Urban	-	-
4.2.4.3 Peringome-Mattannur Undulating Upland		29	16(40)	-	Total	1,746.12	582,370
					Rural	1,746.12	582,370
					Urban	-	-
	Hosdurg (Part)	7	2(2)	-	Total	495.78	122,671
					Rural	495.78	122,671
					Urban	-	-
	Taliparamba (Part)	11	7(13)	-	Total	881.52	286,001
					Rural	881.52	286,001
					Urban	-	-
	Cannanore (Part)	1	-	-	Total	35.66	8,632
					Rural	35.66	8,632
					Urban	-	-
	Tellicherry (Part)	10	7(25)	-	Total	333.16	165,066
					Rural	333.16	165,066
					Urban	-	-
4.2.4.4 Taliparamba-Kuthuparamba Plain		39	18(54)	8	Total	882.74	744.357
					Rural	792.73	602,115
					Urban	90.01	142,242
	Hosdurg (Part)	2	2(2)	-	Total	36.76	26,239
					Rural	36.76	26,239
					Urban	-	-
	Taliparamba (Part)	17	9(30)	1	Total	424.93	262,568
					Rural	406.72	232,667
					Urban	18.21	29,901
	Cannanore (Part)	9	2(4)	3	Total	170.94	165,010
					Rural	144.04	126,506
					Urban	26.90	38,504
	Tellicherry (Part)	11	5(18)	4	Total	250.11	290.540
					Rural	205.21	216.703
					Urban	44.90	73,837
4.2.4.5 Kannoth		4	4(9)	-	Total	556.45	118,356
					Rural	556.45	118,356

1	2	3	4	5	6	7	8
Forested Hills					Urban	-	-
	Tellicherry (Part)	4	4(9)	-	Total	556.45	118,356
					Rural	556.45	118,356
					Urban	-	-

Note : The area of the district (4,958 km^2) is based on the 'geographical' area supplied by the Surveyor General, India whereas the area figures of sub-micro regions are arrived at on the basis of the 'land-use' area figures supplied by the Director of Survey & Land Records, Tahsildars and Local Bodies. Therefore when the area figures of sub-micro regions are added up it may not tally with the area of the district.

T-Total, R-Rural, U-Urban

* The number given in bracket in Col. 4 indicates the number of desoms which fall in all the part villages of the taluk in the concerned sub-micro region.

CONSTITUENT UNITS OF SUB-MICRO REGIONS, 1981

CANNANORE DISTRICT

(CODE : 01)

Sub-micro region with code and name	Taluk and code	Number of whole/ part * village(s) and location code(s)	Location code and name of town	Remarks
1	2	3	4	5
4.2.4.1 Cannanore Coast	Kasaragod 01	*12 whole villages* 1, 6 to 9, 16 to 19 & 27 to 29	1 Kasaragod	The remaining portion in region 4.2.4.2.
		4 part villages 2-1, 10-1, 14-2 & 15-3		
	Hosdurg 02	*12 whole villages* 1 to 4, 6 to 9, 17, 18, 24 & 26		The remaining portions in regions 4.2.4.2, 4.2.4.3 and 4.2.4.4
		2 part villages 19-1 & 23-1		
	Taliparamba 03	*2 part villages* 1-1, 1-3, 1-4 & 2-4		The remaining portions in regions 4.2.4.3 and 4.2.4.4
	Cannanore 04	*4 whole villages* 1 & 7 to 9	III Kalliasseri IV Pappinisseri V Valapattanam VI Azhikode VII Chirakkal VIII Pallikunnu IX Puzhathi X Cannanore (M) XI Cannanore Cantonment XII Elayavoor XIII Chelora XV Chala XVI Edakkad XVII Muzhappilangad	The remaining portions in regions 4.2.4.3 and 4.2.4.4
		2 part villages 2-2- & 6-1		

1	2	3	4	5
	Tellicherry 05	*1 whole village* 35	XX Dharmadom XXIII Tellicherry Municipality XXIV Kodiyeri	The remaining portions in regions 4.2.4.3, 4.2.4.4 and 4.2.4.5
		2 part villages 18-2, 34-5, 34-6, 34-7		
4.2.4.2 Kasaragod Table-land	Kasaragod 01	*20 whole villages* 3 to 5, 11 to 13, 20 to 26 & 30 to 36		The remaining portion in region 4.2.4.1
		4 part villages 2-2, 10-2, 14-1, 14-3, 15-1 & 15-2		
	Hosdurg 02	*2 whole villages* 5, 12		The remaining portions in regions 4.2.4.1, 4.2.4.3 and 4.2.4.4
		1 part village 11-1		
4.2.4.3 Peringome-Mattannur Undulating Upland	Hosdurg 02	*7 whole villages* 10, 13 to 16, 20 & 21		The remaining portions in regions 4.2.4.1, 4.2.4.2 and 4.2.4.4
		2 part villages 11-2 & 19-2		
	Taliparamba 03	*11 whole villages* 8 to 10, 15, 16, 25 to 27 & 35 to 37		The remaining portions in regions 4.2.4.1 and 4.2.4.4
		7 part villages 7-1, 14-4, 14-5, 14-6, 17-1,17-2, 18-1, 19-1, 19-2, 24-6, 24-8, 24-10 & 28-1		
	Cannanore 04	*1 whole village* 5		The remaining portions in regions 4.2.4.1 and 4.2.4.4
	Tellicherry 05	*10 whole villages* 3, 5 to 7, 10 to 12, 21, 22 & 25		The remaining portions in regions 4.2.4.1, 4.2.4.4 and 4.2.4.5

1	2	3	4	5
		7 part villages 4-1, 4-2, 4-3, 4-4, 4-5, 4-6, 4-7, 4-8, 4-9, 4-10, 8-1, 8-3, 8-4, 13-3, 13-4, 14-1, 14-2, 14-3, 14-5, 14-6, 23-1, 23-3, 24-1, 26-1 & 26-2		
4.2.4.4 Taliparamba- Kuthuparamba Plain	Hosdurg 02	*2 whole villages* 22 & 25 *2 part villages* 19-3 & 23-2		The remaining portions in regions 4.2.4.1, 4.2.4.2 and 4.2.4.3
	Taliparamba 03	*17 whole villages* 3 to 6, 11 to 13, 20 to 23 & 29 to 34	II Taliparamba	The remaining portions in regions 4.2.4.1 and 4.2.4.3
		9 part villages 1-2, 2-1, 2-2, 2-3, 7-2, 7-3, 14-1, 14-2, 14-3, 17-3, 18-2, 18-3, 18-4, 19-3, 19-4, 19-5, 19-6, 19-7, 24-1, 24-2, 24-3, 24-4, 24-5, 24-6, 24-7, 28-2, 28-3, 28-4, 28-5 & 28-6		
	Cannanore 04	*9 whole villages* 3, 4 & 10 to 16	XIV Kanhirode XVIII Kadachira XIX Peralassery	The remaining portions in regions 4.2.4.1 and 4.2.4.3
		2 part villages 2-1, 6-2, 6-3 & 6-4		
	Tellicherry 05	*11 whole villages* 1, 2, 15 to 17, 19, 20 & 30 to 33	XXI Pinarayi XXII Eranholi XXV Kottayam (Malabar) XXVI Kuthuparamba	The remaining portion in regions 4.2.4.1, 4.2.4.3 and 4.2.4.5
		5 part villages 4-11, 4-12, 4-13, 4-14, 13-1, 13-2, 13-5, 13-6, 14-4, 14-7, 14-8, 14-9, 14-10, 18-1, 34-1, 34-2, 34-3 & 34-4		

1	2	3	4	5
4.2.4.5 Kannoth Forested Hills	Tellicherry 05	*4 whole villages* 9 & 27 to 29 *4 part villages* 8-2, 23-2, 23-4, 23-5, 23-6, 24-2, 26-3, 26-4, & 26-5		The remaining portions in regions 4.2.4.1, 4.2.4.3 and 4.2.4.4

* Desom/kara which is the lowest constituent unit of a village is taken as the basis for delineation of sub-micro region. A sub-micro region may consists of whole or part villages or both. For part village the two digit location code of desom/kara is given. Eg. 2-3 indicate third desom/kara of the 2nd village.

PHYSIO-GEOGRAPHIC FEATURES BY SUB-MICRO REGIONS

CANNANORE DISTRICT

(CODE : 01)

Taluk	Geology	Soils	Rainfall	Physiography
1	2	3	4	5
SUB-MICRO REGION: 4.2.4.1 CANNANORE COAST				
Parts of Kasaragod, Hosdurg, Taliparamba, Cannanore and Tellicherry	Alluvium Quilon and Warkalai beds	Sandy alluvial soil. Orthents-Udalfs, Fluvents-Tropepts Orthents-Psamments Aquents *Orthents* Recently formed soil *Udalfs* High base status soils of humid regions *Fluvents* Alluvial soils (Recent alluvium) *Tropepts* Shallow black, brown and alluvial soils of southern region *Psamments* Sandy soil (recent)	Between 290 and 350 cm. Higher precipitation in northern parts of the region	This region lies as a narrow coastal strip on the western side of the district and cutting longitudinally all taluks of the district. Based on relief, the region has a maximum height of 87 km. in its northern portion at the Perumbala desom (29-1) in Thekkil village of Kasaragod taluk. There are 19 west-flowing rivers, besides backwaters and canals in this coastal tract of which Chandragiri, Nileshwar, Valapattanam being the major rivers. The coastal tract is generally flat except the rocky cliff near Ezhimala (260 m) and in certain isolated pockets in the northern and around Tellicherry coast. There are lateritic cliffs of Pre-Cambrian age. Remnants of ancient sand dunes are found particularly between Kanhangad (9) and Pallikkara (3). Coconut, tapioca and tobacco are the major crops in this region. Geologically the whole region is of recent bed-soil alluvium. A very little portion of Hosdurg taluk has Quilon and Warkalai beds of Miocene age. Major soil is sandy alluvium of recent deposit which are technically classified as Orthents-Udalfs, Fluvents-tropepts. Psamments-Aquents-sandy alluvial soils of recent deposits are formed due to the influence of water. This soil, originated predominantly from marine, with some fluvial sediments along the coast line is immature with high sand content and low water holding capacity with PH value less than 6.5 in most of the areas.

1	2	3	4	5
		Aquents Recently formed hydromorphic soils-coastal alluvial soils		This coastal tract is densely populated. Of the 26 towns in the district, 18 towns (including Kasaragod, Cannanore and Tellicherry Municipal towns and Cannanore Cantonment) are located in this region. The Shoranur-Mangalore railway line passes through this region. The settlements are well connected by road.

SUB-MICRO REGION: 4.2.4.2 KASARAGOD PLATEAU

Parts of Kasaragod and Hosdurg	Charnockite unclassified granite and khondalites	Riverine alluvium laterite and forest loam *Orthents*-Udalfs, Udalts-*tropepts* *Orthents* Recently formed soil *Udalfs* High base status soils of humid regions *Tropepts* Shallow black brown and alluvial soil of southern region	Between 250 and 290 cm.	This region comprises of the whole of Kasaragod taluk (except its western coastal area) and north-eastern part of Hosdurg taluk. This region makes its boundaries with Karnataka state in north and east Peringome-Mattannur undulating upland in south and the Cannanore coastal plain in the west. The Kasargod Plateau is a continuation of the Karnataka plateau (Deccan plateau) ending abruptly by low hills with scarp slopes on southern and western sides. The average height of this region is between 250 and 300 m. However, the maximum height (1,046 m) is recorded in the southern tip of the region in Panathady village (12) of Hosdurg taluk. The region has minimum height over 100 m. as per the contours. The land slopes towards west and forms the catchment area of Uppala, Shiriya and Chandragiri rivers which are of dentritic type. The terrain is characterized by flat river terraces. The whole of this region is under charnockite mesa of Archean age with the intrusion of unclassified granite and khondalites. The soil belongs to *orthents-udalfs* in northern and *Udalfs-tropepts* in south. They consists of quartz, microcline biotite, magnetite and occasional zircon. Along the Chandragiri river valley, riverine alluvium soil occurs

1	2	3	4	5
				intruding lateritic soil. This fertile tract has high water-holding capacity. In the eastern part forest loam soil occurs. The Aduru Reserve Forest on the east has tropical moist-deciduous type of forests. Palms, rubber, bamboo, shrubs and bushes form the vegetation of this region. The region is connected by good roads with Bantval, Puthur, Suliya towns of Karnataka State and Kasaragod town of Kerala State. The settlements are widely spread and also along the road-sides. Badiadka is an important place in this region.
SUB-MICRO REGION : 4.2.4.3 PERINGOME-MATTANNUR UNDULATING UPLAND				
Parts of Hosdurg, Taliparamba, Cannanore and Tellicherry	Quilon & Warkalai bed, charnoc-kite bed Dharwar group	Riverine alluvium soil, *Fluvents-tropepts,* Udalts-*tropepts*. *Fluvents* Alluvial soil (recent alluvium) *Udalfs* High base status soils of humid regions *Tropepts* Shallow black, brown and alluvial soils of southern region	Between 250 and 270 cm.	This region is bounded by Kasaragod plateau in the north, Karnataka state in the east, Kannoth Forested hills in the south and Taliparamba-Kuthuparamba Plain and Cannanore Coast in the west. This region has undulating terrain with number of isolated hills. The differentiation of heights and its recurring character explain for the plantation surfaces of different ages. This phenomenon has been confirmed by the cross profiles drawn. Major upland areas of Hosdurg and Taliparamba taluks are highly dissected. This region lies in the catchment area of Nileshwar, Karingottu and Kuppam rivers which are of dentritic type. A number of micro-water divide lines are also evident from the distribution of structurally controlled narrow ridge strip which directs the flow of the rivers. This further indicates that the area is highly erosion prone. The maximum height (933 m) is recorded at Payyavoor desom (26-2) of Eruvassi village of Taliparamba taluk. The 100 m. contour which reveals the minimum

1	2	3	4	5
				height, occurs mostly over the western portion. The terrain slopes towards west. Geologically this region is of charnockite bed with the intrusion of ridge of Dharwar group and a very little portion is of Quilon and Warkalai bed of Miocene age in the eastern part. The major soil is *fluvents-tropepts* which include laterite soil. The riverine alluvium soil developed along the river valley cuts across the lateritic soil which vary in surface texture ranging from sandy loam to clay. It is fertile with having high water holding capacity. In the eastern portion it has *udalf-tropepts*. It includes forest loam. The upper-layer is highly enriched with organic matter but poor in bases. Along the river valleys vegetation cover is found and in other places shrubs and bushes. The important crops are rubber, cashew and pepper. Due to the undulated topography, the transportation facility is poor. The settlements are scattered.
SUB-MICRO REGION : 4.2.4.4 TALIPARAMBA-KUTHUPARAMBA PLAIN				
Parts of Taliparamba, Cannanore and Tellicherry	Quilon-Warakalai bed, Charnockite bed, cordierite gneiss	Alluvial soil *Orthents-* Psamments-aquents *Orthents-* Recently formed soil *Psamments* Sandy soil (recent)	Between 250 and 300 cm. (increases towards west)	This region is bounded on the north and east by Peringome-Mattannur Undulating Upland, on the south by the Kozhikode district and on the west by the Cannanore coastal plain This rolling plain gently slopes towards west. The maximum height (159 m) lies in its southern tip at the Kolavallur desom (30-1) of Kolavallur village of Tellicherry taluk and its minimum height (63 m) lies at Pattuvam desom (20-1) of Pattuvam village of Taliparamba taluk. This area has large number of lateritic mesa especially around Taliparamba area. Subdued lateritic hills occur here

1	2	3	4	5
		Aquents Recently formed hydromorphic soils-coastal alluvial soil		and there, apart from the isolated hills like Ezhimala (260 m). This makes the mouth of the Vannathipuzha, a bay. This region is drained by Vannathipuzha, Karingottu river, Valapattanam river, Kuppam river etc. The development of flood plains as well as river terraces are planked by moderate slopes. Another visible feature is the development of marshes due to poor drainage of water, particularly in the lower reaches of Valapattanam river. The undulating topography is quite evident over Tellicherry area which is drained by Anjarakandy, Tellicherry and Mahe rivers. Palms, paddy, pepper, ginger, cashew, tapioca, arecanut etc. are the important crops raised in this region. The northern portion of this region has Quilon and Warkalai bed of Miocene age. The rest of the area has charnockite bed except in its south-west portion where a small area falls under cordierite gneiss or other unclassified crystallines. This region has *orthents-psamments-aquents* ie, alluvial soil of recent origin formed due to the influence of water. The region is densely populated and has good transportation facilities viz. railways, roadways and inland navigation. Taliparamba, Valapattanam, Payyannur and Kuthuparamba are the important settlements here.

SUB-MICRO REGION : 4.2.4.5 KANNOTH FORESTED HILLS

Part of Tellicherry	Charnoc-kite bed Dharwar group	Forest loam soil Fluvents-tropepts	Between 250 and 300 cm.	This region is bounded on the north the Peringome-Mattannur Undulating Upland, on the east by the Karnataka State, on the south by Wayanad and Kozhikode districts and on the west by Taliparamba-Kuthuparamba Plain.

1	2	3	4	5
		Fluvents Alluvial (Recent alluvium) *Tropepts* Shallow black, brown and alluvial soil of southern region		Its steep slope area borders the Wayanad plateau and there is a sudden drop in gradient within a short distance. The maximum height of this region is 1,047 m. located at Cheruvancherri desom (29-1) of Cheruvancherry village of Tellicherry taluk. The 100 m. contour line, which reveals its minimum height, runs along its western border. This region forms the catchment area of Valapattanam river, Aralampuzha, Bavalipuzha and Anjarakandy rivers. The river originating from the ridge lines along the border of Wayanad plateau plung down to the mid-land forming deep gorges. This region slopes towards west. Occasional landslides is the feature of the region during monsoons. This region is fully covered by forests which is of wet evergreen to semi-evergreen types. The crops grown here are mainly rubber and cashew. It is full of charnockite bed with the intrusion of Dharwar group. The soil is mainly *fluvents-tropepts*. In its eastern portion it has forest loam. The upper layer is highly enriched with organic matter but poor in bases. The settlements are seen only in the valleys. The road connecting Tellicherry with Mananthavady passes through this region. Foot-paths are seen in forests.

Note : 1. Soils are classified by NBSS & LUP (ICAR), Nagpur

2. The 1981 census location code number is written brackets after the name of village/desom.

WAYANAD DISTRICT
(CODE : 02)

Wayanad is a mountanious tract with a picturesque plateau. The average height of this plateau is only 900 m. above the mean sea level with large number of peaks of varying heights of which the Banasuramala (2.061 m) and Brahmagiri peak (1,608 m) are worth mentioning. The main river of the district is Kabani, one of the important tributaries of Cauvery which is formed by the confluence of Panamaram and Mananthavady rivers. The district which slopes towards east forms part of the North Kerala Coast (4.2.4) and is subdivided on the basis of topography, geology, soils, climate and natural vegetation into Wayanad Forested Hills and Wayanad Plateau. Brief description on these sub-micro regions are given below.

4.2.4.1 Wayanad Forested Hills

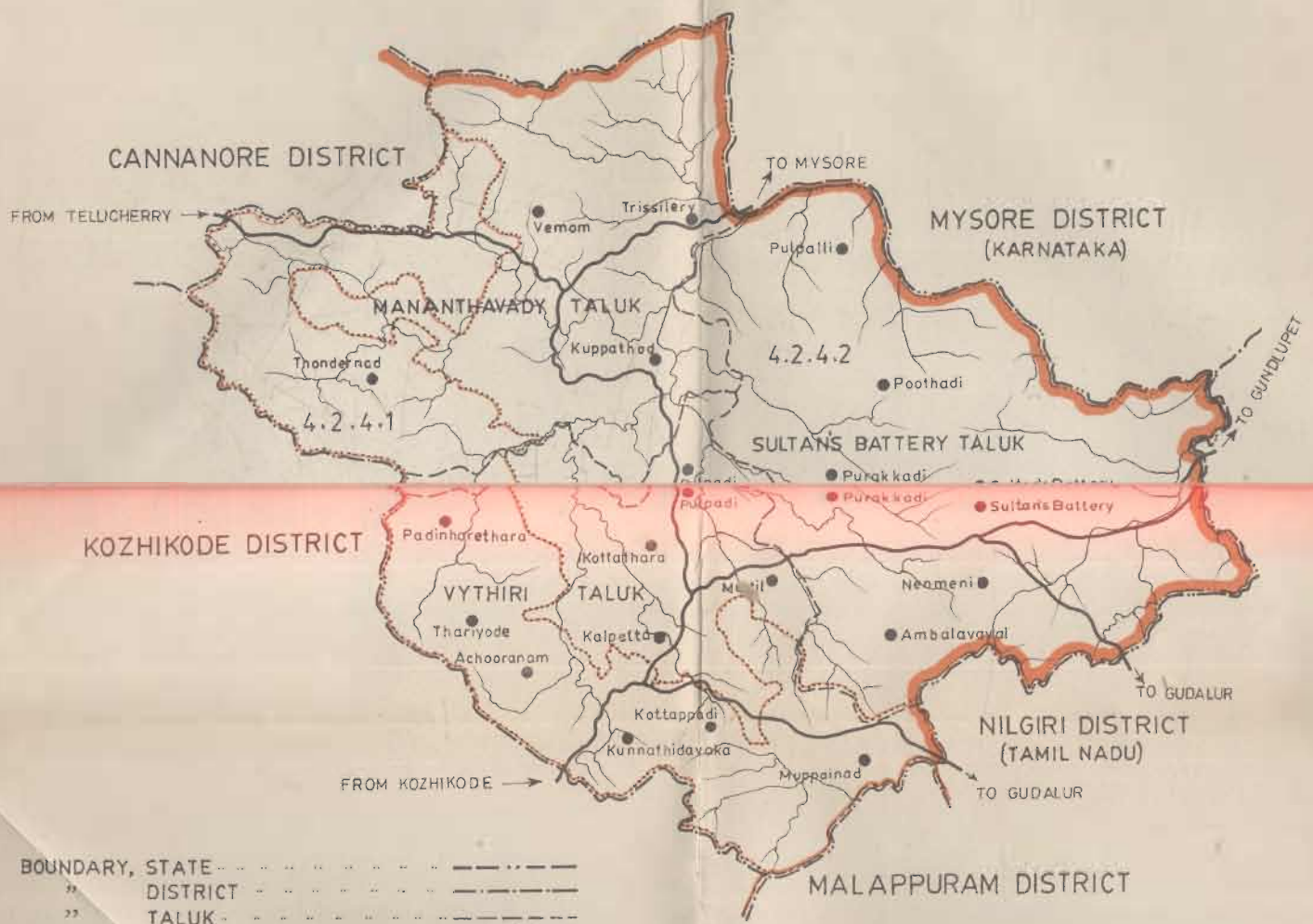
This region, falling in parts of Mananthavady and Vythiri taluks, lies as an unbroken strip on the western and southern sides of the Wayanad Plateau. Unlike the general pattern of rivers which flows towards the west, the tributaries of Kabani flows towards easterly as the region slopes towards east. Land-slides occur in rainly season. This region covers fully by semi-evergreen forest type. It contains 6 whole villages and 5 part villages (consisting of 7 desoms). It has an area of 678.74 km^2, a population of 136,875 persons and a density of 202 persons per km^2. The entire area is rural. Its geology is charnockite and its soil type is forest loam and laterite. This region is connected by roads to Tellicherry at the northern end and to Calicut and Gudallur at the southern end.

4.2.4.2 Wayanad Plateau

The general characteristic of this region is that the centre of the plateau, is lower in height while in the east the terrain is flatter and open. The river Kabani, which is a major river of this region, flows towards east. The forest in this region comprises of deciduous and tropical semi-ever green type. The region has 20 whole villages and 5 part villages (consisting of 9 desoms) with an area of 1,446.94 km^2, a population of 417,151 persons and a density of 288 persons per km^2. Major portion of this region has cordierite gneiss, hornblende-biotite gneiss and other unclassified crystallines as its geological bed. Its soil type is forest loams and laterite. It has good motorable roads connecting to Mysore, Gundlupet, Gudalur, Calicut and Tellicherry.

KERALA
WAYANAD DISTRICT
CODE 02
REGIONAL DIVISIONS

km10 5 0 5 10km



BOUNDARY, STATE
" DISTRICT
" TALUK
DESOM HAVING 10000& ABOVE POPULATION – Pulpadi
STATE HIGHWAY – SH
RIVER/WATER BODY
REGIONAL DIVISIONS – 4.2.4.2
MACRO
MESO
MICRO
SUB-MICRO WITH BOUNDARY

[READ THE SEQUENCE OF REGIONAL DIVISIONS WITH REFERENCE TO THE ALL INDIA MAP CODES UP TO 3 TIER]

4.2.4.1 Wayanad Forested Hills
4.2.4.2 Wayanad Plateau

GEOLOGY

km20 10 0 20km



DHARWAR GROUP – LOWER PROTEROZOIC
BASIC DYKES
UNCLASSIFIED GRANITE
CHARNOCKITES
CORDIERITE GNEISS, HORNBLENDE-BIOTITE GNEISS, OTHER UNCLASSIFIED CRYSTALLINES INCLUDING YOUNGER SEGMENTS
} ARCHAEAN

SOIL

km20 10 0 20km



12 USTALFS-TROPEPTS
91 UDULTS-TROPEPTS-ROCK OUTCROPS
101 ROCK OUTCROPS-UDULFS-TROPEPTS

BASIC DATA ON SUB-MICRO REGIONS, 1981

WAYANAD DISTRICT

(CODE : 02)

Macro region 4 The Coastal Plains & Islands
Meso region 4.2 Western Coastal Region
Micro region 4.2.4 North Kerala Coast

Sub-Micro region Number & name	Taluk	No. of constituent units: Whole Village	Part Village & (desoms) *	Town	Total Rural Urban	Area in km^2	Population (1981 Census)
1	2	3	4	5	6	7	8
4.2.4.1 Wayanad Forested Hills		6	5(7)	-	Total	678.74	136,875
					Rural	678.74	136,875
					Urban	-	-
	Mananthavady (Part)	2	3(5)	-	Total	277.94	48,051
					Rural	277.94	48,051
					Urban	-	-
	Vythiri (Part)	4	2(2)	-	Total	400.80	88,824
					Rural	400.80	88,824
					Urban	-	-
4.2.4.2 Wayanad Plateau		20	5(9)	-	Total	1,446.94	417,151
					Rural	1,446.94	417,151
					Urban	-	-
	Mananthavady (Part)	6	3(7)	-	Total	469.47	118,556
					Rural	469.47	118,556
					Urban	-	-
	Sultan's Battery	8	-	-	Total	761.90	204,368
					Rural	761.90	204,368
					Urban	-	-
	Vythiri (Part)	6	2(2)	-	Total	215.57	94,227
					Rural	215.57	94,277
					Urban	-	-

Note :-- The area of the district (2,132 km^2) is based on the 'geographical' area supplied by the Surveyor General, India whereas the area figures of sub-micro regions are arrived at on the basis of the 'land-use' area figures supplied by the Director of Survey & Land Records, Tahsildars and Local Bodies. Therefore when the area figures of sub-micro regions are added up it may not tally with the area of the district.

* The number given in bracket in Col.4 indicates the number of desoms which fall in all the part villages of the taluk in the concerned sub-micro region.

CONSTITUENT UNITS OF SUB-MICRO REGIONS, 1981
WAYANAD DISTRICT
(CODE : 02)

Sub-micro region with code and name	Taluk and code	Number of whole/ part * village(s) and location code(s)	Location code and name of town	Remarks
1	2	3	4	5
4.2.4.1 Wayanad Forested Hills	Mananthavady 01	2 whole villages 7 & 8		The remaining portion in region 4.2.4.2
		3 part villages 1-1, 1-2, 2-1, 2-2 & 9-2		
	Vythiri 03	4 whole villages 1, 8, 10 & 12		The remaining portion in region 4.2.4.2
		2 part villages 9-1 & 11-2		
4.2.4.2 Wayanad Plateau	Mananthavady 01	6 whole villages 3 to 6, 10 & 11		The remaining portion in region 4.2.4.1
		3 part villages 1-3, 1-4, 2-3, 2-4, 9-1, 9-3 & 9-4		
	Sultan's Battery 02	8 whole villages 1 to 8		
	Vythiri 03	6 whole villages 2 to 7		The remaining portion in region 4.2.4.1
		2 part villages 9-2 & 11-1		

* Desom/kara which is the lowest constituent unit of a village is taken as the basis for delineation of sub-micro region. A sub-micro region may consists of whole or part villages or both. For part village the two digit location code of desom/kara is given. Eg. 2-3 indicate third desom/kara of the 2nd village.

PHYSIO-GEOGRAPHIC FEATURES BY SUB-MICRO REGIONS

WAYANAD DISTRICT

(CODE : 02)

Taluk	Geology	Soils	Rainfall	Physiography
1	2	3	4	5

SUB-MICRO REGION: 4.2.4.1 WAYANAD FORESTED HILLS

Parts of Manantha-vady and Vythiri	Charnoc-kite, cordierite gneiss, horn-blende gneiss, unclas-sified granite	Forest loam and laterite soils. *Udalfs* tropepts Udults-tropepts *Udalfs* High base status soils of humid regions *Tropepts* Shallow black, brown and alluvial soils of southern region *Udalfs* Laterite soil	Around 250 cm.	This region has its boundaries with Cannanore district in the north, Wayanad plateau in the east, Malappuram district in the south and Kozhikode district in the west. This region stretches as an unbroken strip in the western and southern side of the Wayanad plateau. The ridge line separates this region from the Kozhikode district. The rivers originating from this ridge make this area a dissected plateau. It is the catchment area of Manathavady river and Karamanthode tributaries of Kabani river, which flow towards east unlike the general pattern of west-flowing rivers. This region slopes towards east. The maximum height (1,606 m.) is found at Muppainad village (12) of Vythiri taluk. The average height ranges between 600 and 700 m. Land-slides occur in rainy season. This region has almost full of forests of semi-ever green type. The important crops are coffee, tea and paddy. Major portion of this region covers the charnockite bed, while small patches at its central and south have cordierite gneiss, hornblende-biotite gneiss, basis dykes and unclassified granite. The northern portion of this region has *udalfs-tropepts* and southern portion has *udults-tropepts*. Forest loam soil occurs in this region.

1	2	3	4	5
				Settlements are few and communication facilities are low with only some unmetalled roads and cart-tracks. There are roads connecting vythiri with Kozhikode and Mananthavady with Tellicherry.

SUB-MICRO REGION: 4.2.4.2 WAYANAD PLATEAU

Sultan's Battery and parts of Manantha-vady and Vythiri	Cordierite gneiss, horn-blende-biotite gneiss, Dharwar group, unclassi-fied granite	Forest loam soil. *Udalfs-*tropepts, Udults-tropepts Ustalfs-tropepts *Udalfs* High base statis soils of humid region *Tropepts* Shallow black, brown and alluvial soil of southern region *Udults* Laterite soil *Ustalfs* High base status red loamy soil	Between 200 and 250 cm.	This region occupies a major portion of the Wayanad district. It makes its boundaries with Karnataka state in the north and east, Tamil Nadu in the south and Wayanad forested hills in the west. This region is a continuation of the Karnataka plateau which lies on the crest of the Western Ghats. This plateau has an average height of 800 to 900 m. The maximum height of this region (1,598 m.) lies at Tirunelli desom (3-1) of Tirunelli village in Mananthavady taluk and the minimum height (731 m.) lies at Muttil village (5) in Vythiri taluk. However, some mountain peaks are high. The general characteristic is that in the centre of the plateau, the hills are lower in height while in the east the terrain is flatter and open. The Kabani river drains major area of the region and flows towards east. The drainage pattern is dentritic and in some places radial type due to hills. Noolpuzha river joins Kabani river in Mysore district. The forests in this region comprise of plateau deciduous and tropical semi ever-green and tropical ever-green. The important crops are coffee, tea, paddy and cardamom. Major portion of this region has cordierite gneiss, hornblende-biotite gneiss or other unclassified crystallines including younger segments. There is an intrusion of Dharwar group in the middle of this region. Some patches of charnockite bed are also seen. Unclassified granite is found in the southern region.

1	2	3	4	5
				This region has mainly of forest loam. The upper layer is highly enriched with organic matter, the soil is dark in colour. It is rich in nitrogen. It has red loamy and red sandy soils also, technically known as *udalfs-tropepts, udults-ropepts, ustalfs-tropepts.*
				The settlements are found mostly in the centre of this region, though scattered throughout the plateau. The important settlements are Kalpetta, Sultan's Battery, Mananthavady etc. These are interconnected by motorable roads.

Note : 1. Soils are classified by NBSS & LUP (ICAR), Nagpur
2. The 1981 census location code number is written brackets after the name of village/desom.

KOZHIKODE DISTRICT
(CODE : 03)

Kozhikode district faces the sea and has hilly tract of the Western Ghats. Six rivers traverse through the district. They are from north to south Mahe (total length 55 km), Murat or Kuttiadi (74 km), Korapuzha (40 km), Kallayi (23 km), Beypore or Chaliyar (169 km) and Kadalundi (130 km). Of these, Mahe and Kadalundi rivers have their course at the north-eastern and southern ends of the district for a small distance. The district slopes towards west and is part of the North Kerala coast (4.2.4). It is sub-divided on the basis of topography, geology, soils, climate and natural vegetation into three sub-micro regions viz. Kozhikode Coast, Nadapuram-Mavur Undulating Plain and Kozhikode Forested Hills. The characteristics of these sub-micro regions are briefly described below.

4.2.4.1 Kozhikode Coast

This region comprises of the parts of all the three taluks of this district and lies all along its coast. Many rivers, backwaters, canals etc. drain this region. Remnants of ancient sand dunes are found here. Marshy lands are found in certain pockets. This region has 19 whole villages, 10 part villages (consisting of 36 desoms) and 6 towns. All the towns of this district are located solely in this region. This region has an area of 505.43 km^2, a population of 1,137,050 persons and a density of 2,250 persons per km^2. Its geology is alluvium bed and the soil type is sandy-alluvium of recent deposits. The region is well connected by rail and also road to Mangalore, Mysore and Gudalur, Palghat and Trichur.

4.2.4.2 Nadapuram-Mavur Undulating Plain

This region longitudinally covers the central tract of the district taking areas from all taluks. It is an undulating plain in general. Marshy lands are also noticed in this region. It contains 43 whole villages and 18 part villages (consisting of 72 desoms), all falling entirely in the rural areas. This region has an area of 937.86 km^2, a population of 871,457 persons and a density of 929 persons per km^2. Its geology is cordierite gneiss, hornblende-biotite gneiss with other unclassified crystallines. It has laterite and recent riverine alluvium soils. There are good motorable roads in this region.

4.2.4.3 Kozhikode Forested Hills

This region lies in the eastern sector of the district and runs parallel to Nadapuram-Mavur Undulating Plain. It longitudinally cuts across all the taluks of the district. Being an unbroken strip on the western side of Wayanad plateau, it has scarp slope area. This region forms the catchment area of all the principal rivers of this district as far as the micro regions are concerned. It has dense forest of wet evergreen to moist deciduous forest type. It contains 9 whole villages and 8 part villages (consisting of 19 desoms). Its area is 890.01 km^2 in which 236,758 persons live. The average density works out to 266 persons per km^2, the lowest among the sub-micro regions of the district. The geological bed is hornblende-biotite gneiss with some patches of basic dykes and unclassified granite and charnockite. The soils are laterite and hydromorphic soil. Except the Calicut-Mysore road which passes through the southern-side of the region, the communication facilities are poor.

KERALA

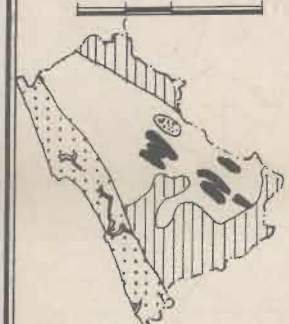
KOZHIKODE DISTRICT

CODE 03

REGIONAL DIVISIONS

[READ THE SEQUENCE OF REGIONAL DIVISIONS WITH REFERENCE TO THE ALL INDIA MAP CODES UP TO 3 TIER]

GEOLOGY



RECENT
- ALLUVIUM

ARCHAEAN
- BASIC DYKES
- UNCLASSIFIED GRANITE
- CHARNOCKITES
- CORDIERITE GNEISS, HORNBLENDE-BIOTITE GNEISS, OTHER UNCLASSIFIED CRYSTALLINES INCLUDING YOUNGER SEGMENTS

SOILS



- 43 FLUVENTS-TROPEPTS
- 49 FLUVENTS-TROPEPTS-ORTHENTS
- 54 55 ORTHENTS-PSAMMENTS-AQUENTS ORTHENTS-TROPEPTS-ROCK OUT-CROPS
- UDULTS-TROPEPTS-ROCK OUT-CROPS
- 101 ROCK OUTCROPS-UDALFS-TROPEPTS

BASIC DATA ON SUB-MICRO REGIONS, 1981
KOZHIKODE DISTRICT

(CODE : 03)

Macro region 4 The Coastal Plains & Islands
Meso region 4.2 Western Coastal Region
Micro region 4.2.4 North Kerala Coast

Sub-Micro region Number & name	Taluk	No. of constituent units: Whole Village	Part Village & (desoms) *	Town		Area in km^2	Population (1981 Census)
					Total / Rural / Urban		
1	2	3	4	5	6	7	8
4.2.4.1 Kozhikode Coast		19	10(36)	6	Total	505.43	1,137,050
					Rural	345.74	526,818
					Urban	159.69	610,232
	Badagara (Part)	6	5(11)	1	Total	130.58	233.502
					Rural	109.24	169.328
					Urban	21.34	64,174
	Quilandy (Part)	9	4(21)	-	Total	165.69	238,361
					Rural	165.69	238,361
					Urban	-	-
	Kozhikode (Part)	4	1(4)	5	Total	209.16	665,187
					Rural	70.81	119,129
					Urban	138.35	546,058
4.2.4.2 Nadapuram-Mavur Undulating Plain		43	18(72)	-	Total	937.86	871,457
					Rural	937.86	871,457
					Urban	-	-
	Badagara (Part)	6	10(37)	-	Total	192.43	202,436
					Rural	192.43	202,436
					Urban	-	-
	Quilandy (Part)	19	4(23)	-	Total	362.65	300,551
					Rural	362.65	300,551
					Urban		
	Kozhikode	18	4(12)	-	Total	382.78	368,470
					Rural	382.78	368,470
					Urban	-	-

1	2	3	4	5	6	7	8
4.2.4.3 Kozhikode Forested Hills		9	8(19)	-	Total	890.01	236,758
					Rural	890.01	236,758
					Urban	-	-
	Badagara (Part)	1	5(9)	-	Total	226.78	63,841
					Rural	226.78	63,841
					Urban	-	-
	Quilandy (Part)	3	-	-	Total	228.59	33,075
					Rural	228.59	33,075
					Urban	-	-
	Kozhikode (Part)	5	3(10)	-	Total @	434.64	139,842
					Rural @	434.64	139,842
					Urban	-	-

Note :-- The area of the district (2,345 km^2) is based on the 'geographical' area supplied by the Surveyor General, India whereas the area figures of sub-micro regions are arrived at on the basis of the 'land-use' area figures supplied by the Director of Survey & Land Records, Tahsildars and Local Bodies. Therefore when the area figures of sub-micro regions are added up it may not tally with the area of the district.

The number given in bracket in Col. 4 indicates the number of desoms which fall in all the part villages of the taluk in the concerned sub-micro region.

Inclusive of forest area outside village boundaries.

CONSTITUENT UNITS OF SUB-MICRO REGIONS, 1981
KOZHIKODE DISTRICT
(CODE : 03)

Sub-micro region with code and name	Taluk and code	Number of whole/ part* village(s) and location code(s)	Location code and name of town	Remarks
1	2	3	4	5
4.2.4.1 Kozhikode Coast	Badagara 01	6 whole villages 1 to 4, 20 & 21	1 Badagara	The remaining portions in regions 4.2.4.2 and 4.2.4.3.
		5 part villages 5-5, 5-6, 5-7, 17-1, 18-1, 19-5, 19-6, 22-1, 22-2, 22-5 & 22-6		
	Quilandy 02	9 whole villages 1 to 4, 15 to 17, 28 & 29		The remaining portions in region 4.2.4.2 and 4.2.4.3
		4 part villages 14-5, 18-1, 18-2, 18-3, 18-4, 18-5, 18-6, 18-8, 18-11, 27-1, 27-5, 27-6, 27-7, 27-8, 27-9, 27-11, 30-7, 30-8, 30-9, 30-10 & 30-11		
	Kozhikode 03	4 whole villages 1, 16, 30 & 31	II Calicut III Olavanna IV Cheruvannur	The remaining portions in regions 4.2.4.2 and 4.2.4.3
		1 part village 15-1, 15-2, 15-7 & 15-8	V Beypore VI Feroke	
4.2.4.2 Nadapuram-Mavur Undulating Plain	Badagara 01	6 whole villages 6, 7, 14 to 16 & 23		The remaining portions in regions 4.2.4.1 and 4.2.4.3
		10 part villages 5-1, 5-2, 5-3, 5-4, 8-2 9-1, 9-3, 9-4, 9-5, 9-6, 9-7, 10-1, 10-2, 12-1, 12-3, 12-4, 13-1, 13-5, 13-6,		

1	2	3	4	5
		13-7, 13-8, 17-2, 17-3, 17-4, 17-5, 17-6, 17-7, 18-2, 18-3, 18-4, 19-1, 19-2, 19-3, 19-4, 19-7, 22-3, & 22-4		
	Quilandy 02	19 whole villages 5 to 8, 10 to 13, 19 to 21, 24 to 26 & 31 to 35		The remaining portions in regions 4.2.4.1 and 4.2.4.3
		4 part villages 14-1, 14-2, 14-3, 14-4, 14-6, 18-7, 18-9, 18-10, 18-12, 18-13, 18-14, 18-15, 27-2, 27-3, 27-4, 27-10, 27-12, 30-1, 30-2, 30-3, 30-4, 30-5 & 30-6		
	Kozhikode 03	18 whole villages 2 to 5, 11 to 14, 17 to 19 & 23 to 29		The remaining portions in regions 4.2.4.1 and 4.2.4.3
		4 part villages 6-4, 10-1, 10-2, 10-5, 10-6, 10-7, 15-3, 15-4, 15-5, 15-6, 20-5 & 20-6		
4.2.4.3 Kozhikode Forested Hills	Badagara 01	1 whole village 11		The remaining portions in regions 4.2.4.1 and 4.2.4.2
		5 part villages 8-1, 9-2, 10-3, 12-2, 12-5, 13-2, 13-3, 13-4,& 13-9		
	Quilandy 02	3 whole villages 9, 22 & 23		The remaining portions in regions 4.2.4.1 and 4.2.4.2
	Kozhikode 03	5 whole villages 7 to 9, 21 & 22		The remaining portions in regions 4.2.4.1 and 4.2.4.2
		3 part villages 6-1, 6-2, 6-3, 10-3, 10-4, 20-1, 20-2, 20-3, 20-4 & 20-7		

* Desom/kara which is the lowest constituent unit of a village is taken as the basis for delineation of sub-micro region. A sub-micro region may consists of whole or part villages or both. For part village the two digit location code of desom/kara is given. Eg. 2-3 indicate third desom/kara of the 2nd village.

PHYSIO-GEOGRAPHIC FEATURES BY SUB-MICRO REGIONS

KOZHIKODE DISTRICT

(CODE : 03)

Taluk	Geology	Soils	Rainfall	Physiography
1	2	3	4	5
SUB-MICRO REGION: 4.2.4.1 KOZHIKODE COAST				
Parts of Badagara, Quilandy and Kozhikode	Recent alluvium bed	Sandy alluvium soil *Orthents, Psamments-Aquents* *Orthents* Recently formed soil *Psammens* Sandy soil (recent) *Aquents* Recently formed hydromorphic alluvial soil	Between 250 and 300 cm. (increases towards north)	This region lies all along the coast of Kozhikode district dissecting all taluks of the district. It is bounded on the north by Cannanore Coast, on the east by Nadapuram-Mavur Undulating Plain and on the south by Malappuram coast and on the west by the Lakshadweep sea. Six rivers, backwaters and canals drain this coastal tract and it is generally lower than the Cannanore Coast. Kuttiadi, Kottapuzha, Chaliyar, Murat and Agalapuzha are the important rivers of the region. These backwaters, canals and rivers are used for inland navigation. Marshy lands are found in pockets. Remnants of ancient sand-dunes are also seen. Major soil is sandy-alluvium of recent deposit which are technically classified as *orthents-psamments-aquents*. This soil has originated predominantly from marine, with some fluvial sediments along the coastal line. The soil is immature with high sand contents and low water holding capacity with PH value less than 6.5 in most of the areas. Coconut and tapioca are the major crops. This coastal tract is well served by the west coast railway line and net-work of roads. The broad-gauge railway line and NH 17 pass through this region. All the towns of this district are located in this region, amongst Calicut is the most important. Other important settlements are Badagara, Quilandy, Feroke and Beypore.

1	2	3	4	5
SUB-MICRO REGION : 4.2.4.2 NADAPURAM-MAVUR UNDULATING PLAIN				
Parts of Badagara Quilandy and Kozhikode	Cordierite gneiss, Hornblende-biotite gneiss with other unclassified crystalline bed	Riverine alluvial soil and hydromorphic soil. *Orthents-tropepts* *Orthents* Recently formed soil *Tropepts* Shallow black, brown and alluvial soils of southern region	Between 250 and 300 cm.	This region is hemmed in between the Kozhikode Coast and the Kozhikode Forested Hills. Its boundaries are Taliparamba-Kuthuparamba Plain in the north, Kozhikode Forested Hills in the east, Malappuram Undulating Plain in the south and Kozhikode Coast in the west. It is an undulating plain having hills here and there. Marshy lands in Waderi (east of Quilandy) are noticed. Ground water level is comparatively higher in southern region. The maximum height (244 m.) is found at the village of Panagad (32) of Quilandy taluk and the minimum height (122 m.) in the Chekkiad desom (7-5) of Chekkiad village of Badagara taluk. This region slopes towards west. All the rivers of this district pass through this region. In the southern portion of this region, sub-dued and isolated hills separated from the main mountain chain are found. The river-course of Korapuzha and Beypore rivers are showing meandering characters which imply that flood plains have attained a matured condition. Coconut, paddy and arecanut are the major crops grown here. The soils of this region are riverine alluvium and brown hydromorphic soils, technically called orthents-tropepts. Along the Kuttiadi river, riverine alluvium which cut across the extensive laterite soil are seen. Brown hydromorphic soil also occur in this region which is commonly found in wet lands. They are moderately rich in organic matter, nitrogen and potash and deficient in lime and phosphate. All the important places of this region are well connected by roads. Nadapuram, Perambra and Koduvalli are some of the important settlements here. Most of the settlements are found on either side of roads.

1	2	3	4	5
SUB-MICRO REGION : 4.2.4.3 KOZHIKODE FORESTED HILLS				
Parts of Badagara, Quilandy and Kozhikode	Hornblende-biotite gneiss, basic dykes unclassified granite and Charnockite	Laterite soil and hydromorphic soil. Udalfs-tropepts Udults-tropepts *Udalfs* High base *status* soil of humid regions *Tropepts* Shallow black, brown and alluvial soils of southern region *Udults* Laterite soils	Rainfall more than 350 cm.	This region forms the border of Wayanad and Kozhikode districts intersecting all the taluks of the district. Its boundaries are Kannoth Forested Hills in the north, Wayanad Forested Hills in the east, Nilambur Forested Hills in the south and Nadapuram-Mavur Undulating Plain in the west. This region is an unbroken strip in the western side of the Wayanad Plateau. It is a scarp slope area and has a sudden drop of 600 to 700 metres in height within a distance of one kilometre from the edge of the plateau. This region forms the catchment area of all the rivers of this district. The rivers which originate from the ridge lines plung down to the plains resulting deep gorges and occasional land slides in rainy season. The river pattern is from trellis to dentritic. At the centre of this region has the Kuttiadi reservoir. The maximum height (2,339 m.) of this region is located at the Reserve forest area in its eastern portion and minimum height (152 m.) is at the Valayam kara (8-1) of Valayam village of Badagara taluk. This region has dense forest of wet ever-green to moist deciduous forest type. The soils of this region are riverine alluvium and brown hydromorphic soil, technically called Udalfs-tropepts. Along the Kuttiadi river, we find riverine alluvium which cut across the extensive laterite soil. Brown hydromorphic soil also occur in this region which commonly found in wet lands. They are moderately rich in organic matter, nitrogen and potash and deficient in lime. Being it is of forested hilly ranges, this region has cart-tracks and foot-paths. The settlements and population are sparse.

Note : 1. Soils are classified by NBSS & LUP (ICAR), Nagpur
2. The 1981 census location code number is written brackets after the name of village/desom.

MALAPPURAM DISTRICT
(CODE: 04)

Malappuram district is hemmed between the Lakshadweep sea and the Western ghats. Its eastern region is characterized by dense forests, lofty hills and valuable teak plantations. Five rivers from the north to south viz Chaliyar (169 km), Kadalundi (130 km), Pooraparamba (8 km), Tirur (48 km) and Bharathapuzha (251 km) traverse through this district. The Chaliyar river has its catchment area in the north-eastern tract of the district, while Bharathapuzha and its tributary Thuthapuzha pass at the southern strip of the district. Malappuram district is a part of the Central Kerala coast (4.2.5) and is sub-divided on the basis of topography, geology, soils, climate and natural vegetation into 5 sub-micro regions viz. Malappuram Coast, Malappuram Undulating Plain, Chaliyar River Basin, Nilambur Forested Hills and *Perintalmanna Undulating Upland. Brief description* on the sub-micro regions are given below.

4.2.5.1 Malappuram Coast

This region lies all along the coastal tract of this district comprising of Ponnani taluk and part of Tirur taluk. This region is drained by all the rivers (except Chaliyar), besides canals and backwaters of this district. The meandering character of these rivers shows that flood plain has attained a matured condition. This region contain 35 whole villages, 4 part villages (consisting of 9 desoms) and 2 towns. Its area is 654.22 km^2 with a population of 925,547 persons and a density of 1,415 persons per km^2 Its geology is alluvium bed of recent age and its soil type is coastal alluvium. The region is well connected by rail and road and the most densely populated region of the district.

4.2.5.2 Malappuram Undulating Plain

This undulating terrain lies parallel to the Malappuram coast, comprising parts of Ernad, Tirur and Perintalmanna taluks. This region has many knolls and hillocks. It contains 19 whole villages, 10 part villages (consisting of 23 desoms) and 1 town. Its area is 515.08 km^2 with a population of 471,021 persons and a density of 914 persons per km^2. Its geology is lateritic bed. It has laterite and alluvium soils. There is good road communication in this region.

4.2.5.3 Chaliyar River Basin

This region lies in a part of Ernad taluk and it falls under the middle course of the Chaliyar river. This region has undulating topography with isolated hills forming an undulating terrain. It contains 13 whole villages and 7 part villages (consisting of 20 desoms) Its area is 461.35 km^2 with a population of 286,315 and a density of 621 persons per km^2. Its geological beds are laterite and charnockite. It has the soils of laterite and alluvium. The communication facilities are comparatively less in this region, though it is connected by rail to Shoranur junction and by road to the district headquarters.

4.2.5.4 Nilambur Forested Hills

This region which lies in the north-east of Ernad taluk is a part of the Western Ghats. It is a scarp slope area and it has many high peaks. It is the catchment area of Chaliyar river and has dense wet ever-green forests. It contains 6 whole villages and 3 part villages (consisting of 3 desoms). It has an area of 1,189.06 km^2 and a population of 235,073 which works out a density of 198 persons per km^2. Its geology is charnockite bed with the intrusion of a major portion of cordierite gneiss, hornblende gneiss. It has laterite and forest loam soils. The area is sparsely populated. It is connected by rail and road.

4.2.5.5. Perintalmanna Undulating Upland

This region lies in the centre and southern portion of this district comprising the parts of Ernad

and Perintalmanna taluks. This region has undulating terrain and a number of isolated hills mostly in the southern portion from where the streams originate. There are some forest patches along with shrubs and bushes. It contains 28 whole villages, 4 part villages (consisting of 17 desoms) and 1 town. Its area is 726.53 km^2 with a population of 484,745 persons and a density of 667 persons per km^2. Its geology is laterite bed, charnockite and basic dykes. Its soil is laterite and brown hydromorphic soil. This region is connected both by rail and road.

KERALA
MALAPPURAM DISTRICT
CODE 04
REGIONAL DIVISIONS

km 10 5 0 5 10 km

WAYANAD DISTRICT

NILGIRI DISTRICT (TAMIL NADU)

KOZHIKODE DISTRICT

PALGHAT DISTRICT

LAKSHADWEEP SEA

TRICHUR DISTRICT

Chungathara
Edakkara
Areecode
Nilambur
Mambad
Amarambalam
Thrikkunnasseri
Elankur
Cherpa
Thuvvur
Kolathur
Chelembra
Nediyiruppu
Thenhippalam
Vallikkunnu
Velimukku
Kannamangalam
Parappanangadi
Neduva
Koduvayoor
Moonniyoor
Tirikkulam
Rayirimangalam
Tanur Nagaram
Kadur
Kottakkal
Pang
Perintalmanna
Athavanad
Kottai
PONNANI

ERNAD TALUK 4.2.5.3
TIRUR TALUK 4.2.5.2.
PERINTALMANNA TALUK 4.2.5.5
4.2.5.4
4.2.5.1

MALAPPURAM
TIRUR

FROM CALICUT
FROM CALICUT
TO PALGHAT
TO SHORANUR
TO SHORANUR
TO SHORANUR
TO TRICHUR

SH
NH 47
RS

4.2.5.1. Malappuram Coast
4.2.5.2. Malappuram Undulating Plain
4.2.5.3. Chaliyar River Basin
4.2.5.4. Nilambur Forested Hill
4.2.5.5. Perintalmanna Undulating Upland

BOUNDARY, STATE
" " DISTRICT
" " TALUK
DESOM HAVING 10000 & ABOVE POPULATION — Thuvur
URBAN AREA
NATIONAL HIGHWAY — NH 47
STATE HIGHWAY — SH
RAILWAY LINE WITH STATION Broad Gauge — RS
RIVER / WATER BODY
REGIONAL DIVISION — 4 2 5 1
MACRO
MESO
MICRO
SUB-MICRO WITH BOUNDARY

[READ THE SEQUENCE OF REGIONAL DIVISIONS WITH REFERENCE TO THE ALL INDIA MAP CODES UP TO 3 TIER]

GEOLOGY

km 0 10 20 40 km

ALLUVIUM	RECENT
LATERITE	PLEISTOCENE
DHARWAR GROUP	LOWER PROTEROZOIC
BASIC DYKES	ARCHAEAN
UNCLASSIFIED GRANITE	ARCHAEAN
CHARNOCKITES	ARCHAEAN
CORDIERITE GNEISS, HORNBLENDE-BIOTITE GNEISS, OTHER UNCLASSIFIED CRYSTALLINES INCLUDING YOUNGER SEGMENTS.	ARCHAEAN

SOILS

km 0 10 20 40 km

39 PSAMMENTS-ORTHENTS
49 FLUVENTS-TROPEPTS-ORTHENTS
55 ORTHENTS-TROPEPTS-ROCK OUTCROPS
91 UDULTS-TROPEPTS-ROCK OUTCROPS
101 ROCK OUTCROPS - UDALFS-TROPEPTS

BASIC DATA ON SUB-MICRO REGIONS, 1981

MALAPPURAM DISTRICT

(CODE : 04)

Macro region	4 The Coastal Plains & Islands
Meso region	4.2 Western Coastal Region
Micro region	4.2.5 Central Kerala Coast

Sub-Micro region Number & name	Taluk	No. of constituent units: Whole Village	Part Village & (desoms)*	Town	Total Rural Urban	Area in km^2	Population (1981 Census)
1	2	3	4	5	6	7	8
4.2.5.1 Malappuram Coast		35	4(9)	2	Total	654.22	925,547
					Rural	628.33	841,518
					Urban	25.89	84,029
	Ernad (Part)	1	1(2)		Total	28.75	31,811
					Rural	28.75	31,811
					Urban	-	-
	Tirur (Part)	24	3(7)	1	Total	426.07	631,060
					Rural	409.48	590,257
					Urban	16.59	40,803
	Ponnani	10		1	Total	199.40	262,676
					Rural	190.10	219,450
					Urban	9.30	43,226
4.2.5.2 Malappuram Undulating Plain		19	10(23)	1	Total	515.08	471,021
					Rural	481.48	431,235
					Urban	33.60	39,786
	Ernad (Part)	8	5(10)	1	Total	241.72	228,709
					Rural	208.12	188,923
					Urban	33.60	39,786
	Perintalmanna.. (Part)		2(5)	—	Total	35.12	30,389
					Rural	35.12	30,389
					Urban	-	-

1	2	3	4	5	6	7	8
	Tirur (Part)	11	3(8)	-	Total Rural Urban	238.24 238.24 -	211,923 211,923 -
4.2.5.3 Chaliyar River Basin		13	7(20)		Total Rural Urban	461.35 461.35 -	286,315 286,315 -
	Ernad (Part)	13	7(20)		Total Rural Urban	461.35 461.35 -	286,315 286,315 -
4.2.5.4 Nilambur Forested Hills		6	3(3)		Total Rural Urban	1,189.06 1,189.06 -	235,073 235,073 -
	Ernad (Part)	6	3(3)		Total Rural Urban	1,189.06 1,189.06 -	235,073 235,073 -
4.2.5.5 Perintalmanna Undulating Upland		28	4(17)		Total Rural Urban	726.53 673.47 53.06	484,745 430,786 53,959
	Ernad (Part)	6	2(9)		Total Rural Urban	255.72 202.66 53.06	162,340 108,381 53,959
	Perintal-manna (Part)	22	2(8)		Total Rural Urban	470.81 470.81 -	322,405 322,405 -

Note: The area of the district (3,548 km^2) is based on the 'geographical' area supplied by the Surveyor General, India whereas the area figures of sub-micro regions are arrived at on the basis so the 'land-use' area figures supplied by the Director of Survey & Land Records, Tahsildars and Local Bodies. Therefore when the area figures of sub-micro regions are added up it may not tally with the area of the district.

The number given in bracket in Col. 4 indicates the number of desoms which fall in all the part villages of the taluk in the concerned sub-micro region.

CONSTITUENT UNITS OF SUB-MICRO REGIONS, 1981

MALAPPURAM DISTRICT

(CODE: 04)

Sub-micro region with code and name	Taluk and code	Number of whole/ part* village(s) and location code(s)	Location code and name of town	Remarks
1	2	3	4	5
4.2.5.1 Malappuram Coast	Ernad 01	1 whole village 20		The remaining portions in regions 4.2.5.2, 4.2.5.3, 4.2.5.4 and 4.2.5.5
		1 part village 21-1 & 21-2		
	Tirur 03	24 whole villages 1 to 3, 5 to 10,14 to 19 & 30 to 38	III Tirur	The remaining portion in region 4.2.5.2
		3 part villages 13-1, 13-2, 13-3, 13-4, 20-3, 20-4 & 27-1		
	Ponnani 04	10 whole villages 1 to 10	IV Ponnani	
4.2.5.2 Malappuram Undulating Plain	Ernad 01	8 whole villages 1, 18, 19, 22, 23 & 41 to 43	II Malappuram	The remaining portions in regions 4.2.5.1, 4.2.5.3, 4.2.5.4 and 4.2.5.5
		5 part villages 2-1, 2-2, 17-5, 17-6, 17-7, 21-3, 21-4, 39-5, 39-6, & 40-4		
	Perintalmanna 02	Whole village Nil		The remaining portion in region 4.2.5.5
		2 part villages 1-1, 1-2, 1-3, 1-4 & 2-5		

1	2	3	4	5
	Tirur 03	11 whole villages 4, 11, 12, 21 to 26, 28 & 29		The remaining portion in region 4.2.5.1
		3 part villages 13-5, 13-6, 20-1, 20-2, 27-2, 27-3, 27-4 & 27-5		
4.2.5.3 Chaliyar River Basin	Ernad 01	13 whole villages 3, 11 to 13, 15, 16, 24 to 28 30 & 33		The remaining portions in regions 4.2.5.1, 4.2.5.2, 4.2.5.4 and 4.2.5.5
		7 part villages 2-3, 2-4, 2-5, 2-6, 4-1, 4-2, 4-3, 5-2, 14-2, 14-3, 17-1, 17-2, 17-3, 17-4, 29-1, 29-2, 29-3, 40-1, 40-2 & 40-3		
4.2.5.4 Nilambur Forested Hills	Ernad 01	6 whole villages 6 to 10 & 31		The remaining portions in regions 4.2.5.1, 4.2.5.2, 4.2.5.3 and 4.2.5.5
		3 part villages 4-4, 5-1, & 14-1		
4.2.5.5 Perintalmanna Undulating Upland	Ernad 01	6 whole villages 32 & 34 to 38	I Manjeri	The remaining portions in regions 4.2.5.1, 4.2.5.2, 4.2.5.3 and 4.2.5.4
		2 part villages 29-4, 29-5, 29-6, 29-7, 29-8, 39-1, 39-2, 39-3 & 39-4		
	Perintalmanna 02	22 whole villages 3 to 24		The remaining portions in region 4.2.5.2
		2 part villages 1-5, 1-6, 1-7, 1-8, 2-1, 2-2, 2-3 & 2-4		

* Desom/kara which is the lowest constituent unit of a village is taken as the basis for delineation of sub-micro region. A sub-micro region may consists of whole or part villages or both. For part village the two digit location code of desom/kara is given. Eg. 2-3 indicate third desom/kara of the 2nd village.

PHYSIOGRAPHIC FEATURES BY SUB-MICRO REGIONS

MALAPPURAM DISTRICT
(CODE: 04)

Taluk	Geology	Soils	Rainfall	Physiography
1	2	3	4	5
SUB-MICRO REGION 4.2.5.1 MALAPPURAM COAST				
Ponnani and parts of Tirur and Ernad	Alluvium bed	Alluvium soil sandy soil. Fluvents-Tropepts, Orthents, Psamments-Orthents. *Fluvents* Alluvial soils (Recent alluvium) *Tropepts* Shallow black, brown and alluvial soils of southern region *Psamments* Sandy soil (Recent) *Orthents* Recently formed soils	Around 250 cm. (increases towards west)	This region lies all along the coastal tract of Malappuram district. It makes its boundaries with Kozhikode Coast in the north, Malappuram Undulating Plain in the east, Trichur Coast in the south and Lakshadweep Sea in the west. This region is drained by the major rivers like Chaliyar, Kadalundi, Ponnani etc., canals and backwaters. All of them used for inland navigation. This coastal plain slopes towards west very gently. The maximum height (104 m.) is located at the Paravannur desom (20-4) of Kalpakancheri village of Tirur taluk. The rivers show the meandering character which implies that flood plain attained matured condition. Coconut palms and paddy are the vegetations found in this region. The soil is technically classified as fluvents-tropepts-orthents and psamments-orthents. This region has both railway and road facilities. NH 17 passes through this region. There are roads connecting all the neighbouring important places. This region is densely populated which comprise of mostly of fishermen. Tirur and Ponnani are the important towns of this region.

1	2	3	4	5
SUB-MICRO REGION: 4.2.5.2 MALAPPURAM UNDULATING PLAIN				
Parts of Ernad, Perintalmanna and Tirur	Laterite bed and Charnockite bed	Laterite soil and forest loam. Fluvents-Tropepts-Orthents of recent origin *Fluvents* Alluvial soil (Recent alluvium) *Tropepts* Shallow black, brown and alluvial soils of southern region *Orthents* recently formed soil	Around 200 cm.	This region makes its boundaries with Nadapuram-Mavur Undulating Plain in the north, Chaliyar River Basin and Perintalmanna undulating upland in the east, Pattambi Undulating Plain in the south and Malappuram Coast in the west. This undulating terrain lies parallel to the Malappuram Coast region. It has number of isolated residual hills and generally slopes towards west and in some places towards east. The Nenmini hill (478 m.) at the central part of the region and located at Killanakode desom (4-3) of Kannamangalam village of Tirur taluk is the highest spot in this region. The minimum height (95 m.) is found in the northern tip of this region, ie. at Vazhayur desom (1-4) of Vazhayur village of Ernad taluk. This region has cashew, coconut, and tapioca as the important vegetation cover. The soils are laterite, alluvium and forest loam. Soils technically classified as fluvents-tropepts-orthents. This region has a net-work of roads connecting with all the neighbouring important places. It has widely spread settlements. Malappuram is the important town of this region.
SUB-MICRO REGION: 4.2.5.3 CHALIYAR RIVER BASIN				
Parts of Ernad	Lateritic bed, Charnockite and Basic dykes	Laterite soil. Orthents-tropepts Fluvents-tropepts *Orthents Recently* formed soil	Around 220 cm.	This region lies entirely in Ernad taluk. It makes its boundaries by Nilambur Forested Hills in its north and east, Perintalmanna Undulating Upland in its south and Malappuram Undulating Plain in its east. This region falls under the middle course of the Chaliyar river. Before entering to this region, this river takes

1	2	3	4	5
		Tropepts Shallow black, brown and alluvial soils of southern region *Fluvents* Alluvial soil		its origin from the northern and eastern hilly forest area and flows westwards. This region has ups and downs in the form of isolated hills. It has undulating terrain and the region slopes towards west. The maximum height (343 m.) being at Kalikavu village (31) of Ernad taluk and minimum (50 m.) at Eramangalam desom (29-2) of Perur village of Ernad taluk. Rubber cashew, pepper and coconut are the important vegetation found here. This region comes under the lateritic bad and charnockite bed in its western and central portion of this region respectively. Basic dykes and cordierite gneiss also occurs in the east of this region. The major soil is orthents-tropepts. In its western part it has fluvents-tropepts. This region has inter-connection with the adjacent important towns viz. Calicut, Manjeri, Malappuram, Shoranur, and Gudalur (Tamil Nadu) by road. There is a broad-gauge railway line which connects Nilambur with Shoranur. Most of the settlement pattern is linear type and is found all along the road side. Kondotti, Valakkad and Wandur are the important settlements of this region.

SUB-MICRO REGION: 4.2.5.4 NILAMBUR FORESTED HILLS

Part Ernad	Charnockite, Cordierite gneiss, biotite gneiss, hornblende	Laterite and forest loam soil. Udults-tropepts, Udalfs-, tropepts gneiss or other unclassified younger segments Orthents-tropepts.	Around 200 cm. (decreases towards north and east)	This region makes its boundaries with Kozhikode Forested Hills and Wayanad Forested Hills in the north, Tamil Nadu in the east, Mannarghat-Palghat Forested Hills in the south and Chaliyar River Basin in the west. This region is a part of the Western Ghats. It is a scarp slope area and there is a drop of 700 m. in height within a short distance of one kilometer. There are many peaks with over 1000 m., in

1	2	3	4	5
		Udults Laterite Soil *Tropepts* Shallow black, brown and alluvial soil of southern region *Udlafs* High base status soil of humid region *Orthents* Recently formed soil		this region (eg. 1,628 m., 4,348 m. and 1,064 m. spots in the Chungathura village (8) and 960 m. spot in Nilambur village (7) and 1,945 m., 2,064 m., 2,503 m. and 2,526 m. spots in the Amarambalam desom (10-1) of Amarambalam village). The minimum height (115 m.) is located at Mambad (6) village. There is a valley in between the north-western and eastern portions of this hilly tract and thereby the slope of this region converge towards the center. This region is the catchment area of the Chaliyar river and its tributaries. Through this valley, there is a road connecting Nilambur with Gudalur (Tamil Nadu). The geology of this region is charnockite bed with the intrusion of a major portion of cordierite gneiss, hornblende gneiss. There is a patch of lateritic bed too. Major soil is laterite and forest loam. It is technically classified as udults-tropepts (in the western part) and udlafs-tropepts (in the eastern part). In the middle portion it has orthents-tropepts. The settlements are less and mostly found along the road side forming linear pattern. There are cart-tracks and foot-paths in this region. Nilambur is the important settlement of this region.

SUB-MICRO REGION: 4.2.5.5 PERINTALMANNA UNDULATING UPLAND

Part of Ernad and Perintal-manna	Lateritic bed, Charnoc-kite, basic dykes and unclassi-fied granite	Laterite soil and brown hydromor-phic soil. Orthents-tropepts *Orthents* Recently formed soil	Around 240 cm. (Increases towards west)	This region makes its boundaries with Chaliyar River Basin in the north, Mannarghat-Palghat Forested Hills in the east, Palghat Gap in the south and Malappuram Undulating Plain in the west. This region is having a number of isolated hills, mostly in the southern area of the region from where streams originate and join with the Kadalundi river and Thootapuzha. Kadalundi river

1	2	3	4	5
		Tropepts Shallow brown and alluvial soils of southern region		drains this this region. The maximum height of the region is 610 m. at the Vellila desom (4-1) of Vadakkangara village of Perintalmanna taluk. The 100 m. contour which shows the minimum height, runs throughout this region. There are some forest patches found in the isolated hills and thick shrubs and bushes found mostly in the southern portion of this region. Coconut palms, rubber, pepper and cashew are the vegetation cover of this region. In its western part, it has lateritic bed with charnockite and basic dykes as its geological beds. It has laterite and brown hydromorphic soils which are moderately rich in organic matter, nitrogen and potash and deficient in lime and phosphate. Acidity is a problem in some places. This region has a net-work of roads, which connect the adjacent places. Nilambur-Shoranur railway line passes through this region. The settlements are widely spread with large population. Manjeri and Perintalmanna are the important places of this region.

Note : 1. Soils are classified by NBSS & LUP (ICAR), Nagpur

2. The 1981 census location code number is written brackets after the name of village/desom.

PALGHAT DISTRICT
(CODE: 05)

Palghat district, which borders Tamil Nadu, lies in physiographic set-up slightly different from other districts of the State. Falling partly in hilly tract and plains, the district has spurs, slopes and valuable forests, particularly in the Attappady valley. There are two important rivers in the district viz. the west-flowing Bharathapuzha (251 km) and the east-flowing Bhavani river which is a tributary of Cauvery. Except in north-east corner of the district which tilts towards east, the general slope is towards west. Palghat district is a part of the Central Kerala coast (4.2.5) and is sub-divided on the basis of topography, geology, soil, climate and natural vegetation into 4 sub-micro regions viz. Pattambi Undulating Plain, Mannarghat-Palghat Forested Hills, Palghat Gap and Chittur Forested Hills. Their details are given below.

4.2.5.1 Pattambi Undulating Plain

This region lies in the extreme western portion of Ottappalam taluk of this district falling on either side of the Bharathapuzha. It has knolls and hillocks here and there. It contains 15 whole villages and 3 part villages (consisting of 8 desoms). It has an area of 333.66 km^2, a population of 273,130 persons and a density of 819 persons per km^2. Its geological bed is alluvium of recent origin. The soil of this region is recent deposit of alluvium and shallow black and brown. The Shoranur-Calicut railway line passes through this region.

4.2.5.2 Mannarghat-Palghat Forested Hills

This region lies in the north-east portion of the district comprising of parts of Mannarghat and Palghat taluks. This table-land is the continuation of neighbouring Coimbatore plateau. As this region slopes towards east, the Bhavani river flows in this direction unlike the general pattern of rivers which flow towards west in the state. The forested hills are covered by semi-evergreen type of forests. It contains 6 whole villages and 3 part villages (consisting of 4 desoms). It has an area of 1,161.37 km^2, a population of 107,345 persons and a low density of 92 persons per km^2. Both Silent Valley and Attappady valley are located here. Geologically this region is coming under chordierite gneiss, hornblende biotite gneiss and other unclassified crystalline. It has forest loams, red sandy, lateritic and brown hydromorphic soils. Being large tract under forests, the communication facilities are less in this region.

4.2.5.3 Palghat Gap

This region occupies major portion of the district falling in all the taluks. The Palghat Gap on the Western Ghats which has a width of 30 km influences the climate of this entire region. This region is drained by Bharathapuzha and its tributaries. It has a number of isolated residual hills and has undulating topography. It contains 116 whole villages, 6 part villages (consisting of 14 desoms), 4 towns and an urban outgrowth. It has an area of 2,281.16 km^2, a population of 1,613,702 persons and a density of 707 persons per km^2. Its geological beds are cordierite gneiss, hornblende-biotite gneiss and other unclassified crystalline and charnockite beds. The soils are laterite, riverine alluvium and brown hydromorphic soil. All the towns in this district lie in this region which are well connected by road with all the important towns in the State. Shoranur, Ottappalam and Palghat towns are connected by rail also.

4.2.5.4 Chittur Forested Hills

It comprises of parts of Chittur and Alathur taluks. This is the continuation of Western Ghats lying south of Palghat gap region with a steep ascend. From this part of hilly ranges to the southern tip of Kannyakumari district is known as 'Southern Ghats'. Some of the west-flowing rivers have their catchment area in the region, besides dams. This region has many coffee and orange estates. It contains 3 whole villages, besides unsurveyed area which lie outside village boundaries. The area of the region is 699.56 km^2. It has a population of 50,222 persons and a low density of 72 persons per km^2. Its geological bed is charnockite and its soils are laterite and forest loam. The communication facilities are poor.


KERALA
PALGHAT DISTRICT
CODE 05
REGIONAL DIVISIONS
km 10 5 0 5 10 km
NILGIRI DISTRICT
TAMIL NADU
MALAPPURAM DISTRICT
FROM PERINTALMANNA
FROM NILAMBUR
FROM TIRUR
COIMBATORE DISTRICT
TAMIL NADU
TO COIMBATORE
TRICHUR DISTRICT
FROM TRICHUR
TO POLLACHI
MANNARGHAT TALUK
4.2.5.2
OTTAPPALAM TALUK
4.2.5.1
PALGHAT TALUK
4.2.5.3
ALATHUR TALUK
CHITTUR TALUK
4.2.5.4
Agali
Sholayur
Edathanattukara
Arakurissi
Alanallur
Thenkara
Pottasseri
Karimba
Kongad
Chunangad
Pudusseri
Akathethara
Puduppariyaram
Edathara
Pirayiri
PALGHAT
Elappully
Kozhinjampara
Nalleppilly
SHORANUR
OTTAPPALAM
Kuthannur
Kovasseri
Kunnaseri
Keduvayur
Vadavannur
Perumatty
Pattancheri
Pallassena
Kattusseri
Kannamara
Vallanghy
Kizhakkethara
Nemmara
Muthalamada
Vadakkancheri
Kizhakkancheri west
Kizhakkancheri east
Vandazhi
BOUNDARY, STATE
" " DISTRICT
" " TALUK
DESOM HAVING 10000 & ABOVE POPULATION
URBAN AREA
NATIONAL HIGHWAY
STATE HIGHWAY
RAILWAY LINE WITH STATION (Broad Gauge)
" " (Metre Gauge)
RIVER/WATER BODY
REGIONAL DIVISIONS
MACRO
MESO
MICRO
SUB-MICRO WITH BOUNDARY
[READ THE SEQUENCE OF REGIONAL DIVISIONS WITH REFERENCE TO THE ALL INDIA MAP CODE UP TO 3 TIRE]
4.2.5.1 Pattambi Undulating Plain
4.2.5.2 Mannarghat-Palghat Forested Hills
4.2.5.3 Palghat Gap
4.2.5.4 Chittur Forested Hills
GEOLOGY
km 20 10 0 20 km
ALLUVIUM
RECENT
LATERITE
PLEISTOCENE
UNCLASSIFIED GRANITE
CHARNOCKITES
CORDIERITE GNEISS, HORNBLENDE-BIOTITE GNEISS, OTHER UNCLASSIFIED CRYSTALLINES INCLUDING YOUNGER SEGMENTS
ARCHAEAN
KHONDALITES
SOILS
km 20 10 0 20 km
USTALFS-ORTHENTS
FLUVENTS-TROPEPTS-ORTHENTS
ORTHENTS-TROPEPTS-ROCK OUTCROPS-ORTHENTS-TROPETS
UDULTS-TROPEPTS-ROCK OUTCROPS
USTERTS-TROPEPTS-ORTHENTS
ROCK OUTCROPS-UDALFS-TROPEPTS

BASIC DATA ON SUB-MICRO REGIONS, 1981

PALGHAT DISTRICT

(CODE: 05)

Macro region : 4 The Coastal Plains & Islands
Meso region : 4.2 Western Coastal Region
Micro region : 4.2.5 Central Kerala Coast

Sub-Micro region Number & name	Taluk	No. of constituent units: Whole Village	Part Village & (desoms)*	Town		Area in km^2	Population (1981 Census)
1	2	3	4	5	6	7	8
4.2.5.1 Pattambi Undulating Plain		15	3(8)	-	Total	333.66	273,130
					Rural	333.66	273,130
					Urban	-	-
	Ottappalam (Part)	15	3(8)	-	Total	333.66	273,130
					Rural	333.66	273,130
					Urban	-	-
4.2.5.2 Mannarghat-Palghat Forested Hills		6	3(4)	-	Total	1,161,37	107,345
					Rural	1,161.37	107,345
					Urban	-	-
	Mannarghat (Part)	5	3(4)	-	Total	936.79	98,630
					Rural	936.79	98,630
					Urban	-	-
	Palghat (Part)	1	-	-	Total@	224.58	8,715
					Rural@	224.58	8,715
					Urban	-	-
4.2.5.3 Palghat Gap		116	6(14)	4&1OG	Total	2,281.16	1,613,702
					Rural	2,186.60	1,407,033
					Urban	94.56	206,669
	Ottappalam (Part)	20	3(5)	2	Total	512.12	352,690
					Rural	462.86	294,414
					Urban	49.26	58,276

1	2	3	4	5	6	7	8
	Mannarghat	11	3(9)	-	Total	248.78	152,319
	(Part)				Rural	248.78	152,319
					Urban	-	
	Palghat	25	-	1 & 10G	Total	495.72	439,243
	(Part)				Rural	465.13	321,257
					U	30.59	117,986
	Chittur	33	-	1	Total	558.32	345,896
	(Part)				Rural	543.61	315,489
					Urban	14.71	30,407
	Alathur	27	-	-	Total	466.22	323,554
	(Part)				Rural	466.22	323,554
					Urban	-	-
4.2.5.4 Chittur Forested Hills		3	-	-	Total	699.56	50,222
					Rural	699.56	50,222
					Urban	-	-
	Chittur	1	-	-	Total@	596.78	22,751
	(Part)				Rural@	596.78	22,751
					Urban	-	-
	Alathur	2	-	-	Total	102.78	27,471
	(Part)				Rural	102.78	27,471
					Urban	-	-

Note :- The area of the district (4,480 km^2) is based on the 'geographical' area supplied by the Surveyor General, India whereas the area figures of sub-micro regions are arrived at on the basis of the 'land-use' area figures supplied by the Director of Survey & Land Records, Tahsildars and Local Bodies. Therefore when the area figures of sub-micro regions are added up it may not tally with the area of the district.

* The number given in bracket in Col. 4 indicate the number of desoms which fall in all the part villages of the taluk in the concerned sub-micro region.

@ Inclusive of forest area lying outside village boundaries.

CONSTITUENT UNITS OF SUB-MICRO REGIONS, 1981

PALGHAT DISTRICT

(CODE: 05)

Sub-micro region with code and name	Taluk and code	Number of whole/ parts* village(s) and location code(s)	Location code and name of town	Remarks
1	2	3	4	5
4.2.5.1 Pattambi Undulating Plain	Ottappalam 01	15 whole villages 1 to 4 & 22 to 32		The remaining portion in region 4.2.5.3
		3 part villages 5-1, 5-2, 5-3, 5-5 21-1, 33-1, 33-2 & 33-3.		
4.2.5.2 Mannarghat Palghat Forested Hills	Mannarghat 02	5 whole villages 6, 12 to 14 & 19		The remaining portion in region 4.2.5.3
		3 part villages 8-1, 8-2, 9-1 & 10-1		
	Palghat 03	1 whole village 13 and Forest area outside village boundary.		The remaining portion in region 4.2.5.3
4.2.5.3 Palghat Gap	Ottappalam 01	20 whole villages 6 to 20 & 34 to 38	I Shoranur II Ottappalam	The remaining portion in region 4.2.5.1
		3 part villages 5-4, 21-2, 21-3,33-4 & 33-5		
	Mannarghat 02	11 whole villages 1 to 5, 7, 11, 15 to 18		The remaining portion in region 4.2.5.2
		3 part villages 8-3, 8-4, 9-2, 9-3, 9-4, 9-5, 9-6, 10-2 & 10-3		

1	2	3	4	5
	Palghat 03	25 whole villages 1 to 12 & 14 to 26	III Palghat III-A Palghat Railway Colony	The remaining portion in region 4.2.5.2
	Chittur 04	33 whole villages 1 to 28 & 30 to 34	IV Chittur-Thathamangalam	The remaining portion in region 4.2.5.4
	Alathur 05	27 whole villages 1 to 25, 27 & 28		The remaining portion in region 4.2.5.4
4.2.5.4 Chittur Forested Hills	Chittur 04	1 whole village 29 Forest area outside village boundary also		The remaining portion in region 4.2.5.4
	Alathur 05	2 whole villages 26 & 29		The remaining portion in region 4.2.5.3

* Desom/kara which is the lowest constituent unit of a village is taken as the basis for delineation of sub-micro region. A sub-micro region may consists of whole or part villages or both. For part village the two digit location code of desom/kara is given. Eg. 2-3 indicate third desom/kara of the 2nd village.

PHYSIO-GEOGRAPHIC FEATURES BY SUB-MICRO REGIONS

PALGHAT DISTRICT

(CODE: 05)

Taluk	Geology	Soils	Rainfall	Physiography
1	2	3	4	5
SUB-MICRO REGION: 4.2.5.1 PATTAMBI UNDULATING PLAIN				
Part of Ottappalam	Alluvium bed, Charnockite bed	Alluvial soils. Fluvents-tropepts Orthents *Fluvents* Alluvial soils (Recent alluvium) *Tropepts* Shallow black, brown and alluvial soils of southern region *Orthents* recently formed soils	Around 200 cm. (increases towards north and east)	This region lies in the extreme western portion of Ottappalam taluk. It makes its boundaries with Malappuram Undulating Plain in the north, Palghat Gap in the east, Trichur Plain in the south and Malappuram Coast in the west. This region with knolls and isolated hills here and there slopes towards west. The maximum height (191 m) is recorded in the western portion of Vilayur village (4) in its eastern end and the minimum height (78 m) in the Thannerkode desom (27-1) of Chalisseri village. This region is drained by the Bharathapuzha and its tributary Thuthapuzha. Paddy and coconut are the main crops of this region. Major portion is having alluvium bed. In its northern portion it has lateritic and charnockite bed. The soil of this region is alluvium and laterite. The soils technically classified as fluvents-tropepts-orthents. This region is well connected by roads and railway with the neighbouring areas. Pattambi is the important settlement in this region.
SUB-MICRO REGION: 4.2.5.2 MANNARGHAT-PALGHAT FORESTED HILLS				
Parts of Mannarghat and Palghat	Cordierite gneiss, biotite gneiss,	Red loam, laterite, Udalfs-tropepts,	Between 175 and 200 cm.	This region is bounded by Tamil Nadu in the north and east, Palghat Gap in the south and Nilambur Forested Hills in the west.

1	2	3	4	5
		hornblende and other unclassified crystalline including younger segments of charnockite	Ustalfs-orthents Udalfs High base status soil of humid region Tropepts Shallow black, brown and alluvial soils of southern region. Ustalfs High base status soil, red loamy, red sandy and alluvial soil Orthents Recently formed soil	This table-land is the continuation of neighbouring Coimbatore plateau and it generally slopes towards south and west. The north-east portion of this region slopes towards east which influences the flow of Bhavani river towards east. This forested hills has steap slope on the western and southern sides. The escarpment found in the southern side has waterfalls and rapids from where the Palghat Gap begins. The maximum height (2,383 m) of this region lies at its northern tip in the Pudur (12) village of Mannarghat taluk and its minimum height (309 m) lies at its southern portion in the Malampuzha-I village. However, the region has the average height between 1,300 and 1,400 m. This region also forms the catchment area of Thuthapuzha, a tributary of Bharathapuzha. There is a predominance of semi-ever-green forest (covered mainly by teak, sandal wood and bamboo). Malampuzha Reservoir is located in its southern extremity and its waters irrigate vast areas of the Palghat district. Major portion of this region has brown hydromorphic soil, red loam and forest loam soils. Technically the soils are classified as udalfs-tropepts and ustalfs-orthents. As this region is of forest highlands, communication facility is poor. A road connecting Mannarghat with Coimbatore (Tamil Nadu) passes through Attappadi. Mannarghat and Attappadi are the important settlements in this region.
		SUB-MICRO REGION: 4.2.5.3 PALGHAT GAP		
Parts of Ottappalam, Mannarghat, Palghat, Chittur	Cordierite gneiss hornblende, biotite gneiss	Laterite soil Riverine alluvium Usterts-	Between 150 and 200 cm. (increases towards	This region is bounded by the Mannarghat-Palghat Forested Hills in the north, Tamil Nadu in the east, Chittur Forested Hills in the south and Pattambi Undulating Plain in the west.

1	2	3	4	5
and Alathur	and other Unclassified granite	Tropepts, Orthents-tropepts	east) Usterts Deep black soil Tropepts Shallow black, brown and alluvial soils of southern region Orthents Recently formed soil	This region is an undulating upland with an average height of 150 m. The maximum height (394 m) is located in the central portion of this region and the minimum height (61 m) is located in the western portion at Thadukkasseri desom (3-4) of Keralasseri village of Palghat taluk. The Palghat gap has the average width of 30 km. This region is mainly drained by Bharathapuzha and its tributaries viz. Kalpathipuzha, Walayar river, Koraiyar river etc. Thoothapuzha also drains this region and joins Bharathapuzha at its down course. This region has a number of isolated residual hills. In the central part of this region a residual hill Anangamalai (394 m), separated from the mountain chain, is located at Vengasseri desom (15-3) of Ambalappara-I village of Ottappalam taluk. The river course shows the meandering character which implies that flood plain attained a matured condition. Paddy is extensively cultivated while the sugarcane, coconut etc. are the other vegetation cover. This region has laterite black and riverine alluvium soils. It has a small area under usterts-tropepts and a large area under orthents-tropepts. The area is having a net-work of roads and the gap provides easy access to the Coimbatore district of Tamil Nadu. It is also connected by broad-gauge railway line which passes from Shoranur to Coimbatore and the metre-gauge railway line connecting Palghat with Dindigul in Tamil Nadu. The main occupation of the people is agriculture. Shoranur, Ottappalam, Palghat, Alathur, Chittur-Thathamangalam, Pudunagaram, Kollengode etc. are the important settlements in this region.

1	2	3	4	5
SUB-MICRO REGION: 4.2.5.4 CHITTUR FORESTED HILLS				
Parts of Chittur and Alathur	Charnoc-kite	Laterite soil Orthents-tropepts, Udults-tropepts Orthents Recently formed soils Tropepts Shallow black, brown and alluvial soils of southern region Udults Laterite soils	Between 125 and 150 cm.	This region lies in the southern portion of this district and it is bounded by Palghat Gap in the north, Tamil Nadu in the east and Kodasserry Forested Hills in the south and the west. This is the continuation of western ghats lying south of the Palghat Gap with a steep ascend. It slopes towards south, however, some mountain peaks soar high here and there. For example, the peaks having the height of 1,521 m. 1,203 m., 1,292 m., 1,333 m. etc. are found in the Parambikulam Reserve Forest area. The maximum height (1,586 m.) lies in the northern part of the Nelliampathy Reserve Forest which has an average height of around 1,100 m. In its northern section escarpments occur where waterfalls and rapids are seen. The southern section has reservoirs and in its southern tip there is a ridge which separates the district from Trichur district. This region has the semi-evergreen forests. Dense shrubs also found in northern and central parts of this region. There are many coffee and orange estates in this sub-micro region. Charnockite bed occur in this region except a small patch in its eastern tip which has unclassified granite. The soil are laterite and shallow black, brown alluvial soils. It is technically classified as orthents-tropepts and udults-tropepts. As this region has forest area, communication facilities are poor except a few metalled roads in the northern and eastern portions connecting Pollachi of Tamil Nadu.

Note : 1. Soils are classified by NBSS & LUP (ICAR), Nagpur
2. The 1981 census location code number is written brackets after the name of village/desom.

TRICHUR DISTRICT

(CODE: 06)

Trichur district lies in the central part of the State. Karimalagopuram (1,439 m), an important peak on the Western Ghats, located at the boundary between Chittur and Palghat taluks is on the eastern side of the district. Bharathapuzha (total length 251 km) forms the northern boundary of the district for about 40 km. Keecherry of Wadakkancherry (44 km), Karuvannur (48 km) and Chalakudy (145 km) are the other rivers from the north to south of the district. Periyar river (229 km) also flows through the southern boundary of the district. Trichur district is a part of the Central Kerala Coast (4.2.5) and is sub-divided on the basis of topography, geology, soil, climate and natural vegetation into 4 sub-micro regions viz. Trichur Coast, Trichur Plain, Wadakkancherry Upland and Kodasserry Forested Hills.

4.2.5.1 Trichur Coast

This region lies all along the coastal area of the district comprising of the whole of Chavakkad and Kodungallur taluks and parts of Talappilly, Trichur and Mukundapuram taluks. This region is drained by the rivers of this district besides a network of canals and backwaters. *Kole* land, which is a special feature, is found in this region. The region contains 84 whole villages, 8 part villages (consisting of 15 desoms) and 10 towns. It has an area of 832.69km^2, a population of 1,149,042 persons and a density of 1,380 persons per km^2. Its geological bed is alluvium and its soil is coastal alluvium. It has good amount of rainfall, around 250 cm. Some of the historical and pilgrim centers like Guruvayur and Kodungallur (known as Muziris in ancient times) are located here. The area is well-connected by road.

4.2.5.2 Trichur Plain

This region lies parallel to the coastal region comprising parts of Talappilly, Trichur and Mukundapuram taluks. This plain area is drained by all the rivers of the district. This region has the influence of nearby forest regions. It contains 57 whole villages, 16 part villages (consisting of 36 desoms), 15 towns and an urban outgrowth. It has an area of 658.80 km^2 a population of 872,692 persons and a density of 1,325 persons per km^2. Its geological bed is alluvial of recent deposits. The area is well-served by rail and road and has rich cultural heritage.

4.2.5.3 Wadakkancherry Upland

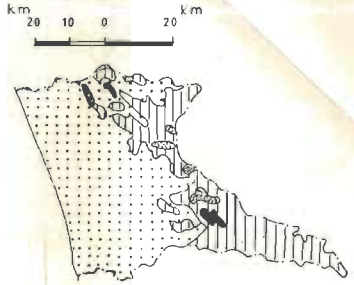
This region covers parts of Talappilly and Trichur taluks and can be dotted by knolls and hillocks. It contains 42 whole villages and 6 part villages (consisting of 12 desoms). With an area of 387.86 km^2, it has a population of 249,656 persons and a density of 644 persons per km^2. Its geology is charnockite bed and the soil is shallow, black, brown and alluvial soils of recent deposit. This area is also connected by rail and road.

4.2.5.4 Kodasserry Forested Hills

This region, which lies on the south-eastern portion of this district, comprises of parts of Talappilly, Trichur and Mukundapuram taluks. It has wet semi-evergreen forests besides having numerous 'V' shaped valleys which influence the course of various streams. This region also forms the catchment area of many rivers and has reservoirs. It contains 12 whole villages and 7 part villages (consisting of 34 desoms). It has an area of 1,114.63 km^2, a population of 168,153 persons and a low density of 151 persons per km^2. Its geological bed is charnockite and its soil is laterite. The Chalakkudi-Valpara road is the important communication link of this region.

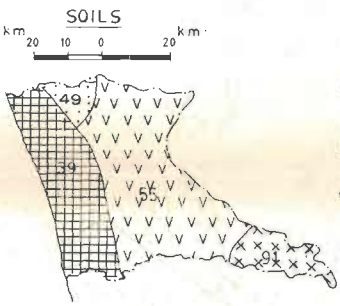
KERALA
TRICHUR DISTRICT
CODE 06
REGIONAL DIVISIONS

GEOLOGY



ALLUVIUM	RECENT	
BASIC DYKES	ARCHAEAN	
CHARNOCKITES	ARCHAEAN	
UNCLASSIFIED GRANITE	ARCHAEAN	

SOILS



39	PSAMMENTS_ORTHENTS
55	ORTHENTS_TROPEPTS_ROCK OUT-CROPS
49	FLUVENTS_TROPEPTS_ORTHENTS
91	UDULTS_TROPEPTS_ROCK OUT-CROPS

4.2.5.1 Trichur Coast
4.2.5.2 Trichur Plain
4.2.5.3 Wadakkancherry Upland
4.2.5.4 Kodasserry Forested Hills

BOUNDARY, STATE
" " DISTRICT
" " TALUK
DESOM HAVING 10000 & ABOVE POPULATION ● Nattika
URBAN AREA
NATIONAL HIGHWAY NH 47
STATE HIGHWAY SH
RAILWAY LINE WITH STATION (Broad Gauge) RS
RIVER / WATER BODY
REGIONAL DIVISION 4.2.5.2
MACRO
MESO
MICRO
SUB-MICRO WITH BOUNDARY

[READ THE SEQUENCE OF REGIONAL DIVISIONS WITH REFERENCE TO THE ALL INDIA MAP CODE UP TO 3 TIER]

BASIC DATA ON SUB-MICRO REGIONS, 1981

TRICHUR DISTRICT

(CODE: 06)

Macro region : 4 The Coastal Plains & Islands
Meso region : 4.2 Western Coastal Region
Micro region : 4.2.5 Central Kerala Coast

Sub-Micro region Number & name	Taluk	No. of constituent units: Whole Village	Part Village & (desoms)*	Town	Total Rural Urban	Area in km^2	Population (1981 Census)
1	2	3	4	5	6	7	8
4.2.5.1 Trichur Coast		84	8(15)	10	Total	832.69	1,149,042
					Rural	744.62	955,855
					Urban	88.07	193,187
	Chavakkad (Whole)	15	-	3	Total	234.30	376,666
					Rural	211.30	317,199
					Urban	23.00	59,467
	Talappilly (Part)	5	-	-	Total	36.47	44,790
					Rural	36.47	44,790
					Urban	-	-
	Trichur (Part)	27	2(4)	4	Total	179.62	228,943
					Rural	154.75	180,079
					Urban	24.87	48,864
	Kodungallur (Whole)	15	-	2	Total	144.91	253,134
					Rural	115.95	194,374
					Urban	28.96	58,760
	Mukundapuram (Part)	22	6(11)	1	Total	237.39	245,509
					Rural	226.15	219,413
					Urban	11.24	26,096
4.2.5.2 Trichur Plain		57	16(36)	15 & 1OG	Total	658.80	872,692
					Rural	531.62	551,096
					Urban	127.18	321,591
	Talapilly (Part)	20	1(1)	1	Total	134.87	147,754
					Rural	127.87	128,314
					Urban	7.00	19,440

1	2	3	4	5	6	7	8
	Trichur (Part)	16	6(10)	12 &1 OG	Total	182.28	344,267
					Rural	93.76	95,117
					Urban	88.52	249,150
	Mukundapuram (Part)	21	9(25)	2	Total	341.59	380,671
					Rural	309.95	327,665
					Urban	31.66	53,006
4.2.5.3 Wadakkan-Upland		42	6(12)	-	Total	387.86	249,656
				-	Rural	387.86	246,656
					Urban	-	-
	Talappily (Part)	42	3(9)	-	Total	382.56	245,198
				-	Rural	382.56	245,198
					Urban	-	-
	Trichur (Part)	-	3(3)	-	Total	5.30	4,458
				-	Rural	5.30	4,458
					Urban	-	-
4.2.5.4 Kadasserry Forested Hills		12	7(34)	-	Total	1,114.63	168,153
				-	Rural	1,114.63	168,153
				-	Urban	-	-
	Talappilly (Part)	4	2(4)	-	Total @	109.10	28,972
				-	Rural @	109.10	28,972
					Urban	-	-
	Trichur (Part)	8	2(12)	-	Total @	268.53	91,212
					Rural @	268.53	91,212
					Urban	-	-
	Mukundapuram (Part)	-	3(18)	-	Total	737.00	47,969
				-	Rural	737.00	47,969
					Urban	-	-

Note : The area of the district (3,032 km^2) is based on the 'geographical' area supplied by the Surveyor General, India whereas the area figures of sub-micro regions are arrived at on the basis so the 'land-use' are figures supplied by the Director of Survey & Land Records, Tahsildars and Local Bodies. Therefore when the area figures of sub-micro regions are added up it may not tally with the area of the district.

* The number given in bracket in Col. 4 indicate the number of desoms which fall in all the part villages of the taluk in the concerned sub-micro region.

@ Inclusive of forest area lying outside village boundaries.

CONSTITUENT UNITS OF SUB-MICRO REGIONS, 1981

TRICHUR DISTRICT

(CODE: 06)

Sub-micro region with code and name	Taluk and code	Number of whole/ part* village(s) and location code(s)	Location code and name of town	Remarks
1	2	3	4	5
4.2.5.1 Trichur Coast	Chavakkad 01	15 whole villages 1 to 15	I Chavakkad II Guruvayur Township III Iringaprom	
	Talappilly 02	5 whole villages 1, 48 & 70 to 72		*The remaining portions* in regions 4.2.5.2, 42.5.3 and 4.2.5.4
	Trichur 03	27 whole villages 13, 15, 16, 32 to 43, 45 & 47 to 57	X Pullazhi XI Aranattukara XII Koorkkancherry XVII Kanimangalam	The remaining portions in regions 4.2.5.2, 4.2.5.3 and 4.2.5.4
		2 part villages 12-1, 46-3, 46-4 & 46-5		
	Kodungallur 04	15 whole villages 1 to 15	XXI Kodungallur XXII Methala	
	Mukundapuram 05	22 whole villages 1 to 4, 19 to 26, 34 to 40 & 50 to 52	XXIV Iringalakuda	The remaining portion in regions 4.2.5.2 and 4.2.5.4
		6 part villages 5-1, 5-3, 5-4, 6-1, 18-2, 18-3, 33-1, 41-1, 49-4, 49-5 & 49-6		
4.2.5.2 Trichur Plain	Talappilly 02	20 whole villages 2 to 5, 43 to 47, 49 to 52, 65 to 69, 73 & 74	IV Kunnamkulam	The remaining portions in regions 4.2.5.1, 4.2.5.3 and 4.2.5.4
		1 part village 42-4		

1	2	3	4	5
	Trichur 03	16 whole villages 1 to 3, 9 to 11, 14, 17 to 24 & 44	V Viyyur VI Vilvattam VII Mannuthy VIII Trichur VIII A Peringavu OG IX Ayyanthole XIII Chiyyaram VIV Nadathara XV Marathakkara XVI Ollur XVIII Avinisseri XIX Edakkunny XX Chevoor	The remaining portions in regions 4.2.5.1, 4.2.5.3 and 4.2.5.4
		6 part villages 4-1, 4-3, 4-4, 5-1, 6-1, 12-2, 12-3, 29-1, 46-1 & 46-2		
	Mukundapuram 05	21 whole villages 7, 8, 10 to 17, 27, 28, 31, 32 & 42 to 48	XXIII Puducad XXV Chalakudy	The remaining portions in regions 4.2.5.1 and 4.2.5.4
		9 part villages 5-2, 6-2, 6-3, 6-4, 9-1, 9-2, 18-1, 29-12, 29-14, 29-15, 29-16, 30-1, 30-2, 30-3, 30-4, 30-5, 30-6, 30-7, 33-2, 33-3, 41-2, 49-1, 49-2, 49-3 & 49-7		
4.2.5.3 Wadakkancherry Upland	Talappilly 02	42 whole villages 6 to 28, 32 to 34, 36 to 41, 53 to 58 & 61 to 64		The remaining portions in regions 4.2.5.1, 4.2.5.2 and 4.2.5.4
		3 part villages 31-1, 31-2, 31-4, 31-5, 42-1, 42-2, 42-3, 60-2 & 60-3		
	Trichur 03	whole villages Nil 3 part villages 4-2, 5-2 & 6-2		The remaining portions in regions 4.2.5.1, 4.2.5.2 and 4.2.5.4

1	2	3	4	5
4.2.5.4 Kodassery Forested Hills	Talapilly 02	4 whole villages 29, 30, 35 & 59		The remaining portions in regions 4.2.5.1, 4.2.5.2 and 4.2.5.3
		2 part villages 31-3, 60-1, 60-4, & 60-5 Forest area outside village boundary also		
	Trichur 03	8 whole villages 7, 8, 25 to 28, 30 & 31		The remaining portions in regions 4.2.5.1, 4.2.5.2 and 4.2.5.3
		2 part villages 6-3, 6-4, 6-5, 6-6, 6-7, 6-8, 6-9, 29-2, 29-3, 29-4, 29-5 & 29-6		
	Mukundapuram 05	whole villages Nil		The remaining portions in regions 4.2.5.1 and 4.2.5.2
		3 Part villages 9-3, 9-4, 29-1, 29-2, 29-3, 29-4, 29-5, 29-6, 29-7, 29-8, 29-9, 29-10, 29-11, 29-13, 30-8, 30-9, 30-10 & 30-11 and Forest area outside village boundary		

Desom/kara which is the lowest constituent unit of a village is taken as the basis for delineation of sub-micro region. A sub-micro region may consists of whole or part villages or both. For part village the two digit location code of desom/kara is given. Eg. 2-3 indicate third desom/kara of the 2nd village.

PHYSIO-GEOGRAPHIC FEATURES BY SUB-MICRO REGIONS

TRICHUR DISTRICT

(Code: 06)

Taluk	Geology	Soils	Rainfall	Physiography
1	2	3	4	5
SUB-MICRO REGION: 4.2.5.1 TRICHUR COAST				
Chavakkad and Kodungallur and parts of Talappilly, Trichur and Mukundapuram	Alluvium bed	Coastal alluvium soil. Psamments-Orthents Psamments Sandy soil (Recent) Orthents Recently formed soil	Around 250 cm. (increases towards south)	This region lies all along the coast of Trichur district. It has its boundaries with Malappuram Coast in the north, Trichur Plain in the east, Cochin Coast in the south and Lakshadweep Sea in the west. This coastal plain is drained by rivers like Bharathapuzha, Wadakkancherry, Manali, Kurumali and Chalakkudy, besides a net-work of canals and backwaters. This plain slopes very gently towards west. The maximum height (55 m.) is found in the central-east portion ie. at Vattekkat desom (41-4) of Kodannur village of Trichur taluk. The low-lying land, known as *kole land*, lies as a continuous belt from the central portion towards the coast where the spot heights are 3 m., 10 m., and 11 m etc. Paddy and coconut are the important vegetation in this region. The whole region fall under the alluvium bed and the only soil which occurs in this region is coastal-alluvium. It is technically known as psamments-orthents. The soil has originated from recent deposits predominantly marine with some fluvial sediments along the coast line. The coastal plain is thickly populated with a good net-work of roads connecting all the settlements. The settlements are widely spread.

1	2	3	4	5
				Fishermen live all along the coast. The important towns are Chavakkad, Irinjalakuda and Kodungallur.

SUB-MICRO REGION: 4.2.5.2 TRICHUR PLAIN

Parts of Talappilly, Trichur and Mukundapuram	Alluvium bed, Basic dykes and Charnockite	Alluvium soil Orthents-tropepts, Fluvents-tropepts, Orthents, Psamments-orthents *Orthents* Recently formed soil *Tropepts* Shallow black, brown and alluvial soils of southern region *Fluvents* Alluvial Soils (Recent alluvium) *Psamments* Sandy soil (Recent)	Between 250 and 300 cm.	This region is bounded by Pattambi Undulating Plain in the north, Wadakkancherry Upland and Kodasserry Forested Hills in the east, Periyar-Muvattupuzha Rolling Plain in the south and Trichur Coast in the west. This region which is parallel to the Trichur Coast has the maximum height of 118 m. at Varakkara desom (40-4) of Amballur village of Mukundapuram taluk and has the minimum height of 43 m. at Koratty desom (46-4) of Muringur Thekkummuri village of Mukundapuram taluk. The central portion is an elevated area while the southern portion is low in height. The average height of this region is 75 m. and sloping gently towards the west. This region is drained by the tributaries of Bharathapuzha, Wadakkancherry, Manali, Kurumali and Chalakkudy rivers. Paddy, coconut and cashew are the important vegetation of this region. This region has recently formed alluvial soil and coastal alluvium soil. Technically soils are classified as orthents-tropepts, fluvents-tropepts-orthents and psamments-orthents. This densely populated region is bifurcated from north to south by the railway line. It has a net-work of roads. The settlements are widely spread all over the region. The influence of the adjacent forest region results in the establishment of some wood/cane-based industries. Tile and brick factories are also found in this region. The important towns are Kunnamkulam, Trichur and Chalakudy.

1	2	3	4	5
SUB-MICRO REGION: 4.2.5.3 WADAKKANCHERRY UPLAND				
Parts of Talappilly and Trichur	Charnockite, alluvium basic dykes	Shallow black, brown and alluvial soils. Orthents-tropepts *Orthents* Recently formed soils *Tropepts* Shallow black, brown and alluvial soils of southern region	About 200 cm.	This region has its boundaries with Palghat Gap on the north and east, Kodasserry Forested Hills in the south and Trichur Plain in the west. It is not a high mountainous tract but only uplands having outlying hills in the eastern extreme of this region. Some knolls and hillocks are found here and there. The maximum height of this region is 208 m. in the Kondazhy (21) village of Talappilly taluk and the minimum height is 52 m. in its southern portion. Vazhani irrigation project is located on a table-land in the southern portion of this region which is sloping on all sides. However, towards south its slope is gentle and through this spur NH 47 runs connecting Trichur with Palghat. Arecanut, cashew, rubber, teak etc. are the main vegetation of this region. Coconut and paddy are also cultivated. Major portion of this region is coming under charnockite bed. In its northern portion it is having alluvium bed and basic dykes. The soils are recently formed shallow, black, brown and alluvial soils. Motorabe roads are available in this region. The Trichur-Shoranur road passes through this region. Some of the settlements are of linear pattern along the road side. Wadakkancherry is an important settlement here.
SUB-MICRO REGION: 4.2.5.4 KODASSERY FORESTED HILLS				
Parts of Talappilly, Trichur and Mukundapuram	Charnockite, unclassified granite, basic dykes	Soils are laterite and recently formed shallow black, brown and alluvial soil. Orthents-	Between 275 and 300 cm. (increases towards east)	This region lies in the south-eastern portion of the district formig its boundaries with Wadakkancherry Upland in the north, Chittur Forested Hills and Tamil Nadu in the east, Malayattur Forested Hills and Anamalai Forested Hills in the south and Trichur Plains in the west.

1	2	3	4	5
		tropepts, Udults-tropepts *Orthents* Recently formed soils *Tropepts* Shallow black brown and alluvial soils of southern region *Udults* Laterite soils		This forested hills has wet semi-evergreen forest. In its northern and southern ends Peechi and Peringalkuthu Reservoirs are respectively located. This forest highlands which is a part of the Western Ghats, forms the catchment areas of Manali, Karuvannur and Chalakudy rivers. River terraces are seen in the middle portion. Numerous 'V' shaped valleys are located in this tract which determine the course of various streams. Scarp slope, waterfalls and rapids which structurally control and regulate the river directions are found mostly in the middle and southern portion of this region. The region in totality is highly erosion prone. The rivers are of dentritic pattern. The maximum height (1,439 m.) is found in the southern end of the reserve forest and the minimum height (416 m.) is found in the northern end at the Attur village (35) of Talappilly taluk. It slopes towards north. Rubber and teak plantations are the vegetation cover of this region especially in the western end of this region. The soils are laterite and shallow black, brown and alluvial soils, technically classified as Orthents-tropepts, Udults-tropepts. As this is a mountainous tract, the communication facilities are not very adquate.

Note : 1. Soils are classified by NBSS & LUP (ICAR), Nagpur
2. The 1981 census location code number is written brackets after the name of village/desom.

ERNAKULAM DISTRICT

(CODE: 07)

Ernakulam, the industrial district of Kerala, has its physiographic conditions almost similar to those of the state. On the eastern side, it has ridges of the Western Ghats while the western side is washed by the Lakshadweep sea. Two rivers viz. Peiryar (229 km) and Muvattupuzha (121 km) flow through this district. The district slopes towards west. Ernakulam district is part of the Central Kerala Coast (4.2.5) and is sub-divided on the basis of topography, geology, soil, climate and natural vegetation into three sub-micro regions viz. Cochin Coast, Periyar-Muvattupuzha Rolling Plain and Malayattur Forested Hills. Brief accounts on these sub-micro regions are given below.

4.2.5.1 Cochin Coast

This coastal region is served by the rivers and various inter-linked backwaters and canals. In the southern portion of this region, the influence of sea-water is conspicuous. This region is very important because of its natural harbour and its industrial belt. It lies in the whole of Cochin taluk and parts of Parur and Kanayannur taluks. It contains 13 whole villages, 3 part villages (consisting of 13 karas) and 10 towns. It has an area of 463.91 km^2, a population of 1,154,852 persons and a high density of 2,489 persons per km^2. Its geology is alluvium bed of recent age and its soils are alluvium - acidic and saline. This region is well connected by air, rail, road, sea and backwaters.

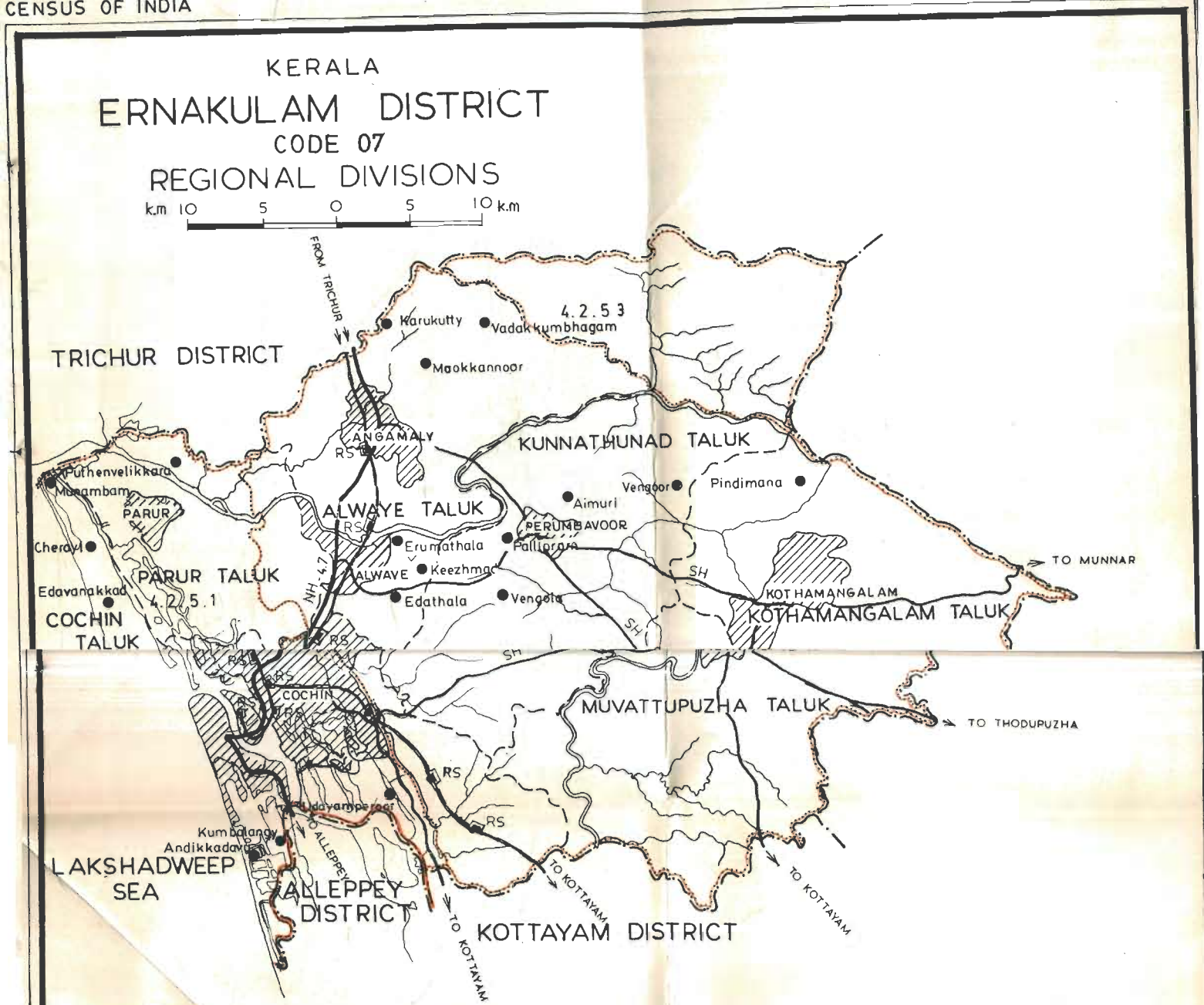
4.2.5.2 Periyar-Muvattupuzha Rolling Plain

This rolling plain, falling in the whole of Alwaye, Kothamangalam and Muvattupuzha taluks and parts of Parur, Kunnathunad and Kanayannur taluks, is drained by the Periyar and Muvattupuzha rivers. It has number of isolated residual hills. More than 70 per cent of the total area of the district falls in this region. It has 63 whole villages, 3 part villages (consisting 10 karas), 6 towns and an urban outgrowth. It has an area of 1,701.03 km^2, a population 1,380,220 persons and a density of 811 persons per km^2. Its geological formation are lateritic bed and basic dykes of charnockite. Laterite and brown hydromorphic soil are found in this region. This area is also well-connected by road and rail, besides inland navigation facilities.

4.2.5.3 Malayattur Forested Hills

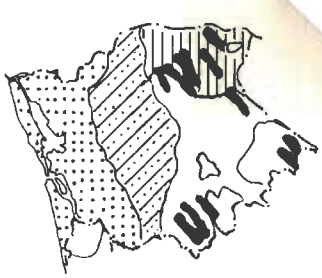
This region is located in the north-east portion of the Kunnathunad taluk. Major portion of the area is covered by dense forests of semi ever-green type. It has an area of 212.43 km^2 and a population of 222 persons, which works out to a density of one person in a km^2. Its geological bed is charnockite and its soil type is forest loam. The communication facilities are meagre.

KERALA
ERNAKULAM DISTRICT
CODE 07
REGIONAL DIVISIONS



GEOLOGY

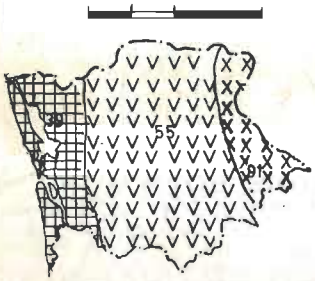
km 20 10 0 20 km



- Alluvium — RECENT
- Laterite — PLEISTOCENE
- Charnockites — ARCHAEAN
- Basic dykes — ARCHAEAN
- Cordierite gneiss, Hornblende-biotite gneiss, other unclassified crystallines including younger segments

SOILS

km 20 10 0 20 km



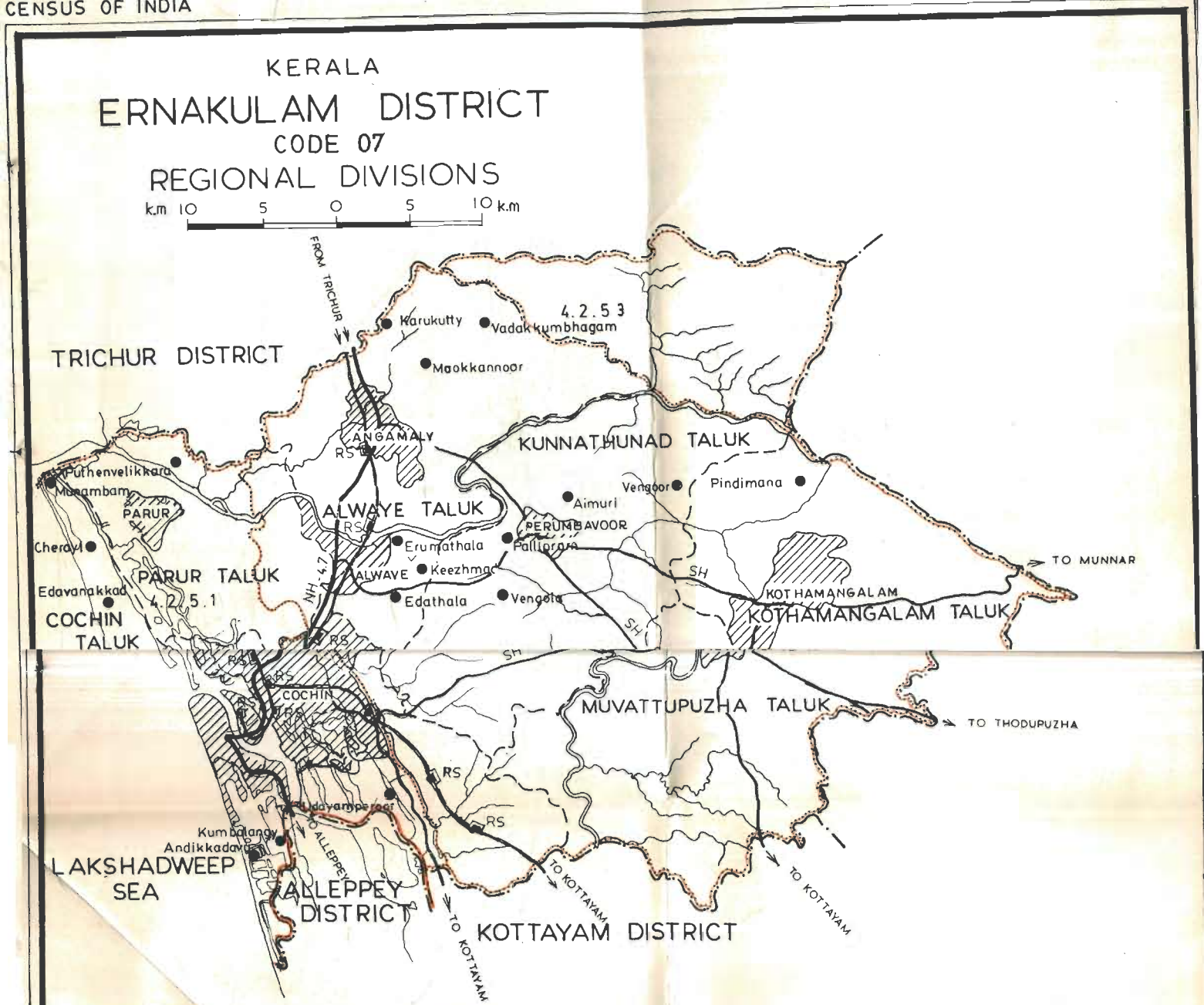
- Orthents_Tropepts-Rock outcrops
- Psamments_Orthents
- Udults_Tropepts-Rock outcrops

4.2.5.1_Cochin Coast
4.2.5.2_Periyar_Muvattupuzha Rolling Plain
4.2.5.3_Malayattur Forested Hills

BOUNDARY, DISTRICT
" " TALUK
KARA HAVING 10000 AND ABOVE POPULATION ● Aimuri
URBAN AREA
NATIONAL HIGHWAY NH 47
STATE HIGHWAY SH
RAILWAY LINE WITH STATION BROAD GAUGE RS
RIVER / WATER BODY
REGIONAL DIVISION 4.2.5.1
MACRO
MESO
MICRO
SUB-MICRO WITH BOUNDARY

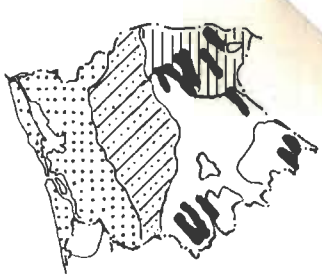
[READ THE SEQUENCE OF REGIONAL DIVISION WITH REFERENCE TO THE ALL INDIA MAP CODES UP TO 3 TIER]

KERALA
ERNAKULAM DISTRICT
CODE 07
REGIONAL DIVISIONS



GEOLOGY

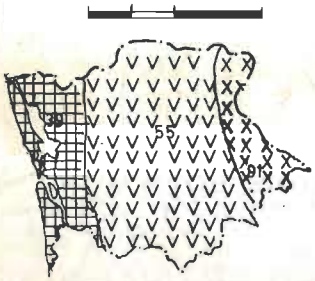
km 20 10 0 20 km



- Alluvium — RECENT
- Laterite — PLEISTOCENE
- Charnockites — ARCHAEAN
- Basic dykes — ARCHAEAN
- Cordierite gneiss, Hornblende-biotite gneiss, other unclassified crystallines including younger segments

SOILS

km 20 10 0 20 km



- Orthents_Tropepts-Rock outcrops
- Psamments_Orthents
- Udults_Tropepts-Rock outcrops

4.2.5.1_Cochin Coast
4.2.5.2_Periyar_Muvattupuzha Rolling Plain
4.2.5.3_Malayattur Forested Hills

BOUNDARY, DISTRICT
" " TALUK
KARA HAVING 10000 AND ABOVE POPULATION ● Aimuri
URBAN AREA
NATIONAL HIGHWAY NH 47
STATE HIGHWAY SH
RAILWAY LINE WITH STATION BROAD GAUGE RS
RIVER / WATER BODY
REGIONAL DIVISION 4.2.5.1
MACRO
MESO
MICRO
SUB-MICRO WITH BOUNDARY

[READ THE SEQUENCE OF REGIONAL DIVISION WITH REFERENCE TO THE ALL INDIA MAP CODES UP TO 3 TIER]

BASIC DATA ON SUB-MICRO REGIONS, 1981

ERNAKULAM DISTRICT

(CODE: 07)

Macro region :4 The Coastal Plains & Islands
Meso region : 4.2 Western Coastal Region
Micro region : 4.2.5 Central Kerala Coast

Sub-Micro region Number & name	Taluk	No. of constituent units: Whole Village	Part Village & (desoms)*	Town	Total Rural Urban	Area in km^2	Population (1981 Census)
1	2	3	4	5	6	7	8
4.2.5.1 Cochin Coast		13	3(13)	10	Total	463.91	1,154,852
					Rural	236.30	369,129
					Urban	227.61	785,723
	Parur (Part)	2	2(11)	5	Total	153.28	265,577
					Rural	74.98	93,608
					Urban	78.30	171,969
	Kanayannur (Part)	3	1(2)	4	Total	169.73	438,216
					Rural	64.12	76,344
					Urban	105.61	361,872
	Cochin (Whole)	8	-	1	Total	140.90	451,059
					Rural	97.20	199,177
					Urban	43.70	251,882
4.2.5.2 Periyar-Muvattupuzha Rolling Plain		63	3(10)	6 & 1 OG	Total	1,701.03	1,380,220
					Rural	1,551.07	1,163,051
					Urban	149.96	217,169
	Parur (Part)	1	2(9)	-	Total	37.95	55,410
					Rural	37.95	55,410
					Urban	-	-
	Alwaye (Whole)	12	-	2	Total	326.30	365,567
					Rural	295.10	311,982
					Urban	31.20	53,585
	Kunnathunad (Part)	15	-	1	Total	465.30	347,946
					Rural	451.70	324,882
					Urban	13.60	23,064

1	2	3	4	5	6	7	8
	Kothamanga-	8	-	1	Total	285.00	164,735
	lam				Rural	247.50	131,613
	(Whole)				Urban	37.50	33,122
	Muvattupuzha	18	-	1	Total	433.50	277,694
	(Whole)				Rural	420.30	252,381
					Urban	13.20	25,313
	Kanayannur	9	1(1)	1 &1 OG	Total	152.98	168,868
	(Part)				Rural	98.52	86,783
					Urban	54.46	82,085
4.2.5.3		-	-	-	Total@	212.43	222
Malayattur		-	-	-	Rural@	212.43	222
Forested					Urban	-	-
Hills							
Kunnathunad		-	-	-	Total @	212.43	222
(Part)					Rural @	212.43	22
					Urban	-	-

Note:- The area of the district (2,408 km^2) is based on the 'geographical' area supplied by the Surveyor General, India whereas the area figures of sub-micro regions are arrived at on the basis of the 'land-use' area figures supplied by the Director of Survey & Land Records, Tahsildars and Local Bodies. Therefore when the area figures of sub-micro regions are added up it may not tally with the area of the district.

* The number given in bracket in Col.4 indicates the number of Ckaras which fall in all the part villages of the taluk in the concerned sub-micro region.

@ Forest area lying outside village boundaries.

CONSTITUENT UNITS OF SUB-MICRO REGIONS, 1981

ERNAKULAM DISTRICT

(CODE : 07)

Sub-micro region with code and name	Taluk and code	Number of whole/ part* village(s) and location code(s)	Location code and name of town	Remarks
1	2	3	4	5
4.2.5.1 Cochin Coast	Parur 01	2 whole villages 1 & 3	I Vadakkekara II Chendamangalam III Parur IV Kottuvally V Eloor	The remaining portion in region 4.2.5.2
		2 part villages 2-1, 2-2, 2-3, 2-4, 2-8, 4-1, 4-2, 4-3, 4-9, 4-10, & 4-11		
	Kanayannur 06	3 whole villages 1, 2 & 5	XI Mulavucad XIII Thrippunithura XIV Maradu XV Cochin	The remaining portion in region 4.2.5.2
		1 part village 6-2 & 6-3		
	Cochin 07	8 whole villages 1 to 8	XVI Cheriyakadavu	
4.2.5.2 Periyar-Muvattupuzha Rolling Plain	Parur 01	1 whole village 5		The remaining portion in region 4.2.5.1
		2 part villages 2-5, 2-6, 2-7, 2-9, 4-4, 4-5, 4-6, 4-7, & 4-8		
	Alwaye 02	12 whole villages 1 to 12	VI Angamali VII Alwaye	

1	2	3	4	5
	Kunnathunad 03	15 whole villages 1 to 15	VIII Perumbavoor	Forest area outside village boundary lies in region 4.2.5.3
	Kothamangalam 04	8 whole villages 1 to 8	IX Kothamangalam	
	Muvattupuzha 05	18 whole villages 1 to 18	X Muvattupuzha	
	Kanayannur 06	9 whole villages 3, 4 & 7 to 13	XII Kalamassery XV A Thrikkakara OG	The remaining portion in region 4.2.5.1
		1 part village 6-1		
4.2.5.3 Malayattur Forested Hills	Kunnathunad 03	Only forest area outside village boundary		The remaining portion in region 4.2.5.2

Desom/kara which is the lowest constituent unit of a village is taken as the basis for delineation of sub-micro region. A sub-micro region may consists of whole or part villages or both. For part village the two digit location code of desom/kara is given. Eg. 2-3 indicate third desom/kara of the 2nd village.

PHYSIO-GEOGRAPHIC FEATURES BY SUB-MICRO REGIONS

ERNAKULAM DISTRICT

(CODE:07)

Taluk	Geology	Soils	Rainfall	Physiography
1	2	3	4	5
SUB-MICRO REGION : 4.2.5.1 COCHIN COAST				
Parts of Parur, Kanayannur and Cochin	Alluvium bed	Alluvium soil and acid saline soil Psamments-Orthents Psamments Sandy soil (Recent) Orthents Recently formed soils	Between 250 and 300 cm.	This region is bounded by Trichur Coast in the north, Periyar-Muvattupuzha Rolling Plain in the east, Allepey Coast in the south and Lakshadweep Sea in the west. It is a flat alluvial tract lying all along the coast of this district. The Periyar river and various inter-linked backwaters and canals effect the fluvio-estuary deposits in this tract. The maximum height (35 m.) is located at the Puthenvelikkara (1-6) village of Parur taluk. In the southern portion of this region, the influence of sea-water is conspicuous. Some areas of this tract also have flood plains. Coconut is the important crop of this region. The soil is psamments-orthents, alluvial soils of recent origin. Acid saline soil is also found here. It is developed under hydromorphic conditions, which include the *kari* soil (black soil developed in low lying waterlogged areas), *kayal soil* (soil in the reclaimed areas with high clay content) and *karappadam* soil (soil along the river courses with high silt content). This region has excellent communication of net-work ie. railways, roads and waterways which help the industrial expansion of the region. The workers are mainly engaged in industries like production of coir, fishing etc. Cochin, the Queen of the Arabian Sea, and Parur are located in this region.

1	2	3	4	5
SUB-MICRO REGION: 4.2.5.2 PERIYAR-MUVATTUPUZHA ROLLING PLAIN				
Alwaye, Kothaman-galam, Muvattu-puzha and part of Parur, Kanayannur and Kunnathunad	Laterite bed, Basic dykes, Charnoc-kite	Laterite soil. The The alluvial soil and brown hydro-morphic soil Orthents, Orthents-Tropepts *Orthents* Recently formed soils *Tropepts* Shallow black, brown and alluvial soils of southern region	Between 300 and 350 cm.	This region makes its boundaries with Trichur Plain in the north, Malayattur Forested Hills, Anamalai Forested Hills and Periyar River Basin in the east, Kottayam Rolling Plain in the south and Cochin Coast in the west. This region is drained by two major rivers viz. Periyar and Muvattupuzha. The south-east portion of this rolling plain has isolated hills with a maximum height of 307 m. at Pirakkunnam kara (5-9) of Kuttamangalam village of Kothamangalam taluk. The minimum height is 33 m. recorded over the western border at the Thrikkakara Urban Outgrowth. A number of isolated residual hills, between Perumthuruthy and Kuruvil area, are found in the middle and south-eastern portion of this region. Coconut, paddy, tapioca, cashew etc. are the important vegetation. The soils are orthents-tropepts. Brown hydromorphic soil also occurs in this region which are moderately rich in organic matter, nitrogen and potash and deficient in lime and phosphate. This region has a good net-work of transport facilities. The railway line (broad-gauge) passes through this region which connects Cochin with Chalakudy. All areas have motorable roads. Along the road sides linear type of settlements are found. Angamali, Alwaye, Perumbavoor, Kothamangalam, Muvattupuzha and Trippunithura towns are located in this region.
SUB-MICRO REGION: 4.2.5.3 MALAYATTUR FORESTED HILLS				
Part of Kunnathunad	Charnoc-kite, Basic dykes	Laterite soil and alluvial soil	Around 300 cm.	This region falls in a small area in the north-east portion of this district, makes its boundaries with Kodasserry Forested Hills in the north, Anamalai Forested

1	2	3	4	5
		Orthents-Tropepts Udults-Tropepts Orthents Recently formed soil Tropepts Shallow black, brown and alluvial soils of southern region Udults Laterite soils		Hills in the east and Periyar-Muvattupuzha Rolling Plain in the south and west. This region is an elevated area with an average height of 600 m. It has dense forests. Steep slopes occur in the western portion of this region. It has foot-hills of the Western Ghats. The region also falls in the catchment area of Periyar river. The maximum height is 631 m. found in the Malayattur Reserve Forest. Teak, rubber, cashew etc. are the vegetation cover of this region. The forest is of semi-ever-green type. This region has Orthents-tropepts-udults-tropepts soil. It has recently formed shallow black, brown and alluvial soils of southern region and laterite soils. The area is sparsely populated. The transport facilities available in this region is meagre.

Note : 1. Soils are classified by NBSS & LUP (ICAR), Nagpur
2. The 1981 census location code number is written brackets after the name of village/desom.

IDUKKI DISTRICT
(CODE: 08)

Idukki, one of the mountainous district of Kerala with high hills and deep valleys, has a plateau like structure. Periyar (229 km), Muvattupuzha (121 km), Meenachil (68 km) and Manimala (92 km) are the rivers from the north to south of this district. It has large number of plantations like tea, cardamom, coffee, rubber etc. Generally, the region slopes towards west, except north-east where it slopes towards east. It is part of the Central Kerala Coast (4.2.5) and on the basis of topography, geology, soils, climate and natural vegetation, it is sub-divided into 5 sub-micro regions viz. Anamalai Forested Hills, Marayur Forested Hills, Cardamom Hills, Periyar River Basin and Thekkadi Forested Hills.

4.2.5.1 Anamalai Forested Hills

This region lies in the north-western part of the Devicolam taluk with the table-land in its eastern part. It has lofty peaks and thick ever-green forests. The highest peak in this mountainous region is Anamudi (2,695 m). The streams are structurally controlled. It contains only 3 whole villages which occupies a larger area of 1,433.87 km^2 with a population of 137,308 persons and a density of 96 persons per km^2. Its geological beds are charnockite, unclassified granites and cordierite gneiss and hornblende-biotite gneiss. The soils of this region are laterite and forest loam. The communication facilities are comparatively less in this region.

4.2.5.2 Marayur Forested Hills

This region lies in a small area in the north-east portion of Devicolam taluk. It tilts towards east and hence Pambar river flows towards east unlike the general pattern of west-flowing rivers in the state. It has ever-green forestes comprising of sandal-wood plantations. It contains only 5 whole villages. It has an area of 292.17 km^2, a population of 18,664 persons and a density of 64 persons per km^2. It has charnockite bed as its geology and has forest soil and high base status soil of humid regions. The Munnar-Udumalpet road passes through this region.

4.2.5.3 Cardamom Hills

This hilly region lies as a continuous belt from north to south on the eastern side of the district comprising parts of Udumbanchola and Peermade taluks. It has large number of tea and cardamom estates, besides pastures of ever-green forests. It contains 9 whole villages and 2 part villages (consisting of 5 karas). It has an area of 731.96 km^2, a population of 201,929 persons and a density of 276 persons per km^2. Its geological bed is charnockite with the intrusion of cordierite gneiss and other unclassifed crystallines. Its soil type is forest loam and high base status soil of humid regions. The Munnar-Kumili road is important.

4.2.5.4 Periyar River Basin

This is the largest sub-micro region in the district and falls in the central and western part of the district. It comprises of the whole of Thodupuzha taluk and parts of Devicolam and Udumbanchola taluks. This region is the catchment area of Periyar river, and has thick ever-green forests with teak, rubber and tea estates. It contains 19 whole villages, 2 part villages (consisting of 3 karas) and 2 towns. It has an area of 1,568.73 km^2 with a population of 487,494 persons and a density of 311 persons per km^2. It has cordierite gneiss, hornblende-biotite gneiss and other unclassified

crystallines with the intrusion of basis dykes as its geological beds. It has laterite forest loam and high base status soils of humid regions. Communication facilities are fast improving in this region. Painavu, the district headquarters, is connected with other important places of the state by road.

4.2.5.5 Thekkadi Forested Hills

This region, which may be called as Peiriyar plateau, lies in the southern portion of the district in Peermade taluk. Swampy areas are found in the western part as against escarpments in its eastern borders. It has dense forests and also tea and rubber estates. It contains 3 whole villages and 2 part villages (consisting of 13 karas). It has an area of 1,099,94 km^2, a population of 126,241 persons and a density of 115 persons per km^2. It is having charnockite bed as its geology. It has laterite, forest loam and high base status soil of humid regions. The Periyar Game Sanctuary, the important tourist. attraction of the state, is located here and is well-connected by road with Kottayam, Munnar and Madurai.

KERALA
IDUKKI DISTRICT
CODE 08
REGIONAL DIVISIONS

km 10 5 0 5 10 km

TRICHUR DISTRICT

COIMBATORE (TAMIL NADU)

TO UDUMALPET

4.2.5.2

Kuttampuzha

4.2.5.1

DEVICOLAM TALUK

Adimali

FROM KOTHAMANGALAM

ERNAKULAM DISTRICT

SH

Pottankad

Sallyampara

Rajakkad

FROM MUVATTUPUZHA

Peruvanthanam North

Kannathady

Attupara

4.2.5.4

Aranakkalmanchumola

Vathikkudy

Kamakshy

THODUPUZHA

THODUPUZHA TALUK

UDUMBANCHOLA TALUK

Peruvanthanam South

Kambamettu

FROM PALAI

KOTTAYAM DISTRICT

IDUKKI

Erattayar

4.2.5.3

Pampadumpara

MADURAI (TAMIL NADU)

Cumbamettu

Kunthalappara

Anakkara

Kattholti

Chakkupallam

TO MADURAI

PEERMADE TALUK

SH

4.2.5.5

FROM KOTTAYAM

QUILON DISTRICT

RAMANATHPURAM (TAMIL NADU)

TIRUNELVELI (TAMIL NADU)

4.2.5.1 Anamalai Forested Hills
4.2.5.2 Marayur Forested Hills
4.2.5.3 Cardamon Hills
4.2.5.4 Periyar River Basin
4.2.5.5 Thekkadi Forested Hills

BOUNDARY, STATE
" " DISTRICT
" " TALUK
KARA HAVING 10000 AND ABOVE POPULATION ● Attupara
URBAN AREA
STATE HIGHWAY SH
RIVER / WATER BODY
REGIONAL DIVISION 4.2.5.1
MACRO
MESO
MICRO
SUB-MICRO WITH BOUNDARY

READ THE SEQUENCE OF REGIONAL DIVISIONS WITH REFERENCE TO THE ALL INDIA MAP CODES UP TO 3 TIER

GEOLOGY

km 20 10 0 20 km

Basic dykes
Unclassified granite
Charnockites
Cordierite gneiss, Hornblende-biotite gneiss, other unclassified crystallines including younger segments

ARCHAEAN

SOILS

km 20 10 0 20 km

23 Udalfs-Orthents
V 55 V / V 56 V / V 61 V Orthents-Tropepts-Rock outcrops / Orthents-Tropepts-Udalfs / Orthents-Tropepts
66 Tropepts
91 Udults-Tropepts-Rock outcrops

KERALA
IDUKKI DISTRICT
CODE 08
REGIONAL DIVISIONS

km 10 5 0 5 10 km

TRICHUR DISTRICT

COIMBATORE (TAMIL NADU)

TO UDUMALPET

4.2.5.2

Kuttampuzha

4.2.5.1

DEVICOLAM TALUK

Adimali

FROM KOTHAMANGALAM

ERNAKULAM DISTRICT

SH

Pottankad

Sallyampara

Rajakkad

FROM MUVATTUPUZHA

Peruvanthanam North

Kannathady

Attupara

4.2.5.4

Aranakkalmanchumola

Vathikkudy

Kamakshy

THODUPUZHA

THODUPUZHA TALUK

UDUMBANCHOLA TALUK

Peruvanthanam South

Kambamettu

FROM PALAI

KOTTAYAM DISTRICT

IDUKKI

Erattayar

4.2.5.3

Pampadumpara

MADURAI (TAMIL NADU)

Cumbamettu

Kunthalappara

Anakkara

Kattholti

Chakkupallam

TO MADURAI

PEERMADE TALUK

SH

4.2.5.5

FROM KOTTAYAM

QUILON DISTRICT

RAMANATHPURAM (TAMIL NADU)

TIRUNELVELI (TAMIL NADU)

4.2.5.1 Anamalai Forested Hills
4.2.5.2 Marayur Forested Hills
4.2.5.3 Cardamon Hills
4.2.5.4 Periyar River Basin
4.2.5.5 Thekkadi Forested Hills

BOUNDARY, STATE
" " DISTRICT
" " TALUK
KARA HAVING 10000 AND ABOVE POPULATION ● Attupara
URBAN AREA
STATE HIGHWAY SH
RIVER / WATER BODY
REGIONAL DIVISION 4.2.5.1
MACRO
MESO
MICRO
SUB-MICRO WITH BOUNDARY

READ THE SEQUENCE OF REGIONAL DIVISIONS WITH REFERENCE TO THE ALL INDIA MAP CODES UP TO 3 TIER

GEOLOGY

km 20 10 0 20 km

Basic dykes
Unclassified granite
Charnockites
Cordierite gneiss, Hornblende-biotite gneiss, other unclassified crystallines including younger segments

ARCHAEAN

SOILS

km 20 10 0 20 km

23 Udalfs-Orthents
V 55 V / V 56 V / V 61 V Orthents-Tropepts-Rock outcrops / Orthents-Tropepts-Udalfs / Orthents-Tropepts
66 Tropepts
91 Udults-Tropepts-Rock outcrops

BASIC DATA ON SUB-MICRO REGIONS, 1981

IDUKKI DISTRICT

(Code: 08)

Macro region	4	The Coastal Plains & Islands
Meso region	4.2	Western Coastal Region
Micro region	4.2.5	Central Kerala Coast

Sub-Micro region Number & name	Taluk	No. of constituent units: Whole Village	Part Village & (karas)*	Town	Total Rural Urban	Area in km^2	Population (1981 Census)
1	2	3	4	5	6	7	8
4.2.5.1 Anamalai Forested Hills		3			Total	1,433.87	137,308
					Rural	1,433.87	137,308
					Urban	-	-
	Devicolam (Part)	3	-	-	Total	1,433.87	137,308
					Rural	1,433.87	137,308
					Urban	-	-
4.2.5.2 Marayur Forested Hills		5	-	-	Total	292.17	18,664
					Rural	292.17	18,664
					Urban	-	-
	Devicolam (Part)	5	-	-	Total	292.17	18,664
					Rural	292.17	18,664
					Urban	-	-
4.2.5.3 Cardamom Hills		9	2(5)	-	Total	731.96	201,929
					Rural	731.96	201,929
					Urban	-	-
	Udumbanchola (Part)	9	1(1)	-	Total	641.98	186,501
					Rural	641.98	186,501
					Urban	-	-
	Peermade (Part)	-	1(4)	-	Total	89.98	15,428
					Rural	89.98	15,428
					Urban	-	-

1	2	3	4	5	6	7	8
4.2.5.4 Periyar		19	2(3)	2	Total	1,568.73	487,494
					Rural	1,501.28	442,865
	River Basin				Urban	67.45	44,629
	Devicolam (Part)	1	-	-	Total	48.12	23,355
					Rural	48.12	23,355
					Urban		
	Udumbanchola (Part)	2	1(2)	1£	Total	429.41	166,851
					Rural	425.56	164,797
					Urban£	3.85	2,054
	Thodupuzha (Whole)	15	-	1£	Total	973.30	264,368
					Rural	909.70	221,793
					Urban£	63.60	42,575
	Peermade (Part)	1	1(1)	-	Total	117.90	32,920
					Rural	117.90	32,920
					Urban	-	-
4.2.5.5 Thekkadi Forested Hills		3	2(13)	-	Total	1,099.94	126,241
					Rural	1,099.94	126,241
					Urban	-	-
	Peermade (Part)	3	2(13)	-	Total	1,099.94	126,241
					Rural	1,099.94	126,241
					Urban	-	-

Note: The area of the district (5,061 km^2) is based on the 'geographical' area supplied by the Surveyor General, India whereas the area figures of sub-micro regions are arrived at on the basis of the 'land-use' area figures supplied by the Director of Survey & Land Records, Tahsildars and Local Bodies. Therefore when the area figures of sub-micro regions are added up it may not tally with the area of the district.

* The number given in bracket in Col.4 indicates the number of karas which fall in all the part villages of the taluk in the concernd sub-micro region.

£ Idukki Township lies in Thodupuzha and Udumbanchola taluks.

CONSTITUENT UNITS OF SUB-MICRO REGIONS, 1981

IDUKKI DISTRICT

(CODE: 08)

Sub-micro region with code and *name*	Taluk and *code*	Number of whole/ part* village(s) and location *code(s)*	Location code and name of *town*	*Remarks*
1	2	3	4	5
4.2.5.1 Anamalai Forested Hills	*Devicolam* 01	*3whole villages* 1, 3 & 4		*The remaining portions in* regions 4.2.5.2 and 4.2.5.4
4.2.5.2 Marayur Forested Hills	Devicolam 01	5 whole villages 5 to 9		The remaining portions in regions 4.2.5.1 and 4.2.5.4
4.2.5.3 Cardamom Hills	Udumbanchola 02	9 whole villages 2 to 6, 8 to 10 & 12		The remaining portion in region 4.2.5.4
		1 part village 11-2		
	Peermade 04	whole villages Nil		The remaining portions in regions 4.2.5.4 and 4.2.5.5
		1 part village 5-1, 5-3, 5-5 & 5-6		
4.2.5.4 Periyar River Basin	Devicolam 01	1 whole village 2		The remaining portions in regions 4.2.5.1 and 4.2.5.2
	Udumbanchola 02	2 whole villages 1 & 7	I Idukki Township (Part)	The remaining portion in region 4.2.5.3 (one kara)
		1 part village 11-1 & 11-3		
	Thodupuzha 03	15 whole villages 1 to 15	II Thodupuzha and remaining portion I Idukki Township (Part)	

1	2	3	4	5
	Peermade 04	1 whole village 1 1 part village 2-2		The remaining portions in regions 4.2.5.3 and 4.2.5.5
4.2.5.5 Thekkadi Forested Hills	Peermade 04	3 whole villages 3, 4 & 6 2 part villages 2-1, 2-3, 2-4, 2-5 2-6, 2-7, 2-8, 2-9, 5-2, 5-4, 5-7, 5-8 & 5-9		The remaining portions in regions 4.2.5.3 and 4.2.5.4

Desom/kara which is the lowest constituent unit of a village is taken as the basis for delineation of sub-micro region. A sub-micro region may consists of whole or part villages or both. For part village the two digit location code of desom/kara is given. Fg. 2-3 indicate third desom/kara of the 2nd village.

PHYSIO-GEOGRAPHIC FEATURES BY SUB-MICRO REGIONS

IDUKKI DISTRICT
(CODE: 08)

Taluk	Geology	Soils	Rainfall	Physiography
1	2	3	4	5

SUB-MICRO REGION : 4.2.5.1 ANAMALAI FORESTED HILLS

Part of Devicolam	Charnockite bed with the intrusion of unclassified granite, Cordierite gneiss, Hornblende biotite gneiss and other unclassified crystallines	Forest loam soil and laterite soil Udults-tropepts Udalfs-Orthents *Udults* Laterite soil *Tropepts* Shallow black, brown and alluvial soils of southern region *Udalfs* High base status soil of humid region *Orthents* Recently formed soils	Around 200 cm. (decreases towards eastern region	This region is bounded by Kodasserry Forested Hills and Tamil Nadu on the north, Tamil Nadu on the east, Periyar River Basin and Cardamom Hills on the south and Malayattur Forested Hills and Periyar-Muvattupuzha Rolling Plain on the west. This region is a semi-ever-green forest type. The maximum height, Anamudi (2,695 m.) which is the highest peak in South India, lies on its eastern portion of Kannan Devan Hills village (4), while the minimum height (107 m.) is in the north-western part in Kuttampuzha kara (1-1) of Mannamkandam village. This region slopes towards west. Having a table-land in the eastern part, it has lofty peaks under its thick ever-green forest. The 1000 m. contour line bifurcates this region into western and eastern parts. Steep slopes are found towards west. The streams are structurally controlled and of dentritic pattern. This region is the catchment area of many streams and gullies which join the Periyar river. This region has forest loam and laterite soils, technically known as udalfs-orthents, udults-tropepts. This region with large number of tea and rubber estates is sparsely populated. It has narrow roads. Munnar is a prominent place which is well-connected by roads with all the important towns in the neighbouring taluks and districts.

1	2	3	4	5
		SUB-MICRO REGION: 4.2.5.2 MARAYUR FORESTED HILLS		
Part of Devicolam	Charnoc-kite bed with a narrow intrusion of unclas-sified granite	Forest loam soil Orthents-Tropepts Udalfs-Orthents Orthents Recently formed soil Tropepts Shallow black, brown and alluvial soil of southern region Udalfs High base status soil of humid regions	Around 150 cm.	This region lying in the north-eastern part is bounded by Tamil Nadu in the north and east and Anamalai Forested Hills in the south and west. This hilly tract tilts towards east and therefore, Pambar flows eastwardly and joins the Cauvery river. The maximum height of this region (2,523 m) is located in its southern end in the Vattavada village (9) and the minimum height (800 m.) lies at its eastern portion in the Marayur village (5). There is significance of saddle in the middle of this region. It is a part of the Western Ghats and has sandal wood plantations. The northern portion of this region has orthents-tropepts soil, while the southern-portion has udalfs-orthents. The road from Munnar to Udumalpet (Tamil Nadu) passes through this region. Settlements are scarce in this region, though some of them are located in the saddle area and confined to either sides of roads forming a linear pattern.
		SUB-MICRO REGION: 4.2.5.3 CARDAMOM HILLS		
Parts of Udumban-chola and Peermade	Charnoc-kite bed, Cordierite gneiss, Hornblende biotite gneiss and other unclas-sified crystallines	Forest loam soil Udalfs-Orthents *Udalfs* High base status soils of humid region *Orthents* Recently formed soils	Around 150 cm.	This region makes its boundaries with Anamalai Forested Hills in the north, Tamil Nadu in the east, Thekkadi Forested Hills in the south and Periyar River Basin in the west. This hilly region lies as a continuous belt from north to south on the eastern side of the district. It slopes towards west and this fertile tract has a large number of tea and cardamom estates, besides pastures of ever-green forests. The maximum height (2,185 m.) is at its northern tip in Pottankad kara (2-1) of Rajakkad village of Udumbanchola taluk and the minimum height (913 m.)

1	2	3	4	5
				is at the southern end in the Periyar village (5) of Peermade taluk. Scarp slopes are found in the middle and western portions of this region. Geologically the whole of this region is coming under charnockite bed, except in the middle portion which has cordierite gneiss, hornblende biotite gneiss and other unclassified crystallines and younger segments. This region has udalfs-orthents soil. It includes the forest loam, which occurs in all along this district, which is weathered from the crystalline rocks. The upper layer is highly enriched with organic matter and the soil is dark reddish brown to black in colour. It is rich in nitrogen but poor in bases. It is quite fertile under forest cover and promotes prolific undergrowth. Very few settlements are found here. Udumbanchola is the important settlement in this region. Since there are large number of tea estates, their settlements are mostly of hamlet type which are meant for the estate labourers.
SUB-MICRO REGION: 4.2.5.4 PERIYAR RIVER BASIN				
Thodupuzha and parts of Devicolam, Udumbanchola and Peermade	Cordierite gneiss, Hornblende biotite gneiss and other unclassified crystallines including younger segments. Basic dykes, Charnockite	Laterite soil and forest loam soil. Udults-Tropepts, Orthents-Tropepts *Udults* Laterite Soil *Tropepts* Shallow black, brown and alluvial	Around 200 cm.	This region lies in the central and western part of this district makes its boundaries with Anamalai Forested Hills in the north, Cardamom Hills in the east, Thekkadi Forested Hills in the south and Meenachil-Kanjirappally Upland and Periyar-Muvattupuzha Rolling Plain in the west. This region is the catchment area of the Periyar river and is structurally controlled towards north-west. This region is having below 1,000 m. in height and slopes towards west. However, the maximum height (1,194 m.) lies at Edamaruku kara (1) of Udumbannor village of Thodupuzha

1	2	3	4	5
		soils of southern region *Orthents* Recently formed soils		taluk and the minimum height (118 m.) in its western part at Pannorkara (11-6) of Udumbannoor village of Thodupuzha taluk. The average height of this region is between 850 m. and 900 m. It has a number of escarpments in its central and western parts. 'V' shaped vallyes made by Kudayatturpuzha and Kaliyar rivers are identifiable landmarks in this region. This region has thick ever-green forests, teak, rubber and tea plantations and cultivation like pepper, cashew, tapioca etc. Geologically this region has cordierite gneiss, hornblende, biotite gneiss and other unclassified crystallines in its central part which is intruded by basic dykes over its north, while in the southern portion charnockite bed occurs. The soil is laterite. A major portion of this region is coming under this soil. This weathered product is having abundant ferrogenuous and quartz gravels. Though this soil, in general, is acidic and poor in nitrogen, phospherous, potash and organic matter, it is well-drained, widely cultivated and responds to management practices. This region is well-connected by roads, cart-tracks and foot-paths. Thodupuzha town and Idukki township are the important settlements in this region.
		SUB-MICRO REGION: 4.2.5.5 THEKKADI FORESTED HILLS		
Part of Peermade	Charnoc-kite bed	Laterite soil, Forested loam soils Soils *Udults*-Tropepts Udalfs-Tropepts Orthents-Tropepts	150 cm. in eastern region and 200 cm. in western region	This region which is the extension of Cardamom hills, lies in the southern portion of this district in Peermade taluk and makes its boundaries with Periyar River Basin and Cardamom Hills in the north, Tamil Nadu in the east, Pamba-Kakki Forested Hills and Ranni Forested Hills and meenachil-Kanjirappally Upland in the south. This region slopes towards west and the maximum height (1,811 m.) is in the

1	2	3	4	5
		Udults Laterite soil *Tropepts* Shallow black, brown and alluvial soils of southern region *Udalfs* High base status soils of humid region *Orthents* Recently formed soils		southernmost part of Mlappara village (6) of Peermade taluk and minimum height (101 m.) is in the western portion at Peruvantanam south kara (3-2) of Peruvanthanam village of Peermade taluk. The average height of this region is 900 m. and has plateau-like structure called as Periyar plateau. Swampy areas are found in the western part of it as against escarpments in its eastern border. The river pattern show the dentritic type. This region has also forest, tea and rubber plantations. Geologically whole of this region is coming under charnockite bed, except in its western portion where basic dykes occur. This region has laterite and forest loam soil. Technically the soils are classified as udults-tropepts in its western portion, udalfs-tropepts in its central portion and orthents-tropepts in its eastern portion. A road from Kottayam-Kumili passes through Peermade and Vandiperiyar. Thekkadi is a tourist centre famous for its lakes and Wild Life Sanctuary.

Note: 1. Soils as classified by NBSS & LUP (ICAR), Nagpur
2. The 1981 census location code number is written within brackets after the name of the village/kara.

CONSTITUENT UNITS OF SUB-MICRO REGIONS, 1981

KOTTAYAM DISTRICT

(CODE : 09)

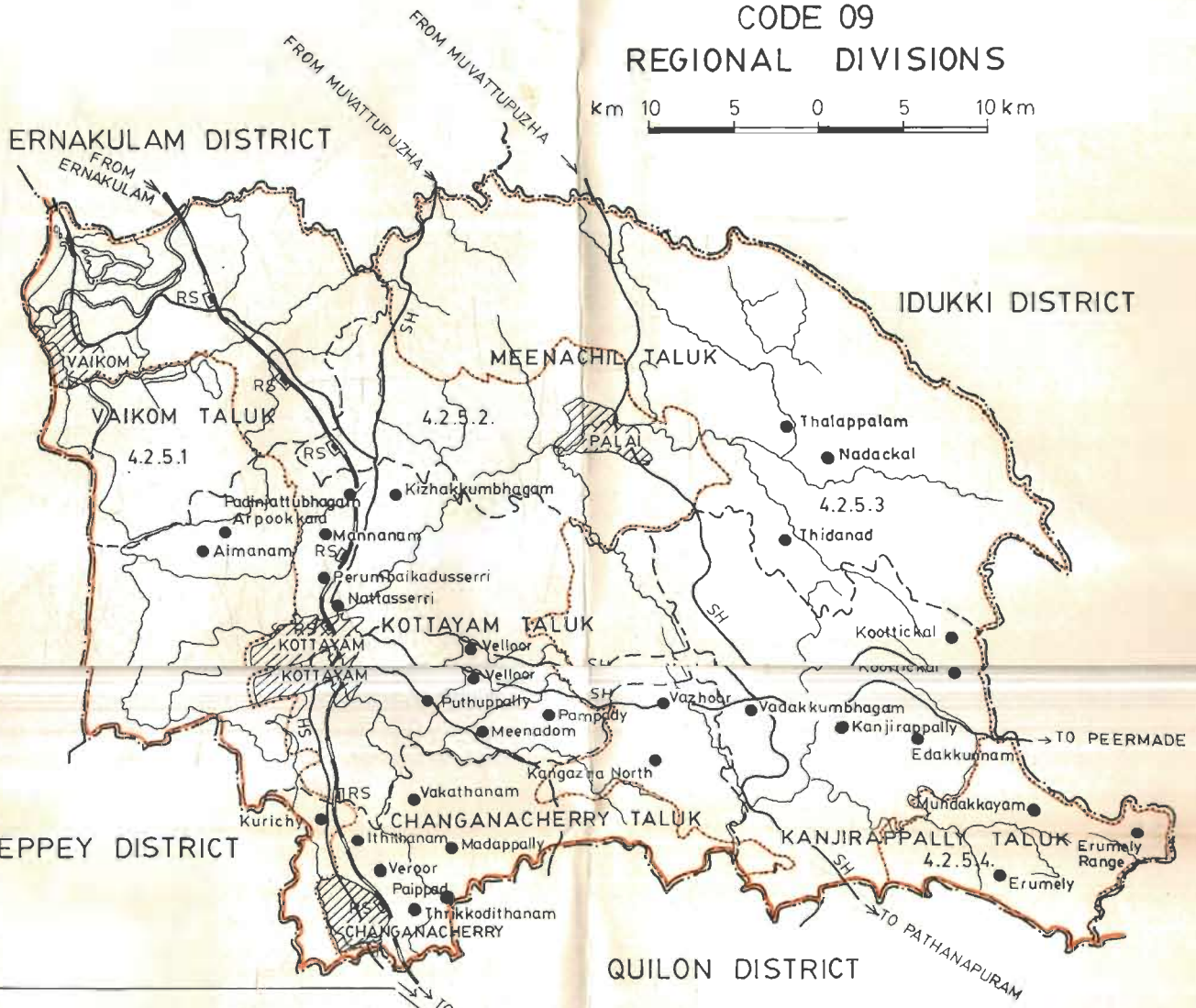
Sub-micro region with code and name	Taluk and code	Number of whole/ part * village (s) and location code (s)	Location code and name of town	Remarks
1	2	3	4	5
4.2.5.1 Kumarakom Low lying Plain	Vaikom 01	4 whole villages 10 to 13 1 part village 5-11, 5-12 & 5-14		The remaining portion in region 4.2.5.2
	Kottayam 03	5 whole villages 1 & 13 to 16 2 part villages 2-1 & 17-8		The remaining portions in regions 4.2.5.2 and 4.2.5.3
	Changanacherry 04	2 whole villages 4 & 5 1 part village 1-1		The remaining portions in regions 4.2.5.2 and 4.2.5.3
4.2.5.2 Kottayam Rolling Plain	Vaikom 01	9 whole villages 1 to 4, 6 to 9-14 1 part village 5-1, 5-2, 5-3, 5-4, 5-5, 5-6, 5-7, 5-8, 5-9, 5-10 & 5-13	I Vaikom	The remaining portion in region 4.2.5.1
	Meenachil 02	5 whole villages 8, 9, 11, 12 & 22 6 part villages 6-3, 6-4, 7-7, 10-1 10-3, 10-4, 10-5, 13-1, 13-2, 13-3, 14-8, 14-9, 21-1, 21-2, 21-3, 21-4, & 21-5	II Palai	The remaining portion in region 4.2.5.3

KERALA

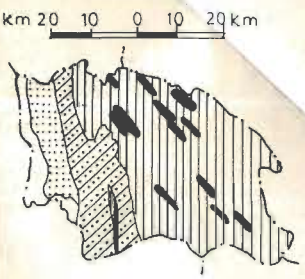
KOTTAYAM DISTRICT

CODE 09

REGIONAL DIVISIONS

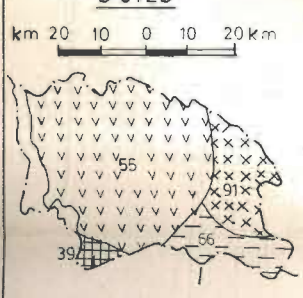


GEOLOGY



Alluvium	RECENT
Laterite	PLEISTOCENE
Quilon and Warkalli beds	MIOCENE
Basic dykes	ARCHAEAN
Charnockites	ARCHAEAN

SOILS



39	Psamments-Orthents
55	Orthents-Tropepts-Rock outcrops
66	Tropepts
91	Udults-Tropepts-Rock outcrops

4.2.5.1. Kumarakam Low-lying Plain
4.2.5.2. Kottayam Plain
4.2.5.3. Meenachil-Kanjirappally Upland
4.2.5.4. Ranni Forested Hills

BOUNDARY, DISTRICT
" " TALUK
KARA HAVING 10000 AND ABOVE POPULATION — Paippad
URBAN AREA
STATE HIGHWAY — SH
RAILWAY LINE WITH STATION BROAD GAUGE — RS
RIVER / WATER BODY
REGIONAL DIVISION — 4. 2. 5. 1
MACRO
MESO
MICRO
SUB-MICRO WITH BOUNDARY

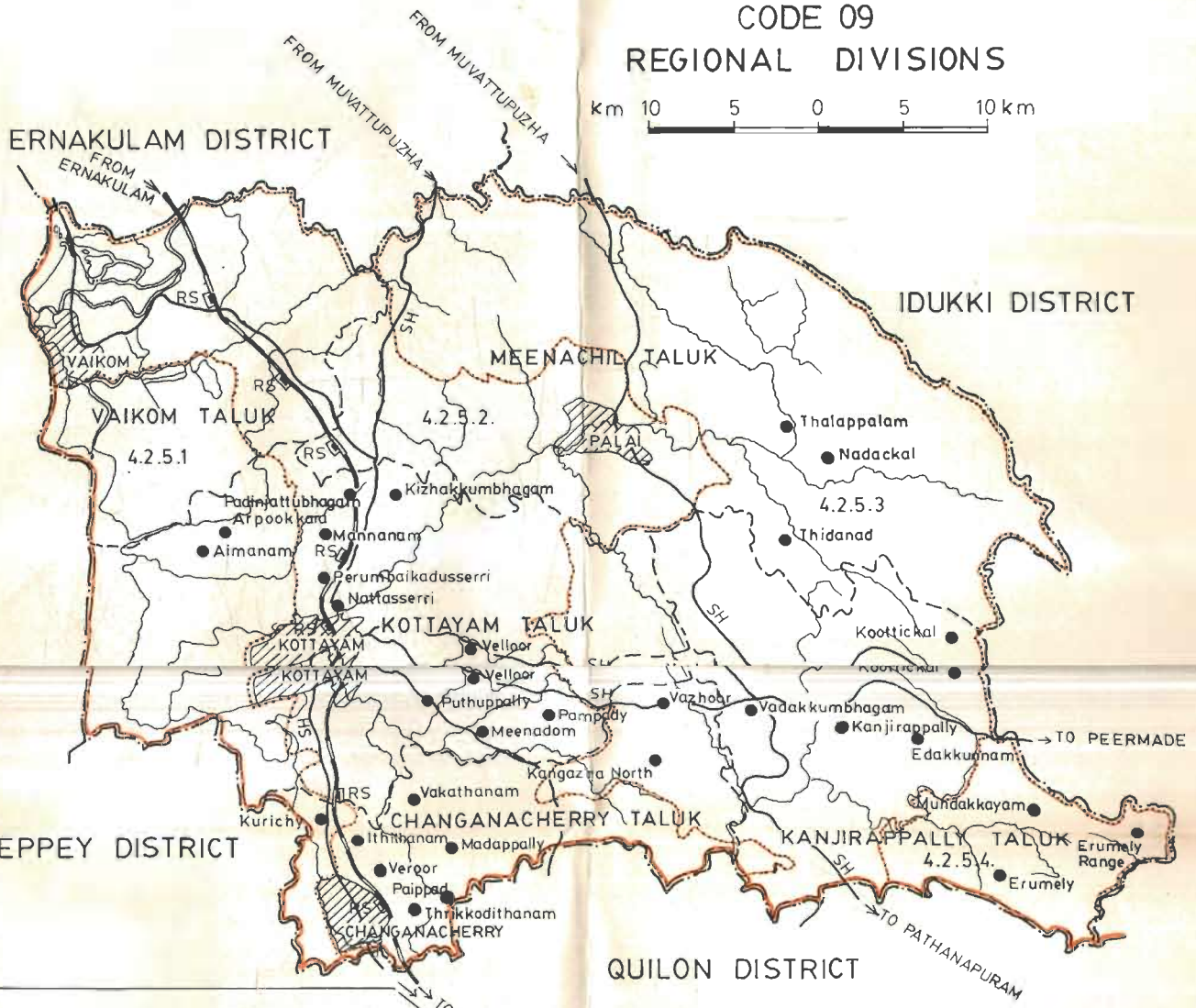
READ THE SEQUENCE OF REGIONAL DIVISIONS WITH REFERENCE TO THE ALL INDIA MAP CODES UP TO 3 TIER

KERALA

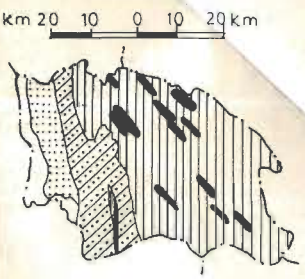
KOTTAYAM DISTRICT

CODE 09

REGIONAL DIVISIONS

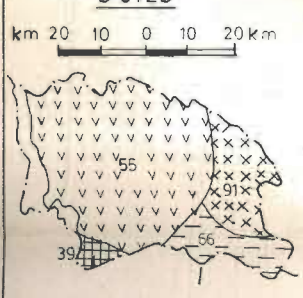


GEOLOGY



Alluvium	RECENT
Laterite	PLEISTOCENE
Quilon and Warkalli beds	MIOCENE
Basic dykes	ARCHAEAN
Charnockites	ARCHAEAN

SOILS



39	Psamments-Orthents
55	Orthents-Tropepts-Rock outcrops
66	Tropepts
91	Udults-Tropepts-Rock outcrops

4.2.5.1. Kumarakam Low-lying Plain
4.2.5.2. Kottayam Plain
4.2.5.3. Meenachil-Kanjirappally Upland
4.2.5.4. Ranni Forested Hills

BOUNDARY, DISTRICT
" " TALUK
KARA HAVING 10000 AND ABOVE POPULATION — Paippad
URBAN AREA
STATE HIGHWAY — SH
RAILWAY LINE WITH STATION BROAD GAUGE — RS
RIVER / WATER BODY
REGIONAL DIVISION — 4. 2. 5. 1
MACRO
MESO
MICRO
SUB-MICRO WITH BOUNDARY

READ THE SEQUENCE OF REGIONAL DIVISIONS WITH REFERENCE TO THE ALL INDIA MAP CODES UP TO 3 TIER

BASIC DATA ON SUB-MICRO REGIONS, 1981

KOTTAYAM DISTRICT

(CODE : 09)

Macro region	4	The Coastal Plains & Islands
Mesor region	4.2	Western Coastal Region
Micro region	4.2.5	Central Kerala Coast

Sub-micro region Number & name	Taluk	No. of constituent units: Whole Village	Part Village & (karas)*	Town	Total Rural Urban	Area in km^2	Population (1981 Census)
1	2	3	4	5	6	7	8
4.2.5.1 Kumarakam Low lying Plain		11	4(6)	-	Total	308.57	211,688
					Rural	308.57	211,688
					Urban	-	-
	Vaikom (Part)	4	1(3)	-	Total	101.89	67,449
					Rural	101.89	67,449
					Urban	-	-
	Kottayam (Part)	5	2(2)	-	Total	172.37	116,339
					Rural	172.37	116,339
					Urban	-	-
	Changanacherry (Part)	2	1(1)	-	Total	34.31	27,900
					Rural	34.31	27,900
					Urban	-	-
4.2.5.2 Kottayam Rolling Plain		28	16(50)	4	Total	850.41	963,975
					Rural	796.70	804,868
					Urban	53.71	159,107
	Vaikom (Part)	9	1(11)	1	Total	217.41	210,152
					Rural	208.68	189,055
					Urban	8.73	21,097
	Meenachil (Part)	5	6(17)	1	Total	201.54	146,827
					Rural	185.61	125,203
					Urban	15.93	21,624

1	2	3	4	5	6	7	8
	Kottayam (Part)	9	4(16)	1	Total	275.29	389,494
					Rural	259.74	325,063
					Urban	15.55	64,431
	Changanacherry (Part)	5	4(5)	1	Total	153.80	215,776
					Rural	140.30	163,821
					Urban	13.50	51,955
	Kanjirappally (Part)	-	1(1)	-	Total	2.37	1,726
					Rural	2.37	1,726
					Urban	-	-
4.2.5.3 Meenachil-Kanjirappally Upland		18	13(32)	-	Total	915.43	462,975
					Rural	915.43	462,975
					Urban	-	-
	Meenachil (Part)	11	6(18)	-	Total	521.14	227,882
					Rural	521.14	227,882
					Urban	-	-
	Kottayam (Part)	1	2(3)	-	Total	52.23	30,483
					Rural	52.23	30,483
					Urban	-	-
	Changanacherry (Part)	1	3(7)	-	Total	73.86	52,397
					Rural	73.86	52,397
					Urban	-	-
	Kanjirappally (Part)	5	2(4)	-	Total	268.20	152,213
					Rural	268.20	152,213
					Urban	-	-
4.2.5.4 Ranni Forested Hills		-	1(2)	-	Total	121.00	58,804
					Rural	121.00	58,804
					Urban	-	-
	Kanjirappally (Part)	-	1(2)	-	Total	121.00	58,804
					Rural	121.00	58,804
					Urban	-	-

Note: The area of the district (2,204 km^2) is based on the 'geographical' area supplied by Surveyor General, India whereas the area figures of sub-micro regions are arrived at on the basis of the 'land-use' area figures supplied by the Director of Survey & Land Records, Tahsildars and Local Bodies. Therefore when the area figures of sub-micro regions are added up it may not tally with the area of the district.

The number given in bracket in Col. 4 indicates the number of karas which fall in the part villages of the taluk in the concerned sub-micro region.

CONSTITUENT UNITS OF SUB-MICRO REGIONS, 1981

KOTTAYAM DISTRICT

(CODE : 09)

Sub-micro region with code and name	Taluk and code	Number of whole/ part * village (s) and location code (s)	Location code and name of town	Remarks
1	2	3	4	5
4.2.5.1 Kumarakom Low lying Plain	Vaikom 01	4 whole villages 10 to 13 1 part village 5-11, 5-12 & 5-14		The remaining portion in region 4.2.5.2
	Kottayam 03	5 whole villages 1 & 13 to 16 2 part villages 2-1 & 17-8		The remaining portions in regions 4.2.5.2 and 4.2.5.3
	Changanacherry 04	2 whole villages 4 & 5 1 part village 1-1		The remaining portions in regions 4.2.5.2 and 4.2.5.3
4.2.5.2 Kottayam Rolling Plain	Vaikom 01	9 whole villages 1 to 4, 6 to 9-14 1 part village 5-1, 5-2, 5-3, 5-4, 5-5, 5-6, 5-7, 5-8, 5-9, 5-10 & 5-13	I Vaikom	The remaining portion in region 4.2.5.1
	Meenachil 02	5 whole villages 8, 9, 11, 12 & 22 6 part villages 6-3, 6-4, 7-7, 10-1 10-3, 10-4, 10-5, 13-1, 13-2, 13-3, 14-8, 14-9, 21-1, 21-2, 21-3, 21-4, & 21-5	II Palai	The remaining portion in region 4.2.5.3

1	2	3	4	5
	Kottayam 03	9 whole villages 3 to 5, 9 to 12, 18 & 19 4 part villages 2-2, 2-3, 6-1, 8-1, 8-2, 8-3, 8-4, 17-1, 17-2, 17-3, 17-4, 17-5, 17-6, 17-7, 17-9 & 17-10	III Kottayam	The remaining portions in regions 4.2.5.1 and 4.2.5.3
	Changanacherry 04	5 whole villages 2, 3 & 6 to 8 4 part villages 1-2, 9-2, 10-2, 12-6 & 12-7	IV Changanacherry	The remaining portions in regions 4.2.5.1 and 4.2.5.3
	Kanjirappally 05	Whole village Nil 1 part village 7-3		The remaining portions in regions 4.2.5.3 and 4.2.5.4
4.2.5.3 Meenachil Kanjirappally Upland	Meenachil 02	11 whole villages 1 to 5 & 15 to 20 6 part villages 6-1, 6-2, 7-1, 7-2, 7-3, 7-4, 7-5, 7-6, 10-2, 13-4, 14-1, 14-2, 14-3, 14-4, 14-5, 14-6, 14-7 & 21-6		The remaining portion in region 4.2.5.2
	Kottayam 03	1 whole village 7 2 part villages 6-2, 6-3 & 8-5		The remaining portions in regions 4.2.5.1 and 4.2.5.2
	Changanacherry 04	1 whole village 11 3 part villages 9-1, 10-1, 12-1, 12-2, 12-3, 12-4 & 12-5		The remaining portions in regions 4.2.5.1 and 4.2.5.2

1	2	3	4	5
	Kanjirappally 05	5 whole villages 1 to 4 & 6 2 part villages 5-1, 7-1, 7-2 & 7-4		The remaining portions in regions 4.2.5.2 and 4.2.5.4
4.2.5.4 Ranni Forested Hills	Kanjirappally 05	whole village Nil 1 part village 5-2 & 5-3		The remaining portions in regions 4.2.5.2 and 4.2.5.3

Desom/kara which is the lowest constituent unit of a village is taken as the basis for delineation of sub-micro region. A sub-micro region may consists of whole or part villages or both. For part village the two digit location code of desom/kara is given. Eg. 2-3 indicate third desom/kara of the 2nd village.

PHYSIO-GEOGRAPHIC FEATURES BY SUB-MICRO REGIONS

KOTTAYAM DISTRICT

(CODE : 09)

Taluk	Geology	Soils	Rainfall	Physiography
1	2	3	4	5
SUB-MICRO REGION : 4.2.5.1 KUMARAKOM LOW-LYING PLAIN				
Parts of Vaikom, Kottayam and Changa-cherry	Alluvium bed	Alluvial soil Orthents-Tropepts *Orthents* Recently formed soils *Tropepts* Shallow black, brown and alluvial soils of southern region	Between 200 and 300 cm.	This region lies as a narrow strip over the western portion of this district and makes its boundaries with Kottayam Rolling Plain in the north and east, Kuttanad Low-lying Plain in the south and Vembanad Lake in the west. This region which borders the Vembanad Lake has large number of intersecting canals. It is low-lying area with an average height of only 6 m. Meenachil and Muvattupuzha rivers join Vembanad Lake through number of distributaries and canals. Major portion of the area is flood-prone. The area known as *kole* land and seasonal cultivation of paddy is done during winter after pumping out water from the bunded area into peripheral kayals. During rainy season, the entire area will be submerged. Paddy and coconut are the crops cultivated in this land. This region has recently formed alluvial soils which is technically classified as *orthents-tropepts*. The chief mode of transportation of this tract is the inland water transport.
SUB-MICRO REGION : 4.2.5.2 KOTTAYAM ROLLING PLAIN				
Parts of Vaikom, Meenachil, Kottayam and Changana-cherry	Alluvium bed, Laterite bed, Charnockite gneiss, Horn-	Alluvial soils and laterite soils. Orthents-Tropepts	Between 200 and 300 cm.	This region lies over the central part of this district and bounded by Periyar-Muvattupuzha Rolling Plain in the north, Meenachil-Kanjirappally Upland in the east, Chengannur Rolling Plain in the south and Kumarakom Low-lying Plain in the west.

1	2	3	4	5
	blende, biotite gneiss and other unclassified crystallines	*Orthents* Recently formed soil *Troppepts* Shallow black, brown and alluvial soils of southern region		This region gently slopes towards west. The average height ranges from 70 to 80 m. The knoll having the maximum height of the region (149 m.) is located on its northern portion at Kattampack kara (4-6) of Njeezhoor village of Vaikom taluk. The minimum height (34 m.) of this region is found at Memurikara (14-5) of Manjoor village of Vaikom taluk. Some mounts are located here and there. This region is served by many streams of Muvattupuzha, Meenachil and Koduvar rivers. Rice is the major crop. Timber industries thrive in this region. Geologically, this region is coming under alluvium bed over its western portion with the intrusion of laterite bed and charnockite bed, while its southern portion falls under cordierite gneiss, and hornblende biotite gneiss and other unclassified crystallines with younger segments. It has alluvium soils and laterite soils, technically classified as *orthents-tropepts*. This region has good road facilities connecting the important places of this district like Kottayam, Ettumanoor, Palai etc. The Ernakulam-Trivandrum Railway line (broad-gauge) passes through this region.

SUB-MICRO REGION : 4.2.5.3 MEENACHIL-KANJIRAPPALLY UPLAND

Parts of Meenachil, Kottayam, Kanjirappally and Changanacherry	Charnockite bed Basic dykes	Shallow black, brown and alluvial soils and laterite soil *Orthents-Tropepts Udults-Tropepts Orthents* Recently formed soils	Between 200 and 300 cm.	This region lies in the eastern part of this district and makes its boundaries with Periyar River Basin in the north, Thekkadi Forested Hills and Ranni Forested Hills in the east, Kottarakkara Undulating Upland and Alleppey Rolling Plain in the south and Kottayam Rolling Plain in the west. This upland region forms the catchment area of Meenachil and Manimala rivers. The extreme eastern portion is the part of the neighbouring hilly tract where there are river valleys. On its western

1	2	3	4	5
		Tropepts Shallow black, brown and alluvial soils of southern region *Udults* Laterite soil		part hillocks and isolated hills are seen. This region slopes towards west. The maximum height (1,195 m.) is found at its central and eastern part in the Poonjar Nadubhagam village (18) of Meenachil taluk and the minimum height (87 m.) in its southern tip in Kangazha south kara (10-2) of Kangazha village of Changanacherry taluk. Steep slopes occur over the eastern part of this upland. This region has the charnockite bed with the intrusion of basic dykes here and there especially in the northern portion. The western and southern portion has orthents-tropepts soils i.e. recently formed shallow black, brown and alluvial soils and in its eastern portion has udults-tropepts soils i.e. laterite soils. Rubber plantations thrive in this region. The area is also famous for timber industry. It is well-connected by road except some areas in the eastern region. The important settlements are Kanjirappally and Erattupettah.
				SUB-MICRO REGION : 4.2.5.4 RANNI FORESTED HILLS
Kanjirap- pally	Charnoc- kite bed	Alluvium soil *Tropepts* Shallow black, brown and alluvial soils of southern region	Between 200 and 300 m.	This region which has small area is bounded by Thekkadi Forested Hills in the north and east, Pamba-Kakki Forested Hills in the south and Meenachil-Kanjirappally Upland in the west. This region is the continuation of Thekkadi Forested Hills. It has a small area and low population. The maximum height of this region is 549 m. lies at Mundakkayam kara (5-3) of Erumely village. It slopes towards west. This region forms the catchment area of Manimala river. The forest is of semi-deciduous type. Teak, rubber, cashew etc. are the important vegetation cover of this region.

1	2	3	4	5
				This region has charnockite bed and tropepts soil ie. shallow black, brown and alluvial soil of southern region. Erumely and Mundakkayam are the important settlements.

Note : 1. Soils as classified by the NBSS & LUP (ICAR), Nagpur.

2. The 1981 census location code number is written within brackets after the name of the village/kara.

ALLEPPEY DISTRICT

(CODE : 10)

Alleppey, the most densely populated district of the state, is blessed with a net-work of backwaters and lagoons. Vembanad and Kayamkulam lakes and the three rivers from the north to south of the district, viz. Manimala (92 km), Pamba (177 km) and Achancoil (129 km), have made the central region of the district a highly fertile tract. Kuttanad, the granary of the state, lies in the heart of this tract. Alleppey is part of the South Kerala coast (4.2.6) and is sub-divided on the basis of topography, geology, soil, climate and natural vegetation into 3 sub-micro region viz. Alleppey Coast, Kuttanad Low-lying Plain and Chengannur Rolling Plain, details of which are given below.

4.2.6.1 Alleppey Coast

This region lies all along the coast of the district comprising the whole of Shertallai taluk and parts of Ambalapuzha, Karthigappally and Mavelikkara taluks. It is a low-lying land having marshy areas in some places. It is influenced by the backwaters (*kayals*). It contains 32 whole villages, 8 part villages (consisting of 21 karas) and 4 towns. It has an area of 675.67 km^2, a population of 1,133,784 persons and a density of 1,678 persons per km^2. Its geological bed is alluvium. The soil type is recently formed sand alluvium. Among sub-micro regions in the district, it has the highest density. It is well connected by road and by inland navigation. Railway line passes through the southern end of this region.

4.2.6.2 Kuttanad Low-lying Plain

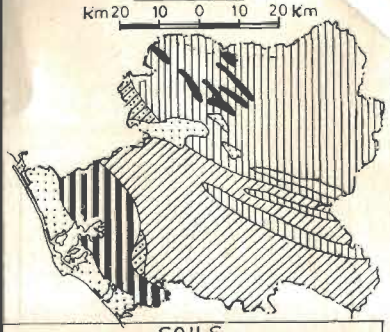
This region has peculiar terrain. It comprises of the whole of Kuttanad and parts of Ambalapuzha, Chengannur, Mavelikkara, Thiruvalla and Karthigappally taluks. Kuttanad is a land intersected by backwaters, rivers and canals and this region is largely influenced by the *kayals*. Manimala, Pamba and Achancoil rivers form a deltaic appearance to this region. In many places the altitude of the land is lower than the sea level. Further it is a typical example of *kole* land. During rainy season, the entire area is submerged under water and the seasonal cultivation is done after pumping out the water from the bunded paddy fields into the peripheral *kayals* or canals. It contains 27 whole villages, 11 part villages (consisting of 33 karas) and 2 towns. It has an area of 540.92 km^2, a population of 568,537 persons and a density of 1,051 persons per km^2. Its geological bed is alluvium. It has the recently formed sandy soil and soil of acid saline which includes *kari, kayal* and *karappadam* soils. The region is connected by rail, road and inland navigation.

4.2.6.3 Chengannur Rolling Plain

This region lies in the eastern section of the district, comprising of parts of Thiruvalla, Mavelikkara and Chengannur taluks. It slopes gently towards west and is drained by all the major rivers of the district. It contains 26 whole villages, 6 part villages (consisting of 36 karas) and 1 town. It has an area of 606.93 km^2, a population of 647,824 persons and a density of 1,067 persons per km^2. It has the Quilon Warkalai and laterite beds as its geological formation. It has shallow black, brown, alluvial and acid saline soils. Two State Highways ie. Main Central Road and Kayamkulam-Punalur road pass through this region.

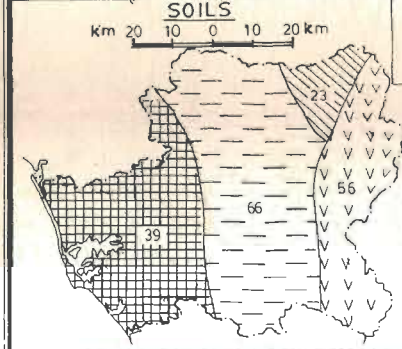
KERALA
QUILON DISTRICT
CODE 11
REGIONAL DIVISIONS

GEOLOGY



Alluvium	RECENT
Laterite	PLEISTOCENC
Quilon and Warkalli beds	MIOCENE
Basic dykes	ARCHAEAN
Unclassified granite	ARCHAEAN
Charnockites	ARCHAEAN
Khondalites	ARCHAEAN
Cordierite gneiss, Hornblende-biotite gneiss, Other unclassified crystallines including younger segments	ARCHAEAN

SOILS



23	Udalfs_Orthents
39	Psamments_Orthents
56	Orthents_Tropepts_Udalfs
66	Tropepts

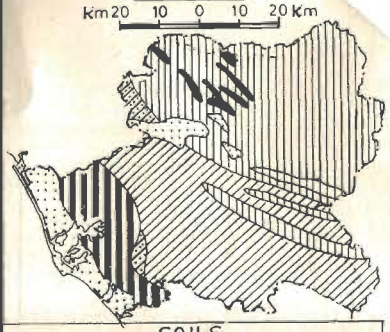
4.2.6.1	Quilon Coast
4.2.6.2	Adur Rolling Plain
4.2.6.3	Kottarakkara Undulating Upland
4.2.6.4	Pamba_Kakki Forested Hills
4.2.6.5	Kulathupuzha Forested Hills

BOUNDARY, STATE
.. .. DISTRICT
.. .. TALUK
KARA HAVING 10000 AND ABOVE POPULATION ● Perunad
URBAN AREA
NATIONAL HIGHWAY NH 47
STATE HIGHWAY SH
RAILWAY LINE WITH STATION
BROAD GAUGE RS
METRE GAUGE RS
RIVER/WATER BODY
REGIONAL DIVISION 4.2.6.2
MACRO
MESO
MICRO
SUB_MICRO WITH BOUNDARY

[READ THE SEQUENCE OF REGIONAL DIVISIONS WITH REFERENCE TO THE ALL INDIA MAP CODES UP TO 3 TIER]

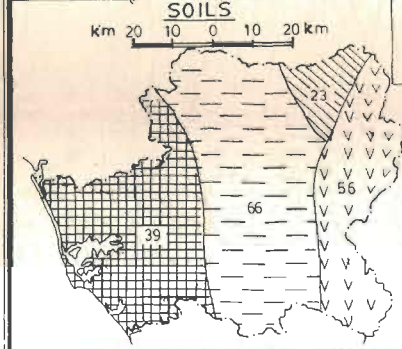
KERALA
QUILON DISTRICT
CODE 11
REGIONAL DIVISIONS

GEOLOGY



Alluvium	RECENT
Laterite	PLEISTOCENC
Quilon and Warkalli beds	MIOCENE
Basic dykes	ARCHAEAN
Unclassified granite	ARCHAEAN
Charnockites	ARCHAEAN
Khondalites	ARCHAEAN
Cordierite gneiss, Hornblende-biotite gneiss, Other unclassified crystallines including younger segments	ARCHAEAN

SOILS



23	Udalfs_Orthents
39	Psamments_Orthents
56	Orthents_Tropepts_Udalfs
66	Tropepts

4.2.6.1	Quilon Coast
4.2.6.2	Adur Rolling Plain
4.2.6.3	Kottarakkara Undulating Upland
4.2.6.4	Pamba_Kakki Forested Hills
4.2.6.5	Kulathupuzha Forested Hills

BOUNDARY, STATE
.. .. DISTRICT
.. .. TALUK
KARA HAVING 10000 AND ABOVE POPULATION ● Perunad
URBAN AREA
NATIONAL HIGHWAY NH 47
STATE HIGHWAY SH
RAILWAY LINE WITH STATION
BROAD GAUGE RS
METRE GAUGE RS
RIVER/WATER BODY
REGIONAL DIVISION 4.2.6.2
MACRO
MESO
MICRO
SUB_MICRO WITH BOUNDARY

[READ THE SEQUENCE OF REGIONAL DIVISIONS WITH REFERENCE TO THE ALL INDIA MAP CODES UP TO 3 TIER]

BASIC DATA ON SUB-MICRO REGIONS, 1981

ALLEPPEY DISTRICT

(CODE : 10)

Macro region	4	The Coastal Plains & Islands
Meso region	4.2	Western Coastal Region
Micro Region	4.2.6	South Kerala Coast

Sub-Micro region Number & name	Taluk	No. of constituent units: Whole village	Part village & (Karas)*	Town	Total Rural Urban	Area in km^2	Population (1981 Census)
1	2	3	4	5	6	7	8
4.2.6.1 Alleppey Coast		32	8(21)	4	Total	675.67	1,133,784
					Rural	584.98	840,957
					Urban	90.69	292,827
	Shertaeai (Whole)	16	-	1	Total	320.40	434,680
					Rural	304.20	394,188
					Urban	16.20	40,492
	Ambalapuzha (Part)	4	2(7)	2	Total	157.01	351,807
					Rural	104.31	160,799
					Urban	52.70	191,008
	Karthigappally (Part)	10	3(9)	1	Total	143.30	274,084
					Rural	121.51	212,757
					Urban	21.79	61,327
	Mavelikkara (Part)	2	3(5)	-	Total	54.94	73,213
					Rural	54.94	73,213
					Urban	-	-
4.2.6.2 Kuttanad Low lying Plain		27	11(33)	2	Total	540.92	568,537
					Rural	513.72	512,714
					Urban	27.20	55,823
	Ambalapuzha (Part)	-	2(6)	-	Total	21.81	23,704
					Rural	21.81	23,704
					Urban	-	-
	Kuttanad (Whole)	12	-	-	Total	265.90	207,891
					Rural	265.90	207,891
					Urban	-	

1	2	3	4	5	6	7	8
	Thiruvalla (Part)	5	1(3)	1	Total	73.64	103,327
					Rural	59.17	74,102
					Urban	14.50	29,225
	Chengannur (Part)	3	2(7)	-	Total	38.04	54,621
					Rural	38.04	54,621
					Urban	-	-
	Karthiga-ppally (Part)	4	3(12)	-	Total	81.32	91,437
					Rural	81.32	91,437
					Urban	-	-
	Mavelikkara (Part)	3	3(5)	1	Total	60.13	87,557
					Rural	47.43	60,959
					Urban	12.70	26,598
4.2.6.3 Chengannur Rolling Plain		26	6(36)	1	Total	606.93	647,824
					Rural	593.93	622,962
					Urban	13.00	24,862
	Thiruvalla (Part)	12	1(10)	-	Total	272.86	260,401
					Rural	272.86	260,401
					Urban	-	-
	Chengannur (Part)	9	2(8)	1	Total	163.14	194,063
					Rural	150.14	169,201
					Urban	13.00	24,862
	Mavelikkara (Part)	5	3(18)	-	Total	170.93	193,360
					Rural	170.93	193,360
					Urban	-	-

Note:- The area of the district (1,883 km^2) is based on the 'geographical' area supplied by the Surveyor General, India whereas the area figures of sub-micro regions are arrived at on the basis of the 'land-use' area figures supplied by the Director of Survey & Land Records, Tahsildars and Local Bodies. Therefore when the area figures of sub-micro regions are added up it may not tally with the area of the district.

The number given in bracket in Col. 4 indicates the number of karas which fall in all the part villages of the taluk in the concerned sub-micro region.

CONSTITUENT UNITS OF SUB-MICRO REGIONS, 1981

ALLEPPEY DISTRICT

(CODE : 10)

Sub-micro region with code and name	Taluk and code	Number of whole. part* village(s) and location code(s)	Location code and name of town	Remarks
1	2	3	4	5
4.2.6.1 Alleppey Coast	Shertallai 01	16 whole villages 1 to 16	I Shertallai	
	Ambalapuzha 02	4 whole villages 1 to 3 & 6	II Pathirappally III Alleppey	The remaining portion in region 4.2.6.2
		2 part villages 4-1, 4-4, 4-5, 5-1, 5-3, 5-4 & 5-5		
	Karthigappally 06	10 whole villages 1, 7, 9 to 11 & 13 to 17	VI Kayamkulam	The remaining portion in region 4.2.6.2
		3 part villages 5-5, 6-2, 6-3, 6-4, 6-5, 6-6, 12-1, 12-2 & 12-10		
	Mavelikkara 07	2 whole villages 9 & 10		The remaining portions in regions 4.2.6.2 and 4.2.6.3
		3 part villages 4-2, 4-3, 4-4, 5-6 & 11-1		
	Ambalapuzha 02	whole villages Nil		The remaining portion in region 4.2.6.1
		2 part villages 4-2, 4-3, 5-2, 5-6, 5-7 & 5-8		
	Kuttanad 03	12 whole villages 1 to 12		

1	2	3	4	5
	Thiruvalla 04	5 whole villages 14 to 18 1 part village 13-11, 13-12 & 13-13	IV Thiruvalla	The remaining portion in region 4.2.6.3
	Chengannur 05	3 whole villages 1 to 3 2 part villages 4-4, 4-5, 4-6, 5-1, 5-2, 5-6 & 5-7		The remaining portion in region 4.2.6.3
	Karthigappally 06	4 whole villages 2 to 4 & 8 3 part villages 5-1, 5-2, 5-3, 5-4, 6-1, 12-3, 12-4, 12-5, 12-6, 12-7, 12-8 & 12-9		The remaining portion in region 4.2.6.1
	Mavelikkara 07	3 whole villages 1 to 3 3 part villages 4-1, 5-1, 5-5, 5-7 & 6-1	VII Mavelikkara	The remaining portions in regions 4.2.6.1 and 4.2.6.3
4.2.6.3 Chengannur Rolling Plain	Thiruvalla 04	12 whole villages 1 to 12 1 part village 13-1, 13-2, 13-3, 13-4, 13-5, 13-6, 13-7, 13-8, 13-9, & 13-10		The remaining portion in region 4.2.6.2
	Chengannur 05	9 whole villages 6 to 14 2 part villages 4-1, 4-2, 4-3, 4-7, 4-8, 5-3, 5-4 & 5-5	V Chengannur	The remaining portion in region 4.2.6.2
	Mavelikkara 07	5 whole villages 7, 8 & 12 to 14 3 part villages 5-2, 5-3, 5-4, 5-8, 5-9, 5-10, 6-2, 6-3, 6-4, 6-5, 6-6, 6-7, 6-8, 11-2, 11-3, 11-4, 11-5 & 11-6		The remaining portions in regions 4.2.6.1 & 4.2.6.2

Desom/kara which is the lowest constituent unit of a village is taken as the basis for delineation of sub-micro region. A sub-micro region may consists of whole or part villages or both. For part village the two digit location code of desom/kara is given. Eg. 2-3 indicate third desom/kara of the 2nd village.

PHYSIO-GEOGRAPHIC FEATURES BY SUB-MICRO REGIONS

ALLEPPEY DISTRICT
(CODE : 10)

Taluk	Geology	Soils	Rainfall	Physiography
1	2	3	4	5
SUB-MICRO REGION : 4.2.6.1 ALLEPPEY COAST				
Shertallai and parts Ambalapuzha, Karthigappally and Mavelikkara	Alluvium bed	Recently formed sandy soil Psamments-Orthents *Psamments* Sandy soil (Recent) *Orthents* Recently formed soils	Around 200 cm.	This region makes its boundaries with Cochin Coast in the north, Vembanad Lake and Kuttanad Low-lying Plain in the east, Quilon Coast in the south and Lakshadweep Sea on the west. Regarding the relief features of this region, the height of the land is very low even below the sea level in some areas, besides some portion being marshy lands. However, the maximum height (18 m.) is recorded at Thekkemuri kara (10-11) of Vallikunnam village of Mavelikkara taluk. Coconut, paddy etc. are the vegetation cover of this region. This region is intersected by canals. Geologically this region is coming under alluvium bed. Soils of this region is alluvium soil and recently formed sandy soil. Technically they are known as psamments-orthents. This region is well-connected by roads having all the important places viz. Shertallai, Alleppey, Ambalapuzha and Kayamkulam of this district. Ferry service is also available in this region. This region is densely populated.
SUB-MICRO REGION : 4.2.6.2 KUTTANAD LOW-LYING PLAIN				
Kuttanad and parts of Ambalapuzha, Chengannur, Mavelikkara,	Alluvium bed of recent period	Recently formed sandy soils, alluvial soil, soil	Around 200 cm.	This region is bounded by Kumarakom Low-lying Plain in the north, Chengannur Rolling Plain in the east and Alleppey Coast in the south and west.

1	2	3	4	5
Thiruvalla and Karthigappally		of acid saline (includes *kari* soil and *kayal soil*) *Psamments-Orthents* *Psamments* Sandy soil *Orthents* Recently formed soil		Kuttanad region is a special striking feature of Kerala. This region is a basin between the coast and its eastern plain. In many places, the height is lower than the sea level. However, the maximum height (6 m.) is recorded at Kannamangalam north kara (3-6) of Kannamangalam village of Mavelikkara taluk. It is the typical example of *kole* lands and it is highly influenced by Vembanad lake. It is served by many distributaries of rivers, channels and canals. In this land, seasonal cultivation of paddy is done during winter after pumping out of water from the bunded area into the peripheral *kayals*/canals. During rainy season the entire area will be under water. Paddy is the important crop of this region. Coconut is also another important crop. This region has recently formed sandy soil of acid saline. It is developed under hydromorphic conditions. These include the *kari* soil (black soil with high organic content developed in low-lying water-logged area), *kayal* soil (soil in reclaimed areas with high clay content) and *karappadam* soil (soil along river courses with high silt content). Technically the soil is classified as psamments-orthents. Two roads viz. Alleppey-Changanacherry and Ambalapuzha—Thakazhy, cut across the region. However, the main mode of communication is inland water-transport. The settlement is widely spread over this region. Mavelikkara, Harippad, Pulinkunnu etc. are the important places of this region.

SUB-MICRO REGION : 4.2.6.3 CHENGANNUR ROLLING PLAIN

Parts of Thiruvalla, Mavelikkara and Chengannur	Quilon and Warkalai bed, Lateritic	Soil of acid saline Shallow black, brown and alluvial	Between 200 and 300 cm.	This region lies in the eastern portion of this district comprising of parts of Thiruvalla, Mavelikkara and Chengannur taluks. It makes its boundaries with Kottayam Rolling Plain in the north,

1	2	3	4	5
	bed	soil of southern region. Recently formed sandy soil. *Psamments-Orthents-Tropepts* *Psamments* Sandy soil *Tropepts* Shallow black, brown and alluvial soil of southern region *Orthents* Recently formed soils		Kottarakkara Undulating Upland in the east, Adoor Rolling Plain in the south and Kuttanad Low-lying Plain in the west. This region is also a plain region having the average height between 80 and 90 m. The maximum height of this region (157 m.) lies in its east at Kuriyannoor kara (9-1) of Thottapuzhassery village of Thiruvalla taluk and the minimum height (50 m.) lies in its west at Njettoor kara (14-3) of Kulanada village of Chengannur taluk and this region slopes gently towards west. It is served by Manimala, Achancoil and Pamba rivers. The eastern-most part is the foot-hill zone of the neighbouring hilly tract. The meandering river course shows the maturity of these rivers. Coconut is widely cultivated in this region, besides sugarcane on the banks of rivers. Geologically this region is coming under Quilon and Warkalai beds in its western part and laterite bed in its eastern portion. The soil is acidic saline. It includes *kari, kayal* and *karappadam* soils. In its north-eastern portion of this region, shallow black, brown and alluvial soils of southern region is found. This region is well-connected by rail and road. Chengannur, Pandalam and Thiruvalla are the important settlements of this region.

Note : 1. Soils as classified by NBSS & LUP (ICAR), Nagpur

2. The 1981 census location code number is written within brackets after the name of the village/kara.

QUILON DISTRICT

(CODE : 11)

Quilon district is hemmed in between the Lakshadweep sea and the Western Ghats. The eastern tract is conspicuous by mountainous tract with dense forests. The rivers lying from the north to south of the district are Pamba (177 km), Achancoil (129 km), Kallada (121 km) and Ithikkara (56 km). The district slopes towards west. The Paravoor and Ashtamudi *kayals* give abundant facility for fishing and for inland navigation. Quilon district is part of the South Kerala Coast (4.2.6) and it is sub-divided on the basis of topography, geology, soils, climate and natural vegetation into five sub-micro regions viz. Quilon Coast, Adoor Rolling Plain, Kottarakkara Undulating Upland, Pamba-Kakki Forested Hills and Kulathupuzha Forested Hills.

4.2.6.1 Quilon Coast

This region lies all along the coast of the district comprising of the whole of Karunagappally taluk and part of Kunnathur and Quilon taluks. This region is influenced by the Ashtamudi lake where the Kallada river joins. It contains 20 whole villages, 10 part villages (consisting of 33 karas), 4 towns and an urban outgrowth. It has an area of 475.79 km^2, a population of 995,558 persons and a density of 2,092 persons per km^2. Its geology is alluvium and Quilon and Warkalai beds. This region has recently formed alluvial soil. It is one of the densely populated industrial region.

4.2.6.2 Adoor Rolling Plain

This region lies in the western portion of the district comprising of parts of Kunnathur, Pathanamthitta, Kottarakkara and Quilon taluks. The gradient of this land is low. It contains 14 whole villages and 14 part villages (consisting of 47 karas). It has an area of 416.24 km^2, a population of 444,649 persons and a density of 1,068 persons per km^2. Its geological beds are Quilon and Warkalai and Khondalite beds. It has recently formed alluvial soil. The Main Central Road pass through this region.

4.2.6.3 Kottarakkara Undulating Upland

This region lies in a narrow stretch from north to south over the central part of the district comprising of parts of Kunnathur, Pathanamthitta, Pathanapuram and Kottarakkara taluks. It has number of isolated hills separated from the mountain chain. It contains 28 whole villages and 25 part villages (consisting of 100 karas) and a town. It has an area of 1,140.86 km^2, a population of 1,031,921 persons and a density of 905 persons per km^2. Its geological bed is Khondalite. It has shallow black, brown and alluvial soil of humid regions. The Main Central Road and the metre gauge railway line to Madras pass through this region.

4.2.6.4 Pamba-Kakki Forested Hills

This plateau like topography occupies the northern and eastern portion of the Pathanamthitta taluk. However, many peaks soar high in this thick ever-green forested massif region. There are number of rubber estates in this tract. It contains 2 whole villages and 4 part villages (consisting of 8 karas). It has an area of 1,635.06 km^2, a population of 133,460 persons with a density of 82 persons per km^2. Its geology is khondalite bed. It has shallow black, brown and alluvial soil of humid regions. Pamba river finds its origin and catchment area in this region. The area is thinly populated but has wet evergreen forests.

4.2.6.5 Kulathupuzha Forested Hills

This region lies in the south-eastern portion of the district comprising of parts of Pathanapuram and Kottarakkara taluks. It forms the catchment area of Kallada river which is structurally controlled. The forested upland has many isolated hills and knolls. It contains 3 whole villages, 7 part villages (consisting of 20 karas) and a town. It has an area of 1,075.00 km^2, a population of 208,062 persons and a density of 194 persons per km^2. Its geological bed is khondalite. The soils are laterite and shallow black, brown and alluvial soils of humid regions. Large portion of area has dense forests. The Quilon-Shencottah metre gauge railway line and Trivandrum-Shencottah road pass through this region.

KERALA

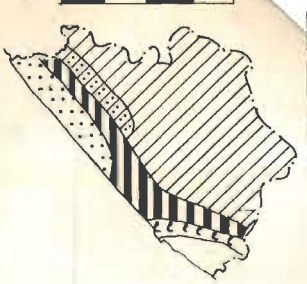
TRIVANDRUM DISTRICT

CODE 12

REGIONAL DIVISIONS

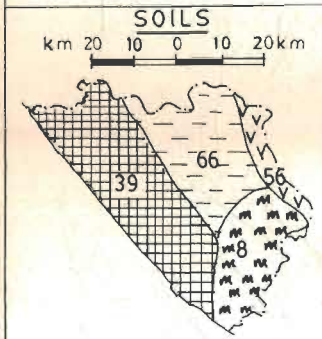


GEOLOGY



Alluvium	RECENT	
Laterite	PLEISTOCENE	
Quilon and Warkalli beds	MIOCENE	
Khondalites	ARCHAEAN	
Unclassified granite	ARCHAEAN	
Cordierite gneiss, Hornblende-biotite gneiss, other unclassified crystallines including younger segments	ARCHAEAN	

SOILS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KERALA

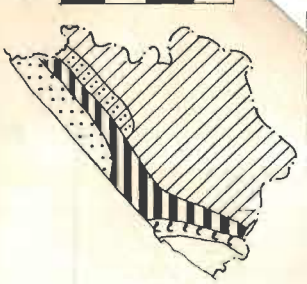
TRIVANDRUM DISTRICT

CODE 12

REGIONAL DIVISIONS



GEOLOGY



Alluvium	RECENT	
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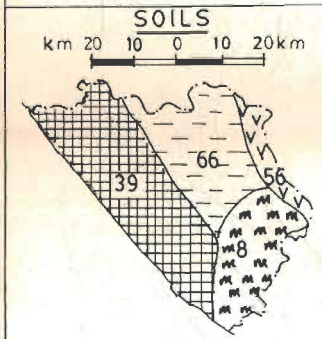
SOILS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BASIC DATA ON SUB-MICRO REGIONS, 1981

QUILON DISTRICT
(CODE : 11)

Macro region : 4 The Coastal Plains & Islands
Meso region : 4.2 Western Coastal Region
Micro region : 4.2.6 South Kerala Coast

Sub-Micro region Number & name	Taluk	No. of constituent units: Whole Village	Part Village & (karas)*	Town		Area in km^2	Population (1981 Census)
					Total Rural Urban		
1	2	3	4	5	6	7	8
4.2.6.1 Quilon Coast		20	10(33)	4 & 1 0G	Total	475.79	995,558
					Rural	416.63	701,444
					Urban	59.16	294,114
	Karunagappally (Whole)	11	-	-	Total	211.9	378,064
					Rural	211.9	378,064
					Urban	-	-
	Kunnathur (Part)	1	2(6)	-	Total	33.75	38,607
					Rural	33.75	38,607
					Urban	-	-
	Quilon (Part)	8	8(27)	4 & 1 0G	Total	230.14	578,887
					Rural	170.98	284,773
					Urban	59.16	294,114
4.2.6.2 Adoor Rolling		14	14(47)	-	Total	416.24	444,649
					Rural	416.24	444,649
					Urban	-	-
	Kunnathur (Part)	9	4(17)	-	Total	230.75	228,502
					Rural	230.75	228,502
					Urban	-	-
	Pathanamthitta (Part)	3	5(17)	-	Total	95.70	97,998
					Rural	95.70	97,998
					Urban	-	-
	Kottarakkara (Part)	2	2(5)	-	Total	63.93	67,636
					Rural	63.93	67,636
					Urban	-	-

1	2	3	4	5	6	7	8
	Quilon (Part)	-	3(8)	-	Total Rural Urban	25.86 25.86 -	50,513 50,513 -
4.2.6.3 Kottarakkara Undulating Upland		28	25(100)	1	Total Rural Urban	11,40.86 1,117.36 23.50	1,031,921 998,954 32,967
	Kunnathur (Part)	2	2(5)	-	Total Rural Urban	125.43 125.43 -	68,017 68,017 -
	Pathanam-thitta (Part)	6	9(21)	1	Total Rural Urban	244.86 221.36 23.50	199,457 166,490 32,967
	Pathanapuram (Part)	6	6(15)	-	Total Rural Urban	209.10 209.10 -	195,132 195,132 -
	Kottarakkara (Part)	13	3(19)	-	Total Rural Urban	437.26 437.26 -	390,899 390,899 -
	Quilon (Part)	1	5(40)	-	Total Rural Urban	124.21 124.21 -	178,416 178,416 -
4.2.6.4 Pampa-Kakki Forested Hills		2	4(8)	-	Total @ Rural @ Urban	1,635.06 1,635.06 -	133,460 133,460 -
	Pathanam-thitta (Part)	2	4(8)	-	Total @ Rural @ Urban	1,635.06 1,635.06 -	133,460 133,460 -
4.2.6.5 Kulathu-puzha Forested Hills		3	7(20)	1	Total Rural Urban	1,075.00 1,040.40 34.60	208,062 165,023 43,039

1	2	3	4	5	6	7	8
	Pathanapuram (Part)	3	6(16)	1	Total	1,024.59	178,940
					Rural	989.99	135,901
					Urban	34.60	43,039
	Kottarakkara (Part)	-	1(4)	-	Total	50.41	29,122
					Rural	50.41	29,122
					Urban	-	-

Note:- The area of the district (4,620 km^2) is based on the 'geographical' area supplied by the Surveyor General, India whereas the area figures of sub-micro regions are arrived at on the basis of the 'land-use' area figures supplied by the Director of Survey & Land Records, Tahsildars and Local Bodies. Therefore when the area figures of sub-micro regions are added up it may not tally with the area of the district.

CONSTITUENT UNITS OF SUB-MICRO REGIONS, 1981

QUILON DISTRICT

(CODE : 11)

Sub-Micro region with code and name	Taluk and code	Number of whole part* village(s) and location code (s)	Location code and name of town	Remarks
1	2	3	4	5
4.2.6.1 *Quilon* Coast	Karunagappally 01	11 whole villages 1 to 11		
regions	Kunnathur 02	1 whole village 16		The remaining portions in 4.2.6.2 and 4.2.6.3
		2 part villages 14-1, 14-9, 14-10, 15-1, 15-2 & 15-4		
	Quilon 06	8 whole villages 1 to 3, 7, 8, 12, 15 & 16	III Quilon IV Vadakkevila V Eravipuram VI Paravoor III-A Kilikollur OG	The remaining portions in regions 4.2.6.2 & 4.2.6.3
		8 part villages 4-1, 4-6, 4-7, 5-1, 6-1, 6-2, 6-3, 6-4 6-5. 6-6, 6-7, 6-10, 6-11, 6-12, 6-13, 9-1, 11-13, 13-1, 13-2, 14-6, 14-7, 14-8, 14-9, 14-10, 14-11, 14-12 & 17-10		
4.2.6.2 Adoor Rolling Plain	Kunnathur 02	9 whole villages 1 to 5 & 10 to 13 4 part villages 6-1, 9-1, 9-2, 9-3, 9-7, 9-8, 14-2, 14-3, 14-4, 14-5, 14-6, 14-7, 14-8, 15-3, 15-5, 15-6 & 15-7		The remaining portions in regions 4.2.6.1 and 4.2.6.3

1	2	3	4	5
	Pathanamthitta 03	3 whole villages 9, 11 & 20 5 part villages 7-1, 7-2, 10-1, 12-1, 12-9, 12-10, 12-11, 12-12, 12-13, 16-1, 19-1, 19-2, 19-3, 19-4, 19-5, 19-6 & 19-7		The remaining portions in regions 4.2.6.3 and 4.2.6.4
	Kottarakkara 05	2 whole villages 1 & 2 2 part villages 7-1, 7-2, 8-1, 8-2 & 8-3		The remaining portions in regions 4.2.6.3 and 4.2.6.5
	Quilon 06	whole village Nil 3 part villages 4-2, 4-3, 4-4, 4-5, 5-2, 5-3, 6-8 & 6-9		The remaining portions in regions 4.2.6.1 and 4.2.6.3
4.2.6.3 Kottarakkara Undulating Upland	Kunnathur 02	2 whole villages 7 & 8 2 part villages 6-2, 6-3, 9-4, 9-5 & 9-6		The remaining portions in regions 4.2.6.1 and 4.2.6.2
	Pathanamthitta 03	6 whole villages 1, 6, 8, 13, 17 & 18 9 part villages 2-1, 3-1, 7-3, 7-4, 10-2, 10-3, 12-2, 12-3, 12-4, 12-5, 12-6, 12-7, 12-8, 14-2, 14-3, 14-4, 15-1, 15-2, 16-2, 16-3 & 19-8	I Pathanamthitta	The remaining portions in regions 4.2.6.2 and 4.2.6.4

1	2	3	4	5
	Pathanapuram 04	6 whole villages 1, 5, 6 & 8 to 10 6 part villages 2-3, 2-4, 2-5, 3-4, 3-5, 3-6, 4-1, 4-2, 4-3, 4-5, 4-6, 7-1, 11-1, 12-3 & 12-5		The remaining portion in region 4.2.6.5
	Kottarakkara 05	13 whole villages 3 to 6 & 9 to 17 3 part villages 7-3, 7-4, 7-5, 7-6, 7-7, 7-8, 7-9, 7-10, 8-4, 8-5, 8-6, 8-7, 8-8, 8-9, 8-10, 8-11, 8-12, 18-3 & 18-4		The remaining portions in regions 4.2.6.2 and 4.2.6.5
	Quilon 06	1 whole village 10 5 part villages 9-2, 9-3, 9-4, 9-5, 11-1, 11-2, 11-3, 11-4, 11-5, 11-6, 11-7, 11-8, 11-9, 11-10, 11-11, 11-12, 11-14, 11-15, 11-16, 13-3, 13-4, 13-5, 13-6, 13-7, 14-1, 14-2, 14-3, 14-4, 14-5, 17-1, 17-2, 17-3, 17-4, 17-5, 17-6, 17-7, 17-8, 17-9, 17-11 & 17-12		The remaining portions in regions 4.2.6.1 and 4.2.6.2
4.2.6.4 Pampa-Kakki Forested Hills	Pathanamthitta 03	2 whole villages 4 & 5 4 part villages 2-2, 2-3, 2-4, 3-2, 3-3, 14-1, 15-3 & 15-4 Forest area outside village boundary also		The remaining portions in regions 4.2.6.2 and 4.2.6.3

1	2	3	4	5
4.2.6.5 Kulathupuzha Forested Hills	Pathanapuram 04	3 whole villages 13 to 15	II Punalur	The remaining portion in region 4.2.6.3
		6 part villages 2-1, 2-2, 3-1, 3-2, 3-3, 4-4, 7-2, 7-3, 11-2, 11-3, 12-1, 12-2, 12-4, 12-6, 12-7 & 12-8		
	Kottarakkara 05	whole village Nil		The remaining portions in regions 4.2.6.2 and 4.2.6.3
		1 part village 18-1, 18-2, 18-5 & 18-6		

Desom/kara which is the lowest constituent unit of a village is taken as the basis for delineation of sub-micro region. A sub-micro region may consists of whole or part villages or both. For part village the two digit location code of desom/kara is given. Eg. 2-3 indicate third desom/kara of the 2nd village.

PHYSIO-GEOGRAPHIC FEATURES BY SUB-MICRO REGIONS

QUILON DISTRICT
(CODE : 11)

Taluk	Geology	Soils	Rainfall	Physiography
1	2	3	4	5
SUB-MICRO REGION: 4.2.6.1 QUILON COAST				
Karunagappally and parts of Kunnathur and *Quilon*	Alluvium and *Quilon* and Warkalai beds	Sandy soil and alluvial soil Psamments-Orthents *Psamments* Sandy soil *Orthents* Recently formed soils	Around 150 cm.	This region lies all along the coast of the district and bounded by the Alleppey Coast in the north, Adoor Rolling Plain and Kottarakkara Undulating Upland in the east, Trivandrum Coast in the south and Lakshadweep Sea in the west. The height of this region is varying between 5 m. and 27 m. The highest point lies in Kanatharkunnam kara (16-1) of Kallada West village of Kunnathur taluk. Ashtamudi and Paravoor *kayals* lie prominently in the central part and the southern part respectively. Kallada river empties into the Ashtamudi lake. The soil is recently formed sandy soil and alluvial soil. Technically the soil is classified as psamments-orthents. Coconut and tapioca are the main vegetations of this region. This coastal region has high density and the settlements mostly include fishermen huts and coir workers' home. The area is also well-served by road and rail facilities. Ashtamudi Lake is extensively used for fishing and inland navigation. Paravoor, Quilon and Karunagappally are the important localities in this tract.
SUB-MICRO REGION: 4.2.6.2 ADOOR ROLLING PLAIN				
Parts of Kunnathur, Pathanamthitta,	Quilon and Warkalai beds	Recently formed sandy soil and alluvial	Around 200 cm.	This region is bounded by Chengannur Rolling Plain in the north, Kottarakkara Undulating Upland in the east and south and Quilon Coast in the west.

1	2	3	4	5
Kottarak-kara and Quilon	Khonda-lites	soil Psamments-Orthents, *Psamments* Sandy soil *Orthents* Recently formed soils		This region has gentle slope towards west. It has the maximum height 110 m.) at Kottanelloor kara (10-1) of Erath village of Kunnathur taluk and the minimum height (66 m.) at Thekkumpuram kara (7-1) of Neduvathoor village of Kottarakkara taluk. It has ups and downs here and there. The gradient of this flat land is low. Kallada river which flows through this region causes floods in the low-lying banks during the monsoon period. Paddy, coconut and tapioca are the major vegetations in this region. The region is well-connected by road. The Main Central Road passes through this region. The important settlement in this region is Adoor.

SUB-MICRO REGION : 4.2.6.3 KOTTARAKKARA UNDULATING UPLAND

Parts of Kunnathur, Pathanam-thitta, Pathana-puram, Kottarakkara and Quilon	Khonda-lite bed, Quilon & Warkalai bed, Laterite bed	Recently formed sandy soil, allu-vial soil, Laterite soil. Tropepts-Psamments Orthents *Tropepts* Shallow black, brown and alluvial soils of southern region *Psamments* Sandy soil *Orthents* Recently formed soils	Around 200 cm. (increases towards east)	This undulating terrain lies in a narrow stretch from north to south over the central part of this district. It makes its boundaries with Meenachil-Kanjirappally Upland in the north, Pamba-Kakki Forested Hills and Kulathupuzha Forested Hills in the east, Attingal-Neyyattinkara Undulating Upland in the south and Adoor Rolling Plain in the west. This region is narrow in the north and wider towards south. The maximum height (199 m.) lies in its northern part at Konnithazhamkara (16-2) of Konnithazham village of Pathanamthitta taluk and the minimum height (106 m) lies in its southern part of Kuzhinathikad kara (9-3) of Kareepra village of Kottarakkara taluk. This region has a number of isolated hills separated from the mountain chain. This region has knolls here and

1	2	3	4	5
				there, mostly at the southern part. Pamba, Achancoil, Kallada and Kulathupuzha rivers drain this region. Rubber, cashew, palms etc. are the vegetation cover of this region. This region has sandy alluvial and laterite soil, technically cla: ified as tropepts and psamments-orthents. Kottarakkara is the important place in this region. The metre-gauge railway line passes through this region which connects Kottarakkara with Quilon and Shencottah.
SUB-MICRO REGION: 4.2.6.4 PAMBA-KAKKI FORESTED HILLS				
Part of Pathanam-thitta	Charnoc-kite bed, Basic dykes	Forest loam, laterite shallow black, brown and alluvial soil of southern region. *Tropepts,* Udalfs-Orthents *Tropepts,* Shallow black, brown and alluvial soil of southern region *Udalfs* High base status soils of humid region. *Orthents* Recently formed soils	Around 200 cm	This region lies in the northern and eastern portion of this district is bounded by Thekkady Forested Hills and Ranni Forested Hills in the north, Tamil Nadu in the east, Kulathupuzha *Forested Hills in the south and* Kottarakkara Undulating Upland in the west. This region has plateau-like structure and is the continuation of mountainous tract of the Western Ghats. The maximum height (1,554 m.) is at the eastern sector and the minimum height (119 m.) is in the central part of the reserve forest. This region has steep irregular slope over western-side but major portion (north-east region) has the lateritic mesa with the average height of 900 m. However, many peaks in the height of 1,240 m., 1,228 m., 1,449 m. 1,315 m. etc. soar high in this thick ever-green forested massif region. This region also forms the catchment area of the Pamba river. The drainage pattern is dentritic and in some places they are structurally controlled. In the western part there are number of rubber estates. The soils are forest loam, laterite and shallow black, brown and alluvial soil of

1	2	3	4	5
				southern region, technically known as tropepts, udalfs-orthents. The important road which cuts across this region is the one which connects Pathanamthitta with Vandiperiyar. Vadasserikkara, Pathanamthitta. Muzhiyar and Pamba are the important places of this region.
SUB-MICRO REGION: 4.2.6.5 KULATHUPUZHA FORESTED HILLS				
Parts of Pathana-puram and Kottarakkara	Khonda-lite bed, Charnoc-kite and Cordierite gneiss	Forest loam soil Tropepts *Tropepts* Shallow black, brown and alluvial soil of southern region.	Around 200 cm.	This region lies in the south-eastern portion of the district with boundaries as Pamba-Kakki Forested Hills in the north, Tamil Nadu in the east, Ponmudi-Agasthiar Forested Hills in the south and Kottarakkara Undulating Upland in the west. This hilly region is the continuation of Western Ghats and has steep slopes towards Western Ghats. This forested upland has many isolated hills and knolls in its western portion before entering into the rolling plain. This region forms the catchment area of Kallada and Achancoil rivers. Their drainage systems are structurally controlled. The maximum height (1,233 m.) lies in its eastern end in the reserve forest and the minimum height (297 m.) lies in the central portion in the Chaliyakkara kara (13-2) of Edamon village of Pathanapuram taluk. Escarpments are found in the northern hilly region. On the slopes of the ever-green forested region, there are some rubber estates. Most of the area is having forest soil, technically called as tropepts. The settlements are concentrated over the western segment of this region. Quilon-Shencottah railway line and Trivandrum-Shencottah road pass through this region. The important places in this region are Kulathupuzha, Punalur, Thenmala, Ariankavu and Achancoil.

Note : 1. Soils as classified by NBSS & LUP (ICAR), Nagpur.
2. The 1981 census location code number is written within brackets after the name of village/kara.

TRIVANDRUM DISTRICT

(CODE : 12)

Trivandrum, the southern-most district of the state, has the Western Ghats in the east and the Lakshadweep sea in the west. Vamanapuram, (81 km), Karamana (68 km) and Neyyar (56 km) are the important rivers lying from the north to south of the district. Kulathupuzha river which is a tributary of Kallada river originates from the north-eastern corner of the district. Agasthiar peak with a height of 1,869 metres soar high and is an important landmark in the southern end of Sahyadri. The district slopes towards west. Trivandrum district is part of the South Kerala Coast (4.2.6) and is sub-divided on the basis of topography, geology, soils, climate and natural vegetation into 3 sub-micro regions viz. Trivandrum Coast, Attingal-Neyyattinkara Undulating Upland and Ponmudi-Agasthiar Forested Hills.

4.2.6.1 Trivandrum Coast

This region lies in a narrow tract along the coast having cliffs in some places. It comprises of parts of Chirayinkil, Trivandrum and Neyyattinkara taluks. All the rivers of this district drain this region. It contains 26 whole villages, 8 part villages (consisting of 15 karas) and 3 towns and an urban outgrowth. It has an area of 543.35 km^2 and a population of 1,394,808 persons. Trivandrum coast has the highest density of 2,567 persons among the sub-micro regions in the state. Its geological formations are recently formed sandy soil. This region is well connected by air, rail, road and waterway.

4.2.6.2 Attingal-Neyyattinkara Undulating Upland

This region lies in a narrow belt parallel to the coast, comprising of parts of Chirayinkil, Trivandrum, Nedumangad and Neyyattinkara taluks. This region has more ups and downs, mostly over its central portion and also have a number of isolated residual hills. It contains 38 whole villages, 14 part villages (consisting of 44 karas) and 3 towns. It has an area of 874.54 km^2, a population of 982,463 persons and a density of 1,123 persons per km^2. It has the geological beds of Quilon and Warkalai, laterite and khondalite. It has alluvial and laterite soils. This central region of the district has net-work of roads.

4.2.6.3 Ponmudi-Agasthiar Forested Hills

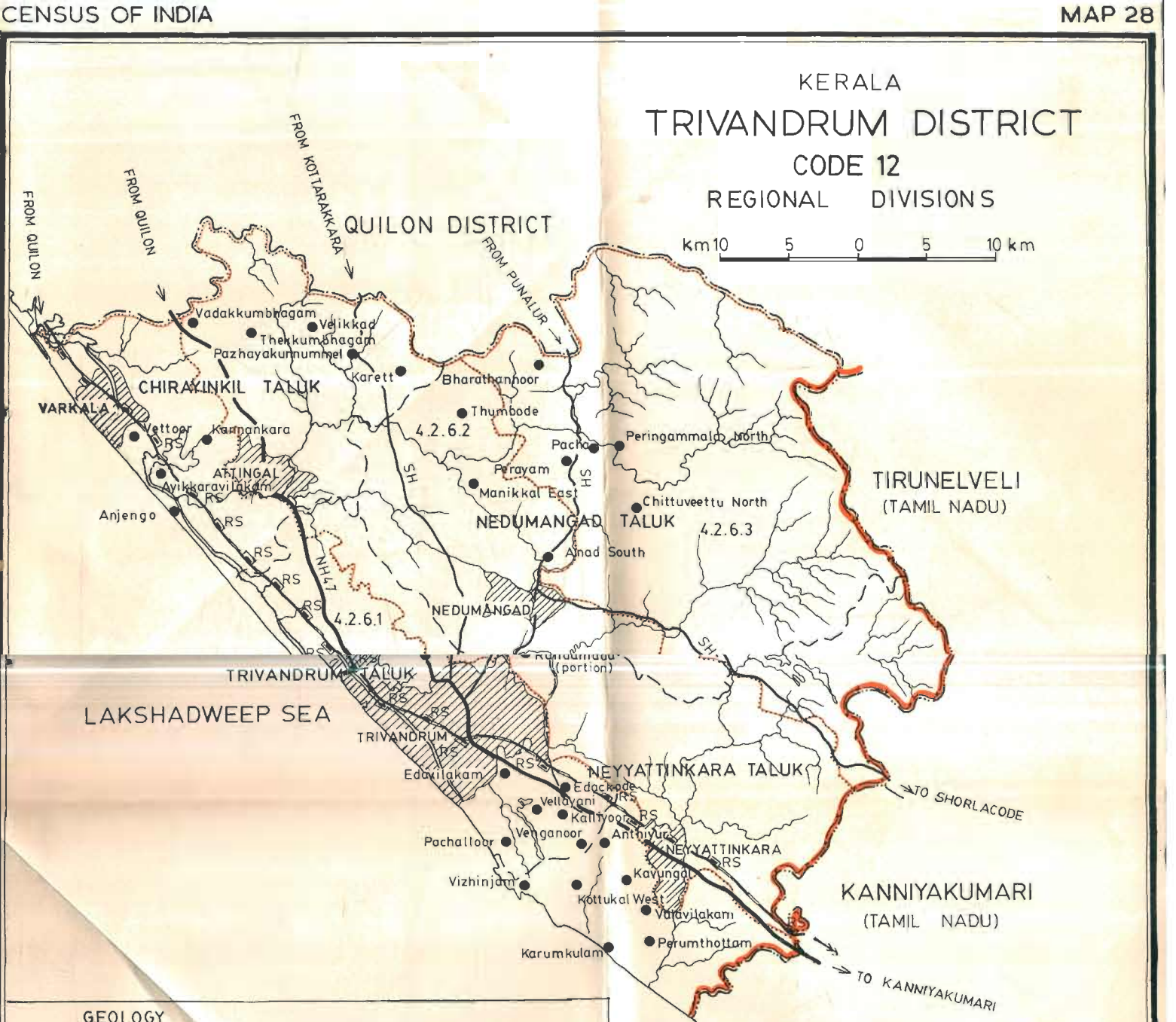
This region lies in the eastern section of the district comprising the parts of Nedumangad and Neyyattinkara taluks. This hilly tract is the catchment area of the rivers of this district. It has many hilly summits. The Agasthiar peak is located in this tract. This region has dense ever-green forest along with many rubber estates and teak plantations. It contains 8 whole villages and 6 part villages (consisting of 19 karas). It has an area of 768.02 km^2, a population of 218,841 persons and a density of 285 persons per km^2. Geologically this region has lateritic and khondalite beds, while the soils are laterite and forest loam. The communication facilities are comparatively less in this region.

KERALA

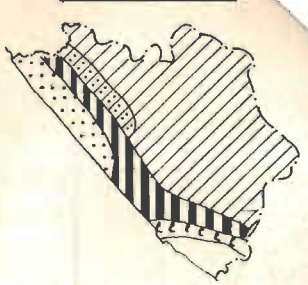
TRIVANDRUM DISTRICT

CODE 12

REGIONAL DIVISIONS

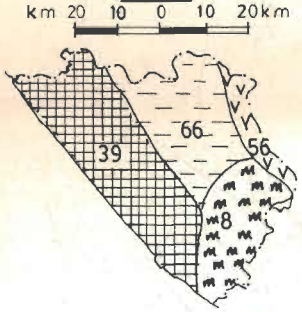


GEOLOGY



Alluvium	RECENT	
Laterite	PLEISTOCENE	
Quilon and Warkalli beds	MIOCENE	
Khondalites	ARCHAEAN	
Unclassified granite	ARCHAEAN	
Cordierite gneiss, Hornblende-biotite gneiss, other unclassified crystallines including younger segments	ARCHAEAN	

SOILS



8	Ustalfs-Orthents
39	Psamments-Orthents
66	Tropepts
V56V	Orthents-Tropepts-Udalfs

4.2.6.1	Trivandrum Coast
4.2.6.2	Attingal-Neyyattinkara Undulating Upland
4.2.6.3	Ponmudi-Agasthiar Forested Hills

BOUNDARY, STATE

" " DISTRICT

" " TALUK

KARA HAVING 10000 AND ABOVE POPULATION ● Vettoor

URBAN AREA

NATIONAL HIGHWAY NH 47

STATE HIGHWAY SH

RAILWAY LINE WITH STATION BROAD GAUGE RS

RIVER / WATER BODY

REGIONAL DIVISION 4.2.6.2

MACRO

MESO

MICRO

SUB-MICRO WITH BOUNDARY

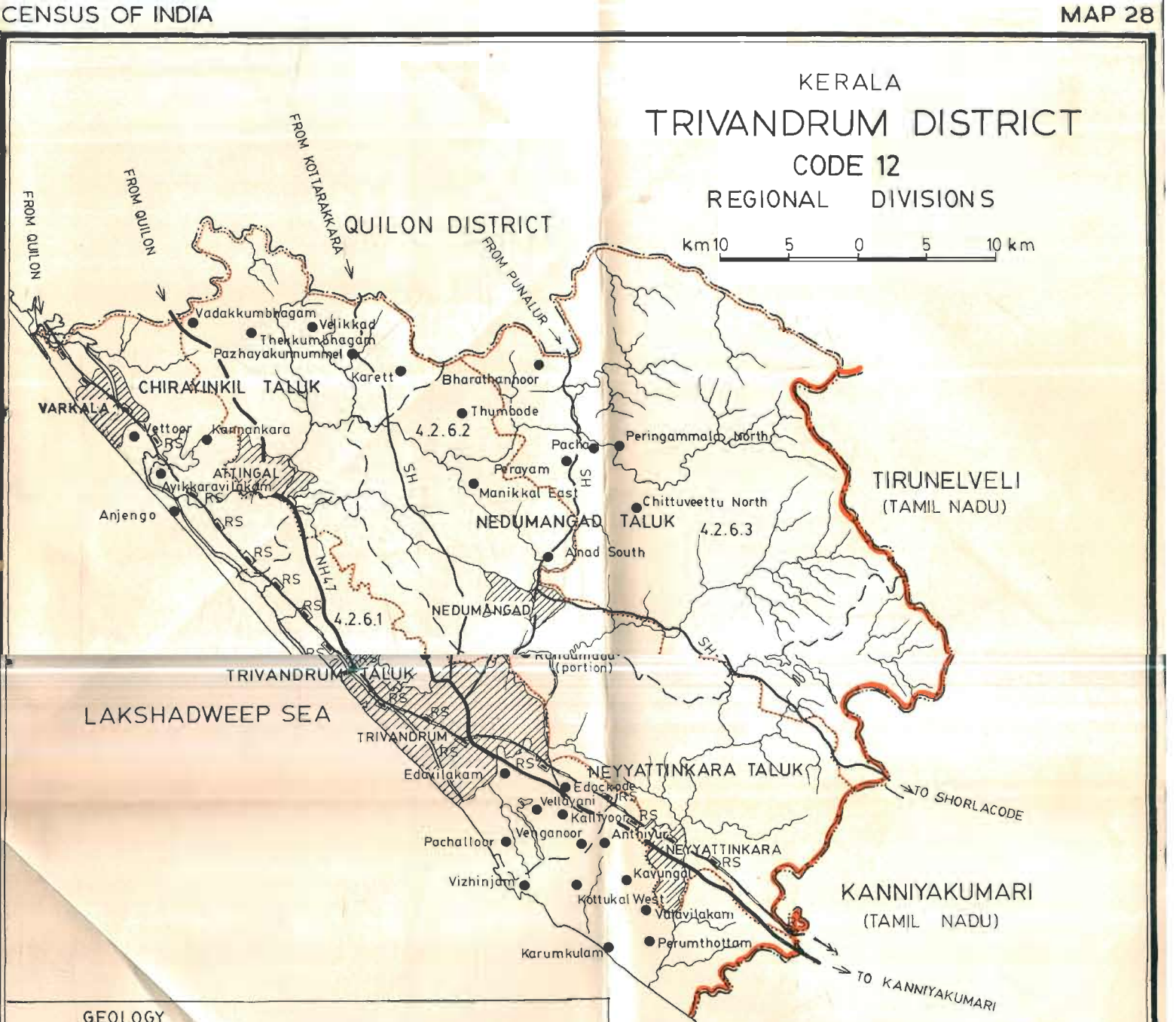
[READ THE SEQUENCE OF REGIONAL DIVISIONS WITH REFERENCE TO THE ALL INDIA MAP CODES UP TO 3 TIER]

KERALA

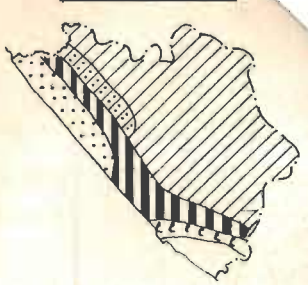
TRIVANDRUM DISTRICT

CODE 12

REGIONAL DIVISIONS



GEOLOGY



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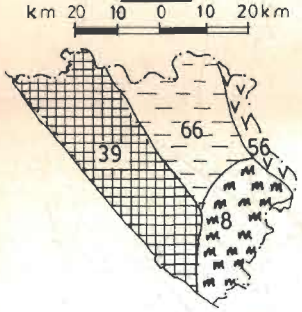
Laterite	PLEISTOCENE	
Quilon and Warkalli beds	MIOCENE	
Khondalites	ARCHAEAN	
Unclassified granite	ARCHAEAN	
Cordierite gneiss, Hornblende-biotite gneiss, other unclassified crystallines including younger segments	ARCHAEAN	

SOILS



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4.2.6.1	Trivandrum Coast
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RAILWAY LINE WITH STATION BROAD GAUGE RS

RIVER / WATER BODY

REGIONAL DIVISION 4.2.6.2

MACRO

MESO

MICRO

SUB-MICRO WITH BOUNDARY

[READ THE SEQUENCE OF REGIONAL DIVISIONS WITH REFERENCE TO THE ALL INDIA MAP CODES UP TO 3 TIER]

BASIC DATA ON SUB-MICRO REGIONS, 1981

TRIVANDRUM DISTRICT
(CODE : 12)

Macro region 4 The Coastal Plains & Islands
Meso region 4.2 Western Coastal Region
Micro region 4.2.6 South Kerala Coast

Sub-Micro region Number & name	Taluk	No. of constituent units: Whole Village	Part Village & (karas)*	Town	Total Rural Urban	Area in km^2	Population (1981 Census)
1	2	3	4	5	6	7	8
4.2.6.1 Trivandrum Coast		26	8(15)	3 & 1 0G	Total	543.35	1,394,808
					Rural	434.23	840,674
					Urban	109.12	554,134
	Chirayinkil (Part)	9	2(3)	1	Total	145.68	284,321
					Rural	130.26	250,312
					Urban	15.42	34,009
	Trivandrum (Part)	10	5(9)	2 & 1 0G	Total	248.99	808,980
					Rural	155.29	288,855
					Urban	93.70	520,125
	Neyyattinkara (Part)	7	1(3)	-	Total	148.68	301,507
					Rural	148.68	301,507
					Urban	-	-
4.2.6.2 Attingal-Neyyattinkara Undulating Upland		38	14(44)	3	Total	874.54	982,463
					Rural	818.16	880,836
					Urban	56.38	101,627
	Chirayinkil (Part)	16	2(3)	1	Total	235.01	233,813
					Rural	220.83	204,168
					Urban	14.18	29,645
	Nedumangad (Part)	9	3(7)	1	Total	310.74	314,493
					Rural	278.22	270,504
					Urban	32.52	43,989

1	2	3	4	5	6	7	8
	Trivandrum (Part)	4	5(9)	-	Total	58.53	98,012
					Rural	58.53	98,012
					Urban	-	-
	Neyyattinkara (Part)	9	4(25)	1	Total	270.28	336,145
					Rural	260.58	308,152
					Urban	9.70	27,993
4.2.6.3 Ponmudi Agasthiar Forested Hills		8	6(19)	-	Total @	768.02	218,841
					Rural @	768.02	218,841
					Urban	-	-
	Nedumangad (Part)	8	3(5)	-	Total @	616.03	190,521
					Rural @	616.03	190,521
					Urban	-	-
	Neyyattinkara (Part)	-	3(14)	-	Total @	151.99	28,320
					Rural @	151.99	28,320
					Urban	-	-

Note :- The area of district (2,192 km^2) is based on the 'geographical' area supplied by the Surveyor General, India whereas the area figures of sub-micro regions are arrived at on the basis of the 'land-use' area figures supplied by the Director of Survey & Land Records, Tahsildars and Local Bodies. Therefore, when the area figures of sub-micro regions are added up it may not tally with the area of the district.

* The number given in bracket in Col. 4 indicates the number of karas which fall in all the part villages of the taluk in the concerned sub-micro region.

@ Inclusive of forest area lying outside village boundaries

CONSTITUENT UNITS OF SUB-MICRO REGIONS, 1981

TRIVANDRUM DISTRICT

(CODE : 12)

Sub-micro region with code and name	Taluk and code	Number of whole/ part* village(s) and location code(s)	Location code and name of town	Remarks
1	2	3	4	5
4.2.6.1 Trivandrum Coast	Chirayinkil 01	9 whole villages 1 to 3, 10, 11 & 23 to 26 2 part villages 9-2, 9-3 & 12-3	I Varkala	The remaining portion in region 4.2.6.2
	Trivandrum 03	10 whole villages 1, 5 to 7, 10 to 12 & 17 to 19 5 part villages 2-2, 4-1, 4-4, 8-2, 8-3, 8-4, 9-1, 13-2 & 13-3	IV Kadakampally V Trivandrum V-A Thumba OG	The remaining portion in region 4.2.6.2
	Neyyattinkara 04	7 whole villages 9 to 11 & 16 to 19 1 part village 20-4, 20-5 & 20-8		The remaining portions in regions 4.2.6.2 and 4.2.6.3
4.2.6.2 Attingal Neyyattinkara Undulating Upland	Chirayinkil 01	16 whole villages 4 to 8, 13 to 22 & 27 2 part villages 9-1, 12-1 & 12-2	II Attingal	The remaining portion in region 4.2.6.1
	Nedumangad 02	9 whole villages 1, 2, 7 to 10 & 16 to 18 3 part villages 3-4, 6-2, 6-3, 6-4, 19-1, 19-2 & 19-3	III Nedumangad	The remaining portion in region 4.2.6.3

1	2	3	4	5
	Trivandrum 03	4 whole villages 3 & 14 to 16 5 part villages 2-1, 2-3, 4-2, 4-3, 8-1, 9-2, 9-3, 9-4 & 13-1		The remaining portion in region 4.2.6.1
	Neyyattinkara 04	9 whole villages 1, 2, 6 to 8 & 12 to 15 4 part villages 3-1, 3-3, 3-4, 3-5, 3-6, 3-7, 3-8, 4-2, 5-7, 5-8, 5-9, 5-10, 5-11, 5-12, 5-13, 5-14, 5-15, 5-16, 5-17, 5-18, 20-1, 20-2, 20-3, 20-6 & 20-7	VIE Neyyattinkara	The remaining portions in regions 4.2.6.1 and 4.2.6.3
4.2.6.3 Ponmudi Agasthiar Forested Hills	Nedumangad 02	8 whole villages 4, 5, 11 to 15 & 20 3 part villages 3-1, 3-2, 3-3, 6-1 & 19-4 and Forest area outside village boundary		The remaining portion in region 4.2.6.2
	Neyyattinkara 04	whole village Nil 3 part villages 3-2, 4-1, 4-3, 4-4, 5-1, 5-2, 5-3, 5-4, 5-5, 5-6, 5-19, 5-20, 5-21 & 5-22 and Forest area outside village boundary		The remaining portions in regions 4.2.6.1 and 4.2.6.2

* Desom/kara which is the lowest constituent unit of a village is taken as the basis for delineation of sub-micro region. A sub-micro region may consists of whole or part villages of both. For part village two digit location code of desom/kara is given. Fg. 2-3 indicate third desom/kara of the 2nd village.

PHYSIO-GEOGRAPHIC FEATURES BY SUB-MICRO REGIONS

TRIVANDRUM DISTRICT
(CODE : 12)

Taluk	Geology	Soils	Rainfall	Physiography
1	2	3	4	5
SUB-MICRO REGION : 4.2.6.1 TRIVANDRUM COAST				
Parts of Chirayinkil, Trivandrum and Neyyattinkara	Soil alluvium bed, Quilon and Warkalai bed	Alluvial soil, Sandy soil, red loamy Psamments-Orthents Ustalfs-Orthents *Psamments* Sandy soil *Orthents* Recently formed soil *Ustalfs* High base status of red loamy soil	Below 100 cm. (increases towards east)	This coastal region is bounded by Quilon Coast in the north, Attingal-Neyyattinkara Undulating Upland in the east, Tamil Nadu in the south and Lakshadweep Sea in the west. This coastal plain gradually slopes towards west. It has cliffs in many places especially in Varkala Coast where lateritic cliffs of tertiary age are seen. The maximum height (80 m.) lies at Kadayar kara (26-6) of Kizhuvilam-Koonthalloor village of Chirayinkil taluk. Attingal, Karamana and Neyyar rivers join the Lakshadweep Sea after flowing through this region. The canal which runs parallel to the coast line towards Quilon is used by country boats. Whole of this region has alluvial and sandy soils. In its southern tip there is a small area under red loam soil. Soils are technically classified as psamments-orthents and ustalf-orthents. Paddy, coconut and cashew are the major crops of this region. The settlements mostly relate to the huts of fishermen. It is densely populated. There is net-work of roads and railway. The important settlements are Trivandrum and Varkala.
SUB-MICRO REGION : 4.2.6.2 ATTINGAL-NEYYATTINKARA UNDULATING UPLAND				
Parts of Chirayinkil,	Quilon and Warkalai	Sandy soil, alluvial soil	Between 100 and	This narrow belt lies parallel to the coastal region and makes its

1	2	3	4	5
Trivandrum, Nedumangad and Neyyattinkara	bed, Laterite and Khon-dalite bed	and red loamy laterite soil Psamments-Orthents, Ustalfs-Orthents-Tropepts *Psamments* Sandy soil *Orthents* Recently formed soils *Ustalfs* High base status red loamy soil *Tropepts* Shallow black, brown and alluvial soil of southern region	200 cm. (increases towards east)	boundaries with Kottarakkara Undulating Upland in the north, Ponmudi-Agasthiar Forested Hills in the east, Tamil Nadu in the south and Trivandrum Coast in the west. This region has more ups and downs, mostly over its central portion. There are number of totally isolated residual hills separated from the mountain chain in this region. The maximum height (252 m.) lies in the south-western portion at Vilavoorkkalkara (1-7) of Vilappil village of Neyyattinkara taluk and the minimum height (84 m.) at its south-eastern portion at Valicode-A kara (3-8) of Ottasekharamangalam village of Neyyattinkara taluk. Since this region is undulated, the direction of slope differs from place to place. However, the general slope is towards west. Attingal, Neyyar, Killiar and Karamana rivers cross this region. Coconuts, rice and in some places rubber plantations and cashew are the main vegetation of this region. This region has narrow strips of Quilon and Warkalai beds from north to south along with laterite-khondalite beds. In its southern tip a small portion is having alluvium soil bed. The main mode of transportation is road. Trivandrum-Kanniyakumari railway line passes through this region. The principal occupation is agriculture. Some persons are engaged in rubber and in processing of coir and cashew. Balaramapuram, Neyyattinkara and Attingal are the important places in this region.

SUB-MICRO REGION : 4.2.6.3 PONMUDI-AGASTHIAR FORESTED HILLS

Parts of Nedumangad and	Khonda-lite bed	Forest loam, laterite soil Orthents-	Around 200 cm.	This region lies in the eastern section of the district and is bounded by Kulathupuzha Forested Hills in the

1	2	3	4	5
Neyyattinkara		Tropepts Udalfs, Ustalfs- Orthents *Orthents* Recently formed soil *Tropepts* Shallow black, brown and alluvial soil of southern region *Udalfs* High base status soil of humid region *Ustalfs* High base status, red loamy soil		north, Tamil Nadu in the east and south and Attingal-Neyyattinkara Undulating Upland in the west. This region has hilly tract and it slopes gently towards west. However, closed contours over its eastern portion reveal the steepness of the region. The steepness is high in its northern portion and there is a saddle having a summit in one end, known as 'Ponmudi'. The maximum height (1,079 m.) in its northern portion and the minimum height (148 m.) in the reserve forest area. There are many hilly summits elevated over this region. It is also the catchment area of Kulathupuzha, Attingal, Neyyar and Karamana rivers and their tributaries. Besides the dense ever-green forests, this region has many rubber estates and teak plantations. Coconut and cashew are the other crops of this region. This region has forest loam and laterite soils. Technically soils are classified as orthents-tropepts, udalfs-ustalfs-orthents. The road facilities are limited and in its northern border one road runs between Nedumangad and Kulathupuzha. Nedumangad, Ponmudi, Kattakada etc. are the important places in this region. Ponmudi is also an important tourist resort.

Note: 1. Soils are classified by NBSS & LUP (ICAR), Nagpur

2. The 1981 census location code number is written within brackets after the name of village/kara.

APPENDIX

APPENDIX

ADMINISTRATIVE CONSTITUENTS BY DISTRICT WITH REFERENCE TO THE SUB-MICRO REGIONS IN KERALA AND OTHER STATES, NAMELY, KARNATAKA AND TAMIL NADU AND THE UNION TERRITORY OF PONDICHERRY

Macro Region with Code No. & Name		Meso Region with Code No. & Name		State	Micro Region with Code No. & Name		District	Sub-Micro Region with Code No. & Name	
1		2		3	4		5	6	
				COASTAL PLAIN (WEST)					
4.	The Coastal Plains & Islands	4.2	Western Coastal Region	Karnataka	4.2.3	Karnataka Coast	Uttar Kannad	4.2.3.1	Karwar-Honava Coast
							Dakshin Kannad	4.2.3.1	Coondapoor-Mangalore Coast
				Kerala	4.2.4	North Kerala Coast	Cannanore	4.2.4.1	Cannanore Coast
							Kozhikode	4.2.4.1	Kozhikode Coast
				Pondicherry			Mahe	4.2.4.1	Mahe-Kollaye (Coastal Region)
				Kerala	4.2.5	Central Kerala Coast	Malappuram	4.2.5.1	Malappuram Coast
							Trichur	4.2.5.1	Trichur Coast
							Ernakulam	4.2.5.1	Cochin Coast
					4.2.6	South Kerala Coast	Alleppey	4.2.6.1	Alleppey Coast
							Quilon	4.2.6.1	Quilon Coast
							Trivandrum	4.2.6.1	Trivandrum Coast
				PLAIN					
					4.2.4	North Kerala Coast	Kozhikode	4.2.4.2	Nadapuram-Mavur Undulating Plain

1	2				3		4	5	6
							Cannanore	4.2.4.4	Taliparamba-Kuthuparamba Plain
					4.2.5	Central Kerala Coast	Palghat	4.2.5.1	Pattambi Undulating Plain
							Kottayam	4.2.5.1	Kumarakom Low-Lying Plain
							Kottayam	4.2.5.2	Kottayam Rolling Plain
							Ernakulam	4.2.5.2	Periyar-Muvattupuzha Rolling Plain
							Trichur	4.2.5.2	Trichur Plain
							Malappuram	4.2.5.2	Malappuram Undulating Plain
								4.2.5.3	Chaliyara River Basin
							Idukki	4.2.5.4	Periyar River Basin
					4.2.6	South Kerala Coast	Alleppey	4.2.6.2	Kuttanad Low-Lying Plain
							Quilon	4.2.6.2	Adoor Rolling Plain
							Alleppey	4.2.6.3	Chengannur Rolling Plain
					UPLAND/PLATEAU				
3.	The Deccan Plateau	3.9	Karnataka Plateau	Karnataka	3.9.3	Southern Karnataka Plateau	Mysore	3.9.3.3	Gundlupet-Chamrajnagar Plateau
							Mysore	3.9.3.4	Heggadadevankote-Bandipur Forested Upland
							Mysore	3.9.3.5	Mysore-Piriyapatna Plateau

1		2		3	4		5	6	
		3.10	Tamil Nadu Uplands	Tamil Nadu	3.10.1	Eastern Flanks of Sahyadri	Nilgiri	3.10.1.1	Gudalur Plateau
4.	The Coastal Plains & Islands	4.2	Western Coastal Region	Kerala	4.2.4	North Kerala Coast	Cannanore	4.2.4.2	Kasaragod Plateau
							Wayanad	4.2.5.3	**Wayanad Plateau**
							Cannanore	4.2.5.3	**Peringome-Mattannur Undulating Upland**
					4.2.5	Central Kerala Coast	Trichur	4.2.5.3	Wadakkancherry Upland
							Kottayam	4.2.5.3	***Meenachil-Kanjirappally Upland***
							Malappuram	4.2.5.5	Perinthalmanna Undulating Upland
					4.2.6	South Kerala Coast	Trivandrum	4.2.6.2	**Attingal-Neyyattinkara** *Undulating* Upland
							Quilon	4.2.6.3	Kottarakkara Undulating Upland
		4.3	Eastern Coastal Region	Tamil Nadu	4.3.1	Kanniya-kumari Coast	Kanniya-kumari	4.3.1.2	Kanniyakumari Undulated Upland
					WESTERN GHATS/HILLS				
3.	The Deccan Plateau	3.9	Karnataka Plateau	Karnataka	3.9.1	Northern Karnataka Plateau	Belgaum	3.9.1.5	Khanapur Forests
					3.9.2	Central Karnataka Plateau	Shimoga	3.9.2.1	Sagar-Sorab-Shikapur Rolling Humid-Region
							Chika-magalur	3.9.2.1	Sringeri-Koppa Rolling Humid Tract

1	2	3	4	5	6	
				Dharwad	3.9.2.2	Kalghatgi-Lakshmeshwar Residual Hill
				Chika-magalur	3.9.2.2	Kudremukh-Bababudan Forested Hilly Zone
				Chika-magalur	3.9.2.4	Chikamagalur-Mudigere Rolling Humid Belt
				Shimoga	3.9.2.4	Shimoga Forested Hills
				Dharwad	3.9.2.4	Byadgi-Hire-kerur Rocky Knobs
				Shimoga	3.9.2.5	Tirthahalli Rolling Tract
				Shimoga	3.9.2.6	Western Ghats (Shimoga)
			3.9.3 Southern Karnataka Plateau	Kodagu	3.9.3.1	Patti-Brahmagiri Ghats
				Kodagu	3.9.3.2	Somvarpet-Viraj-pet Rolling Humid Region
				Kodagu	3.9.3.3	Yedavanad-Nalkeri Forest Belt
				Hassan	3.9.3.4	Manjarabad Ghats
	3.10 Tamil Nadu Uplands	Tamil Nadu	3.10.1 Eastern Flanks of Sahyadri	Periyar	3.10.1.1	Talamalai-Burgur Forested Hills
				Coimbatore	3.10.1.1	Coimbatore Forested Hills

1	2	3	4	5	6
				Nilgiri	3.10.1.2 Mudumalai Forested Hills
				Madura	3.10.1.2 Kodaikanal Forested Hills
				Nilgiri	3.10.1.3 Sigur Forested Hills
				Nilgiri	3.10.1.5 Kunda Forested Hills
				Coimbatore	3.10.1.5 Anaimalai Forested Hills
				Madurai	3.10.1.6 Cardamom-Varushanad Forested Hills
4.	The Coastal Plains & Islands	4.2 Western Coastal Region	Karnataka	4.2.3 Karnataka Coast	Uttar Kannad 4.2.3.2 Western Ghats (Uttar Kannad)
					Uttar Kannad 4.2.3.3 Yellapur-Dandeli Forests
					Dakshin Kannad 4.2.3.3 Western Ghats (Dakshin Kannad)
					Dakshin Kannad 4.2.3.4 Bettangadi Dissected Zone
					Uttar Kannad 4.2.3.4 Sirsi-Siddapur Dissected Humid Tract
			Kerala	4.2.4 North Kerala Coast	Wayanad 4.2.4.1 Wayanad Forested Hills
					Kozhikode 4.2.4.3 Kozhikode Forested Hills
					Cannanore 4.2.4.5 Kannoth Forested Hills
				4.2.5 Central Kerala Coast	Idukki 4.2.5.1 Anamalai Forested Hills
					Idukki 4.2.5.2 Marayur Forested Hills

1	2	3	4	5	6	
				Palghat	4.2.5.2	Mannarghat-Palghat Forested Hills
				Palghat	4.2.5.3	Palghat Gap
				Ernakulam	4.2.5.3	Malayattur Forested Hills
				Idukki	4.2.5.3	Cardamom Hills
				Kottayam	4.2.5.4	Ranni Forested Hills
				Trichur	4.2.5.4	Kodasseri Forested Hills
				Palghat	4.2.5.4	Chittur Forested Hills
				Malappuram	4.2.5.4	Nilambur Forested Hills
				Idukki	4.2.5.5	Thekkadi Forested Hills
			4.2.6 South Kerala Coast	Trivandrum	4.2.6.3	Ponmudi-Agasthiar Forested Hills
				Quilon	4.2.6.4	Pamba-Kakki Forested Hills
				Quilon	4.2.6.5	Kulathupuzha Forested Hills
	4.3 Eastern Coastal Region	Tamil Nadu	4.3.1 Kanniya-kumari Coast	Kanniya-kumari	4.3.1.1	Kanniyakumar Forested Hills
			4.3.2 Sandy Littoral	Tirunelveli	4.3.2.1	Tirunelveli Forested Hills
				Ramanatha-puram	4.3.2.1	Srivilliputtur Forested Hills

Note: The Coastal Plain and Western Ghats extend beyond Kerala state. For full details of these extended areas falling in the neighbouring States/Union Territory refer to the state volumes of Karnataka and Tamil Nadu and the Union Territory volume of Pondicherry.