SOLAPUR DISTRICT : A STUDY IN SETTLEMENT GEOGRAPHY

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DECLARATION

I, hereby, declare that the entire work incorporated in the thesis entitled **"SOLAPUR DISTRICT: A STUDY IN SETTLEMENT GEOGRAPHY"** Which I am submitting for award of the degree of master of philosophy in Geography to the Tilak Maharashtra University, Gultekdi, Pune, 411 037, is carried out by me, under the guidance of Dr. Y.S. Khan. To the best of my knowledge and belief, it is not published wholly or partly and not submitted for the award of any degree or diploma in any other university or institute.

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Research Student

Place: Solapur
Date: 22/03/2010

CERTIFICATE

This is to certify that the thesis entitled **" Solapur District : A Study in Settlement Geography"** is being submitted, herewith, for the award of the degree of Master of Philosophy in Geography of Tilak Maharashtra University, Gultekadi, Pune. It is the result of original research work completed by **Shri. Nisar Isak Shaikh** under my supervision and guidance. To the best of my knowledge and belief, the work incorporated in the thesis has not been published and submitted earlier for any degree or diploma to this or any other university.

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INTRODUCTION

CHPATER - I

1.1 INTRODUCTION :

Food, clothes and shelter are the basic and fundamental needs of mankind. All the three are essential to a certain extent for mankind in day today life. The present work is an attempt to study the Geography of settlement both for rural as well as urban settlements in the Solapur District. Since, the development of mankind, as he has been inhabiting in the groups of houses, hence, the significance of the settlements becomes most vital. There are number of studies which have been taken into consideration at National and International levels. Types of settlements, the distribution, size, functions and internal structure are the basic points to study in settlement Geography.

Historically and logically, the most basic requirement of dwelling is that it provides shelter against the more serious environmental stresses. The nature and the intensity of these stresses vary from place to place, even within the small geographical region.

The basic requirements of shelter have been made for comfort and retain efficiency in the sense of the security to a degree, closely link with the culture of the dwellers. India is a predominantly rural country, where more than two-third of its population still live in the villages. The life style and the nature of economic activities differ from rural to urban areas.

Now a day, the modern civilization is characterized by faster growth of urban centers. Particularly, in the developing areas of the world, the technological innovations have been responsible for the industrialization in some areas. The growth of settlements to a certain extent is the result of rapid growing population in the history of human civilization. The rural-urban interaction is, therefore, ever on the increase. The study of settlement geography, has naturally assumed tremendous

significance for this reason, during contemporary times. The area under a study is a relatively backward area with high potential for industrialization, urbanization and social and economic development', considering its natural resources found in the region.

1.2 MEANING, SCOPE AND FIELD OF SETTLEMENT GEOGRAPHY:

In order to understand various problems of the Solapur district related with the settlements, it is essential to know about the meaning scope and field of settlement geography. The settlement geography holds an exceptional place in the geographical hierarchy of human phenomena. It is relatively very recent sprout from the venerable trunk of human geography. Its consideration runs like a thread through almost the whole fabric of geographic thought. The settlement is a central to human geography, modifying as it does the natural environment by introducing a cultural elements.

The term settlement is a generic and is derived from the word, "Settle". According to the Oxford Dictionary the meaning of the word "Settle" is to establish or become established in more or less permanent abode or way of life. It also includes temporary stay as a place. Settlement geography is the study of the cultural landscape. It is a science of systematic inquiry of occupancy features distributed over space with differentiation in relation to man. The minutest detail of the distribution of population manifests itself in the form of grouping of houses scattered at places and agglomerated at others.

The settlement is an establishment that relates to and results from an established way of life. It is an abode, a shelter or dwelling where man retires from his days work to rest and sleep. This place of retirement is fixed to a point in space and has, therefore, a definite location and identify. Thus, the term settlement refers to, "Characteristics grouping of

population in to occupational unites together with the facilities in the form of houses and streets which serve the inhabitants." Since settlement in any area is intimately related to the habitat, habit and inhabitant, the understanding of all these phenomena is fundamental to the study of settlement geography.

The functions of the settlements also determine the form the spatial distribution of the settlement and their various functions also reflect the character of the settlements and reflect the character of the settlement. An organize colony of human being including the building in which they live, work or store and use them otherwise and the tracks or streets over which their movements take place. In the initial stages, these habitations totally depend upon the surrounding conditions. Then gradually they change with the advancement of knowledge and civilization. Settlement geography is not only relate with building grouped around the permanent farm dwelling, but also with the temporary camp of the hunter or with the settlement clusters running the scale from hamlet to village, town and city.

The study of rural and urban settlements is the two important branches of geography. The problems and schemes of their analysis are distinct from each other. Both have drawn the attention of specialists, who have analyzed to various facts and elements and developed distinct concept and generalizations in each field.

The study of urban settlement geography has attracted more attention, while systematic and scientific analysis in case of rural settlements is still in the initial stages. The studies of rural and urban settlements are also, the prime concern of economists, historians and sociologists but their approaches of analysis differ. Geographers mainly treat the problem as manmade habitat on the earth's surface in relation to environment and examine the settlement features, such as growth,

distribution, functions, classifications and their types. These features throw light on historical sequence and on functional relationships. The distributional patterns of the settlements, site and situations, functions, layout and internal structures of settlements vary regionally with the variation of physical conditions, with the density of population and with the character of human cultures which they serve and represent. Thus, these important aspects, such as size, pattern, form and functions of settlements as built by man through time and space are the essential attributes of the study. The changes that take place through the lapse of time and shift of place due to social and economic structure of the society become an important aspect of settlement geography.

Modern innovations in technology, communication and transport have provided new amenities to people and given rise to different set of occupance units with different morphological structure as a result of the older settlements. It has been observed that many settlements have grown up on the ruined sites of older settlements.

The functional structure of the settlements is closely related to social, economic and political behavior of the society. These aspects vitally influence the location, form and size of the settlements. Each community has its distinctive religious edifices like temple, mosque and church. These have also a great bearing on the development of settlements. Geographers consider rural settlement as man-made habitat on such as agriculture, forestry, mining, fishing hunting, which florish on local resources.

The spatial distribution and the functional characteristics of urban settlements are generally oriented by the need of rural settlements, particularly in developing economy urban settlements are of the larger size which provides goods and services with the people of country side. Generally, people prefer to live in or near by urban centers in order to get

a certain advantages which are not available in rural areas. The urban centers provide certain advantages which include the satisfaction of many wants of economic, social, religious and recreational facilities.

1.3 RELATION OF SETTLEMENT GEOGRAPHY WITH OTHER BRANCHES OF GEOGRAPHY:

Settlement geography studies essential element of research undertaking in many other branches of geography. It is closely related to population geography, economic geography, cultural geography and historical geography. Even social scientists, other than urban geographers, such as sociologist's planners, economists have widely used and quoted urban literature in adjacent fields and have contributed many studies of value in urban geography.

Settlement geography is related to population geography both in its historical and functional perspectives. Settlements are the links between man and the land and serve not only as a shelter or a place of residence, but also as a place of work. A settlement is a fixed element of the cultural landscape, while population is a mobile element on it. Geography is primarily concerned with the attribution and spatial patterns of these phenomena, where population geography seeks to analyze various aspects of population as a whole. The study of settlement geography seeks to analyze the rural and urban communities in the perspective of their actual locations, what is popularly indicated as rural and urban settlements.

Settlements patterns are also closely related to the patterns of agricultural land use and that any attempt to insist on the study of these two phenomena in separate typical fields would be artificial. Agricultural geography assesses the required agricultural land to support the people of that settlement. Agricultural farms problems guide the arrangement of settlements. The settlement pattern seems to determine the settlement patterns change according to the changes in land use patterns. In some

areas, field pattern seems to determine the settlement patterns. Generally, people select uncultivable land for settlements. The study of agricultural geography would be incomplete, if it does not take into consideration settlements as focal points for the marketing of agricultural produce, as well as, source of labour for all agricultural operations.

Transport system has a direct link with settlement geography; which affects the morphology of settlements. The internal structure of settlements is determined by the arrangements of roads, lanes and railway lines. Almost all rural settlements are interconnected generally by roads or cart tracks and similarly, the houses within settlements on the other hand; urban settlements are interconnected by good roads. Functional differentiation of the various parts of an urban settlement reflects the character of transportation facilities and the nature of traffic flow. Changes in transport technology do influence the settlements pattern of an area. Shifting of highway and construction of new highway and railway has bearings upon the morphology and size of settlements.

Manufacturing activity has been important since the ancient and mediaeval periods and it is concerned at favorable spots. It has been an important economic activity as it seeks to fulfill several human wants and supports a considerable segment of population. Modern specified technologies have given rise to industrial towns of various types. Industrials along with commerce constitute the bases of several towns.

The cultural aspects of the communities influence the settlements to a certain extent. The house, being an important element of settlements geography, forms a common link between many other branches of human geography and settlements geography. It is an expression of one of the three essential wants of man for example; they want for food, clothing and shelter. It is used not only for residence but also as work-shed business house, educational building, administration office etc. The house

becomes a permanent element of cultural landscape and chief element of settlements.

The religions and social behavior of man has an impact upon the nature of functional zonation of towns and also their regional relations. This is particularly significant is relation to the religious towns as in case of Phandharpur, Akkalkot, and Solapur.

Nothing can be separated from historical geography, so also the settlement geography due to their common genetic approach. The present features of settlements are the result of past growth. This idea holds in the study of histogenesis and morphogenesis of settlements. As historical geography studies the geographical events or geographical changes through time, so it is important for settlement geography to know the evolving settlement patterns in terms of past distributions and changes caused due to rise and diffusion of new technologies, as well as historical decisions. The study of place names and their historical significance plays a vital role in the study of evolution of settlements. In the absence of documentary evidence, historical relics help in finding out the lost features of the past history of settlements. Thus, an archaeologist is quite considerable as discovering ancient settlements.

1.4 SIGNIFICANCE OF THE STUDY OF SETTLEMENT GEOGRAPHY:-

Though, a relatively recently developed field, settlement geography is an important branch of human geography. It studies various characteristics of human settlements. Space relations of the settlements and the patterns of land use are some basic themes of the study in settlement geography. As the settlements are important components of the earth, this branch of geography is often considered as a part of human geography also.

The characteristics of settlements differ from one part of the region to the other depending upon the variations in the natural environmental conditions. Due to this fact, settlements are considered as an index of human adjustment to the environment.

A settlement can be defined in different ways. In its most popular usage, the term refers to a group of houses. Such a grouping of houses can be considered the result of the gregarious nature of human beings or a result of the need to cooperate to utilise the resources. According to social scientists, a settlement comes into existence when the people settle down at a place, collectively utilise the local resources. The need for collective effort to develop and utilise resources is considered the basic force leading to the evolution of these groups of houses. The nature and type of resources available in a region, therefore, have a profound effect on the type of settlements in an area.

Another way to define a settlement is to define it in terms of the resources on which the population of the settlement subsists. Accordingly, a settlement is a territory, the resources of which are used by a group of people who not only have a right to utilise the resources of the territory, but also are liable to maintain them and pay any revenue to the government in return for their utilisation.

Settlement geographers study the historical, economic and spatial aspects of settlements. They are interested in knowing how a community constituting a settlement utilises the available resources. The inter-settlement, spatial relations are also an important area of their interest. According to the new approaches the settlements are viewed as systems. Although, the study of settlements dates back since long times, the major developments in this field have been witnessed rather recently. The French and German scholars are generally given credit for establishing this branch of geography and much of the growth in this discipline has

come in the twentieth century. Taking into account the growing interest in it and its expanding scope the discipline has been divided into two sub-fields:

- rural geography
- urban geography

Rural geography deals mainly with the study of the settlements based on the primary activities such as farming, fishing, mining and forestry etc. while the urban geography is concerned with the study of the settlements based on the secondary and tertiary activities such as manufacturing, trade, transport and other services. The urban field is one of the major areas of concern of geographers these days.

1.5 CHOICE OF THE TOPIC:

Among the various problems, the problems of the settlements stand, perhaps, the most important for the welfare of mankind. India is a rural country, where about two-third population of the total is still living in rural sector and only one-third population of the total resides in urban areas. Both the rural and urban areas have their own different problems. Even today, many studies pertaining to settlement have been carried out at national and international levels. No doubt, such study furnishes the basis for the fundamental information which gives generalization of the problems and their magnitude for regional levels. This enable to understand their problems very clearly.

In view of the precede discussions, it is most suitable and appropriate to undertake a study pertaining to settlement problems in developing regions like India. The selection of the topic is not very arbitrary, since no study of the **"SOLAPUR DISTRICT: A STUDY IN SETTLEMENT GEOGRAPHY"** has been seriously carried out so far

from Geographical point of view. Hence, Solapur district: A study in settlement geography has been selected for study.

1.6 THE SELECTION OF THE REGION:

India is a predominantly agricultural country. Maharashtra, in India occupies a very important position which ranks third in area and second in population. Within the state of Maharashtra, the Solapur district has also a very significant position as regards to area and population. The Solapur district contributes a considerable share of population and economic production as far as the state's economy is concerned.

The District of Solapur lies entirely in the Bhīma-Sina-Man river basin. The district is bounded by 17° 10' north and 18° 32' north latitudes and 74° 42' east and 76° 15' east longitudes. The district is fairly well defined to its west as well as to its east by inward looking scarps of Phaltan Range and Osmanabad Plateau respectively. The adjoining districts are Sangli to the South-west, Satara to its west, Pune to its north-west, Ahmadnagar to its north, Beed and Osmanabad to its east and Bijapur district in Karnataka State to its south. Though, of an irregular shape, the district is roughly squarish, 200 kms, east- west and 150 kms, north-south. The district has a total area of 14878sqhare kilometer and population of 38,55,383 as per 2001 census which constitute 4.88 percent population of the Maharashtra State,

The area which constitutes Solapur district was originally part of Ahmadnagar, Pune and Satara district till 1869. The sub-division of Solapur, Barshi, Mohol, Madha, Karmala, Pandharpur and' Sangola were grouped together to form Solapur district. In 1875 the Malshiras tahsil was added to the district by its transfer from Satara district. Till 1941, there were no other changes in the limits of the district. With the reorganization of state in 1956, the Solapur district was included in the larger bilingual Bombay state and since May 1960, it forms a part of a

SOLAPUR DISTRICT

ADMINISTRATIVE DIVISIONS

●	Taluka Head Quarter
◉	District Head Quarter
.....	Taluka Boundary
———	District Boundary
—·—·—	State Boundary

N

0 12 24 Km.

Fig. No.1.1

state of Maharashtra. For administrative purpose, the district is presently divided into eleven tahsils.

Solapur district has different regions at the different levels of economy. It possesses different regions at the different levels of social and economic, development from both rural and urban sectors. It possesses different social and economic groups within the region. In view of this, the study of Solapur district has been undertaken for the research purpose.

1.7 HYPOTHESES -

Hypotheses in fact, are the basis of any research. These are facts and realities that exist in the region. Hypotheses are the pre-supposition on which entire research is based; hence hypotheses, are foundation and basis to the research to be carried out of a particular problem.

No, study can be carried out without forming certain hypotheses. The following are certain hypotheses which have been formulated for present study.

1) The region under study belongs to drought prone area where the social and economic condition of the people is not much developed.
2) Solapur District is socially, one of the most backward regions in Maharashtra.
3) The proportion of the rural population in relation to total population in the district of Solapur is relatively high.
4) The rural settlements are not evenly distributed due to physical constraints.
5) There are only three major urban centre which are big market centre in the district.

6) The types of settlements and house types vary from one place to another.
7) The amenities available in the region are not enough in relation to its Population size.

1.8 OBJECTIVES:

Without objectives, no study can be fulfilled and completed. As a matter of fact, the chief purpose of research is to obtain, the result by fulfilling its objectives. Each and every study is carried out on the basis of certain hypotheses and objectives. In fact, the objectives are the goals to obtain by the researcher. Study entitled **"Solapur District : A study in settlement Geography"** has the following objectives to fulfill.

1) To understand the spatial pattern of settlements in Solapur district.
2) To classify the different kinds of settlements both from rural and urban areas of the Solapur district.
3) To know about the internal structure of the urban places in Solapur district.
4) To understand the functional characteristics of the settlements in Solapur district.
5) To find out the rural urban fringe for certain urban places.
6) To draw conclusion, and find out the settlement problem and suggest suitable remedies to solve them.

1.9 SOURCES OF DATA :

The information and data are the most vital requirement for research without proper information and data, research cannot be carried out. No desirable conclusion and generalization may be obtained without proper data analysis. Hence, the data which is basic tools of research; has

been collected from different sources such as published and unpublished works.

Annual socio-economic review and district statistical abstracts of Solapur district have been the source for the data. A part from this, various socio economic abstracts for different years and census of Maharashtra for Solapur district and Gazetteer have been used extensively for present study.

1.10 METHODOLOGY:

Thus, the data collected from the different sources, have been processed and the proportions and percentages have been calculated. The processed data has been tabulated and certain cartographic techniques have been applied to represent the data as per requirements. Choropleth maps are prepared. Some data has been represented through graphs, charts, and bar graphs. The represented data is interpreted and analyzed to find out the result and conclusions and finally to suggest suitable remedies to solve them. At the end of each chapter the relevant references are given.

1.11 REVIEW OF LITERATURE:

R.B. MANDAL has written Geography of rural settlements related to distribution, classification, types of settlements and site and situation of settlement in detail. He has also used some techniques to study the settlements in depth.

P-Boregowda has written a paper related to Urban Dynamics, "The Impact of Metropolition Centers on Rural Transformation- a case of Village along Bangalore in Karnataka state." This paper provides information based on case study around Bangalore city villages.

V.S. FADKE AND K.S. SEETA has made on attempt to study the spacial pattern of urban impacts in a metropolitan region a case study of Bombay.

Prof. Enayat Ahmad has written "A Social and Geographical Aspects of Human Settlements". The book is an attempt to study the geography of the villages and towns in the United Provinces. Although it follows well-tried methods, the inquiry is new in the sense that such a detail study of the settlement of an Indian province has probably not been so far undertaken.

While the major and most important part of the united Province falls in the Ganges Valley it also includes a full cross-section of the Himalayan Wall extending from the Siwalik foothills to the Tibetian borders, as well as a considerable portion of the 'Central Indian Foreland'. These physical diversities afford an opportunity for a comparative study of the environment and settlements in parts of the three major geographical units of India, the Mountain Wall, the Indo-Gangetic Plain and the Peninsular Plateau.

Dr. A.S. Bhole has studied Rural settlements in Kokan region of Maharashtra state. He has provided information about the distribution, classification and site and studier of the rural settlements in Kokan.

Dr. S. R. Chaudhary has studied the Khandesh; A study in rural settlements geography origin and evolution of the settlements, classification, site and situation growth and amenities has considered in his study.

1.12 ORGANIZATION OF THE WORK:

In order to understand the nature of the problems in the region under study is step by step the research has been divided in the following chapters.

I) Introduction:

The first chapter deals with the introduction of the topic and the region. The justification of the problem under taken for research and choice of the region has been considered. The significance of the subject and area hs been discussed in depth. The meaning scope and the field of settlement geography have been discussed in the depth. Some important hypotheses, on which the entire research work depends, have also been formulated in order to test them. Objectives, which are the goals to be obtained by the researcher, have also been included in this chapter. The sources of the data and information, which are the tools for the analysis have been collected from the various sources and processed inpraportions and percentage by adopting various cartographic techniques, the data has been represented in the form of maps and diagram. The review of the literature concerned with the problem has also been trassed out in the first chapter.

II) Backgrounds of the Region:

In order to understand the basic facts and the nature of the region, different backgrounds of the region, such as physical, historical, social and economic have also been taken in to consideration in the chapter two. These backgrounds have helped researcher in interpreting various aspects of settlement geography within the region under study. The geographical understanding of the region in terms of location and expension of the region, physiographic divisions, climatic conditions, soil types and natural vegetation have enabled researcher to co-related their interaction with one another. Therefore, physical backgrounds of the Solapur district have taken in to account in this chapter. A part from this historical background of the Solapur district has also been discussed which has revealed many past historical facts to apply for the improvement of settlements in the Solapur district, likewise, social, economic and political

backgrounds have been discussed, which have influenced the region under study to a greater extent.

III) Distributional Pattern of the Settlements

The spatial distribution of the settlements and its various patterns is the subject matter of **third chapter:** Spatial organization of settlements is the subject matter of chapter three. Distribution of the settlements according to size, settlement according to population density area the important part consisting in this parts, size of the settlement according to population, highest and lowest density of settlements and the nearest neighbor analysis has been attempts in chapter number three.

IV) Sites and Situation of the Settlements:

The site and situation of the settlements has been included in chapter number **four**. Various sites of settlements and its distribution is considered in this section. Sites of the settlements according to natural features include plateau site settlements, river site settlements, tanksite settlements, forest site settlements and hill site settlements, forest site settlements. Besides, it also has taken in to account's the sites of the settlements according to cultural features. The features include the bank site settlements, canal site settlements, raod site settlements and railway site settlements.

V) Facilities of the Settlements:

The **chapter five** is concerned with the various kinds of facilities which make the subject matter of present chapter. Health services, such as hospitals, dispenseries, public health centre, number of doctors, number of nurses and number of beds in hospital are the important point taken in to consideration in this chapter. Percentage of villages and population served by medical facilities also been calculated for district as well as its various tahsils. Education facilities, distribution of weekly

market and market yards, along with the bank facilities have been analyzed in depth in this section.

VI) Factors Influencing the Distribution of Settlements:

The **chapter sixth** makes the subject matter of the co-rrelation matrix of the variables influencing the distribution of settlements in Solapur district. Since, the present attempt is associated with the various factors influencing the distribution of settlements in terms of number of settlements in each tahsil. The co-rrelation matrix has been prepared by taking into consideration, the number of settlements on the one hand and various socio-economic factors on the other. In order to understand the relationship between the number of settlements to total geographical area of each tahsil, which is an indicator of the distribution of settlement in Solapur district on one hand and other variables on the other hand.

The results emerging in the form of co-efficient of co-rrelation, have been interpreted accordingly.

VII) Conclusions and Suggestions:

The **chapter seventh** is associated with conclusions and suggestions. It gives certain generalizations and findings in the farm of summary. At the same time it is also provides the conclusions of the research work done in all concerned topics related to the settlements problem of the study region. It also suggest some recommendations to implement for the planning purpose to improve the settlements conditions.

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CHAPTER II

BACKGROUND OF THE REGION

2.1 Introduction:

At the very outset, it is most suitable and appropriate to understand different backgrounds of the region under study. Since, these backgrounds have a great bearing upon each other and one influence, the other, to a greater extent. These backgrounds of the region such as Physical, Historical, Social, Economic and Political influence the scenario of the region concerned. Man can change and modify the physical landscape in to cultural with his expertise as he desires for his comfort. From the historical events man can learn a lot and may implement his past experience for future oriented plans for development. To a certain extent, political factors also play a very important role in changing, the face of the region. Man can implement various policies and programs by establishing different projects for improvement of socio-economic conditions of the region. In this way, the physical landscape may be changed into social and economic landscape such as converting forest area into agricultural land, river water into artificial reservoirs, which brings a tremendous change in the region. In view of this, it is most essential to give an account of each background in order to make clear overall picture of the region to interpret various aspects of the region.

2.2 Physicial Background:

2.2.1 Location:

The district of Solapur is one of the most important districts of Maharashtra state, both in terms of area and population. It lies entirely in the Bhīma basin. The district of Solapur is located between 17^0 10' North to 18^0 32' North latitudes and 74^0 42' East to 76^0 15' East longitudes. The East-West length of the district is about 200 Kilometer and North-South

width is about 150 Kilometer. The total geographical area of the Solapur district is about 14895 sq. Kilometer with a population of 3855383 according to 2001 census. Within the region under study Karmala is the largest tahsil in area and the smallest is North Solapur Tahsil. The Solapur district tentatively constitutes 4.88 percent area and 4.51 percent population of the Maharashtra state. In other words, the region under study ranks fourth in terms of area and seventh in terms of population among the districts of Maharashtra. (fig. 2.1)

The district of Solapur is well defined to its west as well as to its east by the scarps of Phaltan and Osmanabad plateau respectively. The adjoining districts are Sangali to its Southwest, Satara to its west, Pune to its Northwest, Ahamadnagar to its Northwest and Osmanabad to its North and Northeast, and the Bijapur district lies to its South as well as Gulburga district to its east of Karnataka state.

2.2.2 Physiography of the Region:

On the basis of relief and structure the physiographic divisions of the region are formed. The relief and structure influence the climate, soil types, vegetation pattern and economy of the study region. It is, therefore, necessary to demarcate, the district of Solapur into its physiographic regions, in order to have a precise geographical understanding. Most of the area of the district belongs to the Deccan plateau region. On the basis of physical setup, the region is divided into three major physiographic divisions: (fig. 2.2)

2.2.2.1 The Hilly Region:

The hilly region, in the western and south western region occupies its sizable area by Mahadeo ranges and Shukracharya ranges having average height more than 600 meters. At the same time, the region

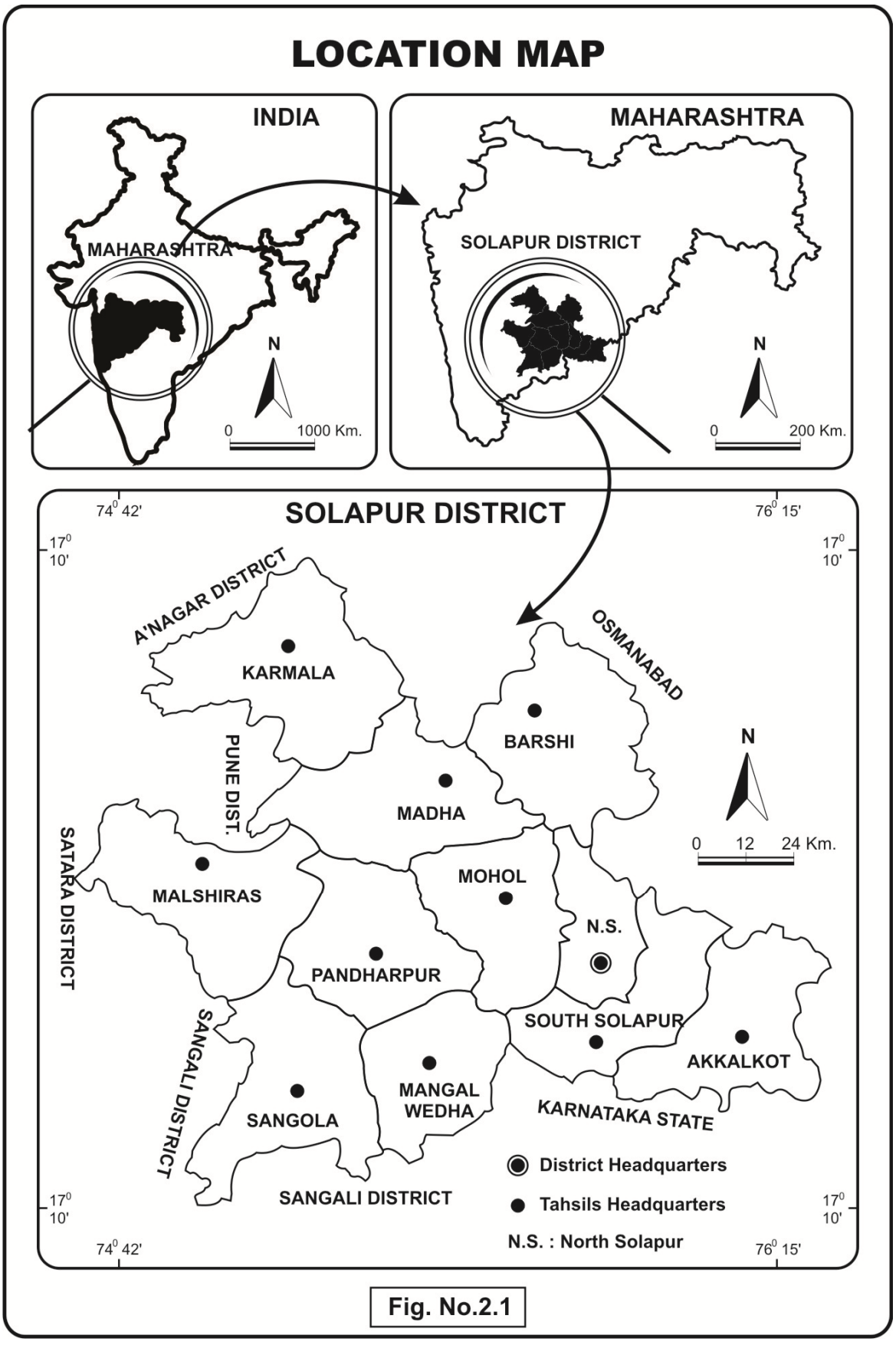

LOCATION MAP
INDIA
MAHARASHTRA
N
0 1000 Km.
MAHARASHTRA
SOLAPUR DISTRICT
N
0 200 Km.
SOLAPUR DISTRICT
74° 42'
76° 15'
17° 10'
A'NAGAR DISTRICT
OSMANABAD
KARMALA
BARSHI
PUNE DIST.
MADHA
N
0 12 24 Km.
SATARA DISTRICT
MALSHIRAS
MOHOL
N.S.
PANDHARPUR
SOUTH SOLAPUR
AKKALKOT
SANGALI DISTRICT
SANGOLA
MANGAL WEDHA
KARNATAKA STATE
District Headquarters
Tahsils Headquarters
SANGALI DISTRICT
N.S. : North Solapur

Fig. No.2.1

also includes the plateau in the Malsiras, Sangola, Pandharpur and Mangalweda tahsils of the district. In the north eastern part of the Solapur district along the border of Osmanabad district, there is an important Balaghat range particularly in the Barshi tahsil. The small range of Balaghat range namely Ramling hill lies from North West to south east of Barshi Tahsil which form the border line between Solapur and Osmanabad districts. Which have an altitude between 600 meter to 750 meter Most of the small rivers and streams like river Man, Korda, Warai, Bhogawati, Nagzeri and Sina, have originated from the Balaghat and Mahadeo ranges. Some isolated ranges are also found in the various Tahsils notably in the central part of Karmala and Madha tahsil locally, they are known as Waghoba and Bodaki respectively. These hilly regions as expected are very poor agriculturally and hence, human settlements are very few and far. These ranges occupy about 10 percent geographical area of the district.

Table 2.1

Solapur District Relief Divisions

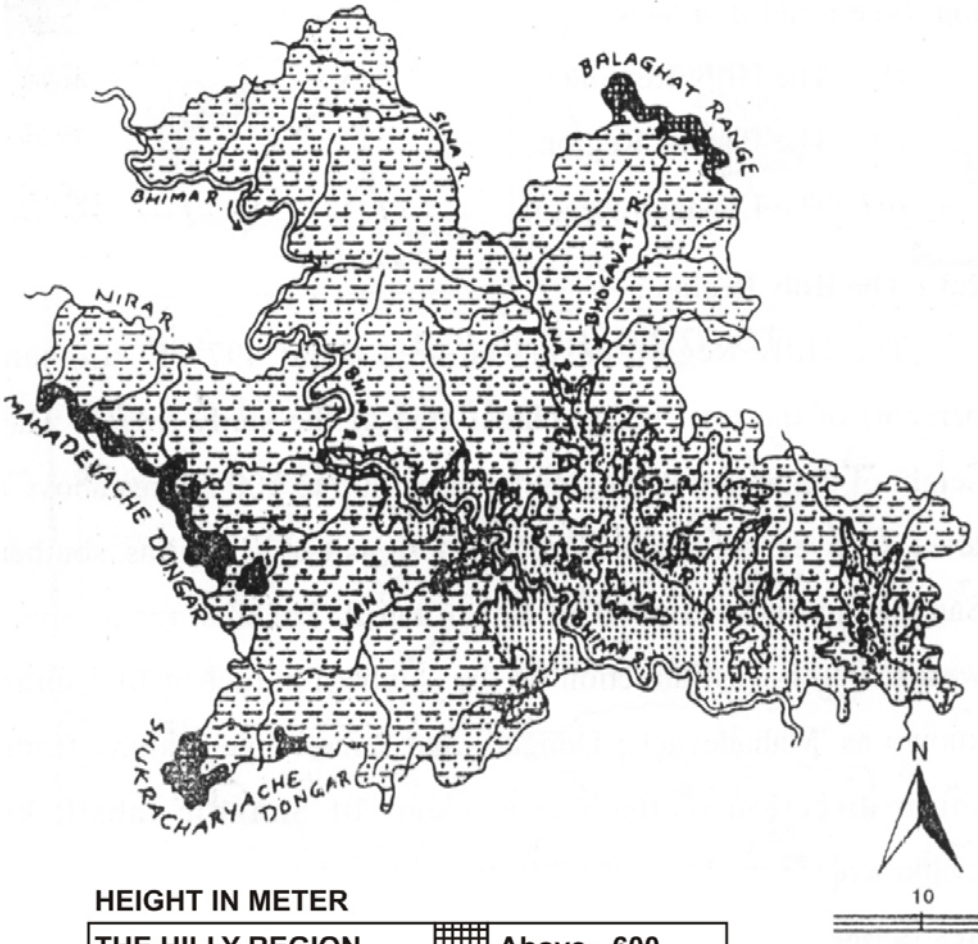
Sr. No.	Relief Division	Area in Sq.Km.	Percentage to Total Geographical Area of the Region
1.	The Hilly Region	497	3.34
2.	The Plateau Region	11916	80.00
3.	The Lowland Region	2482	16.66
	Total district	**14895**	**100.00**

Source: Compiled by the Author.

2.2.2.2 The Plateau Region:

The contour of 550 meter above mean sea level parting in the south central and south eastern parts of the Solapur district. This, in fact, demarcates the district into plateau and plain region of Bhīma basin.

SOLAPUR DISTRICT
RELIEF



HEIGHT IN METER

THE HILLY REGION		Above - 600
THE PLATEAU REGION		450-600
THE LOWLAND REGION		Below 450

Fig. No.2.2

Almost 70 percent of total geographical area of the district is occupied by the plateau region. The average height of the plateau region is in between 450 meter to 600 meter this region also includes some individual separate hills in different parts of the plateau. This comprises the areas of the Karmala, Madha, Barshi and Akkalkot in the left hand of the river Bhīma and parts of Malshiras, Pandharpur, Sangola and Mangalweda tahsils are in right hand of river Bhīma.

Most of the plateau region in the Solapur district is drained by the river Bhīma and its tributaries. Therefore, the soils of plateau region are suitable and fertile for the production of various kinds of crops.

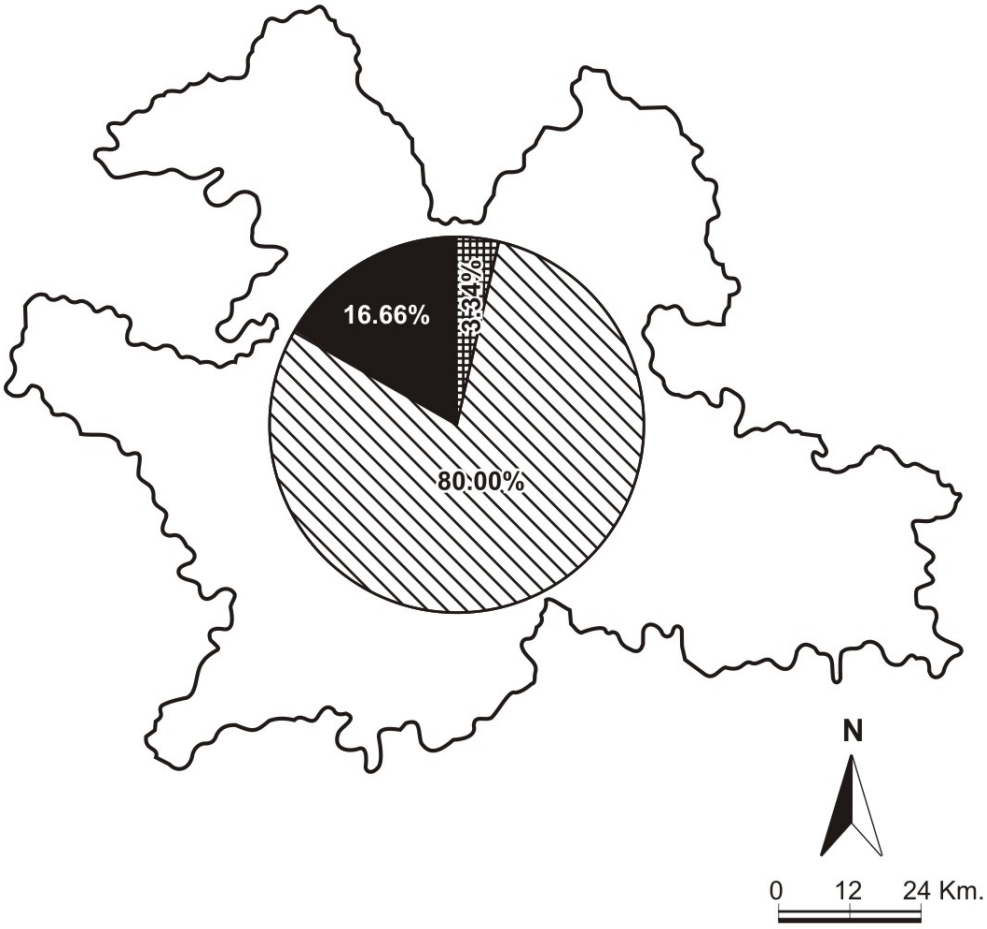
2.2.2.3 The Plain (Lowland) Region:

The plain region in the district of Solapur is occupied by Bhīma River and its tributaries. The central part of the district lies in the plain region. The plain region naturally is found along the both sides of river Bhīma and its tributaries such as river Sina and river Man. The soil of the plain region is most fertile due to the deposition of eroded material transported by the river Bhīma and its tributaries. The Solapur city, the Head quarters of district is located at the border of plateau and plain region. The plain area in the district covers about 20 percent of the geographical area of the district. Surprisingly, there are few hills and uplands isolated found with the plain region, which have the height of more than 550 meters, above mean sea level. On an average the plain region has an altitude which ranging between 200 to 450 meters. (Fig.2.3)

2.2.3 Drainage Pattern:

Bhīma is the most significant river flowing through Solapur district. The river Bhīma originates from the Bhīmashankar plateau of Ambegaon tahsil in Pune district. After leaving the Solapur district, it enters into Karnataka state and meets with the Krishna river. The right

SOLAPUR DISTRICT
RELIEF DIVISIONS



INDEX

	The Hilly Region
	The Plateau Region
	The Lowland Region (Plain)

Fig. No.2.3

bank tributaries of Bhīma are Nira and Man, while left bank tributary is the Sina. Besides, a good number of lesser streams in the Solapur district which form the tributaries of the Bhīma and Sina, are the local feeders. The Bhīma and the Sina flow, roughly south easterly direction, while theNira east and the Man north east direction. Most of these rivers are non perennial in nature and flow only during the rainy season. In order to understand, their details characteristics, it is most appropriate to take them one by one in to consideration.

2.2.3.1 The River Bhima:

The river Bhīma drains in the central part of the district, comprising the greater part of Karmala, Madha, Malshiras, Pandharpur, Mangalweda, Mohol and south Solapur Tahsils. The river Bhīma is one of the main feeders of river Krishna. The river Bhīma rises from the Bhīmashankar plateau in Pune district and runs south east direction and enters into Solapur district near Jinti village of Karmala Tahsil and flows through the district of Pune, Ahamadnagar and Solapur in Maharashtra and Bijapur district in Karnataka and it falls into Krishna River about 25 kilomiter North of Raichur in Karnataka State. The Bhīma has an overall length of 289 kilometer within the limit of the district of Solapur. The length of river Bhīma about 110 kilometer acts as winding the river separate Karmala on the left from Indapur in Pune district on the right. For about 10 kilometer, it separates Madha on the left and Malshiras on the right. Further, for about 34 kilometer, it separates Pandharpur in the left and Malshiras on the right. Again for about 65 kilometer it passes through the central part of the Pandharpur tahsil. The Mohol tahsil in the left for about 20 kilometer, it separated Mangalweda tahsil on the right then it turns towards south for about 10 kilometer farming the boundary between south Solapur tahsil on the left and Mangalweda tahsil on the right. After this, the river Bhīma acts as a boundary between Maharashtra

and Karnataka states for about 70 kilometer, the south Solapur and Akkalkot tahsil on the left hand of the region under study and the districts of Bijapur and Gulburga on the right hand.

One more point worth mentioning is that the river Bhīma is making a shape of crescent near Pandharpur. Due to such appearance of the river near Pandharpur, locally it is called as a Chandrabhaga, which is regarded as a holiest place in Maharashtra. (Fig. 2.4)

2.2.3.2 The River Nira:

The river Nira rises in the Bhor tahsil of the Pune district. The river Nira is the chief right bank feeder of the Bhīma River. It runs to south east and east, along the borders of Pune, Satara and Solapur districts before joining the main flow of Bhīma River, out of its total length of about 180 kilometer, only 48 kilometer lies on the borders of the Pune and the Solapur district. The banks of the river Nira are steep and rocky.

2.2.3.3 The River Man:

The river Man raises in the Phaltan ranges which are the parts of Mahadeo ranges in Satara district. It flows, in the west side of Dahiwadi. It is a right bank feeder of river Bhīma and run through eastern parts of Satara district and turns towards Sangola, Pandharpur and Mangalweda tahsil. It forms entire boundary between Pandharpur and Mangalweda tahsil. The total lengths of river Man is about 160 kilometer out of which 80 kilometer lies within the limits of Solapur district. The Belvan the Khurd, the Sanganga and the Vankadi are the main feeder streams of the river Man within the district of Solapur, which are seasonal in their nature.

2.2.3.4 The River Sina:

The river Sina rises 22 kilometer west of Torana in Ahamadnagar district of Maharashtra state and enters the Solapur district near Alijapur village of the Karmala tahsil. It is largest left bank feeder of

SOLAPUR DISTRICT
NATURAL DRAINAGE PATTERN

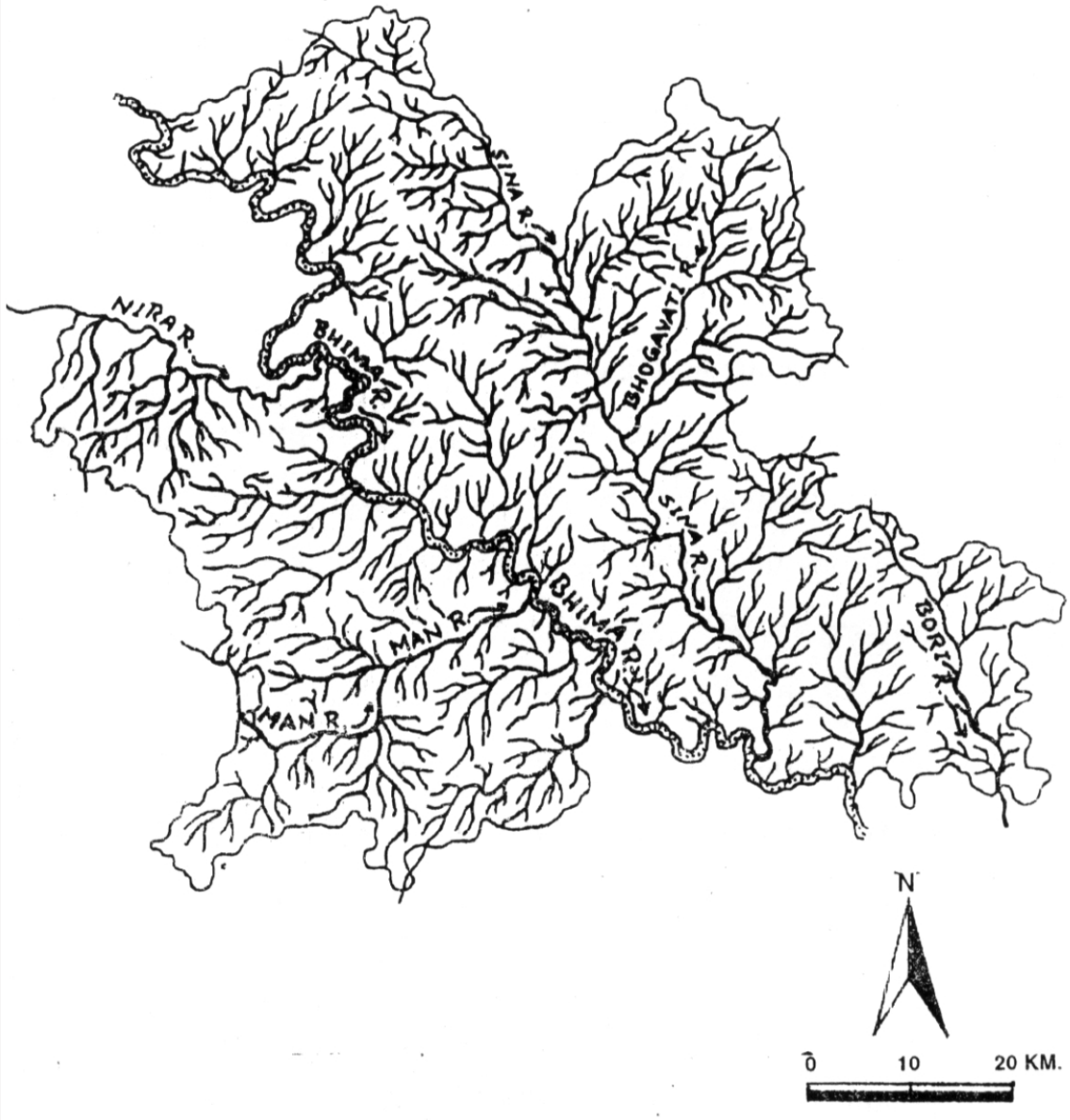


Fig. No.2.4

the Bhīma. It runs south-east through Ahamadnagar and Solapur district and meets with the river Bhīma near Kudal about 25 kilometer south of Solapur city. It has a total length of 180 kilometer within the district of Solapur. The river Sina receives, river Bhogawati on its half bank near Mohol about a distance of 7 kilometer. The channel of river Sina is about 100 to 200 meters, broad in Solapur district and it has very steep banks throughout its flow in the Solapur district.

2.2.3.5 The River Bhogavati:

It is the fifth important river of Solapur district. It rises in the south facing scarps of Balaghat in the North east part of Barshi tahsil. It flows initially to south west direction for a distance of about 65 kilometer in the Barshi and Madha tahsils of Solapur district. The river Bhogawati joins river Sina about 7 kilometers north of Mohol tahsil. It is the largest tributary of river Sina. The major sources of streams of the Bhogawati are Bodaki, Nagzari and Sira which also rise in Balaghat hill and run to south west direction.

2.2.3.6 The River Bhend:

It is a small tributary of the river Sina on its right bank. It rises near Kem in Karmala tahsil and falls in to the Sina to the north of Undargoan.

2.2.3.7 The River Bori:

The river Bori rises on the south facing scarp land of Osmanabad plateau near Tuljapur. It is a small left bank feeder of river Bhīma. It flows to southwards direction in the eastern parts of Akkalkot tahsil. Its tributary is river Harni, which flows about 50 kilometers through the Akkalkot tahsil in Solapur district.

2.2.4 Geology:

The region under study is a relatively small in area; hence, the prominent features associated with the geology are not expected. The region is remarkably free from structural complexity. There are no

evidences of any structural disturbances like folding and faulting. The basaltic lava flow traps, which are covered by thin mental of soil almost everywhere in the district.

These lava flows on account of differential weathering give rise to undulating relief. There are no prominent mountains and hill ranges in the district hence, the region is characterized by typical Deccan trap topography. The fine materials constitute the high country side while, weathered vesicular and geologic basalts generally constitute the river valleys in the region. Basaltic trap of the region is just a part of the vast expanse of Deccan lava flow. The traps in the district most probably represent the middle trap in three fold classifications, the lower trap and the upper trap being the other two classes. The geological sequence in the district of Solapur is divided into two main categories:

1) Recent alluvium and soil causing horizons of calcareous pebble (KANKAR) gravels, pebbles and silt lime materials; are of the recent origin.
2) Volcanic flows are resulting in fissure eruptions of lava. These lava flows belong to Deccan trap are in fact, of volcanic episode of the cretaceous Eocene period.
3) The geological survey carried out in the past clearly reveals that the fragments of basalt do not show any sign of volcanic activity in historical past. However, there are structural variations within the same flow both laterally and vertically.

2.2.5 Climate:

The term climate is a geographical term connoting a special distribution of the average atmosphere conditions near the surface of the earth. Average conditions of wind, temperature, pressure, rainfall is known as climate. Climate is the principal aspect of the physical environment influencing the economic activities of man. It almost

determines the land use and crop patterns of the particular region. Unquestionably, it has a considerable influence on the half of the people. As a matter of fact, climate has a great bearing upon the flora and fauna of a particular region. Apart from this, it influences on transportation and communication systems and also on the settlement patterns is indeed great.

Broadly, the climate of the Solapur district is monsoonal in nature. The year can be divided in to four seasons:

1) The cold weather season : (December to Feb.)
2) The hot weather season : (March to May)
3) The southwest Monsoon season : (June to August)
4) The post Monsoon season : (September to November)

In order to understand the chief characteristics of climatic conditions, it is necessary to discuss in detail the each season of Solapur district. (Fig. 2.5)

2.2.5.1 The Cold Weather Season:

As expected mid December to February is the cold season in the Solapur district. There are regional variations in temperature in the district, due to physical constraints.

Table 2.2

Temperature Distribution in Solapur District

Sr. No.	Months	Solapur		Jeur	
		Mean daily Maximum Temp C°	Mean Daily Minimum Temp C°	Mean daily Maximum Temp C°	Mean Daily Minimum Temp C°
1	Jan	30.4	15.3	30.6	13.4
2	Feb	33.2	17.1	33.6	14.7
3	March	36.8	20.8	36.9	18.4
4	April	39.3	24.2	38.9	22.8

5	May	39.9	25.1	39.7	24.2
6	June	34.7	23.3	34.9	23.0
7	July	31.3	22.3	31.3	21.8
8	Aug	31.2	21.8	30.7	21.0
9	Sept	31.1	21.6	31.4	20.9
10	Oct	32.1	20.4	31.8	19.6
11	Nov	30.4	17.2	30.9	15.1
12	Dec	29.9	14.8	30.1	12.9
District Annual		33.3	20.3	33.4	19.0

Source: Gazetteer of India, Maharashtra State, Solapur District

Mean daily Maximum and Minimum Temperature in °C at Solapur and Jeur. (Fig. 2.6)

From November temperature begins to falls gradual and become the lowest in the month of December. It is clear from the fact that the lowest temperature in the district is 14.8°C. December is generally coldest month of the year. The district of Solapur is some time influenced by the cold waves coming from north India and on such occasions the temperature falls below 10°C.

2.2.5.2 The Hot Weather Season:

This season is during the period between March to May, there is continuous rise in temperature both, day and night temperature. The month of May is generally the hottest month of the year with mean daily maximum temperature of about 40°C. Some time the temperature is recorded more than 44°C.

2.2.5.3 The Southeast Monsoon Season:

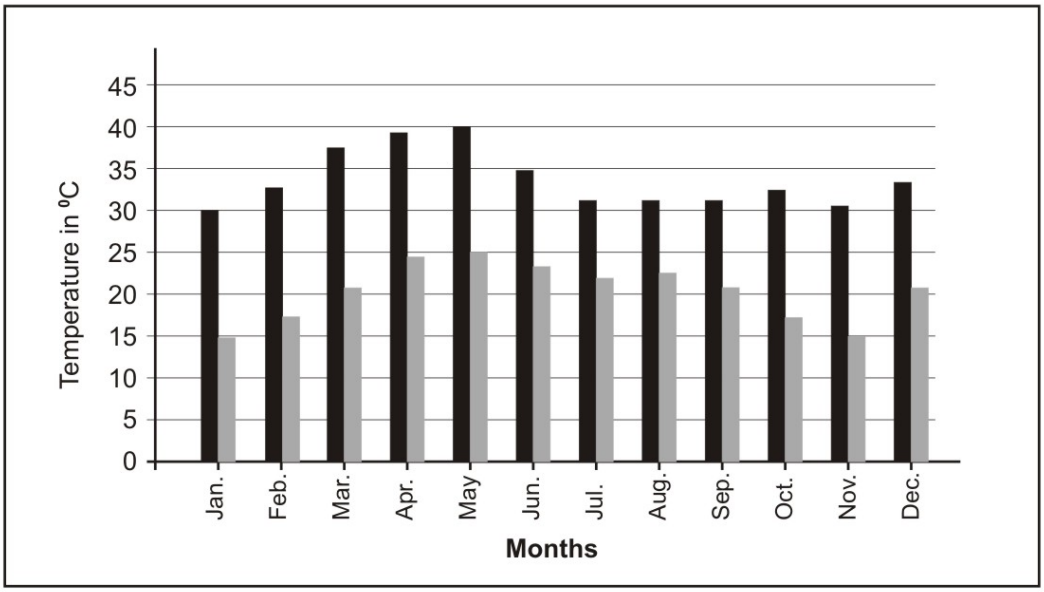
This season is found in the district during period from June to September. Towards the end of May, when weather is at its hottest in India, the southeast monsoon winds start blowing towards the interior of

SOLAPUR DISTRICT
AVERAGE ANNUAL RAINFALL DISTRIBUTION

Below 500 mm.
500 - 550 mm.
550 - 600 mm.
600 - 650 mm.
Above - 650 mm.

Fig. No.2.5

Mean Daily Maximum and Minimum Temperature in ^{0}C at Solapur Centre



Mean Daily Maximum and Minimum Temperature in ^{0}C at Jeur Centre

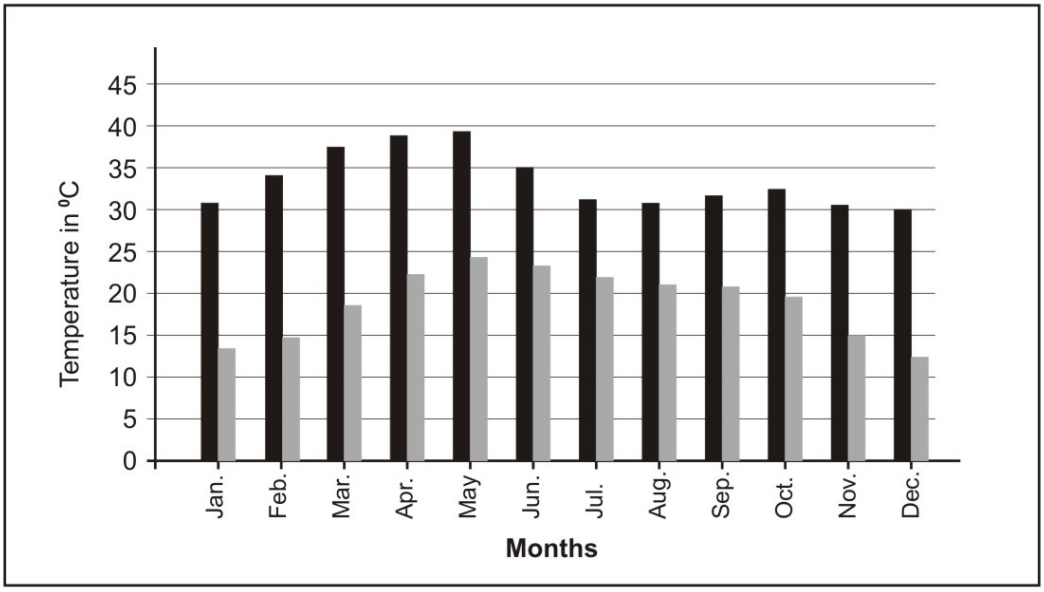


Fig. No.2.6

the country from the Indian Ocean bringing along with them, the moisture captured while crossing the thousands of kilometers over the ocean. The month of September, surprisingly is the wettest month of year. The region under study receives most of its total amount of rainfall during this season.

2.2.5.4 The Post Monsoon Season:

This season is found in the district during October to mid December. The southwest monsoon withdraws from the district during the earlier half of the October. The northeast trade winds set in thereafter. This is also known as a retreating monsoon period. Occasionally very little rain occurs during this season as well.

2.2.6 Climatic Condition:-

2.2.6.1 Temperature:

Among the various elements of climate, the temperature is the most important as it has the greatest impact upon the agricultural activities on the earth as well as biotic and abiotic system of the earth. Temperature varies from place to place due to physical constraints as well as geographical location in terms of latitudes. Solapur region belongs to the tropical area which receives the maximum amount of temperature throughout the year. In Solapur district there are two meteorological observatories, one at Solapur and the other at Jeur. The data and information recorded from these two observatories is taken as representative of the climatic conditions for the entire district in general.

The winter season begins by about the end of November, when temperatures rapidly fall particularly in the nights. December is the coldest month with mean daily maximum temperature of 29.39°C and the mean daily minimum temperature of 14.8°C. The minimum temperature may occasionally drop down to 4°C or sometimes 5°C.

The period from the mid February to the end of May is the summer season of continuous increase of temperature is the chief characteristic. May is the hottest month with the mean daily maximum temperature of 40°C and the mean daily minimum temperature of about 25.2°C. The heat during the summer season is very intense and the maximum temperature may sometime go up to 44°C.

By the end of summer season the land of Indian subcontinent becomes hottest, consequently, the low pressure belt is developed over land masses. The mechanism of monsoon is developed due to rising of the air masses leaving behind the vacuum. The high pressure belt is found over the Indian Ocean. Hence, the air start moving from the Indian ocean towards the sub continent of India while winds travelling(blowing) over thousands of kilometers, capture moisture and subsequently, filled the vacuum over the land masses. After, the condensation, along with thunder showers brings welcome relief from the heat. The outset of the southwest monsoon by about the first week of the June brings down the temperatures appreciably.

After the withdrawal of the southwest monsoon early in October, the day temperatures further increase slightly, but night temperatures continuously decrease. After, mid December both day and night temperature start falling rapidly. Except during the southwest monsoon the daily range of temperature is large, which is of the order of 12°C to 16°C at Solapur.

2.2.6.2 Rainfall:

Though, the region of Solapur district comes under rain shadow area, yet, an average annual rainfall of the district is about 584.3 millimeter. The south eastern parts of the district gets slightly more rainfall than the west of the district. Most of the rainfall is received during the southwest monsoon in the months from June to September. This

SOLAPUR DISTRICT

RAINFALL DISTRIBUTION

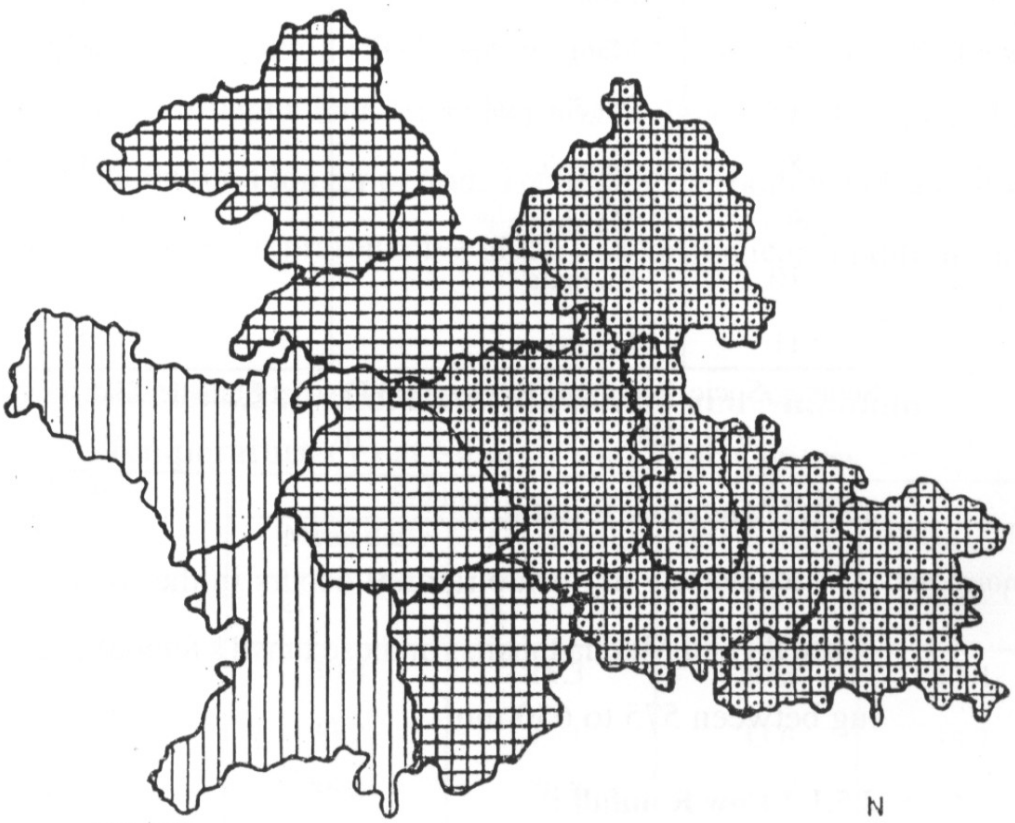


Fig. No.2.7

rainfall accounts for about 75 percent of the normal annual rainfall and about 17 percent of the rainfall in the district is received during post monsoon or retreating monsoon season of October and November. The rest 8 percent annual rainfall is received during the pre-monsoon along with thunderstorm. There are wide variations in the amount of rainfall through time and space. The maximum rainfall is about 690 mm at Akkalkot in the southeastern border of the district while the minimum amount of rainfall is recorded about 448.8 mm at Akluj near the western border of the district. Some rainfall in the form of thunder showers occurs during the months of April and May. The variation in the annual rainfall from year to year is quite large due to unpredictable and erroneous nature of monsoon. In order to understand spatial pattern of rainfall distribution in the Solapur district, on the basis of the amount of rainfall, the region, may be demarcated in various zones, such as eastern zone comprising Barshi, North Solapur and Akkalkot tahsil. This zone has more or less 60 rainy days. The annual average rainfall is in between 650 to 700 millimeters. The central zone comprising Mohol, Mangalweda, eastern parts of Pandharpur and Madha tahsil, has about 49 rainy days and annual rainfall is in between 550 to 650 millimeters.

The western zone consists of Karmala, Sangola, Malshiras and western parts of Madha and Pandharpur, has scanty rainfall below 550 mm. This zone has less than 40 rainy days in a year.

Humidity:

As expected, the air is highly humid during southwest monsoon season from June to September, when it recorded more than 70 percent. During the rest of the year the humidity is below 25 percent on the average in the afternoon. The driest part of the year is the summer season during April and May the humidity is below 17 percent.

Table 2.3

Normal Rainfall from Various Stations in the Solapur Districts:-

Sr. No.	Name of the Stations	Rainfall in Millimeter	Rainfall in Inches
1	Solapur	677.7	41.4
2	Barshi	657.4	42.5
3	Madha	581.7	36.5
4	Karmala	540.6	34.9
5	Pandharpur	611.1	37.2
6	Sangola	537.6	33.2
7	Malshiras	574.6	32.6
8	Akluj	448.8	30.4
9	Akkalkot	689.2	44.7
Solapur District Average		**548.3**	**37.0**

Source: Socio- Economic Abstract of Solapur district 2004-05

2.2.6.3 Cloudiness:

During the rainy season starting from June till September the skies are heavily clouded or over cast. But during the period between November to March skies are generally clear with slight fluctuation. There after cloudiness increases progressively from May onwards.

2.2.6.4 Wind:-

Winds are light to moderate in force with some strengthening during the period May to August. In the south west monsoon season, winds are mainly from directions between southwest to northeast. During the period October to December winds blow from Northeast to southwest direction. In the next four months, winds are variable in directions. In the month of May winds are mostly blowing from west to east direction. During summer season, dust storms occur occasionally. Thunderstorms occur from March to October, the highest incidence being in June and September.

SOLAPUR DISTRICT

SOILS

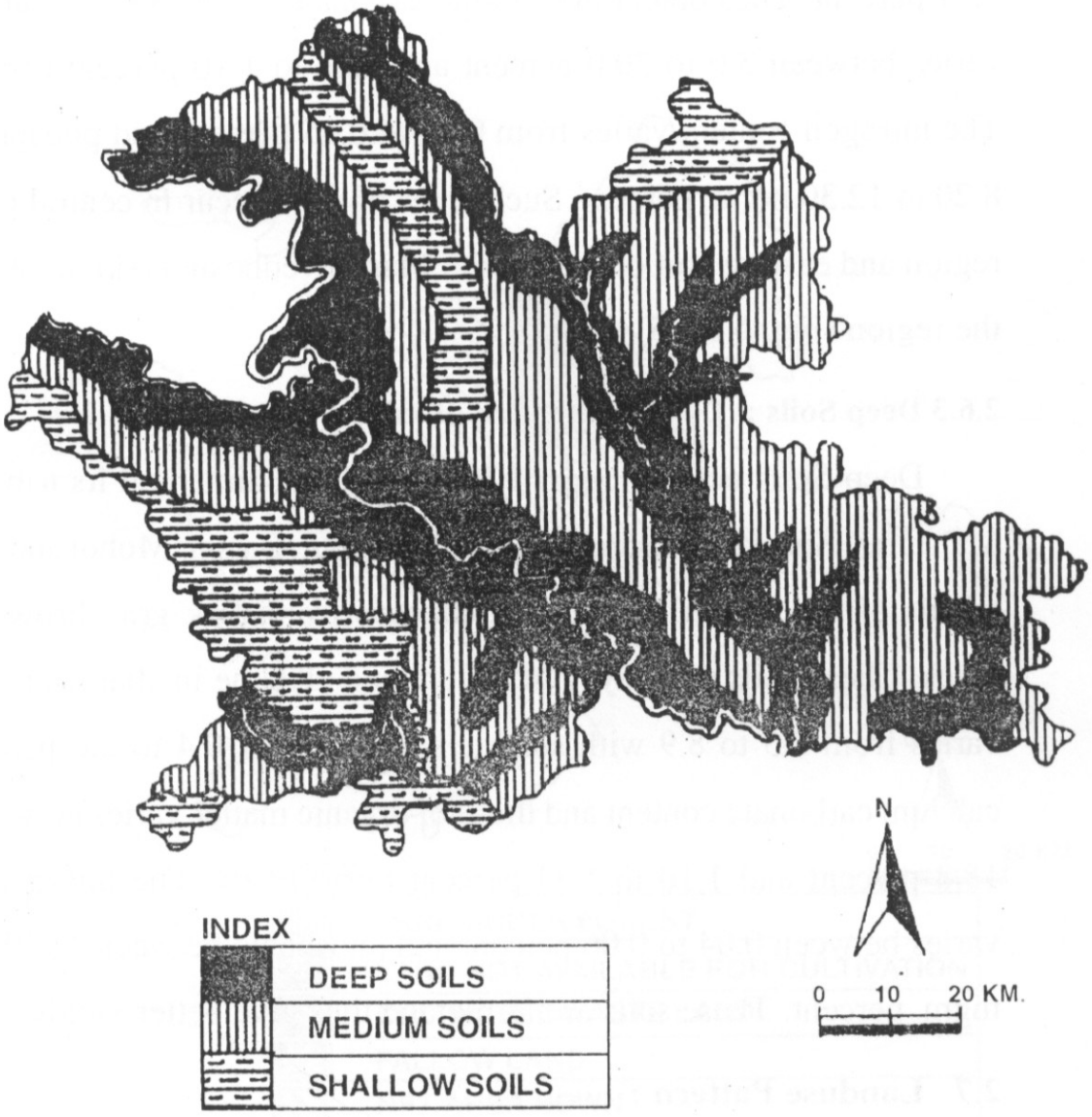


Fig. No.2.8

2.2.6.6 Soils:

Soil forms an important part of physical landscape of any geographical region and it is inseparably associated with other components, such as landforms, natural vegetation, and climate. Soils of the district are essentially derived from the Deccan trap, which is of the predominant rock formation. In the district, calcareous Kankar and nodules are commonly associated with these soils. (fig. 2.8) Soils of the district can be broadly grouped in to three types such as: **1) Shallow Soils, 2) Medium Deep Black Soils and 3) Deep Black Soils**

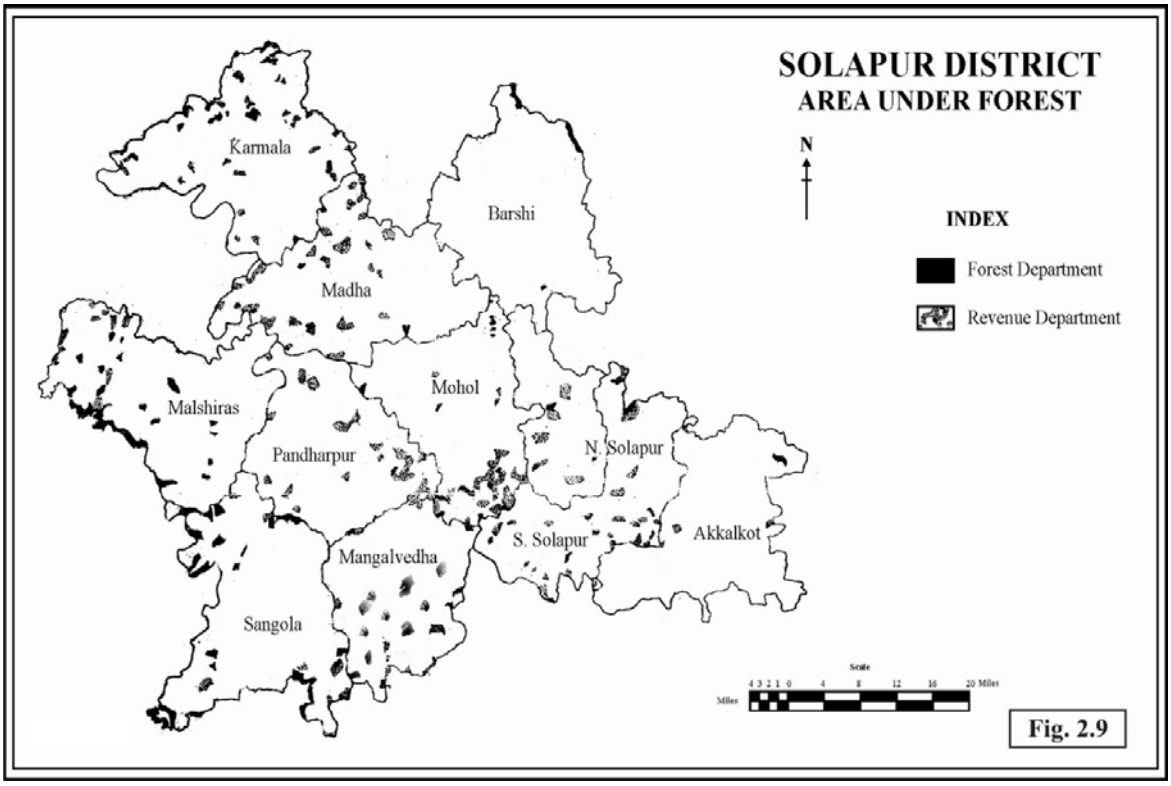
Over all the spatial pattern of the soils in the Solapur district is very complex due to the uneven relief structure and number of streams and rivers flowing through the district. In the hilly regions, soils are shallow and not very much agriculturally fertile. Medium deep black soils cover most of the areas of the district, since it belongs to plateau and plain regions of the district. In order of importance the deep black soil covers more than 25 percent areas of the district along the river valleys.

2.2.6.7 Natural Vegetation:

All the plants which grow together in any area form its vegetation. The vegetation of any region is composed of a collection of number of plants belongs to a few or many different species. The natural vegetation is commonly used to describe the natural plant's growth as district from the cultivated plants growth. (Fig. 2.9)

The natural vegetation is consisting three fold divisions of study namely, the forest, grassland and desert. In the region under study, the forest cover is very poor. The forest of Solapur district occupies 357.9 square kilometer area in which 345 square kilometer is forest area and 12.9 square kilometer is unclassified forest. In other words 157 square kilometer is under revenue department, 188 square kilometer of forest department and 12.9 square kilometer unclassified reserved and

unclaimed forests. Surprisingly, these scattered poor forests constitute only 2.14 percent of the total area of the district. In the past, the forests were comparatively dense of predominant of scrubs forest on the hill and with growth of Babul and Neem, lower down in the plains, however, at present most of these forests have disappeared. What remains today, are poor stunted and malformed trees of scrubs in scattered patches. Before, the independence of our country the forest areas were under the administration, of a forest division in Solapur district. But due to the



growing pressure of population, some forest lands were converted in to agricultural land and some were denuded of vegetation and soil. At present, forests are mainly observed in patches in Malshiras, Sangola and Barshi tahsil on hill slopes and low lying areas. Most of the forest product of the district is consumed by the local people.

In fact, the forest produce falls short of the total demand and the requirements have to be imported from other places of Maharashtra and India. The important collections of forest produce in the district are Barshi and Solapur. Despite, other tahsil Head Quarters such as Pandharpur, Mangalwedha, Sangola and Akkalkot are important centre's for the collection of forest products.

2.3 Historical Background:

The district Solapur earlier formed the parts of Ahamadnagar, Pune and Satara. The district of Solapur was formed in the year 1838 and consisted of eight subdivisions, with the reorganization of the states in 1956, the district was included in Bombay state and since 1960, it forms the part of Maharashtra. At the time of 1961 census, the district comprised of eleven tahsils and ten towns. However, there have been certain changes in the number of villages during last decades but the number of towns in the district remains same.

The history of Solapur can be traced back to the early centuries of the Christian era (BC-90 to AD-300). Solapur most probably formed part of the territory of the Shatakerni or Andhrabhritya dynasty, whose capital was Paithan on the river Godavari. A Sanskrit inscription dated Shake 1238 after the down fall of Yadavas town was as a Sonalipur, later on called as Sonalpur and then Sandalapur. Hence, it is probable that during course of time, the name Solapur was evolved by dropping ‘na’ from the original name Sonalapur. During the 900 years ending with Muslim by over throwing of the Devgiri Yadavas in the beginning of the Fourteenth (14^{th}) century. Solapur lies the neighboring the districts of Ahamadnagar, Bijapur, Pune and was held by the early western Chalukyas, from 550 to 760, by the Rashtrakutas to 973, by the revived or western Chalukyas to 1184 and by the Devgiri Yadavas, till the Muslim conquest of the Deccan in about 1300 AD.

The Muslim ruled during the period 1294-1720 before the advent of Britishers in 1818. After the victory of General Smith over the Peshawas during the battle of 19th February 1818, the British rules Solapur and appointed Maratha Raja as administrators.

At Solapur, there is an important temple in honor of Siddheshwar, a Twelfth (12th) century devotee of Lord Shiva and it has become a sacred place of Lingayat faith and also for Hindus. There is a annual pilgrimage known as "Gudda" on Makarsankrant day and procession is held known as "Procession of Kathies". In fact, this whole area is a meeting ground for Bhagawats from all over Maharastrian and Lingayat from Karnataka.

The Solapur district was formed in 1838 and although it was abolished in 1864, it was revived in 1869. As a result of the merging of the states in 1949 to new tahsils namely Akkalkot and Malshiras were formed and added to Solapur district. With the reorganization of the states in 1956, the Solapur district was included in the larger bilingual state of Bombay. Since 1st May 1960, it forms a part Maharashtra of unilingual state. In 1981, the district comprised of eleven tahsils and ten towns. Till today, i.e. March (2010) the district has eleven tahsils and eleven towns.

2.4 Social Background:

The region under study is situated on the borders of Maharashtra and Karnataka. Andhra Pradesh is the nearby state which has also much influence upon the region under study. The district of Solapur is influenced by different social aspects such as language and traditions. The social structure of the district is made up of various religious communities like Hindu, Muslims, Buddhists, Christians, Jain and others.

Table 2.4

Percentage of religious population in Solapur district

Religion	% of Religious population 1971	% of Religious population 2001
Buddisists	1.76	2.01
Christians	0.29	0.35
Hindus	87.65	87.30
Jains	0.93	00.94
Muslims	9.33	09.35
Others	0.04	0.05
Total	100.00	100.00

Source - Socio-economic abstract of Solapur district 2001.

The table concerned clearly reveals the proportion of religions communities in order of its importance, they are Hindus, Muslims, Buddhists, Jain, Christens and Others. Though majority of the people speak Marathi, the language is at certain extent mixed with the language of adjacent states, and Tone in which their speech is also influenced and that is the reason, people from this area can easily be identified. There is a considerable inmigration of the people from the neighboring states particularly from south. A sizable proportion of the people are staunch Shivite and follow Lingayat sect. Among the Hindus Niralies and Rangaris are found comparatively more in number as a district is known for textile products. Noteworthy characteristics of such peoples of area are that traditionally they do not dye black and is taboo.

Among the Muslim which constitutes, the second largest population in the study region is sub grouped in 47 classes. 17 are of foreign origin and rest 30 is local converted Hindus. As the region was continuously under Muslim rule after Yadvas large number of local

converts and foreigners settled in the Solapur. Many of them claimed they came along with General Wellesley's army in 1803, and settled here in the district of Solapur. Bohora and Momin traders have come from Gujarat and Kutch. They came from cities and speak Urdu, but from villages speak Marathi or Kanada. Man of Shaikh and Sayeed classes wears a head craft of dupatta. The Muslim women wear same cloth as the Hindu women wear. Jains are of considerable number they are the followers of Digamber sect and followers of Shwetambara are also found. Along with local there are many Marwadi and Gujarati Jains.

The most of Buddist in the region under study are newly converted Hindus from the lower strata. In fact they also practice tradition and culture of Hindus. In other religious community most probably are Parsees in the town of Solapur they are mainly traders. Similarly there are number of Sindhis, who are engaged in trade and business in the Solapur city.

Population:

Though, the population aspects are out of the scope of Settlement geography directly, since demographic aspects indirectly have great bearing upon the change and modification of natural and cultural landscape, since very ancient time.

Table 2.5

Growth of Population in Solapur District

Year	Total Population	Decadal variation in percentage
1901	875368	-
1911	946761	+ 8.16
1921	900267	- 4.19
1931	1058959	+ 17.63
1941	1215953	+ 14.83

1951	1490446	+ 22.57
1961	1860102	+ 23.66
1971	2254369	+ 21.17
1981	2588139	+ 15.88
1991	3231057	+ 24.84
2001	3856543	+ 16.21
2011 projected	4623824	+ 24.25

Source: Socio-economic abstract of Solapur district 2004-05

Growth of Population

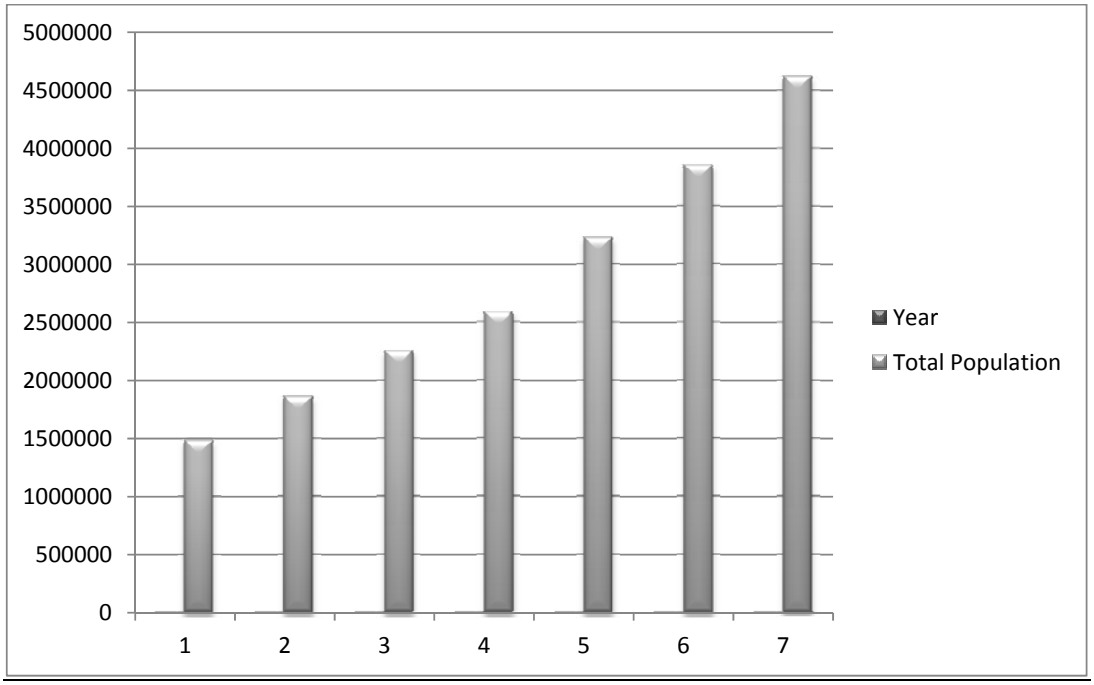


Figure 2.10

The growth of population for the district as a whole is represented in the table 2.5. Since beginning of the 20th century, it was 8.16 percent between 1901-1911. During the period of 1911-1921, the growth rate of population was extremely low due to the impact of epidemic diseases. During 1931-51 the growth rate was fluctuating from 17.63 percent in 1931 to 22.57 percent in 1951. Then, again it started declining gradually

and became as low as 16.21 percent in the year 2001. This is due to the awareness among the people about the rapid growth of population and its negative consequences. (Fig. 2.10)

Table 2.6

Growth rate of population since 1901-2001

Year	General	Rural	Urban
1901-11	+8.18	+13.37	-12.12
1911-21	-4.19	-14.20	+41.64
1921-31	+17.63	+16.28	+ 21.71
1931-41	+14.33	+9.10	+31.44
1941-51	+22.57	+19.28	+30.50
1951-61	+25.57	+29.48	+10.56
1961-71	+21.87	+22.16	+18.60
1971-81	+15.17	+12.54	+12.42
1981-91	+23.21	+24.25	+21.03
1991-2001	+16.21	+17.69	+24.02

Source : Socio-economic abstract of Solapur district. (2004-05)

The table 2.6 depicts the percentage of population of the district for rural and urban areas for last 100 years. The table concerned reveals the total, rural and urban growth rate of population during 1901-2001 periods. During the period 1901-1911 due to severe epidemic diseases, the growth rate of population declined particularly for rural areas, while during the 1921-1991, it went on increasing for all the tahsils of Solapur district. Now the impact made by education and high level of literacy on the one hand and improved medical facilities on the other, the growth rate of population was brought under control due to family planning program

and it declined substantially all over the region within the district of Solapur for both rural and urban areas.

Among the various parameters, the anthropogenic factors are most dynamic to change the natural environment or may sometime destroy life of plant kingdom within no time, by his destructive mode of nature.

Table 2.7

Total Geographical area in sq km and total Population and density in sq km. of Solapur district

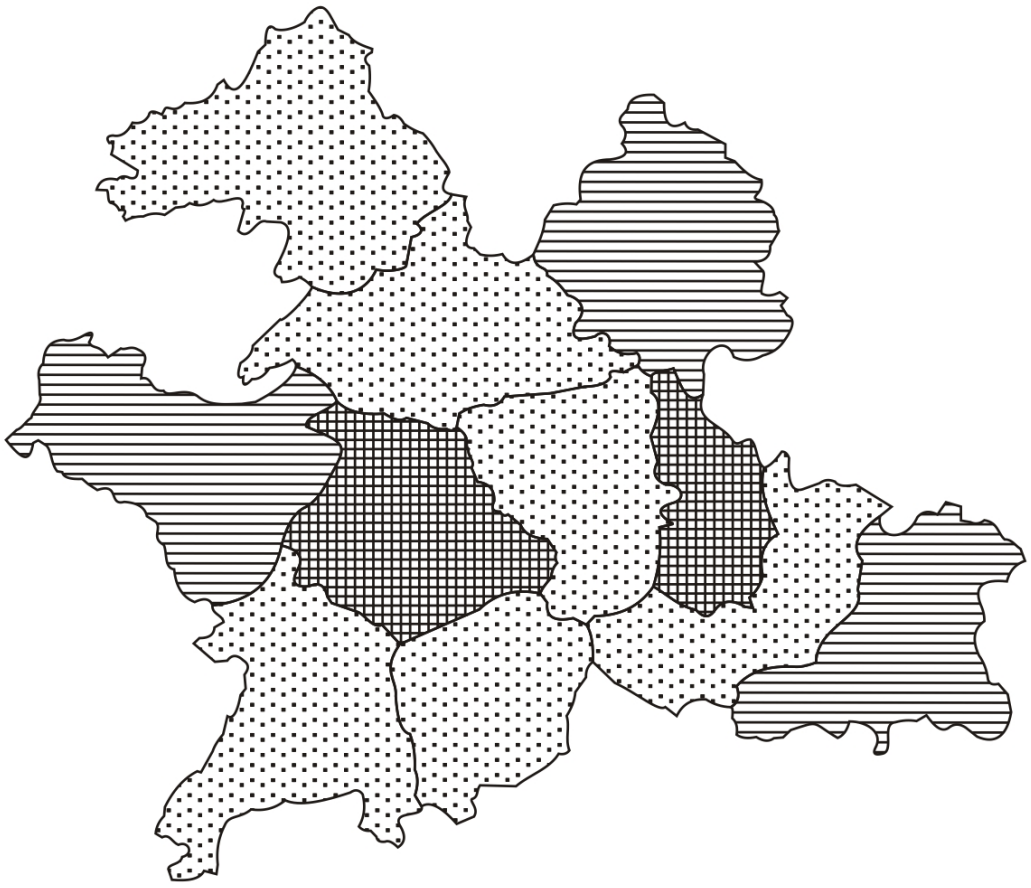
Tahsils	Total Area in sq km	Total Population	Percentage of Population of the District	Density in sq km in 2001
1) Karmala	1609.70	233316	6.07	145
2) Madha	1544.90	292611	7.60	189
3) Barshi	1483.10	340831	8.85	230
4) North Solapur	746.30	960803	24.96	1287
5) Mohol	1408.40	252526	6.56	179
6) Pandharpur	1303.60	402707	10.46	309
7) Malshiras	1522.20	422600	10.97	278
8) Sangola	1550.70	272077	7.06	175
9) Mangalweda	1140.20	171261	4.45	150
10) South Solapur	1195.30	210774	5.48	176
11) Akkalkot	1390.30	290037	7.54	209
Solapur District	**14895.40**	**3852942**	**100.00**	**258**

Source: socio-economic abstract of Solapur district 2004-05

In Solapur district, the proportions as we have already discussed in the concerned head of forest, is as low as 2.14 percent of the total geographical area which is tremendously lower than the state of Maharashtra and country as a whole. Hence, it is anticipated that in the region under study the human interference is the most prime factor to

SOLAPUR DISTRICT

Density of Population (2001)



N

0 12 24 Km.

INDEX

Persons per Sq.Km.

- Below - 200
- 200 -300
- Above - 300

Fig. No.2.11

bring out the proportion of forest as low as 2.14 percent of the total geographical area. (Fig. 2.11)

Population aspect like the growth and the density of population is essential to include in the introducing subject to understand the overall nature of the region due to interrelated impact of physical, social and economic aspects to one another. Taking into consideration the demographic aspects, which will enable us to, interpret the manifold aspects of settlements distribution, and its various associated aspects such as facilities available in the settlements of the Solapur district.

2.5 Economic Background:

Among the various backgrounds of the region, the economic background of the region occupies a significant position, since many other sectors are influenced by the level of economy. Natural landscape may be modified by the economic man, to a greater extent. It is directly associated to the per capita income and standard of living of the people. Hence, it is necessary to give a general idea of the economic background of the Solapur district at a glance, in order to understand various facts of the region associated with the settlements of Solapur district.

2.5.1 Land Use Pattern:

The total geographical area of the district is 14895 square kilometer which is 4.88 percent area of the Maharashtra state. The data regarding the classification of the total area of the district according to various heads of land utilization not only reflect the extent of development of agricultural activities in the district, but also represents the cultivation potential of the region. The picture of any region becomes clearer to analysis to distinguish between physical and cultural landscape. This is essential to know about the various proportions of the land under different uses because their proportion gives an idea to the magnitude of land utilization. If the percentage of land is comparatively more under

agriculture, than the economy of the region may be considered, better off while on the other hand, if the land under other category is relatively more which open the way for economic activities other than agriculture. In short, land utilization of the Solapur district will give an idea about the natural landscape which is directly co-related with cultural landscape. As stated earlier, the total geographical area of the district is about 14895 square kilometer. The area under forest is only 2.14 percent of the total geographical area. This is an index to understand the place of Solapur district within Maharashtra and India. In India forest cover of total geographical area is about 20.2 percent, while 6.8 percent area is covered by good forest and 13.4 percent area is covered by open degraded forest. Ecological required forest cover is 33 percent of the total geographical area. Net required forest cover is 12.6 percent of the total geographical area in our country. The Solapur district has much more less percentage of forest than that of country. Partly, due to the region of Solapur district belongs to drought prone area of Maharashtra. Land used for non agricultural purposes in the Solapur district is below one percent, land under fellow category is 4.3 percent of the total geographical area, while pasture land is to 2.74 percent of the total geographical area. (Table 2.8)

Table 2.8
Land use in square kilometers and in percentage.

Land use category	Total Area in sq km	% of Land Use
Land Under Forest	319	2.14
Area not available for cultivation	796	5.34
Other uncultivated land excluding fellow land	709	4.76
Fellow land	3301	22.16
Net Area Sown	9770	65.60
Total Geographical Area	**14895**	**100.00**

Source: socio economic abstract of Solapur district 2004-05

The percentage of total cultivable land is quite impressive, which is about 69.07 percent of the total geographical area. This shows that the district of Solapur has been modified from natural landscape into cultural landscape on a large scale. (Fig. 2.12)

Table 2.9

Tahsil wise Percentage of Land use in Solapur district (2000-01)

Sr. No.	Name of Tahsil	Area available for cultivation	Area not available for cultivation	Other uncultivable land exclusive fellow land	Fellow Land	Net sown area
1	N. Solapur	2.52	5.73	2.18	29.77	59.80
2	Barshi	1.70	7.49	6.83	28.96	55.02
3	Akkalkot	0.45	0.21	3.34	26.27	69.73
4	S.Solapur	1.03	3.79	1.79	23.92	69.47
5	Mohol	1.52	12.20	0.20	16.73	69.35
6	Mangalwedha	0.64	3.42	3.58	18.77	73.59
7	Pandharpur	2.38	5.45	2.38	15.48	74.31
8	Sangola	4.63	9.19	11.20	23.47	51.51
9	Malshiras	3.17	3.43	12.73	20.55	60.12
10	Karmala	3.78	5.00	3.49	20.04	67.69
11	Madha	1.22	2.89	4.67	19.86	71.33
	District Total	**2.14**	**5.34**	**4.76**	**22.16**	**65.60**

Source: Socio economic abstract of Solapur district 2004-05

Tahsil wise general land use pattern within the district, varies from one type of land use category to another type enormously. The area under forest was 21.14 for the district as a whole. There are six tahsils having percentage of area below the region understudy. Rest five tahsils have shown, forest area above the district average in the year 2000-01(Table. 2.9). Area not available for cultivation was 5.34 percent for region as a whole. There are five tahsils having lower percentage than the region, and rest other tahsils have shown higher percentage in this category. Other uncultivable land excluding fallow land represented 4.76 percent area for

Solapur district, and there are eight tahsils which show area below the region average. On the other hand, three tahsils recorded area more than the region under study as a whole. Fallow land, depicted 22.16 percent area of the total geographical area under these category, seven tahsils of the district represented lower percentage of area under fallow land, while other rest tahsils showed higher percentage in the Solapur district. The net sown area was 65.60 percent for the region as a whole. (Fig. 2.13) Due to hill terrain, Barshi, Sangola and Malshiras tahsils have shown much lower percentage than the region as a whole, while other tahsils recorded much higher percentage of net sown area than the region under study in the 2000-01.

2.5.2 Irrigation:

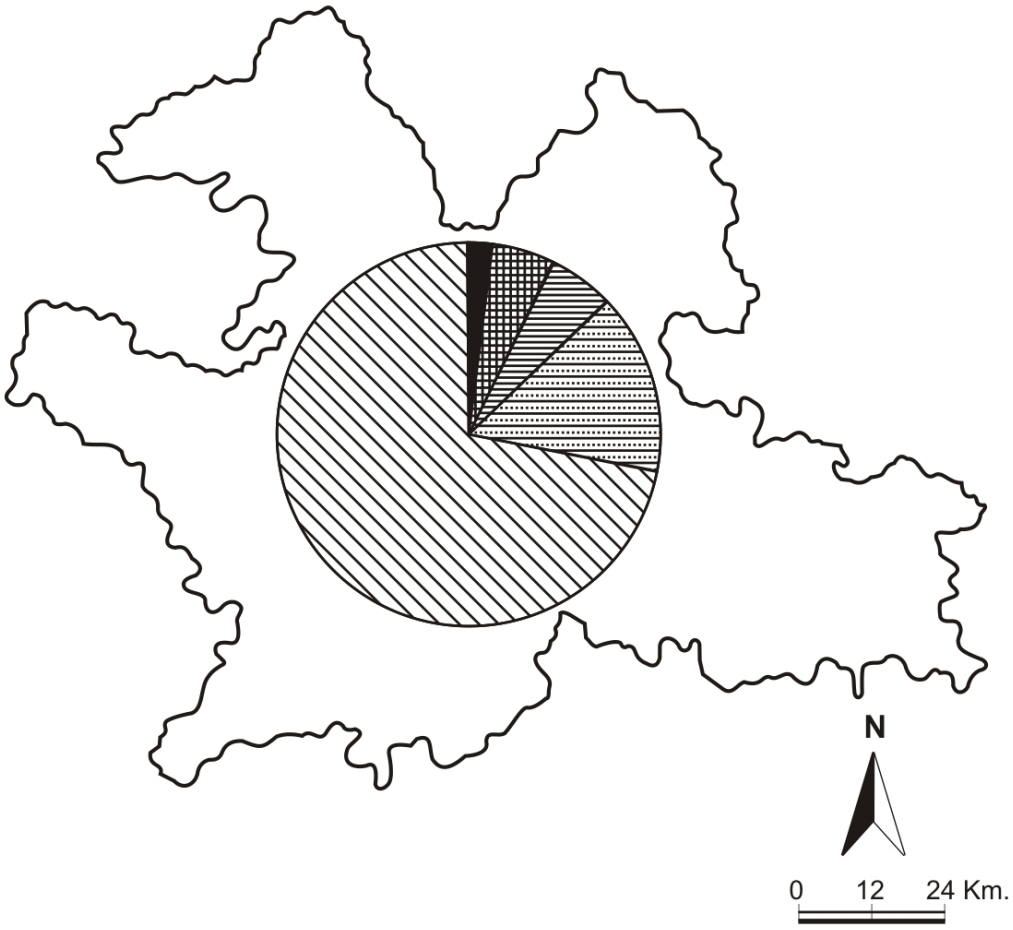
Solapur district is still dependents on the vagaries of monsoon. Irrigation aims at making good the deficiencies of rainfall thereby, bring more land under plough, which otherwise would have remained uncultivated for want of water. In short, the object of irrigation is to arrangement form produce. At present wells, bandharas, tanks and canals are main sources of irrigation. Installation of oil engines, electric pump sets have benefitted agriculture to a large extent in Solapur district.

Table 2.10
Types of irrigation, area in hectors and percentage. (2001)

Types of Irrigation	Area in 00 hectors	Area in %
Surface irrigation	341	3.21
Well irrigation	765	7.21
Net irrigated area	1106	9.86
Total irrigated area	**1298**	**11.58**

Source-Maharashtra Sandharbha Granth

SOLAPUR DISTRICT
GENERAL LANDUSE PATTERN
2000-2001



	LAND UNDER FOREST
	LAND NOT AVAILABLE FOR CULTIVATION
	CULTIVABLE WASTE LAND
	FALLOW LAND
	NET AREA SOWN

Fig. No.2.12

SOLAPUR DISTRICT

TAHSILWISE LANDUSE PATTERN

2000-2001

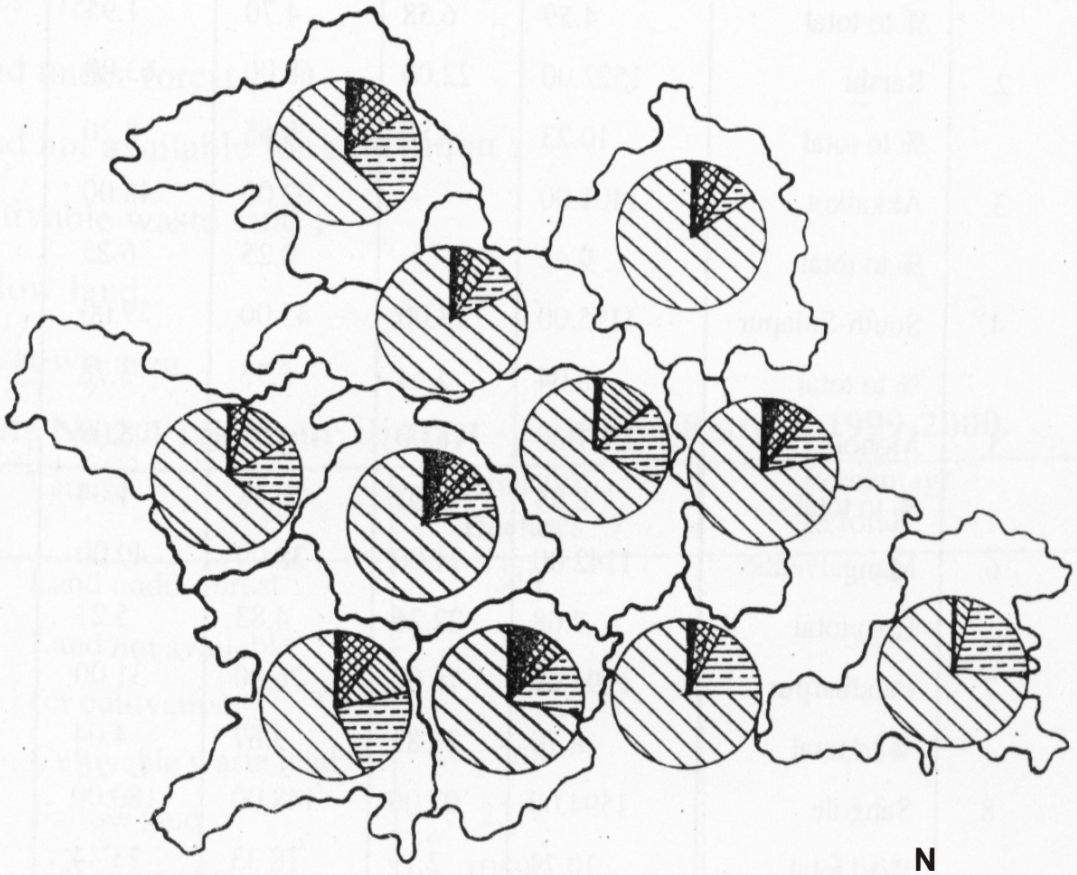


Fig. No.2.13

The table concerned gives the percentage of irrigated land to total cultivated land in Solapur district. The proportion of irrigated land is relatively poor due to physical constrains and scarcity of water. The surface irrigation shows only 3.21 percent area while the well irrigation is as high as 7.21 percent of the total cultivated land in Solapur district. Total grossed area irrigated is 12.23 percent of the total cultivated area of the district, which includes the irrigated land more than once in a year. Net irrigated area is 9.86 percent of the total cultivated land and total irrigated is about 11.58 percent of the total cultivated land of the district.

2.5.3 Transportation:

Transportation and communication is an index of social and economic development in a particular region, because most of the economic and social activities are positively influenced by the network system available in that region. In terms of railway, the Solapur district is quite fortunate to have sizable length of total railway lines. As mentioned earlier the district has the total length of railway line of 452.60 kilometer within district, yet 126.90 kilometer is under construction from narrow gauge to Broad gauge.

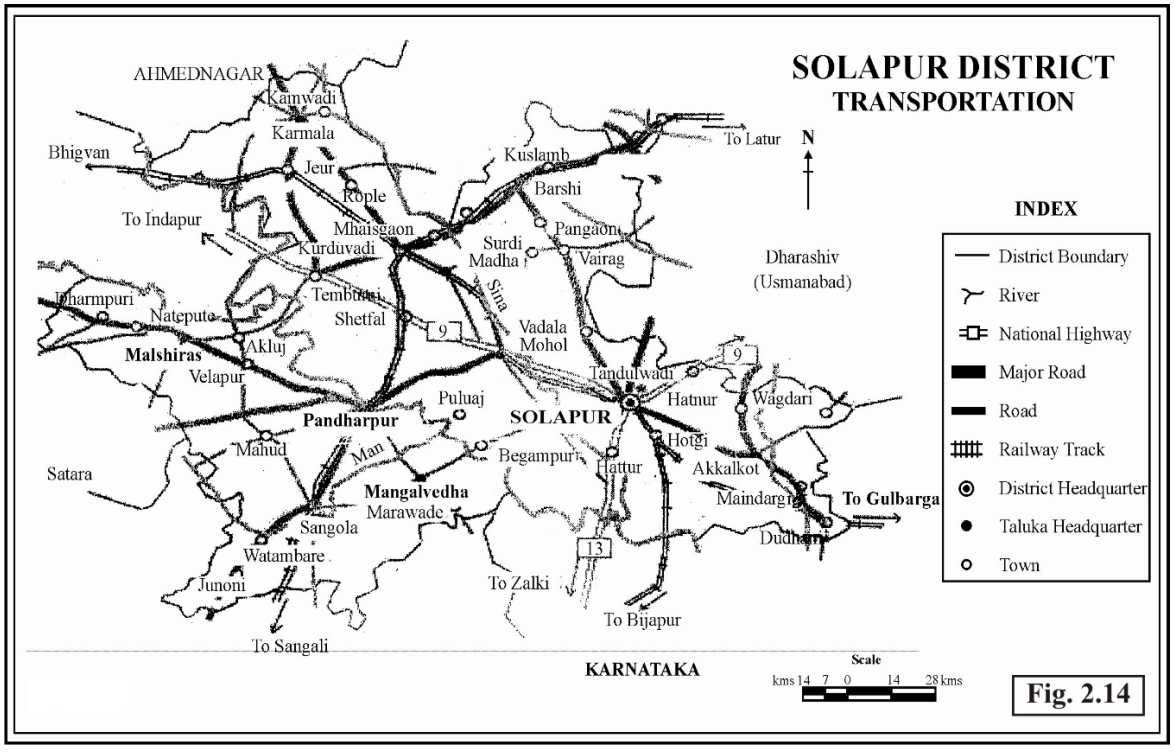
The road is another important means of transportation for the social and economic development in a particular region. Unlike railway, roads provide door to door services in terms of road transportation, the Solapur district is better off, since it has total length of road ways of 14108 kilometer, out of this, 188 kilometer belongs to National Highway, 173 kilometer major state highway, while 1332 kilometer state highway. Apart from this the major district roads have the length of 3039 kilometer, while other district roads occupy 2238 kilometer. The village roads are comparatively having a sizable distance in kilometers and comprising 7238 kilometer length within district connecting all the villages in the district. (Fig. 2.14)

Table 2.11

Length of Road and Railway in Solapur District

Types of Roads	Length in km	Length in Percentage
National Highway	188	1.33
Major State Highway	173	2.35
State Highway	1332	9.44
Major District Roads	3039	21.54
District Roads	2138	15.14
Village Roads	7238	51.29
Total Length	**14108**	**100.00**

Source: Complied by Author



In order of importance, the table concerned reveals village roads which account more than half of the total length of the district. It is followed by the major district roads which is slightly less than one fourth (1/4) of the total length of the district. It is further followed by other

district road in order of their importance which is one sixth (1/6) of the total length of the district roads.

The state highway occupies less than ten percentage of the total length of the district, while major state highways have little more than two percentage of the total length of the district. The national highways have little more than one percent length of the district. The transportation network is directly correlated with the exploitation of the natural resources, as well as economic and human resources.

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CHAPTER - III

DISTRIBUTIONAL PATTERN OF SETTLEMENTS

CHAPTER - III

DISTRIBUTIONAL PATTERN OF SETTLEMENTS

3.1 INTRODUCTION:

The spatial organization of the settlement represents a very peculiar picture of the region concerned. This is reflected in the socio-economic conditions of the inhabitant of the respective region. In fact, the spatial organization of the settlement is determined by physical, social, cultural and economic conditions of the region concerned and depicts the patterns that how the society uses the space. The spatial organization of the settlement is the visual format of the distribution human population concentration over the earth surface in the manner that of the night sky composed of stars constellations and great galaxies of different sizes.

The spatial organization of the settlements includes, the growth, size, spacing patterns of the settlements and functions performed by these settlements as well. The spatial organization also shows the way which society acts seeks to discover the relationship between functions, growth, size, spacing pattern of the settlements. At the same time the spatial organization of settlements gives the way for the planners and policy makers in formulating the development plans and to evolve an effective strategy to minimize the existing disparities in physical, social, economic and cultural aspects. Hence, the spatial organization is of prime importance to a scholar as social and economic development of the settlements is concerned. The study of spatial organization of the settlements has enabled us to understand manifold problem associated within the Solapur district.

3.2 THE SPATIAL PATTERN OF SETTLEMENT:

The term pattern is often quoted with word shape. However, there are geometrical dissimilarities between these two terms. A closed curve

has a shape; where as non-closed collection of points has a pattern. The settlement pattern is a system of complex organization with manmade habitat on the earth's surface representing an organized colony of the human beings including the building in which people live, work, store, use them otherwise, tracks and street over which their movements takes place. Settlement pattern denotes the shape or arrangement of settlements in relation to natural or manmade features such as stream, ridges, canals and roads. Distributional and functional pattern of settlements is the outcome of diverse physio-cultural, socio-economic and historical factors over a period of time. Settlement pattern comprises of two aspects that is external layout and internal plan and hence, may be either formal or functional. Former is based on size, growth, spacing, density and spatial distribution of settlements and later is based on frequency distribution, clustering of functions, hierarchic order and zones of influence of settlements. The growth pattern of settlements is determined by growth of settlement at simple numeral scale and on the basis of population growth. The size pattern of settlements is based on size of population at numeral and locational distribution. The growth and density of each individual settlement is reflected in spatial pattern of settlements. Thus, the present chapter deals with only formal patterns of settlements in systematic order.

3.3 DISTRIBUTION OF SETTLEMENTS IN SOLAPUR DISTRICT:

The region under study, namely Solapur district is essentially agricultural with and agrarian economic base with more than seventy percent population living in the rural settlements. There are clear contrast in the topography, soil types, natural drainage, agricultural practices, industrial development and the level of socio-economic development. It is, therefore, essential to examine the influence of these factors on the distribution of settlements in the region of Solapur district. The entire

region has eleven tahsils, covering an area of 14895 square kilometer and population of 3855383 people's according to 2001 census. Out of the 1150 inhabited settlements, in the region under study, 1140 settlements are rural and 10 are urban settlements. Out of the total 1150 settlements, there are three class one urban centres as per 2009. The rural settlements have been located according to their actual positions within the tahsils.

Out of the 1140 rural settlements in the district, the highest number was for Akkalkot tahsil, while the lowest number of settlements was for North Solapur tahsil. Mangalwedha and South Solapur tahsil along with the North Solapur tahsil represented the number of rural settlements below 100, while others tahsils have more than 100 settlements.

3.4 GROWTH PATTERNS OF SETTLEMENTS:

The growth patterns of settlements refer to the temporal change in number of settlement as well as change in number of population of these settlements. For the present analyses the decal year 1971 is considered as a base year for the growth patterns of settlements for the last four decades. In the year 1971, there were 948 settlements in the entire district of Solapur, which increased to 1095 in the year 1981. This was a very remarkable increase in number of rural settlements (147), which comes to 15.51 percent. Now the question arises where from these new settlement have been added. This is probably due to the expansion of small hamlet into a new rural settlements.

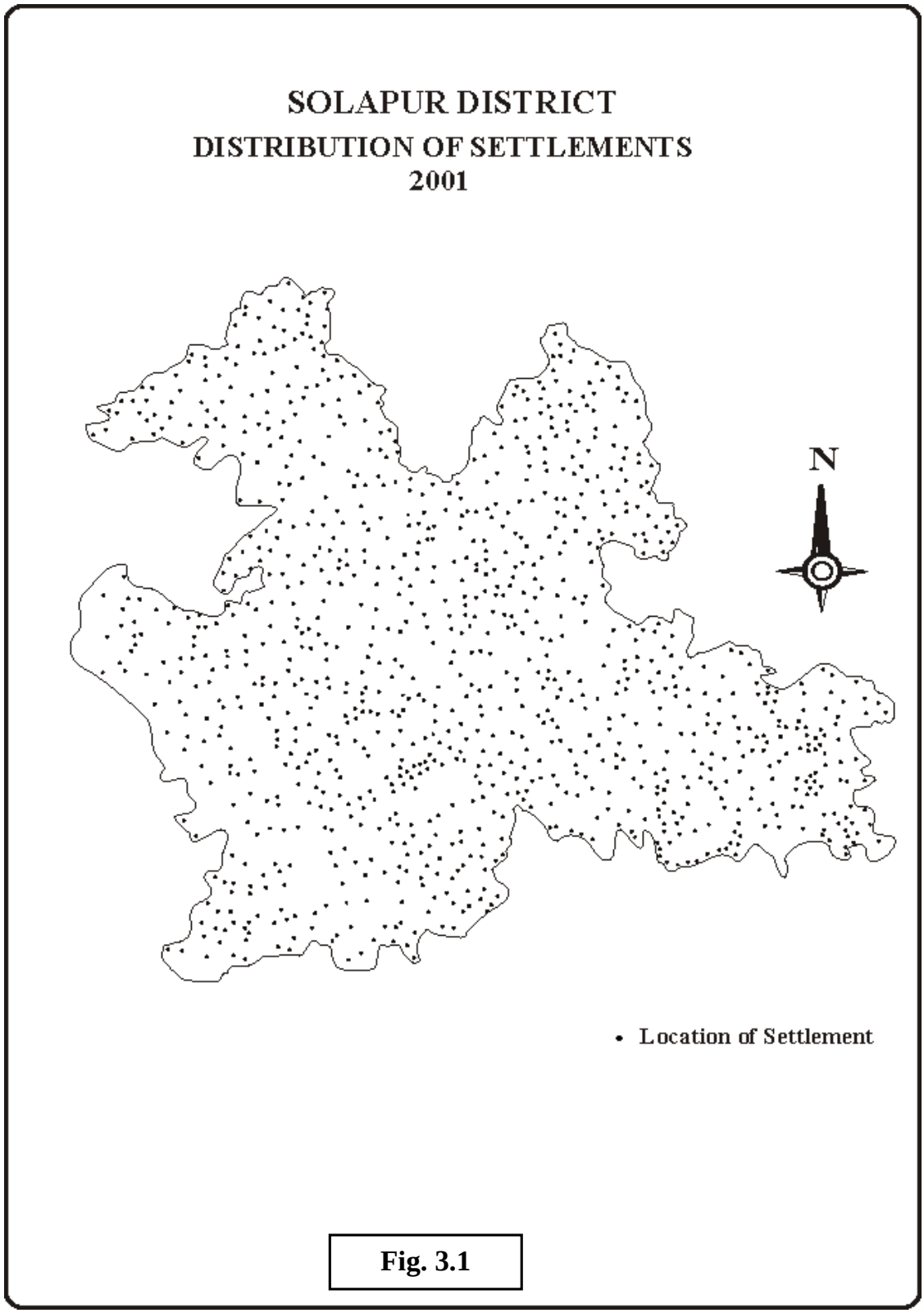

SOLAPUR DISTRICT
DISTRIBUTION OF SETTLEMENTS
2001
N
• Location of Settlement

Fig. 3.1

Table 3.1

Changing Pattern of Settlements in Solapur District 1971 – 2001

Sr. No.	Year	No. of Settlements	Change		% decadal Growth
			Overall	Percentage	
1.	1971	948	--	--	--
2.	1981	1095	147	15.51	15.51
3.	1991	1134	39	3.56	19.07
4.	2001	1150	16	1.41	20.48

Source: Compiled by the researcher based on censes 1971 to 2001.

In the year 1991, the number of rural settlement became 1134 and the net increase was registered during 1981-1991 of 39 settlements. It comes to 3.56 percent during the 1981-1991 periods, while decadal growth was registered 19.07 percent during 1971-1991. For the year 2001 the total number of settlements was registered to1150, which represent the net increase of rural settlements of 16, which comes to 1.41 percent during 1991-2001 periods. The decadal growth was 20.48 percent during 1971-2001 periods, where the total net increase of the rural settlement was 202 settlements.

The figure 3.2 represents the growth of settlement in Solapur district during the earlier decades of 1971-81, the growth of settlement was rapid and for the next three decades slow down. These shows that now due to the impact of secondary and tertiary sectors of economy, people are migrating from rural to urban areas in search of better employment opportunities. This has resulted in non saturation of the population in larger rural settlements to accommodate growing population for decades.

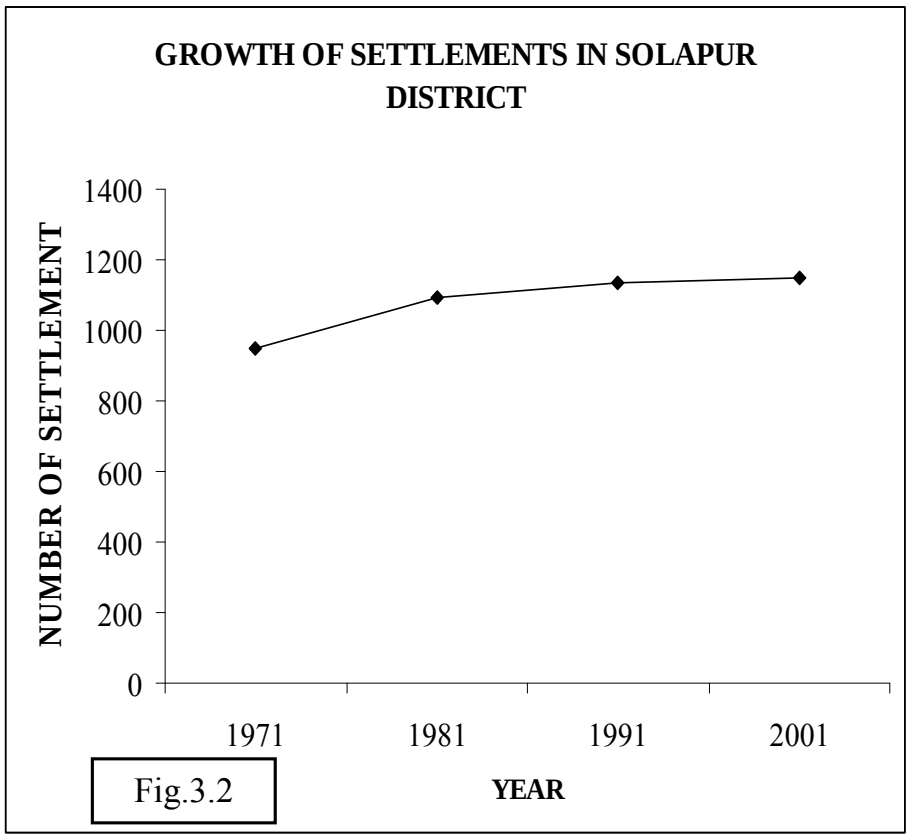


Fig.3.2

3.5 DENSITY PATTERN OF SETTLEMENTS

The number of settlements according to population density in Solapur district is considered to explain the distribution of the settlement unit of human occupancies on the basis of numeral pattern and levels of population density of the respective units.

For the Solapur district as whole and for its different tahsils the settlement density has been calculated for the last four decades. As expected, the density of settlement per 100 square of area has been increased from 6.32 in 1971 to7.67 in the year 2001. It is, as a result of increase in the number of some new rural settlements at the expanse of hamlet in Solapur district. Similarly, there are more as less no substantial change in density of settlement per 100 square kilometer area during the last four decades for different tahsil of the Solapur district.

Table 3.2
Settlement Density in Solapur District
1971 – 2001

Sr. No.	Tahsil	Settlement Density per 100 Sq. Km.				Change			
		1971	1981	1991	2001	1971-81	1981-91	1991-2001	1971-2001
1	Karmala	6.02	7.40	7.39	7.39	1.38	0.00	0.00	1.38
2	Barshi	7.80	8.80	8.87	8.97	1.00	0.07	0.10	1.17
3	Madha	6.29	9.46	7.60	7.66	3.17	-1.86	0.06	1.37
4	Malshiras	4.66	6.47	6.85	7.28	1.80	0.38	0.43	2.61
5	Pandharpur	6.41	7.18	7.26	7.88	0.77	0.08	0.62	1.47
6	Mohol	6.73	7.82	7.74	7.90	1.09	-0.08	0.16	1.17
7	Solapur North	6.30	7.18	7.76	6.15	0.89	0.58	-1.61	-0.15
8	Solapur South	6.70	7.29	7.45	7.62	0.59	0.16	0.17	0.92
9	Sangola	4.27	5.39	6.33	6.40	1.13	0.94	0.07	2.13
10	Mangalwedha	6.22	6.92	7.09	7.10	0.70	0.17	0.01	0.88
11	Akkalkot	8.49	8.99	9.63	9.25	0.50	0.64	-0.38	0.76
	Total	**6.32**	**7.51**	**7.62**	**7.67**	**1.19**	**0.11**	**0.05**	**1.35**

Source: Compiled by the researcher.

In the year 1971, the average value for settlement density per 100 square kilometer was 6.32 for region as whole. The tahsils having higher number of settlement density per 100 square kilometer area were in the tahsils of Akkalkot, south Solapur, Mohol, Pandharpur and Barshi, while for other tahsils, it was below the region average. In the year 1981, the average density for region as a whole was 7.51 and Barshi, Madha and Akkalkot tahsils represented higher density than the average in the year 1991. The average settlement density was 7.62 for Solapur district in the year 1991, the tahsils having higher density than the average for the

region were Barshi, Mohol, North Solapur and Akkalkot. In the year 2001, the average density of settlement was 7.67 per 100 square kilometer area, Barshi, Malshiras, Pandharpur, Mohol and south Solapur have shown the higher density than the region under study as whole. While rest other tahsils have shown much lower density than the average for the region.

The change in the settlement density was quite low during the last four decades; it was 1.35 percent for Solapur district during 1971-2001. The highest change was recorded for Malshiras tahsil and it was followed by Sangola. North Solapur tahsil has recorded decline in the settlement density of -0.15 during the 1971-2001. It may be attributed to the merging of the thirteen rural adjoining settlements in the Solapur city. Except, North Solapur, all other tahsils have shown positive change in settlement density during the same period.

3.6 SETTLEMENTS ACCORDING TO POPULATION DENSITY

The numbers of settlements according to population density have also been calculated for the region as whole, as well as for its different tahsils for the year 2001. For the purpose of population size the numbers of settlements have been grouped into five category as represented in the concerned figure. The total numbers of settlement in the district are 1150, which makes hundred percent settlements of the district. It is clear from the table that more than 84 percent settlements are confined between 100-500 categories.

Remaining thirteen percent settlements were found below 100 categories. It shows that for district as whole, settlement are of a smaller size and less than one percent only represents populations above 1000 with slight fluctuation of Malshiras and Barshi tahsils. The pattern of the settlement was the same for all the tahsils of the Solapur district. The

higher number of settlements was for the smaller settlements having population between 100 and 200 for all tahsils of Solapur district. This shows that the spatial organization of the settlement according to population density is smaller size in most of the tahsil of the Solapur district.

Table 3.3

Number of Settlements According to Population Density in Solapur district 2001

Pop Size / Tahsil	**Karmala**	**Madha**	**Barshi**	**North Solapur**	**Mohol**	**Pandharpur**	**Malshiras**	**Sangola**	**Mangalwedha**	**South Solapur**	**Akkalkot**	**Dist. Total**	**% to Total Settlement**
Less than 100	24	5	22	4	6	9	13	14	14	11	23	**145**	**12.61**
100-200	85	83	88	16	69	37	33	64	57	46	75	**653**	**56.78**
200-500	7	27	25	18	25	54	57	24	10	33	41	**321**	**27.91**
500-1000	1	2	1	3	3	2	8	0	0	1	0	**21**	**1.83**
Above 1000	1	0	2	0	1	0	6	0	0	0	0	**10**	**0.87**
Total	**118**	**117**	**138**	**41**	**104**	**102**	**117**	**102**	**81**	**91**	**139**	**1150**	**100.00**

Compiled by Researcher

3.7 SIZE OF SETTLEMENTS BASED ON POPULATION

The spatial distribution of the settlements according to population size has been represented through dot diagram of different sizes in the fig. 3.4. The pattern of the settlement resembles like the stars of the sky in the clear night. Five categories have been chosen for the population size of the settlements. In the district as whole, 7.65 percent settlement were found having population less than 500, while 16.78 percent settlements were having population between 500 - 1000. The highest percentage of

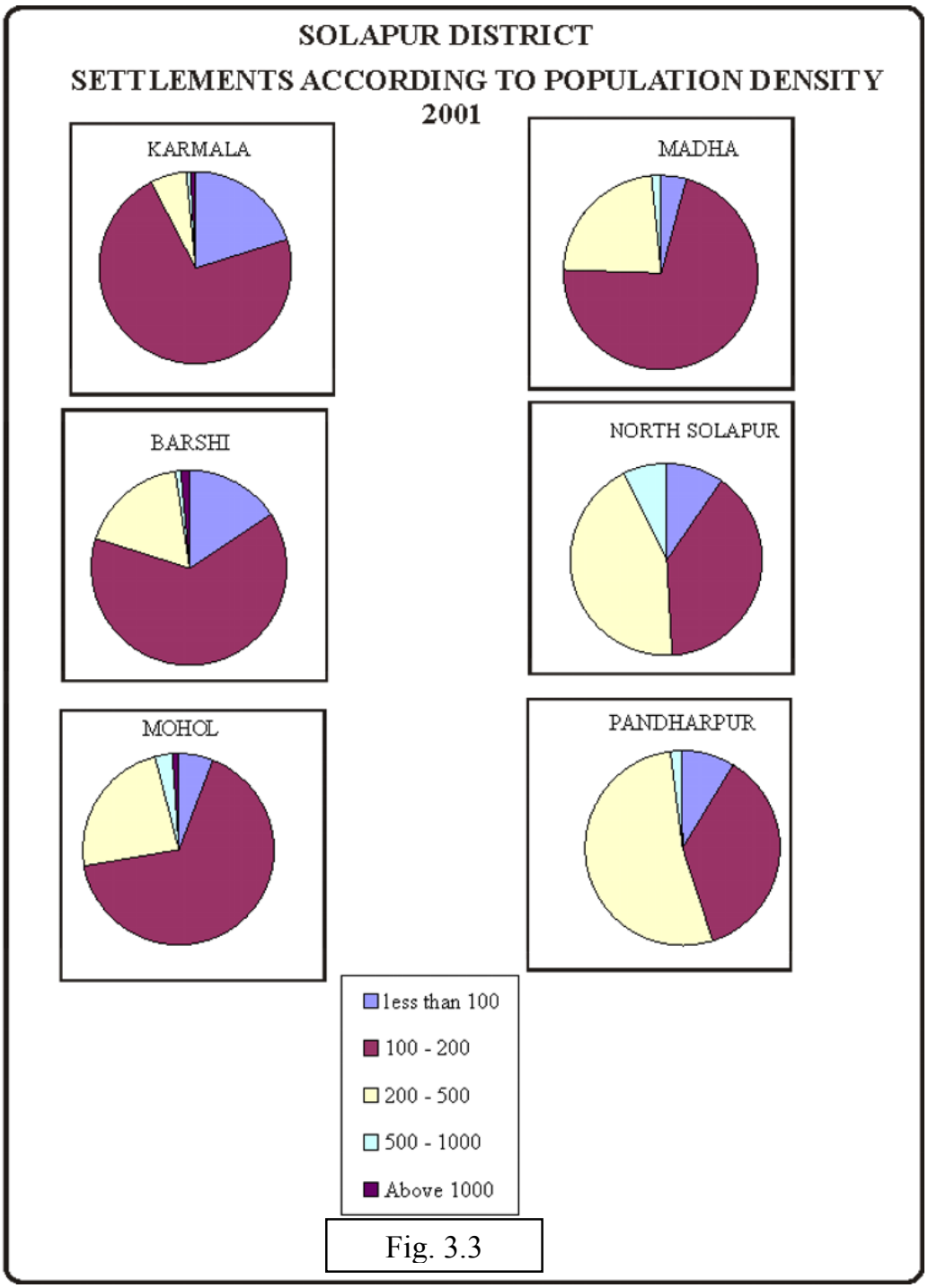

SOLAPUR DISTRICT
SETTLEMENTS ACCORDING TO POPULATION DENSITY
2001
KARMALA
MADHA
BARSHI
NORTH SOLAPUR
MOHOL
PANDHARPUR
less than 100
100 - 200
200 - 500
500 - 1000
Above 1000

Fig. 3.3

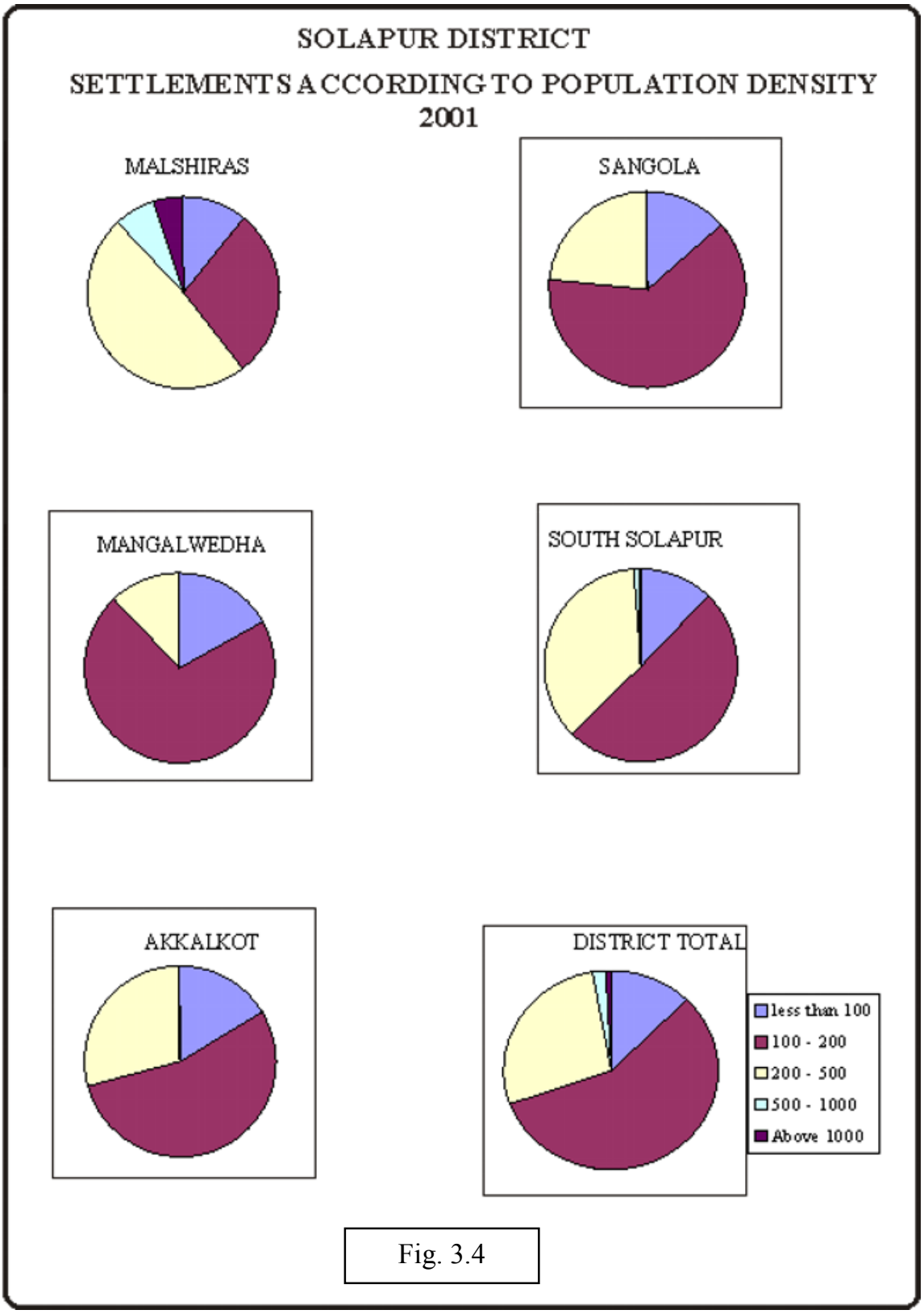

SOLAPUR DISTRICT
SETTLEMENTS ACCORDING TO POPULATION DENSITY
2001
MALSHIRAS
SANGOLA
MANGALWEDHA
SOUTH SOLAPUR
AKKALKOT
DISTRICT TOTAL
less than 100
100 - 200
200 - 500
500 - 1000
Above 1000

Fig. 3.4

the rural settlements having population between 1001 - 2000. Besides, 32.35 percent settlements were having population 2001 to 5000 for the larger settlements in the district of Solapur. And Settlement having population more than 5000 were 7.57 percent in the district as whole. These five categories of settlements have been represented in the dot map (Figure 3.4). The larger number of settlements was found in the Malshiras tahsils located in the western parts of the district. This may be probably due to entire region is of rural nature. No urban settlement is found in Malshiras tahsil. As for as larger rural settlements having population more than five thousand are concerned, was for Pandharpur tahsil in the central part of the district. Madha, Mohol and South Solapur have also sizable number of rural settlements having population more than 5000. Overall medium size of settlements predominate the region under study.

Table 3.4

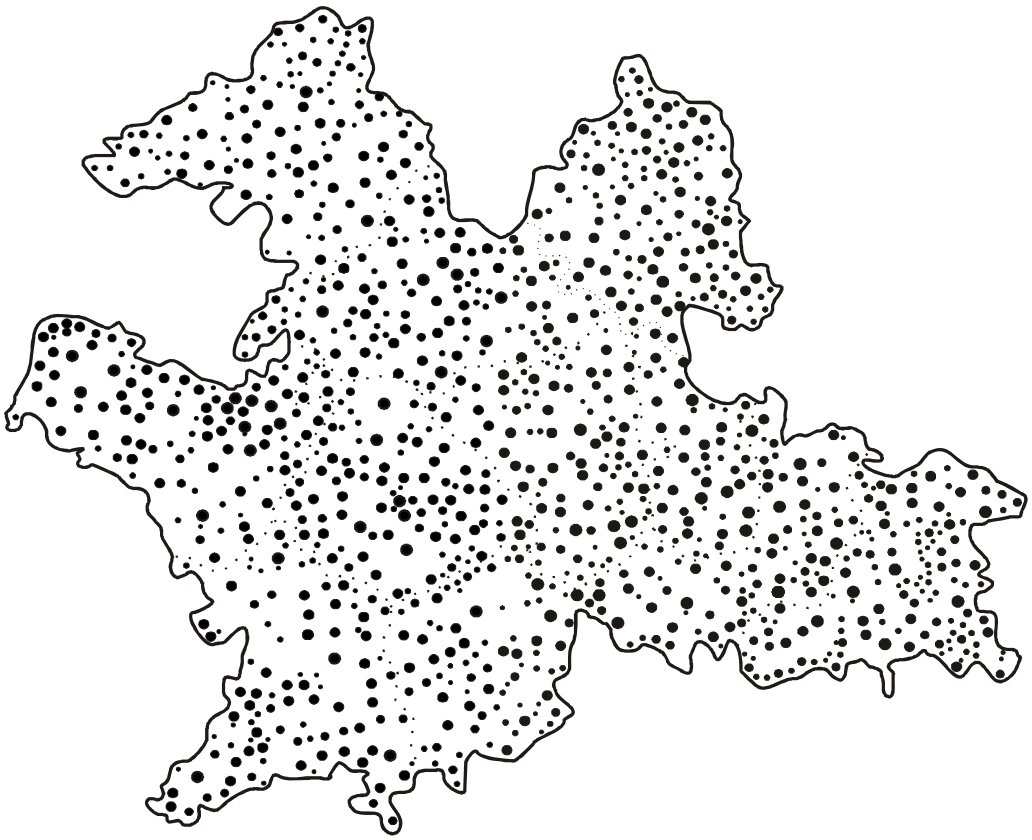
Number of Settlements according to Population Size in Solapur District 2001

Pop. Size	Karmala	Madha	Barshi	Solapur North	Mohol	Pandharpur	Malshiras	Sangola	Mangal-wedha	Solapur South	Akkalkot	**Dist. Total**	**% to Total Settlement**
Less than 499	10	4	14	6	8	6	2	2	5	7	24	**88**	**7.65**
500 - 999	25	20	35	4	15	9	9	19	16	12	29	**193**	**16.78**
1000- 1999	51	45	52	12	36	26	32	34	33	34	55	**410**	**35.65**
2000- 4999	27	39	33	17	36	46	56	40	24	29	25	**372**	**32.35**
above5000	5	9	4	2	9	15	18	7	3	9	6	**87**	**7.57**
Total	**118**	**117**	**138**	**41**	**104**	**102**	**117**	**102**	**81**	**91**	**139**	**1150**	**100.00**

Source: Compiled by the researcher

SOLAPUR DISTRICT

DISTRIBUTION OF SETTLEMENTS ACCORDING TO POPULATION SIZE 2001



Population Size of the Settlements

- Below 500
- 500 - 999
- 1000 - 1999
- 2000 - 4999
- Above 5000

N

KM 40 20 0 40 KM

Figure 5.4

3.8 HIGHEST AND LOWEST DENSITY OF SETTLEMENTS:

In order to identify, the highest and lowest density of settlements in terms of population in each tahsil of Solapur district in 2001, has also been found out. For the district as whole, Akluj stands in the first rank having the highest density of population of 3120 persons per square kilometer. This is due to the impact of political setup, as till today the Akluj settlement has not been categories in to urban settlement although having around fifty thousand populations. There are number of rural settlements having population more than 5000 are included in the Gram Panchayat separately, but merged in Akluj settlement resulting in such a higher density of population in the district of Solapur.

Table 3.5

Settlement having the highest and the lowest density of population in each tahsil of Solapur district (2001)

Sr. No.	Tahsil	Highest Density of Population		Lowest Density of Population	
		Name of Settlement	Person per Sq.Km.	Name of Settlement	Person per Sq.Km.
1	Karmala	Devichamal	1269	Dhokari	44
2	Barshi	Vairag	1128	Hingni(Ratanjan)	35
3	Madha	Modnimb	683	Jakhale	47
4	Malshiras	Akluj	3121	Motewadi	42
5	Pandhapur	Takali	558	P. Kuroli	95
6	Mohol	Malipeth	1013	Mangoli	66
7	North Solapur	Ekrukh	889	Savalalnagar	53
8	South Solapur	Mulegaon Tanda	789	Bandalgi	7
9	Sangola	Nazare	419	Bagalwadi	46
10	Mangalwedha	Asbewadi	458	Hunner	56

11	Akkalkot	Haidra	491	Mhetre (Laman Tanda)	15
District		**Akluj**	**3121**	**Bandalgi**	**7**

Apart from this Devichamal in Karmala tahsil, Vairag in Barshi tahsil and Malikpeth in Mohol tahsil, have density of population more than 1000 person's per square kilometer area. Other many rural settlements, as represented in table 3.5, have density of population below 1000 persons per square kilometer area.

On the other hand Bandalgi in South Solapur tahsil has shown the lowest density of population of seven persons per square kilometer of area. It should be noted that more than 7 to 50 persons per square kilometer were found in seven settlements of the different tahsils of the Solapur district. While, there were only four settlements having density of population between 50 - 100 for different settlements of the various tahsils in Solapur district. Perhaps, these settlements are of disperse types having lowest density of population in Solapur district.

3.9 PATTERN BY NEAREST NEIGHBOR INDEX:

An example of the search for order in settlements or other patterns in the landscape is the use of a technique known as nearest neighbor analysis. This attempts to measure the distributions of rural settlements according to the degree of clustered, random or regular within a particular region.

Methodology:

In the present study, an attempt has been made to compute the nearest neighbor analysis of settlements in the Solapur district. The main objective is to calculate the spatial pattern of settlements in each tahsil of Solapur district, which is useful in designing the proper strategy in

settlement planning. The tahsil wise data has been collected and processed to calculate indices by employing statistical procedure which is discussed in succeeding pages.

Settlements often appear on the map as dots. Dot distributions are commonly used in geography yet, their patterns are difficult to describe. One way, in which patterns can be measured objectively is by nearest neighbor analysis. Nearest neighbor analysis gives an index that enables one region to be compared with another.

$$Rn = \frac{\bar{D}(Obs)}{0{\cdot}5\sqrt{\frac{a}{n}}}$$

Key

R_n - Nearest Neighbor Value

D(Obs) = Mean observed Nearest Neighbor Distance

a = Area under study

n = Total number of settlements

Procedure:-

- Measure the straight line distance between each point and its nearest neighbor.
- Total all of the distances measured above. This is D in the formula.
- Calculate the tahsilwise area in the study region.
- Fit your calculations into the formula to calculate (R_n)

The formula produced by the nearest neighbor analysis furnishes a figure expressed as R_n (the nearest neighbor index) which measures the extent to which the pattern is clustered, random or regular.

Clustered: Rn = 0 - All the dots are close to the same point.

Random: Rn = 1.0 - There is no pattern.

Regular: Rn = 2.15 - There is a perfectly uniform pattern where each dot is equidistant from its neighbors.

The nearest neighbor formula generally produces a result between 0 and 2.15, where the following distribution patterns form continuum:

Table 3.6

Tahsilwise nearest Neighbor Index of Settlement in Solapur District (2001)

Sr. No.	Tahsil	Nearest Neighbor Index
1	Karmala	1.78
2	Barshi	1.08
3	Madha	1.35
4	Malshiras	1.21
5	Pandharpur	1.25
6	Mohol	1.21
7	North Solapur	1.57
8	South Solapur	1.48
9	Sangola	1.27
10	Mangalwedha	1.46
11	Akkalkot	1.07
	District Total	**1.35**

Source: Compiled by the researcher.

SOLAPUR DISTRICT

NEAREST NEIGHBOUR DISTANCES

SETTLEMENTS

2001

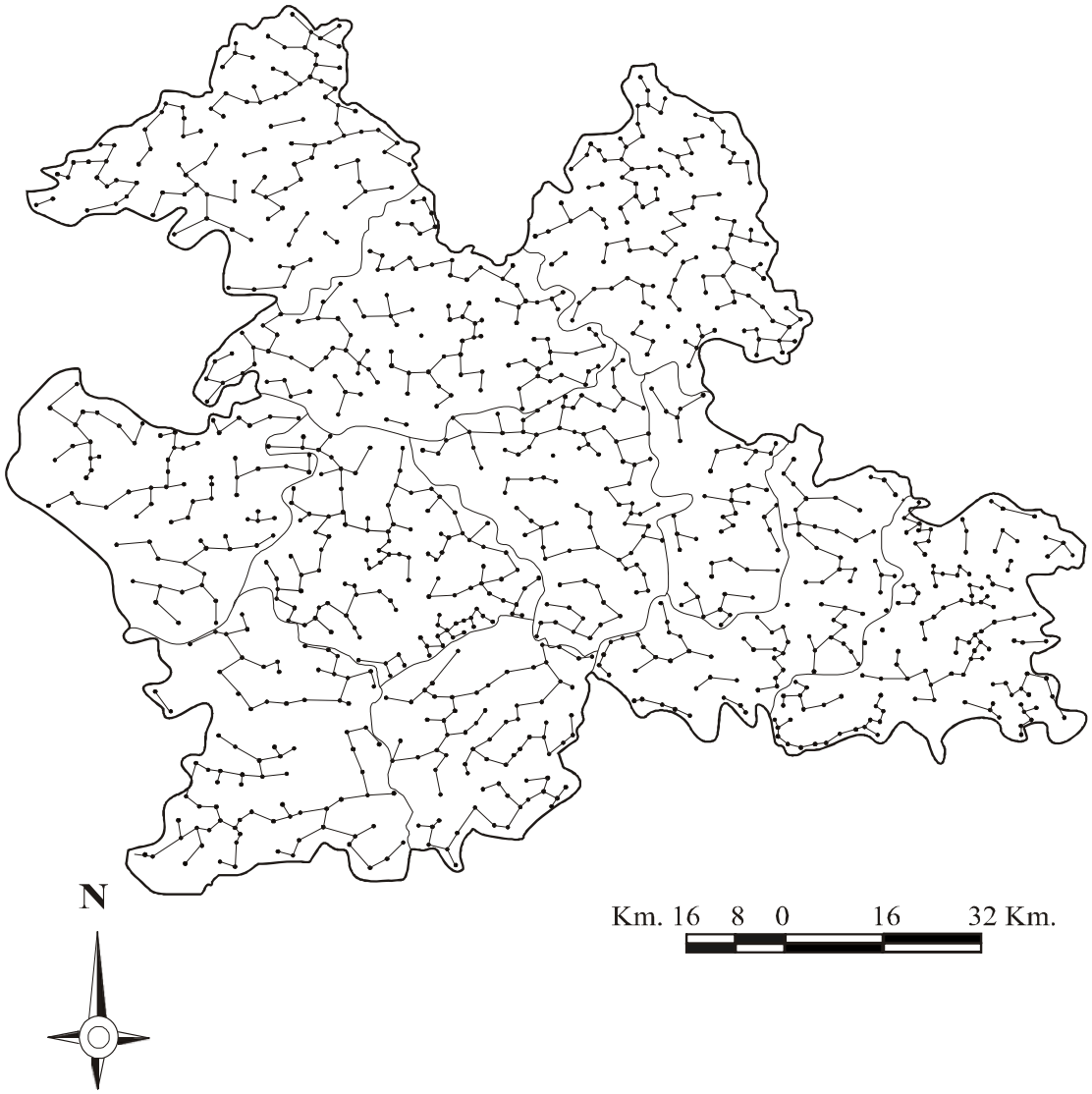


Fig. 3.6

It is revealed by computed values of nearest neighbor index that spatial pattern of settlement distribution in the Solapur district shows 'approaching uniformity' (R_n=1.35). Taking the cases of tahsilwise settlement patterns, thus determined are approaching uniform in all the cases their nearest neighbor index values are from 1.07 to 1.78. (Figure 3.5)

The table 3.6 gives the calculated values of the nearest neighbor analyses for the district, as well as its different tahsils. The average nearest distance was calculated lowest for the Akkalkot tahsil, while the highest for the Karmala tahsil. It means that settlements are having much a space between two settlements in Karmala tahsil, while in Akkalkot tahsil settlements are located closer to one another. Overall the pattern of the rural settlements in the various tahsils, is of random category because, most of the R_n values calculated were below 2.15, hence, the pattern of rural settlements according to nearest neighbour analyses is random. For the planners, such settlements are challenge to develop because; there is no definite pattern of accessibility, transportation and communication. Therefore, in region like Solapur the predominant nature of the rural sector often become the hindrance for the socio-economic development. Government should take increasing interest to uplift such region.

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CHAPTER - IV

SITE AND SITUATION OF THE SETTLEMENTS

4.1 Introduction:-

4.1.1 Site of the Rural settlement

4.2 Sites Of The Settlements In Solapur District

4.2.1 Sites of the settlements according to natural feature

4.2.2 Plain Site Settlements

4.2.3 River Site Settlements

4.2.4 Tank Site Settlements

4.2.5 Forest Site Settlements

4.2.6 Hill Site Settlements

4.3 Sites of Settlements according to Cultural Features

4.3.1 Dam Site Settlements

4.3.2 Canal Site Settlement

4.3.3 Road Site Settlements

4.4.4 Railway Site Settlements

4.4.5 Industrial Site Settlements

References

CHAPTER - IV

SITE AND SITUATION OF THE SETTLEMENTS

4.1 Introduction:-

Site and situation of the settlement play a very significant role in the overall development. Any settlement when established at a particular point, the occupance of the land is directly related to physical environment of the area, its natural resources, social conditions and selection of the actual location of site of the settlement. Number of writers; have recently emphasized the point that locational relationship of rural settlements is affected by the factors of distance as the locational decisions are generally taken in order to minimize the movements. All the locations are the points with higher degree of accessible then the other. It has been pointed out by many scholars that traditional requirements of any settlements are land, water buildings, fuel and accessibility. All the factors exert their influence on the locations of the settlements and develop a theoretically regular distribution of settlements.

Chisholm (1962) has also described the relationship between man and his physical environment. It is essential to study rural settlement systems developed in relation to resource localization rural settlement system may be seen as adjustment and cultural inputs so that a change in one may be expected to lead for readjustment within the system.

4.1.1 Site of the Rural settlement:-

The term 'site' should not be confused with 'situation', because the term site refers to the actual ground on which a place is built, and it is therefore, concerned with local relief, features, soil, rocks types with features like a river spring and weather and microclimate. The term situation is concerned with the wider positional aspects, such as location with respect to longitude and latitudes, communication, agricultural,

industrial, social, political and cultural regions and so on. In the initial stage the immediate environment is of commanding importance but as the settlements grow its situation and the use of inhabitant becomes predominant.

Here, an attent has been made to study the sites of the rural settlement with the help of topographical graphs. The Solapur district, the region under study is covered by various physiographic region, which play an important role in the determining the site and situations of the rural settlements. Rivers have always attracted man since the ancient times most of the settlements are established, due to availability of water along the river sites. River bank site settlement, confluence site settlement convex bank site settlements stream site settlements are quite important. Besides these, there are other favourable sites for the location of rural settlements, such as tank site settlements, canal site settlements, spring site settlements, Railway site settlements and hill and mountain site settlements.

In order to understand various sites and situations of the rural settlements in Solapur district, the numbers of toposheets have been referred for the purpose to illustrate their respective position. From various toposheets different sites have been observed and their location, sites and situation have been traced out. Over all it has been observed that most of the settlements have been found located near the source of water bodies such as river, stream, tanks, spring and canal. In addition to that, some of the settlements are located on the hills slope, foot hill, valley bottom, mountain gaps and hill tops. The following tables provide the distributional patterns of the sites of the settlement in Solapur district.

Table 4.1

Distribution of Settlements According to Site

Sr. No.	Site of the settlements	Number of Settlements	Percentage of Settlements
1	Plateau site settlements	330	29
2	River site settlements	70	06
3	Tank site settlements	45	04
4	Forest site settlements	22	02
5	Hill site settlements	10	01
6	Dam site settlements	96	08
7	Canal site settlements	90	08
8	Road site settlements	303	26
9	Railway site settlements	160	14
10	Industrial site settlements	24	02
	Total	**1150**	**100%**

The table concerned reveals that there are total one thousand and one hundred fifty settlements according to 2001 census, both rural and urban which make hundred percent settlements in the district. One thousand one hundred forty settlements are rural, distributed in eleven tahsils of the Solapur district and ten are urban settlements. In order to classify them according to their sites, these have been put in ten categories of the sites.

In the entire region of Solapur district, there were 330 settlements located in the plateau site which comes to 29 percent of the total settlement in the region. Similarly, there were 303 settlements along the road sites which approximately come to 26 percent of the total settlements.

It is followed by along railway sites rural settlement. In order of importance there were 90 settlements along the canal sites making 8 percent of the total settlements. River sites and tank sites both are having each 115 settlements which account 10 percent in each category. There are only 24 settlements along the industrial sites making 2 percent of the total settlement in the region only. Ten settlements are found located along the hill site which is one percent of the total settlement in the region.

4.2 SITES OF THE SETTLEMENTS IN SOLAPUR DISTRICT

4.2.1 Sites of the settlements according to natural features:-

Number of settlements is located along the natural features, such as plain, plateau and mountain and hills are the physiographic features. Some of the important natural features as regard to the location and site of the settlements have been taken in to consideration. The plateau site settlements, the river site settlements, tank site settlements, forest site settlements, river valley site settlements, hill and mountain site settlements, mine site settlements and plain site settlements are the most significant settlements in the Solapur district.

4.2.2 Plateau Site Settlements:-

About 29 percent rural settlements are located along the plateau sites in the district. The toposheets number 47, O/6, based on the scale 1" to 50,000 covering portions of the Solapur district in Mangalwedha and Sangola tahsils with respects of number of rural settlements sites in the plateau area. Akole, Dhavlas, Mundaewadi, Dhangaon and Khomnal are the important rural settlements. Similarly, the toposheet no. 47, O/7 also represents number of rural settlements in plateau area both in Mangalwedha and the Sangola tahsil, Balerwadi, Ghrodewadi, Chineke, Rajapur, Vadaegaon, and Shirshi are the important rural settlements located in the plateau area. (fig. 4.1)

Plateau site settlement, Mangalwedha tahsil

Scale - 1: 50000

Topo Sheet No. 47 $\frac{O}{6}$

Plateau Site Settlements, Sangola tahsil

Scale - 1: 50000

Topo Sheet No. 47 $\frac{O}{7}$

Fig. 4.1

4.2.3 River Site Settlements:

In the study region Bhima, Sina and Man are the important rivers flowing through the Solapur district. The toposheet number 47 O/6 has been used for the representation of rural site settlements particularly in Pandharpur tahsil, Chale, Mundewadi, Ajansond and the Tarapur are the rural settlements located along the river site. The river man, is tributary river Bhima flowing from Sangola tahsil towards Mangalwedha tahsil and meets river Bhima near Sarkoli and make confluence. Davlas, Tavashi, Methwade, Manjari, Waddegaon, Shardnagar are the important river site settlements of the river man. These are of a smaller size settlements because the river man is most of the year is dry. (fig. 4.2)

The river Sina is the major tributary of river Bhima represent large number of rural settlements located along the river Sina. The river Sina is flowing through Madha, Mohol and South Solapur of the district. The toposheet number 47, O/14 has been used to represent some of the settlements located along the river Sina Vadshingi, Kayawad, Wakade, Khairat, Rople, Ghatne, Lombati, Varvadae, Pathri, Vangi, Aurad and Sengaon are the important rural settlements located along the sites of river Sina. These are the agriculturally better developed settlements, because of availability of water for irrigation, as well as for drinking purposes. About six percent rural settlements are located along the river site in Solapur district. (fig. 4.3)

River Site Settlements, (Bhima River)

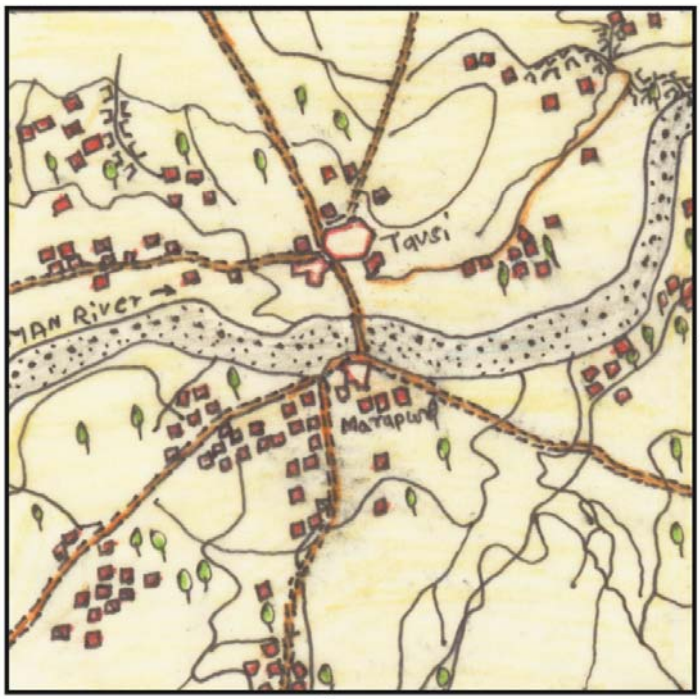
17° 40' 51"

74° 25' 19"

Scale - 1: 50000

Topo Sheet No. 47 $\frac{O}{6}$

River site settlement, (Man River)



17° 32' 53"

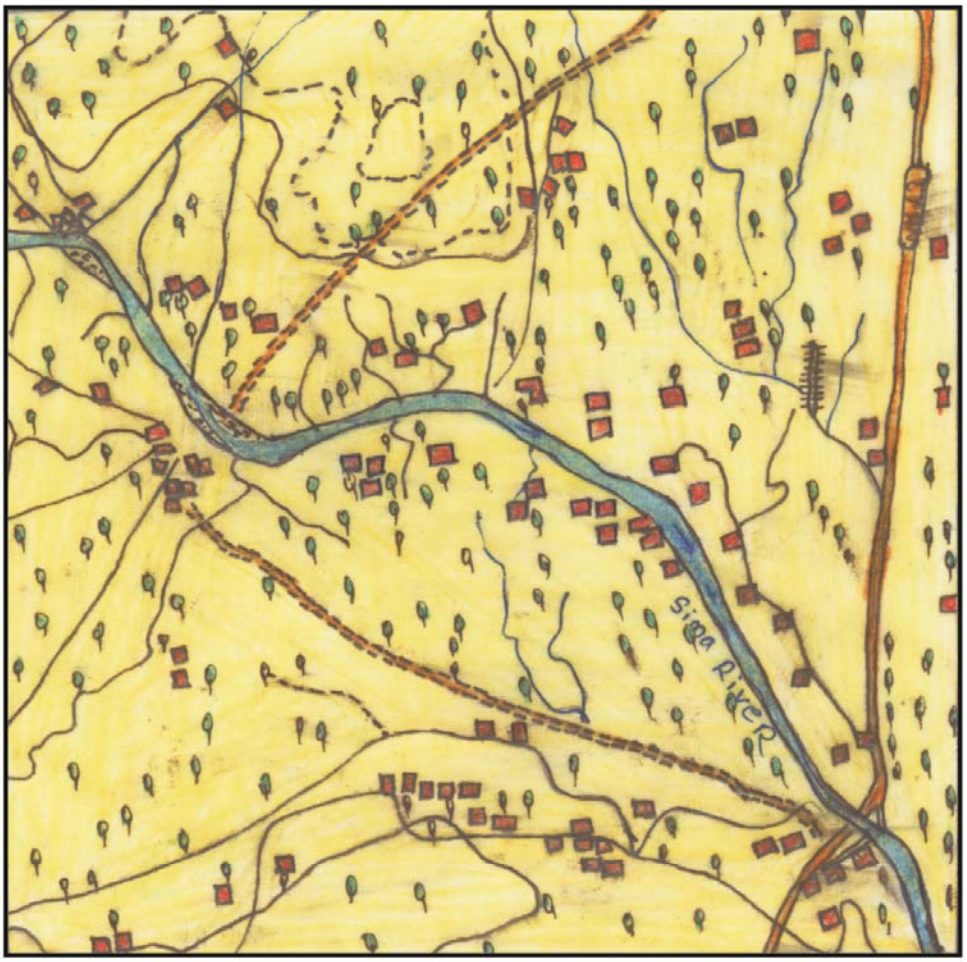
75° 22' 22"

Scale-1: 50000

Topo Sheet No. 47 $\frac{O}{6}$

Fig. 4.2

River Site Settlements (Sina River)



Latitude : 17° 33' 20"
Longitude : 75° 52' 38"

Scale - 1: 50000

Topo Sheet No.47 O/14

Fig. 4.3

4.2.4 Tank Site Settlements:

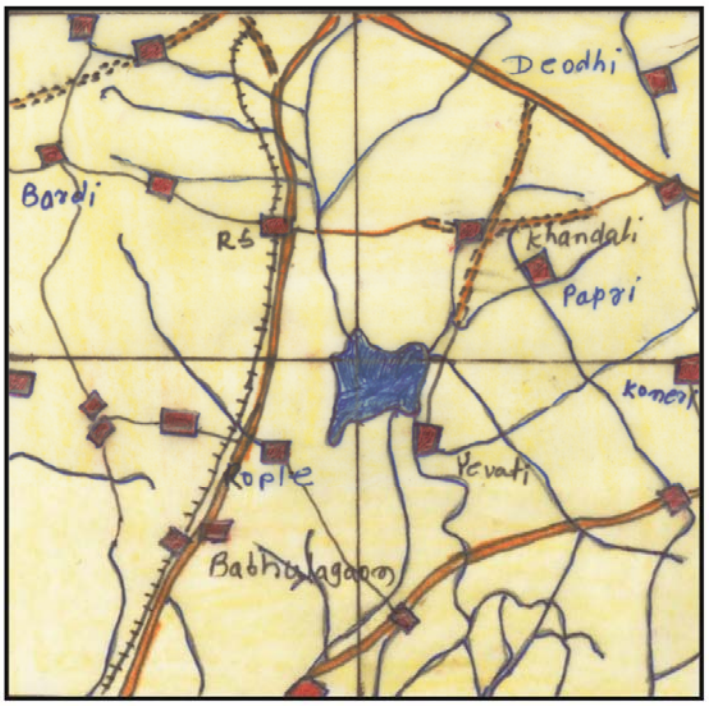
Tank site settlements also depict four percent settlements of the district. District planning map has been used to represent tank site settlements. The important tanks in the district are Asti, Ekruk tank, Tisangi tank, Kambar tank, Shirnandgi tank and Hotgi tank. (fig. 4.4)

The concerned figure demonstrates the location of Asti and Patri tanks in Solapur district. Shirale, Boregaon, Patri and Ukadgaon are the chief villages located along the tank Patri. Similarly along the tank Asti there are numbers of settlements benefitting from the Asti tank. Khandali, Papri, Yavati, Rople, Babhulgaon are the important rural settlements located along the Asti tank.

Similarly Kambar tank and Shirnandgi tank of the toposheet number 47, O/7 and 47, O/14 also show the number of settlements located along the tank Soregaon, Nehru nagar and Krantinagar are the chief settlement along the Kambar tank. Shirnandgi tank of the Mangalwedha tahsil also serves the purpose of irrigation agricultural practices and drinking water for man and animals. Hence, numbers of settlements are located along the Shirnandgi tank. (fig. 4.5)

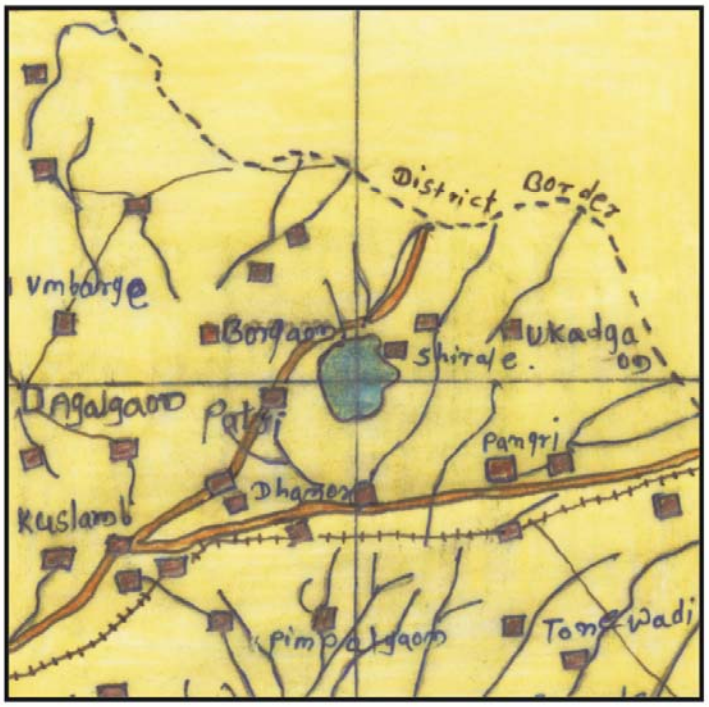
Ekruk tank is another example of the tank site settlements. The sketch has been traced out from the toposheet no. 47, O/14 Haglur and Hipparga the important rural settlements located along the Ekruk tank site. Similarly Tasangi tanks in Pandharpur tahsil also have number of rural settlements around important rural settlements located around this tank site. (fig. 4.6)

Tank site settlement (Ashti Tank)
District Planning Map Series



Scale -1: 2,50000

Tank site settlement, (Patri tank)
District planning map Series



Scale -1: 2,50000

Fig. 4.4

Tank site settlement (Shirnandgi Tank)
District Planning Map Series

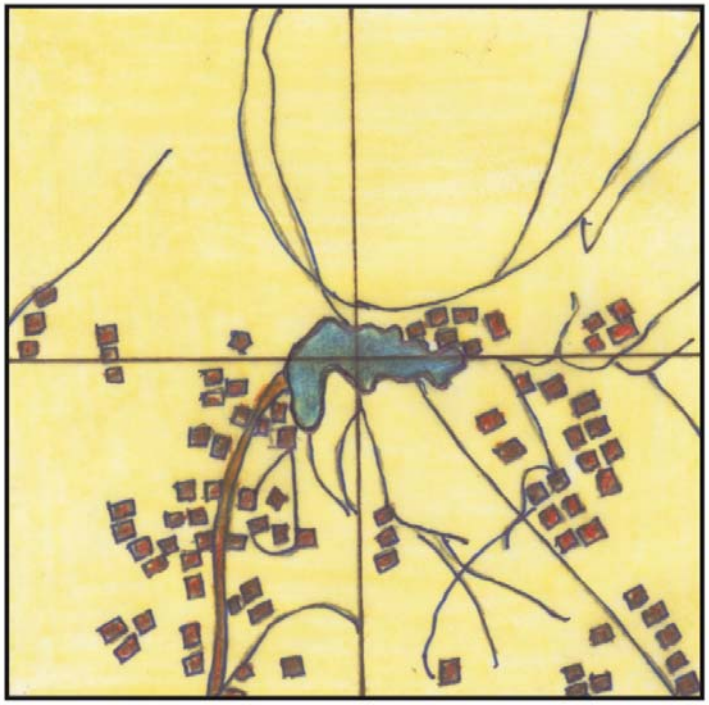
17^0 17' 19"

75^0 24' 51"

Scale -1: 50000

Topo Sheet No. $\frac{O}{7}$

Tank site settlement (Kambar Tank)
District Planning Map Series



Scale -1: 2,50000

Fig. 4.5

Tank Site Settlements, (Ekruk Tank)

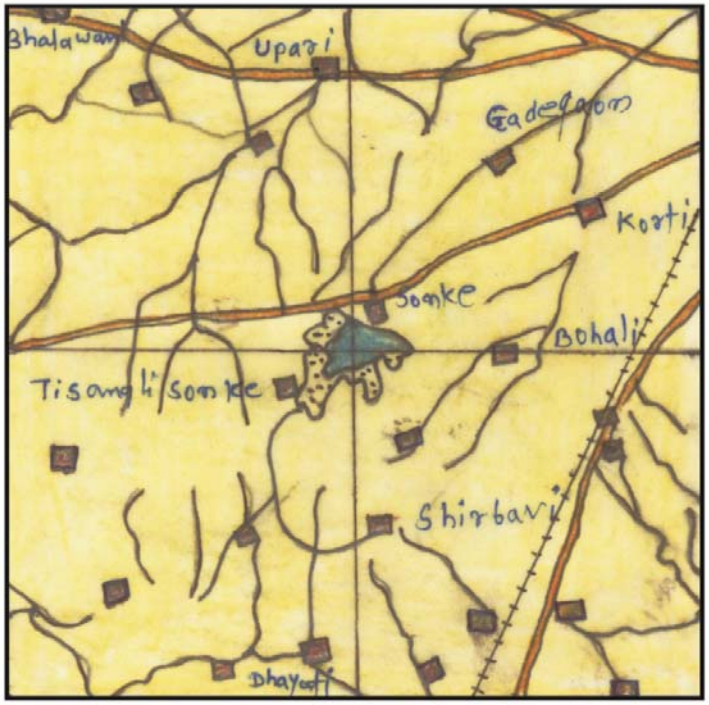
17° 44' 36"

75° 55'

Scale -1 : 50000

Topo Sheet No. 47 O/14

Tank site settlement, (Tisangi tank)
District Planning Map Series



Scale -1: 2,50000

Fig. 4.6

4.2.5 Forest Site Settlements:

The toposheet no. 47 O/10 has been selected to represent forest site settlements in the Solapur district in the Mohol tahsil some of the forest patches are found where some of the rural settlements to rain shadow area are broken. Therefore the area under forest is quite insignificant which accounts for 2.14 percent of the total geographical area of Solapur district, this accounts only two percent settlement of the district. Varvade, Sage Babulgaon, Ankoli, Kamti, Koroli, Pathri are the important settlemtns found located along the forest site. Vaddegaon, Sohale, Aundi, Tarapur, Sundane and Gotaewadi are some other villages located in the forested land of Mohol tahsil. Most of these rural settlements have primary occupation based on forest agriculture and grazing. (fig. 4.7)

4.2.6 Hill Site Settlements:

There number of settlements found along the Shankaracharya hill in Sangola tahsil in Solapur district. In the Malshiras tahsil in the western part of the district, number of small and medium types settlements are found in the Mahadev hill region. Similarly in the Barshi tahsil in the North of the district, several rural settlements are located.

4.3 Sites of Settlements according to Cultural Features:

4.3.1 Dam Site Settlements:

Dam site settlements enjoy the water throughout the year because of the proximity of Dam. Bhima is the most important river flowing through the Solapur district. The Ujjani dam has been constructed across the river Bhima in the Madha tahsil this is a major water reservoir having a tentative length of the Dam for backwash water for forty to fifty kilometer from the Dound. This Dam provides water to number of settlement located at the nearby Ujjani Dam. The Solapur city also receives drinking water from this Dam through a pipe line.

Forest Site Settlments, (Mohol Tahsil)

17^0 44' 10"

Scale - 1: 50000

Topo Sheet No. 47 $\frac{O}{10}$

75^0 38' 06"

Forest Site Settlements, (Mohol Tahsil)

17^0 36' 7"

Scale -1: 50000

Topo Sheet No. 47 $\frac{O}{10}$

75^0 33' 57"

Fig.4.7

The Ujjani left bank canal and Ujjani right bank canals are the chief source for the irrigation for the agricultural crops in the Solapur district. Almost eight percent settlements are located along the dam site in the district. The dam site settlements particularly along the Ujjani dam are several settlements such as Vangi, Chandaj, Ranjani, Ujjani, Akole, Saelgaon, Kugaon, Vasim, Takali and Ramwadi are located along the Ujjani dam site settlements. (fig. 4.8)

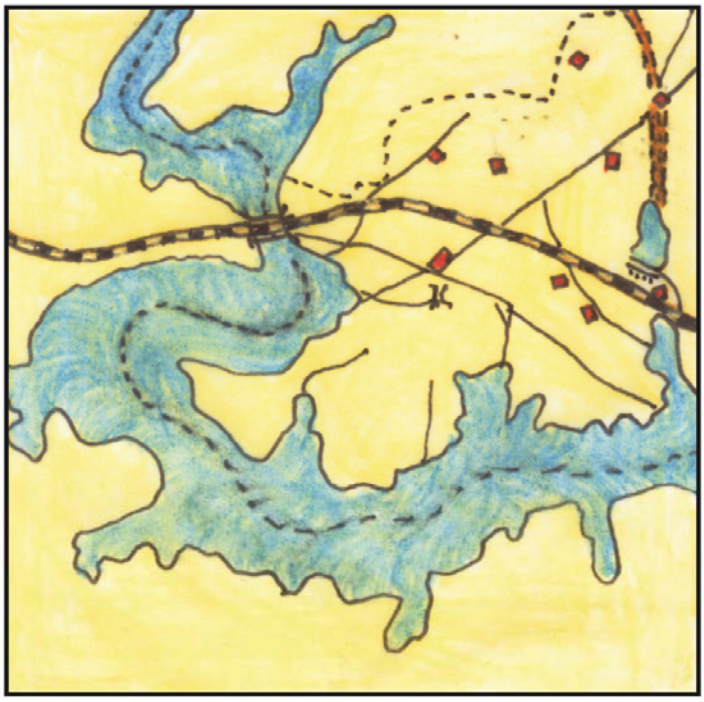
4.3.2 Canal Site Settlement:

The canal site settlements have been more benefited particularly for the irrigation purposes in the agricultural practices. The toposheet no. 47 O/10 represents the canal site settlement of the Ujjani left bank canal. There are ninety rural settlements which have benefited due to its sites along the canal in the Solapur district. It accounts for more than eight percent settlements of the district, Saundane, Tarapur, Degaon, Gursale, Babulgaon, Rople, Ankoli, Sohale, Madnim, Setfal, Ahergaon and Savre have been benefited by the Ujjani left bank canal, due to its canal site location. It is worth maintaining that the settlements under the influence of Ujjani left bank canal and write bank canal have affected significantly the agricultural practices in the district. As a result of these canals the sugarcane cultivation has given the way to open many sugar factories in the tahsils of Malshiras, Pandharpur, Mangalwedha, Mohol, Madha and South and North Solapur. (fig. 4.9)

4.3.3 Road Site Settlements:

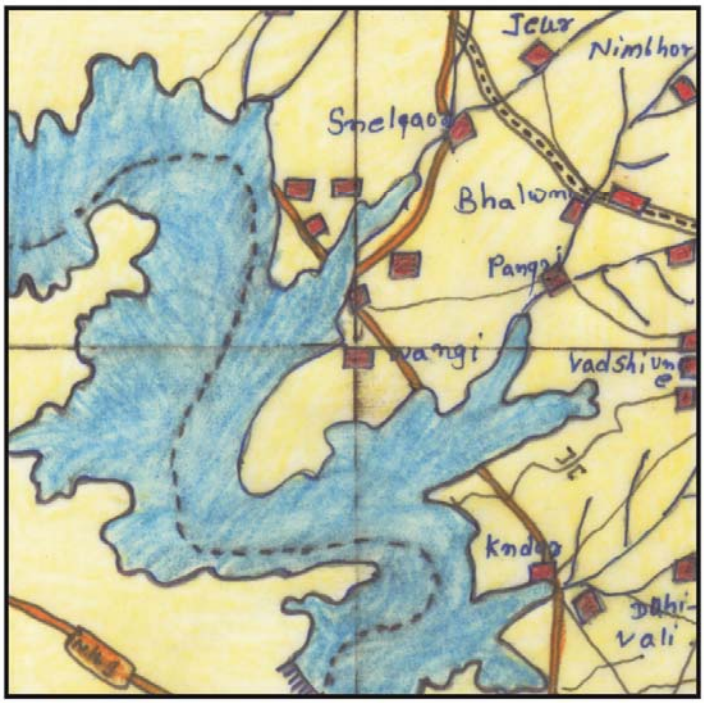
The development of the settlements depends upon the accessibility. The roadways play a very vital role in the social and economic development of any region. The roadways are the lifeline of an economy in a region.

Dam Site Settlements, (Ujjani Dam)
District Planning Map Series



Scale - 1: 2,50000

Dam site settlement, (Ujjani Dam)
District Planning Map Series



Scale - 1 : 2,50000

Fig.4.8

Canal Site Settlements (Ujjani Left Bank Canal) Saundane, Mohol tahsil

17^0 43' 33"

Scale - 1: 50000

Topo Sheet No. 47 O/10

75^0 34' 31"

Canal Site Settlements (Begumpur) Mohol tahsil

17^0 38' 23"

Scale - 1: 50000

Topo Sheet No. 47 O/10

75^0 35' 50"

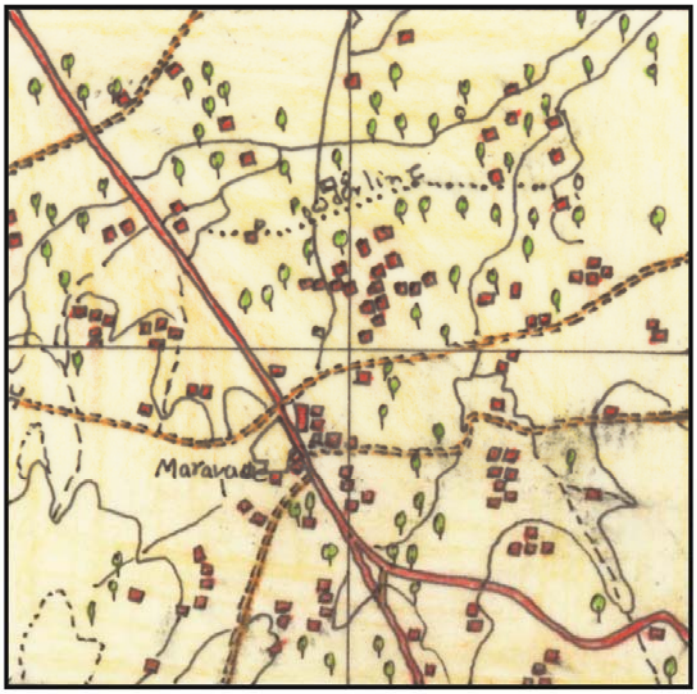
Fig. 4.9

Roadways serve, door to door services. Hence, a roadways network is the chief means of inter-connecting the settlements. The toposheet number 47, O/11 and 47, O/14 SE show two sketches map for the representation for the road side settlements there are two important national highways namely NH-9 and NH-13 passing through the Solapur district connecting Hyderabad in the east and Pune in the west by the national highway 9, and Bijapur by NH-13, in the south. It is the most important to note that more than 26 percent settlements are located along the road site by national highway, state highway, district roads and other village road. Out of 1150 settlements, more than 303 settlements are located along the road site settlements in the Solapur district. This accounts for more than twenty six percent settlement of the district. Some important settlements are Tempurni, Ahergaon, Shetfal, Modnimb, Mohol, Lamboti, Bale along the national highway no.9, towards Pune site, while Shelgaon, Dahitane, Darshanhalli, Sangdari and Mushti towards Hyderabad sites. (fig. 4.10)

4.4.4 Railway Site Settlements:

Railway sites settlements have been represented through the toposheet no.47, O/14 SW, there are two sketches representing the railway site settlements in the Solapur district. In the background of the region it has been illustrated that under the head of transportation that Solapur district is quite fortunate to have a sizable length of railway lines of 452.60 kilometer within the district, yet, 126.90 kilometer is under construction from narrow gauge to broad gauge. The mean of transportation and communication is an index of social and economic development in a particular region because most of the economic and social activities are positively influenced by the network system available in the region. The railway lines sites of various settlements is recorded for about 160 settlements within the district of Solapur. This is estimated

Road Site Settlements, SH-13



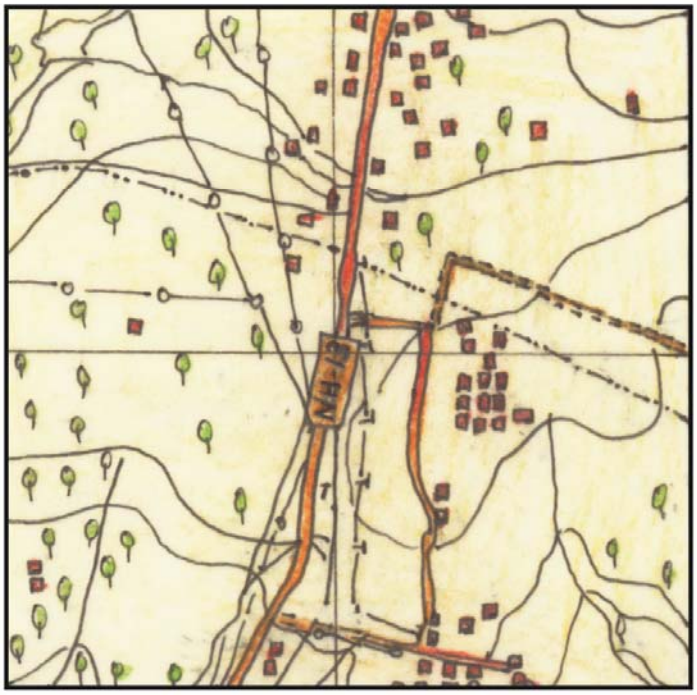
17° 25' 56"

75° 30' 55"

Scale - 1: 50000

Topo Sheet No. 47 $\frac{O}{11}$

Road site settlement, NH-13

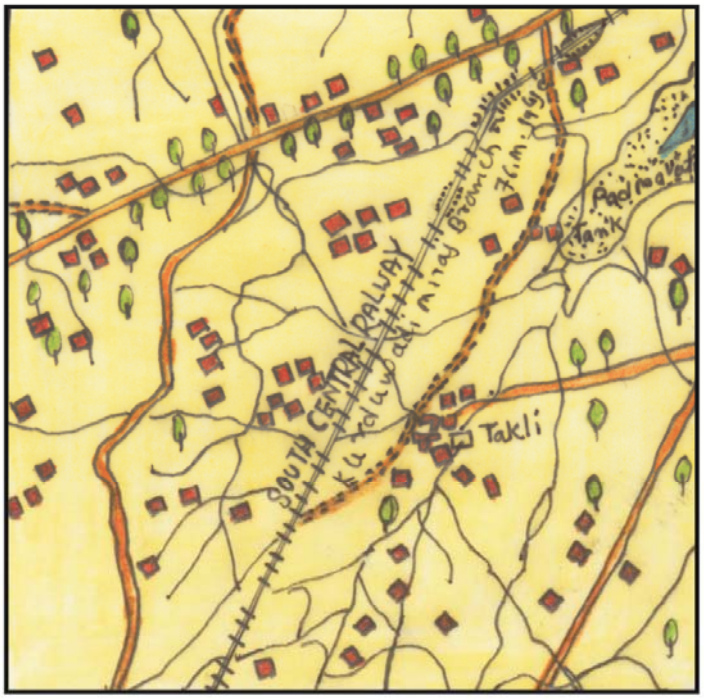


Scale - 1: 25000

Topo Sheet No. 47 $\frac{O}{14}$

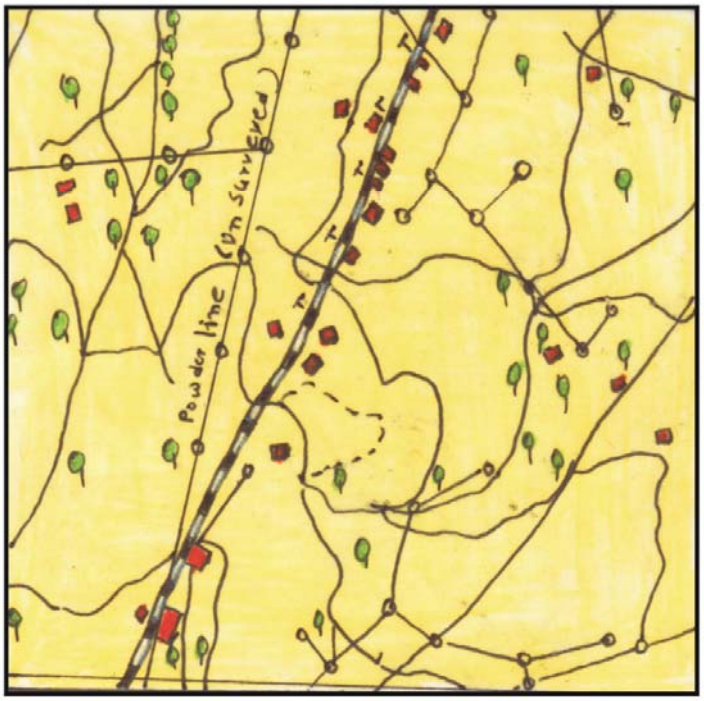
Fig. 4.10

Railway site settlements, South Solapur Tahsil



Scale - 1: 25000
Topo Sheet No.47 $\frac{O}{14}$ SW

Railway Site Settlement , South Solapur Tahsil



Scale -1: 25000
Topo Sheet No.47 $\frac{O}{14}$ SW

Fig. 4.11

to 14 percent of the total settlements in the district. The important railway line which are passing through the region under study are one radiating from Bombay to Chennai, Bangalore and Hyderabad. Solapur-Bijapur up to Hubli-Dharwad is going to start soon; several trains are announced by railway minister Miss Mamta Benerjee on 24th February, 2010 Kurduwadi to Miraj via Pandharpur, Sangola towards south is another link line in the district of Solapur. Kurduwadi, Barshi, Osmanabad, Latur, Nanded is another railway line within the district having large number of settlements are located along these railway sites within the district.

4.4.5 Industrial Sites Settlements:

An industrial site of the settlements is also very important, because twenty four settlements have been found located along the industrial sites in the Solapur district. These are newly settlements because of employment purposes people have settled downed near by the industrial area. In order to save the time and traveling expenses, generally people prefer to stay near by the place of work. Hence, two percent settlements have been observed in industrial settlement within the district of Solapur.

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CHAPTER – V

FACILITIES OF THE SETTLEMENTS IN SOLAPUR DISTRICT

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FACILITIES OF THE SETTLEMENTS IN SOLAPUR DISTRICT

5.1 INTRODUCTION:

The levels of development of socio-economic facilities reflect the economic as well as socio-cultural set up of a region and spatial organization of a society. As a matter of fact, there exist a close relationship between the spatial distribution of socio-economic facilities and levels of well beings. Since, uneven distributions of socio-economic facilities create the functional gap between different regions under study. The present analysis of the spatial pattern of socio-economic facilities is an attempt to examine, the importance of socio-economic infrastructural facilities for over all development of the region. There are varieties of infrastructural facilities, therefore, the interpretation and description is necessary in order to achieve an optimal distribution of socio-economic amenities and facilities. In order to understand the availability, demand and deficit health services, transportation and communication, marketing and banking services in various tahsils of the district, the data and information for different periods have been given in the concerned tables to understand the magnitudes of problems related with these services. Hence, it is necessary to analyze these services one by one.

5.2 HEALTH SERVICES:

The health services are available in the area through medical institutions, either by the government and local self government bodies or by the private doctors and practitioners. Most of the health facilities are provided through medical institutions like municipal hospitals and primary health sub-centres. Besides, family planning centres, maternity homes, child-welfare centres, tuber-closes (T.B.) clinics and through private hospitals and clinics, health services are provided to the people in

the tahsils of Solapur district. The table concerned furnishes the health services information for the last five decades.

5.2.1 Hospitals in Solapur district:

In the year 1961, there were only three hospitals and all these three hospitals were located only in North Solapur tahsil. This is because of the existence of the Solapur city in the North Solapur tahsil. Remaining ten tahsils had no hospital in the year 1961.

For the year 1971, the number of hospitals increased to five due to the demand of growing population. The number of hospital remained the same for North Solapur tahsil, while for two urban centres, namely Pandharpur and Barshi, which are the tahsil head quarters, one each hospital was established in order to full-fill the requirement of the people.

Table 5.1
Number of Hospital in Solapur district

Sr. No.	Name of Tahsil	1961	1971	1981	1991	2001
1.	North Solapur	3	3	4	6	8
2.	Barshi	-	1	2	2	2
3.	Akkalkot	-	-	1	1	1
4.	South Solapur	-	-	-	-	-
5.	Mohol	-	-	-	1	1
6.	Mangalwedha	-	-	-	1	1
7.	Pandharpur	-	1	1	2	2
8.	Sangola	-	-	-	1	1
9.	Malshiras	-	1	1	2	2
10.	Karmala	-	-	1	1	1
11	Madha	-	-	-	1	1
	District Total	**3**	**5**	**10**	**18**	**20**

Surprisingly, number of hospitals had doubled in the year 1981, and became as high as ten. North Solapur tahsil, represented four while Barshi had two hospitals in this year. Other tahsils Head Quarters like Akkalkot, Pandharpur and Karmala had each, one hospital in the year 1981. This increase was due to demand of health services by the rapid growing population.

During the next two decades, the total numbers of hospitals were found eighteen and twenty for the year 1991 and 2001, respectively. In the 1991, Solapur city possesses six hospitals. On the other hand, Barshi, Pandharpur and Malshiras had two each in the year 1991.

In the year 2001 the number of hospital slightly increased and became twenty. The first rank was occupied by North Solapur tahsil as for as number of hospitals in 2001 is concerned. During this period, the Barshi, Pandhapur and Malshiras again represent the number of hospital of two, and except, South Solapur, rest other tahsils show each, one hospital in the year 2001.

5.2.2 Dispensaries in Solapur District :

Another means of health facilities is provided by dispensaries which are distributed all over the region in Solapur district. The table concerned represents the number of dispensaries in each tahsil for the last five decades. In the year 1961, there were thirty five dispensaries in the district as a whole, which went on increasing continuously in each subsequent decade and became, one hundred and four in the year 2001. As for as, the spatial pattern of the distribution of the dispensaries is concerned, it was high for the North Solapur tahsil due to the existence of the Solapur city. It was followed by Akkalkot and Madha tahsils, having each, five dispensaries in the year 1961. For Mangalwedha and South Solapur tahsils, the number was quiet low having one each tahsil. Barshi

and Sangola represented three dispensaries in 1961, with exception of Pandharpur. Rest tahsils consisting of Mohol, Malshiras and Karmala, had two dispensaries each in the year 1961.

In the year 1971, with slight fluctuation the pattern remained by and large the same, retaining first position by North Solapur tahsil, when number of dispensary was ten and South Solapur and Mangalwedha had one dispensary. Pandharpur retained the second position as regard to dispensaries number and it was followed by Akkalkot and Madha which had four dispensaries, while Karmala, Sangola and Barshi tahsils had shown three dispensaries. Remaining tahsils like Malshiras and Mohol showed one and two dispensaries respectively.

In the year 1981, there were forty nine dispensaries in district out of these sixteen dispensaries were found only in North Solapur tahsil and six in Pandharpur. There were four tahsils consisting of Akkalkot, Sangola, Karmala and Madha representing four each dispensary. Again Mangalwedha tahsil was the most backward tahsil as far as the number of dispensaries is concerned. Barshi and Mohol represented, three dispensaries, while Malshiras, South Solapur represented only three in each tahsil.

In the year 1991, there were seventy four dispensaries in entire district of Solapur. Out of these twenty two were in North Solapur tahsil and ten were in Pandharpur tahsil. Again, there were four tahsils consisting of Akkalkot, Sangola, Karmala and Madha represented six dispensaries in each tahsil. Besides, Barshi, Malshiras and Mohol represented four dispensaries in each tahsil. South Solapur and Mangalwedha had three dispensaries in each tahsil.

Table 5.2

Number of Dispensaries in Solapur district

Sr. No.	Name of Hospital	1961	1971	1981	1991	2001
1.	North Solapur	7	10	16	22	32
2.	Barshi	3	3	3	4	6
3.	Akkalkot	5	5	4	6	8
4.	South Solapur	1	1	2	3	4
5.	Mohol	2	2	3	4	6
6.	Mangalwedha	1	1	1	3	5
7.	Pandharpur	4	6	6	10	13
8.	Sangola	3	3	4	6	8
9.	Malshiras	2	2	2	4	6
10.	Karmala	2	3	4	6	8
11	Madha	5	4	4	6	8
	District Total	**35**	**40**	**49**	**74**	**104**

Source : Socio-economic Review of Solapur district.

The number of dispensaries was one hundred and four in 2001, for the district as a whole. As expected, the high number was recorded in North Solapur tahsil due to the existence of Solapur city. It was followed by Pandharpur, where number of dispensaries was thirteen. Further, there were four tahsils namely Akkalkot, Sangola, Karmala and Madha representing eight dispensaries in each tahsil. Barshi, Malshiras and Mohol had six dispensaries in each tahsil. Mangalwedha this time represented as many as five dispensaries in the year 2001.

It may be stated, that the number of dispensaries in each tahsil indicates the easy availability of medical facilities, it shows, that the higher the number of dispensaries, in the tahsil better is the availability of medical facilities, while the lower number of dispensaries represent the

poor availability of medical facilities. The efforts are being made by the government to provide and make available maximum dispensaries, in order to serve most of the people in the local areas at reasonable rate and immediately without wasting time people should get treatment.

5.2.3 Public Primary Health Centre :

In order to serve maximum population in rural sector, the government has taken initiative to establish primary health centres in various places of the district. This facility is provided for the poor people at reasonable and cheaper rate, in order to avoid many complications of rural people. Hence, an attempt has been made to understand the spatial and temporal trends in the availability of primary health center. The information were collected from the socio-economic abstract for primary health centre for the different places of Solapur district.

The table concerned relates the spatial and temporal pattern of the primary health centre in the Solapur district. In the year 1961, there were only fifteen primary health centres in the district; the stress was being on rural areas of the district. Out of fifteen, there were two primary health centres, each in Barshi, Akkalkot, Sangola and Malshiras tahsils. Remaining, seven tahsils represented only one primary health centre in the year 1961.

During the next two decades of 1971 and 1981, there has been no change in the number and remained sixteen for district as a whole. The pattern more or less, remained the same with exception Akkalkot, in 1971 when primary health centre became three and in Karmala tahsil, the number of primary health centres became two. This shows that during the period 1961, 1971 and 1981, there has been no progress in the establishment of primary health centres in different parts of Solapur

district. This means that during the three decades of investigation particularly 1961 to 1981, the government has not much paid attention for the establishment of primary health centre due to lack of resources and availability of doctor and nurses were also not sufficient.

Table 5.3

Number of Primary Health Centre in Solapur district.

Sr. No.	Name of Hospital	1961	1971	1981	1991	2001
1.	North Solapur	1	1	1	4	5
2.	Barshi	2	2	2	7	7
3.	Akkalkot	2	3	2	7	8
4.	South Solapur	1	1	1	5	5
5.	Mohol	1	1	1	5	5
6.	Mangalwedha	1	1	1	5	5
7.	Pandharpur	1	1	1	6	6
8.	Sangola	2	2	2	5	5
9.	Malshiras	2	2	2	11	11
10.	Karmala	1	1	2	5	8
11	Madha	1	1	1	6	6
	District Total	**15**	**16**	**16**	**66**	**71**

In year 1991, there were sixty six, primary health centres which increased more than four times during last four decades. Malshiras tahsils has highest number of PHC followed by Akkalkot and Barshi tahsil having each seven PHC centres. Madha, Pandharpur had six each primary health centres in the year 1991. Remaining five tahsils had five primary health centres. North Solapur tahsil had lowest number of primary health centre. In the year 2001, there were seventy one PHC in the district.

Highest number was for Malshiras tahsil, Akkalkot and Karmala represented eight number of primary health centres. While Barshi represented seven, Madha and Pandharpur represented six each PHC. Remaining rest five tahsils had five each PHC in Solapur district.

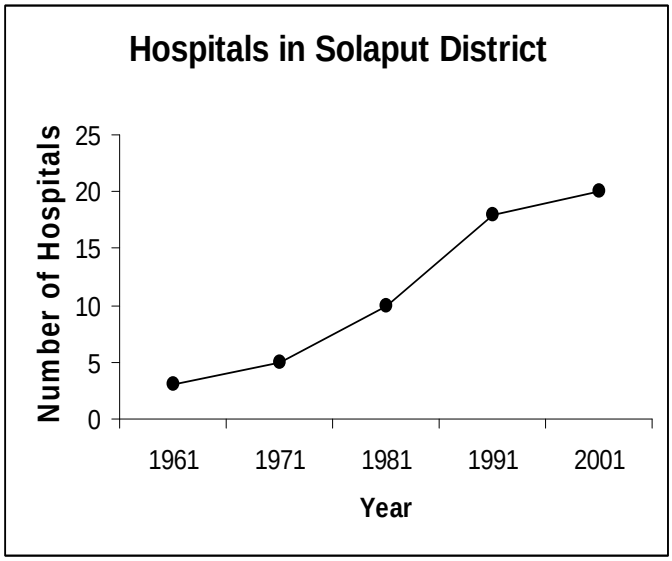
5.2.4 Sub Primary Health Centre :

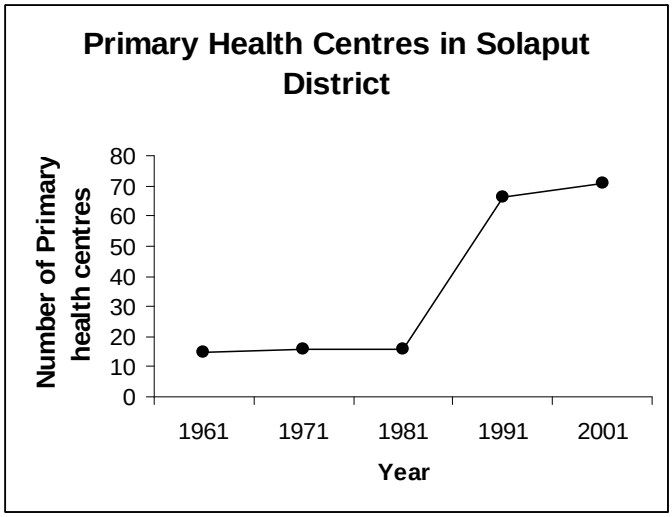
The recent development in the field of medical facilities was the distribution of sub primary health centres. Particularly during the last two decades. In the year 1991, there were 321 sub primary health centres in the district of Solapur. These sub primary health centres are distributed in various tahsils, Madha and Barshi represented each 36 sub-PHC, fortunately, Malshiras having more than fourty sub-PHC in the year 1991. It was followed by Akkalkot and Pandharpur tahsils which show that rural medical centres are of better off in this tahsils. South Solapur and Sangola were having moderate number of sub-PHC. While the North Solapur tahsil represent least number of sub-PHC.

Table 5.4
Number of sub-primary health centre in Solapur district.

Sr.No.	Name of tahsil	1991	2001
1	North Solapur	16	19
2	Barshi	36	39
3	Akkalkot	33	35
4	South Solapur	27	29
5	Mohol	22	24
6	Mangalwedha	22	25
7	Pandharpur	32	33
8	Sangola	28	29
9	Malshiras	40	41
10	Karmala	29	30
11	Madha	36	37
	District Total	321	341

HEALTH FACILITIES IN SOLAPUR DISTRICT





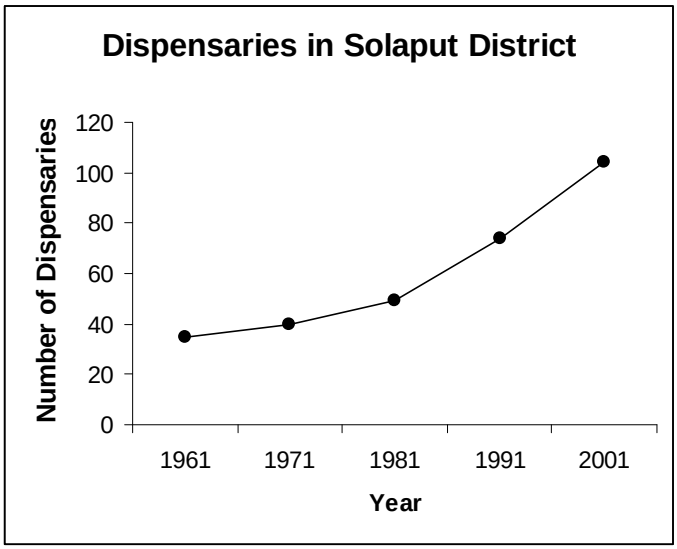
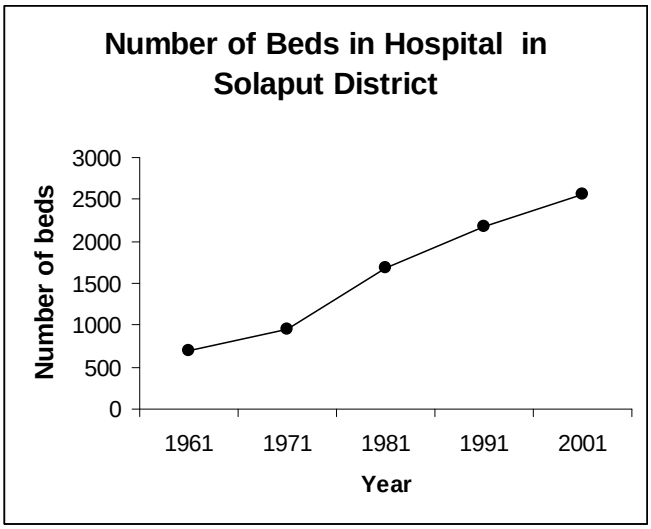
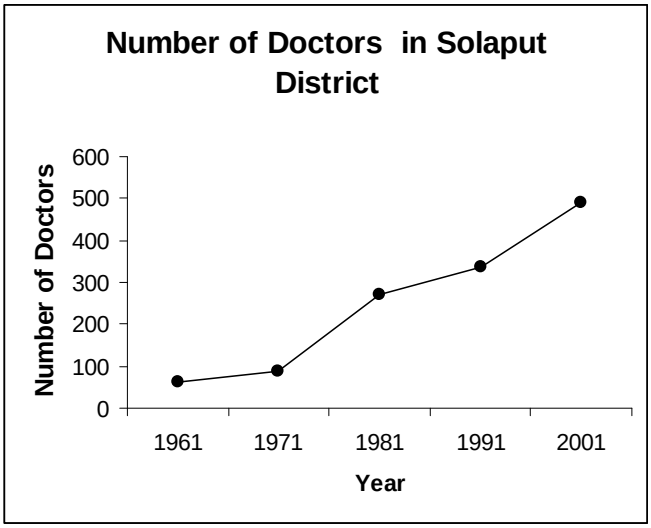


Fig. 5.1

HEALTH FACILITIES IN SOLAPUR DISTRICT





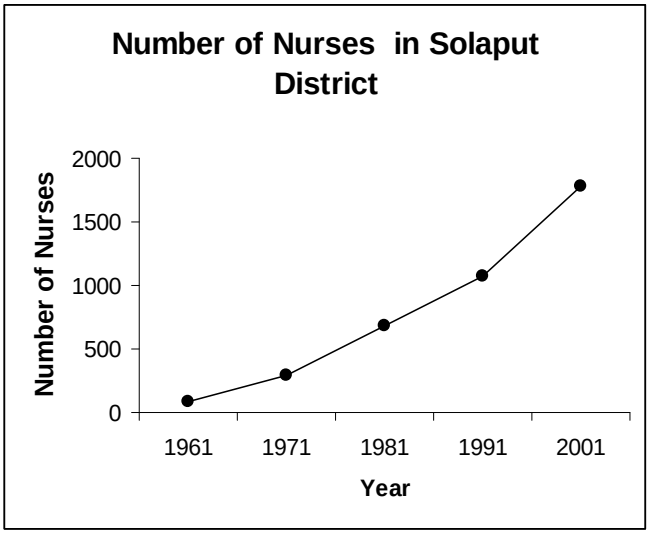


Fig. 5.2

In year 2001, the number of sub-PHC was 341 in the district and these were distributed randomly over the different tahsils of Solapur district. The highest number being was for Malshiras and lowest for North Solapur tahsil. Barshi represented 39 subs PHC, while it was followed by Madha tahsil, in the rest of the tahsils the number of sub-PHC were moderate in year 2001.

5.2.5 Number of Doctors in Solapur District :

An attempt has been made to understand the pressure of population over doctors for the period 1961-2001. There were sixty four doctors in total in Solapur district in the year 1961. Out of these, twenty six doctors were found in only in North Solapur tahsil. It was followed by Pandharpur tahsil where seven doctors were serving to the population of Pandharpur tahsil. On the other hand Mangalwedha tahsil represented only one doctor in 1961. There are two tahsils namely, Barshi and Madha where six doctors were serving in each tahsils. Akkalkot represented five doctors in entire tahsil. There are three tahsils, namely, Mohol, Sangola and Karmala representing each tahsil three doctors while rest two tahsils consist of South Solapur and Malshiras represented two doctors in each tahsil.

In the year 1971, there were eighty six doctors in entire district, as expected North Solapur tahsil stood in first rank, since the number of doctor was thirty one. On other hand Mangalwedha represented least number of doctors of two. Akkalkot occupied third position as regard to number of doctors. It was followed by Barshi tahsil. Pandharpur represented seven doctors, while Sangola and Madha tahsil were having six doctors in each tahsil. Malshiras and Karmala have five doctors in each tahsil. South Solapur tahsil had three doctors to serve entire population of South Solapur. This may be concluded that the period 1961

and 1971 was a stagnant period when number of doctors in the Solapur district was quite low and North Solapur tahsil was no exception to this rule.

Table 5.5

Number of Doctors in Solapur District

Sr. No.	Name of Tahsil	1961	1971	1981	1991	2001
1.	North Solapur	26	31	178	201	309
2.	Barshi	06	08	14	17	22
3.	Akkalkot	05	09	13	12	24
4.	South Solapur	02	03	05	09	19
5.	Mohol	03	04	05	13	19
6.	Mangalwedha	01	02	04	13	12
7.	Pandharpur	07	07	10	20	21
8.	Sangola	03	06	09	07	16
9.	Malshiras	02	05	09	23	21
10.	Karmala	03	05	12	11	16
11	Madha	06	06	10	12	12
	District Total	**64**	**86**	**269**	**338**	**491**

Source : Socio-economic Review for Solapur district

After this period, there has been tremendous progress as regard to number of doctors in the year 1981. It is clear from the fact, that there were two hundred sixty nine doctors in entire district of Solapur district, who were serving at various places. Out of these, one hundred seventy eight doctors were serving the people in different hospitals in various tahsil of Solapur district. It was followed by Barshi tahsil where fourteen doctors were found in various hospitals of the tahsil. It was followed by the Akkalkot tahsil, where thirteen doctors served in entire tahsil.

Karmala tahsil seems to be in better position as there were twelve doctors serving in the entire tahsil. Pandharpur and Madha had shown ten doctors in each tahsil, while Sangola and Malshiras represented nine doctors in each tahsil. Mangalwedha again lagged behind in the number of doctors. South Solapur and Mohol were having five doctors in each tahsil to serve the people.

In the year 1991, the number of doctors has increased more than three hundred, due to the availability of educated and skilled doctors. Out of these, more than two hundred doctors were engaged to serve the people the North Solapur tahsil. This time, Malshiras occupied the second position while, Pandharpur represented third position as regard to number of doctors. The reasons behind Malshiras and Pandharpur may be probably due to the emergence of new hospitals as a result of political influence. Barshi appears to be fortunate in medical facilities as well, because there were seventeen doctors serving to the entire population. Mohol and Mangalwedha represented thirteen doctors in each tahsil. While Akkalkot and Madha showed twelve doctors in each tahsil. On the other hand, Sangola lagged behind in the number of doctors in Solapur district, Karmala had eleven doctors while South Solapur tahsil having nine doctors.

For the most recent decade of 2001, the number of doctors was quite impressive for district as whole, since it was almost five hundred doctors. There were more than three hundred doctors, found to serve only in North Solapur tahsil. Due to close proximity of Akkalkot with Solapur city, the number of doctors was twenty four followed by Barshi tahsil. Pandharpur and Malshiras tahsil represented better condition as regard to medical facilities since, there were twenty one doctors serving in each tahsil. South Solapur and Mohol are also in close proximity of Solapur

city, therefore, the number of doctors was as high as nineteen in each tahsil. Sangola and Karmala tahsil represented sixteen doctors while Madha and Mangalwedha were having twelve doctors in each tahsil.

It may be briefly stated, that the number of doctors have been constantly increasing both through space and time. These shows that now a day, efforts are being made by government to improve the medical facilities even in the remote areas of the district. There are number of educational institutions for higher learning in general and for medical educations in particular. These are being extended by the government throughout the country resulting in better condition as regard to public health all over the region under study.

5.2.6 Number of Nurses in Solapur District:

In order to understand the tempo of the problem served by the nurses in Solapur district, their numbers have been found for each tahsil for the last five decades. In 1961, there were eighty nine nurses serving in different hospitals in various tahsils in Solapur district. The highest number of thirty was for North Solapur, while lowest for Karmala and Mangalwedha. Barshi had twelve nurses while Akkalkot nine. It was followed by Pandharpur tahsil. Six nurses were serving in each Sangola, Malshiras and Madha tahsil. In South Solapur and Mohol tahsils, four nurses were serving, larger the number of nurses, means the better medical service.

In the year 1971, there were two hundred ninety one nurses in Solapur district. Due to the location of Solapur city, in North Solapur tahsil, the highest number of nurses was serving in different hospitals. Barshi and Akkalkot tahsils were having twenty six and twenty nurses respectively. There were three tahsils having eighteen nurses, each tahsil

namely Sangola, Malshiras and Madha. Pandharpur represented seventeen nurses while Karmala sixteen nurses. Mangalwedha having the lowest number of nurses and South Solapur and Mohol represented thirteen and fourteen nurses respectively.

For the next decade of 1981, due to wide spread of education in medical field and various institutions for training for nurses were started, resulting in the rapid increase of nurses. It was the demand of time to serve increasing population and patients in the hospitals. This is why; the number of nurses multiplied more than two times and became number of nurses as high as six hundred seventy eight. Highest being for North Solapur tahsil as expected, it was as high as 356 nurses. It is followed by Barshi tahsil. Akkalkot, Sangola and Karmala represented each 34 nurses, while Malshiras 33 and for rest of the tahsils, there were less than 25 nurses in each tahsil.

In year 1991, the number of nurses crossed in figure of 1000 for Solapur district as whole, while it was highest for North Solapur and lowest number was recorded for three tahsils consisting of Mohol, Mangalwedha and South Solapur having each 44 nurses. Barshi occupied the second position as regard to number of nurses while Sangola and Karmala remained in third rank as for as number of nurses is concerned. It was followed by Malshiras and Akkalkot where the number of nurses was 64 and 66 respectively.

In the most recent decade of 2001, the number of nurses registered was 1782 for entire district of Solapur. This clearly reveals that during last five decades there has been astonishing growth in number of nurses, which means that there have been great revolution in medical services. As expected, it was highest for North Solapur tahsil where about one third

nurses of Solapur district were engaged in serving in various hospitals. It was followed by Barshi tahsil, where more than 240 nurses served the people. The numbers of nurses ranging between 100 to 140, were found in Akkalkot, Sangola, Malshiras, Karmala and Madha tahsils.

Table 5.6

Number of Nurses in Solapur district

Sr. No.	Name of Hospital	1961	1971	1981	1991	2001
1.	North Solapur	30	121	356	438	548
2.	Barshi	12	26	68	126	241
3.	Akkalkot	09	20	34	64	126
4.	South Solapur	04	13	22	44	89
5.	Mohol	04	14	22	44	89
6.	Mangalwedha	02	10	22	44	89
7.	Pandharpur	08	17	23	46	92
8.	Sangola	06	18	34	68	132
9.	Malshiras	06	18	33	66	126
10.	Karmala	02	16	34	68	128
11	Madha	06	18	30	60	122
	District Total	**89**	**291**	**678**	**1068**	**1782**

Source : Socio-economic Review of Soalpur district.

In rest four tahsils of Solapur district, consisting of South Solapur, Mohol, Mangalwedha and Pandharpur having less than 100 nurses serving in different hospitals.

5.2.7 Number of Bed's in Hospital in Solapur District :

Another way to estimate, the pressure of population on medical facilities is to consider the number of beds available in each hospital.

Therefore, an attempt has been made to understand a pressure of population on hospitals bed, by considering total number of beds in the district as whole as well as in each tahsil of the district. In 1961, there were 687, beds available in the district as a whole as well as in different tahsil. There were 475 beds available in only North Solapur tahsil due to presence of Solapur city, the number was so high. It was followed by Barshi tahsil, where more than fifty beds are available. There were two tahsils namely Pandharpur and Akkalkot in the district, having number of beds, 42 and 32 respectively. Around 30 beds were available in Madha tahsil due to the presence of Kurudwadi railway junction Malshiras

Table 5.7

Number of Beds in Hospital in Solapur district

Sr. No.	**Name of Hospital**	**1961**	**1971**	**1981**	**1991**	**2001**
1.	North Solapur	475	566	1089	1247	1305
2.	Barshi	55	88	154	205	289
3.	Akkalkot	32	53	67	98	122
4.	South Solapur	08	16	26	32	48
5.	Mohol	08	16	26	60	77
6.	Mangalwedha	03	07	15	54	74
7.	Pandharpur	43	87	104	151	209
8.	Sangola	08	17	64	79	102
9.	Malshiras	14	27	52	126	155
10.	Karmala	12	25	37	60	95
11	Madha	29	44	54	66	77
	District Total	**687**	**946**	**1688**	**2168**	**2553**

Source : Socio-economic Review of Solapur district

and Karmala were in between the range of 10 to 15 beds in the district of Solapur. Rest all the tahsils represented 8 beds in each tahsil of South Solapur, Mohol and Sangola.

In the year 1971, the number of hospital beds increased to 946 beds. Out of these, 566 were found only in North Solapur, because of the location of Solapur city in this tahsil, Barshi and Pandharpur represented relatively higher number of beds around 50 beds, it was followed by again Madha tahsil. Malshiras and Karmala were having in between 20 to 30 beds while, Sangola, Mohol and South Solapur having between 15 to 20 beds in hospital. Mangalwedha occupied last position as regard to beds in the hospital.

For decade 1981, due to awareness in the society and demand by the people, the number of hospital gone up to 1688. No wonder, again highest number of hospital beds had recorded for North Solapur, where it was as high as 1089. Similar pattern more or less was observed for the year 1981, as it was in the previous decades. Barshi, Pandharpur and Akkalkot were of the order of 154, 104 and 67 respectively. Between 50 to 65 ranges were for Sangola, Madha and Malshiras tahsils as for as hospital beds were concerned. Karmala represented 37 while South Solapur and Mohol represented 26 beds in each tahsil. Mangalwedha lagged behind in the number of hospital beds in the region under study.

The decade 1991, recorded a consistent increase in the number of hospital beds, as 2168 beds were available in the district, out of these 124 beds were available in North Solapur tahsil due to the existence of Solapur city. The spatial pattern as regard to number of beds in the district is concerned; it represented the similar picture as it was for the earlier decade. Barshi, Pandharpur and Malshiras were of the same order

representing 205, 15 and 126 beds respectively. There were six tahsils in the range of 50 to 100 beds namely Akkalkot, Sangola, Madha, Karmala, Mohol and Mangalwedha. Surprisingly, during this period South Solapur lagged behind in number of beds other than tahsils as for as the number of beds are concerned.

For 2001, a very impressive position has been found out for Solapur district as number of beds increased to 2553. More than half of the beds in the hospital were found only in North Solapur tahsil as city of Solapur located in it. Barshi and Pandharpur occupied second and third position as number of beds is of the order of 289, and 290. Between 100 to 200 beds, there were three tahsil namely Akkalkot, Sangola and Malshiras. In the next categories of 50 to 100 beds were four tahsils namely Mohol, Mangalwedha and Karmala. South Solapur again retained the last rank in the district as for as number of beds is concerned.

5.2.8 Percentage of Villages Served by Medical Facilities:

In order to understand, the areas served by medical facilities in rural sector to plan for the deficit regions. The percentage of villages having medical facilities for different tahsils of district and percentage of rural population served by medical facilities. Out of 1140 villages in the entire district, almost 598 villages have been served by medical facilities in different tahsils of Solapur district in 2001; this comes to 52.20 percent of the served villages by medical facilities. In other words, 47.80 percent villages are still unserved by medical facilities in the Solapur district.

It is not worth mentioning here to note the number of villages in each tahsil, either served or un-served by medical facilities. Therefore, the percentage of villages having medical facilities in each tahsil have been considered, there are wide variations in the percentage of villages

having medical facilities within the different tahsils in the region under study. It may be stated that Mohol tahsil is much better developed for the medical facilities as the percentage of villages having medical facilities, is highest. On the other hand, the Madha tahsil, Mangalwedha and Barshi have the percentage of villages below 30 percent having medical facilities these are the poorly served regions of the district. As percentage villages having medical facilities is much lower than the average for the region are the Karmala and Pandharpur. Hence, these areas moderately served by medical facilities. North Solapur tahsil, Akkalkot, South Solapur, Sangola and Malshiras are better served by the medical facilities, since the percentage of villages having medical facilities are much higher than the average for the region under study. (Table 5.8)

5.2.9 Percentage of Population Served by Medical Facilities:

Another way of evaluation of medical facilities available in different parts of Solapur district, is that the percentage of rural population was calculated which was served by medical facilities in different tahsils. For region as a whole, 70.41 percent population have been served by medical facilities in the year 2001. There are wide variations within different tahsils of the district. It is clear from the fact that Mohol tahsil represented almost 96 percent rural population served by medical facilities, and occupies first position in the district. On the contrary, Mangalwedha represented lowest percentage for rural population served by medical facilities. Apart from this, the tahsils having low percentage of rural population than the region as a whole are Madha, Karmala, Barshi and Pandharpur. Other tahsils consisting of North and South Solapur, Sangola and Malshiras have significantly, higher percent of rural population served by medical facilities than the districts total. (Fig.5.3)

Table 5.8
Percentage of Villages and Population Served by - Medical facilities in Solapur district 2001.

Sr. No.	Name of Tahsil	Percentage of villages having medical facilities	Percentage of Rural population served by medical facilities
1.	North Solapur	66.04	89.16
2.	Barshi	28.89	52.25
3.	Akkalkot	82.96	92.22
4.	South Solapur	56.18	77.94
5.	Mohol	91.18	95.99
6.	Mangalwedha	24.69	41.25
7.	Pandharpur	31.91	51.58
8.	Sangola	66.34	83.75
9.	Malshiras	75.45	87.00
10.	Karmala	31.36	48.69
11	Madha	22.41	48.18
	District Total	**52.20**	**70.41**

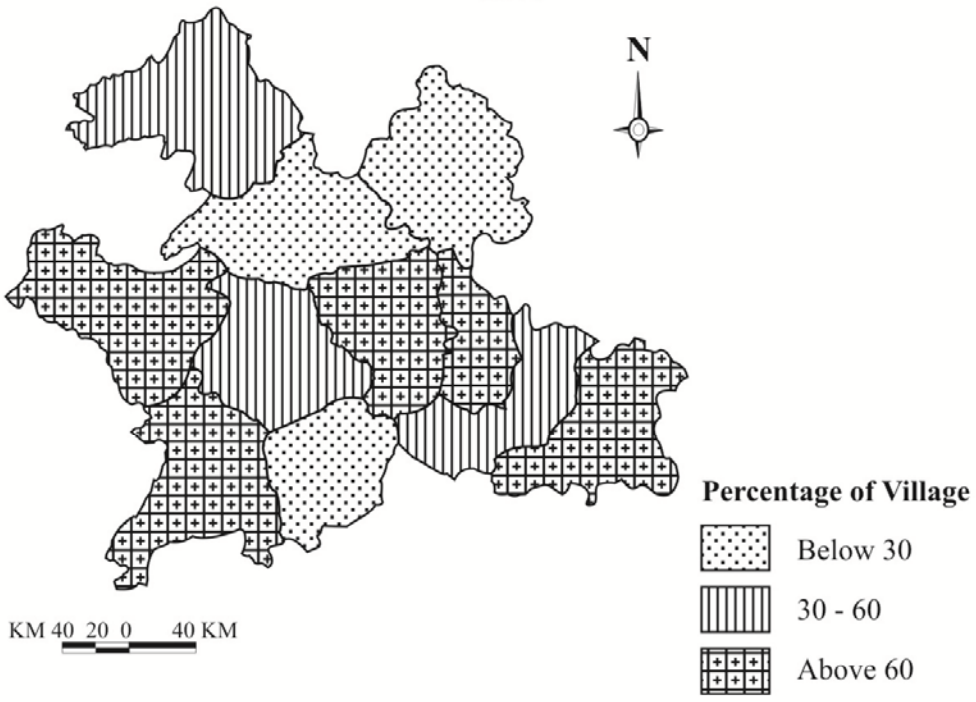
Source: District planning and development commission report March 2001.

5.3 EDUCATIONAL FACILITIES IN SOLAPUR DISTRICT

The true education is to bring out, the physical, the mental and the spiritual power of a person. Education is the most significant aspect for the overall development of a being. There is saying that little knowledge is a dangerous thing. Nothing is as sublime as transcendental knowledge. This purifies the fruits of all mysticism. By devotional service, one may be enlightened. Through which one may get pure knowledge. Since, a very ancient period the education was provided by the nature itself through different signs manifested to the environment. Through the passage of time, the educational institutions have been established. Now a

SOLAPUR DISTRICT

PERCENTAGE OF VILLAGES SERVED BY MEDICAL FACILITIES
2001



PERCENTAGE OF POPULATION SERVED BY MEDICAL FACILITIES
2001

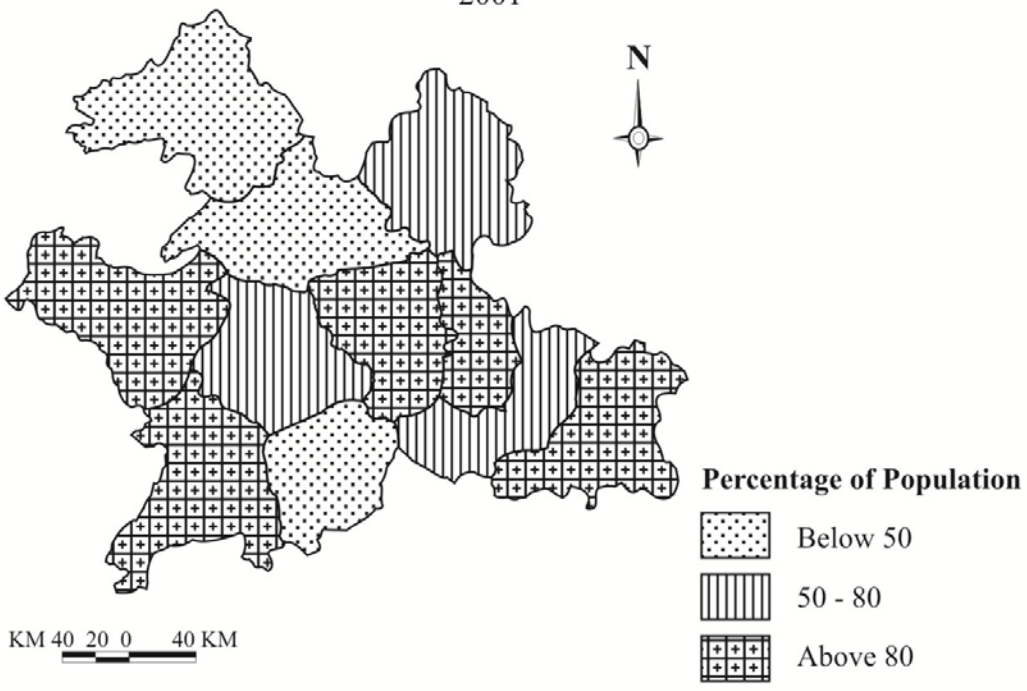


Figure 5.3

day, Government policies have helped in the development of various kinds of institutions. In order to enhance the educational pattern and level in various parts of the word different kinds of institutions are being established day by day.

In Solapur district, there have been considerable progresses in the education. According to 2001, there were in all 3679 number of educational institutions in the Solapur district as a whole. As expected, the primary schools were highest in number having 2837 in various places in the district. This is because the Government encourages the primary education in order to eradicate illiteracy from the country. It has also been observed that as level of education increases, the number of educational institutions declines. It is clear from the fact, that there were only 630 secondary schools in the Solapur district. Which are seven times less in number than the primary school. Similarly, junior colleges were 114 in the district and are about six times lesser in number than secondary school. Senior colleges are almost half in number than the junior college. Some professional college like D.Ed., B.Ed. College, ITI, Polytechnic, Law College, Medical College, Ayurvedic medical college and Engineering College are much lesser in number in Solapur district. It is clear from the table 5.9 that there had been 17, D.Ed. College, twelve B.Ed. colleges, eleven ITI colleges, three Polytechnic, two Law colleges, one Medical college, one Ayurvedic medical college and two Engineering colleges in entire district. It may be stated that the technical and professional colleges are quite less in number of relation to total population of the district. It is therefore, suggested that, number of technical and professional institutes should be brought in to existence in different parts of the district in order to fulfill the demand of the increasing population.

Table 5.9
Educational Institution in Solapur District 2001

Sr.No.	Educational Institutions	Total Number of Educational Institutions
1	Primary School	2837
2	Secondary School	630
3	Junior College	114
4	Senior College (Degree)	49
5	D.Ed. College	17
6	B.Ed. College	12
7	I.T.I.	11
8	Polytechnic College	03
9	Low College	02
10	Medical College	01
11	Ayurvedic Medical College	01
12	Engineering College	02
	District Total	**3679**

Source : District Planning and Development Commission- Report March 2001.

TAHSILWISE PRIMARY AND SECONDARY SCHOOL IN SOLAPUR

5.3.1 Primary Schools:

Numbers of primary and secondary schools as well as junior and senior college, along with technical and professional institutions have been discussed for the region as whole for the year 2001 in the previous head. Now, an attempt has been made to understand the spatial pattern of primary and secondary schools for different tahsils in Solapur district. In the year 1991, there were 2603 primary schools in Solapur district, which increased to 2837 in 2001.

Table 5.10

Number of Primary and Secondary Schools in Solapur district

Sr. No.	Name of Tahsil	Number of Primary School		Change in Number	Change in Percentage	Number of Secondary School		Change in Number	Change in Percentage
		1991	2001			1991	2001		
1	North Solapur	338	376	38	11.12	121	127	06	10.49
2	Barshi	202	217	15	10.74	76	78	02	10.26
3	Akkalkot	243	255	12	10.49	43	47	04	10.93
4	South Solapur	162	168	06	10.37	36	37	01	10.28
5	Mohol	192	209	17	10.88	40	41	01	10.25
6	Mangalwedha	140	158	18	11.28	28	29	01	10.35
7	Pandharpur	252	292	40	11.59	56	58	02	10.36
8	Sangola	320	336	16	10.50	58	59	01	10.17
9	Malshiras	306	329	23	10.75	60	62	02	10.33
10	Karmala	198	210	12	10.60	37	37	00	-
11	Madha	250	287	37	11.48	54	55	01	10.18
	District Total	**2603**	**2837**	**234**	**10.89**	**609**	**630**	**21**	**10.34**

This shows that there was net increase in number of primary schools of 234 during 1991 and 2001. The change was calculated to 10.89 percent during the same period. Within the various tahsils, there are wide variations in number of primary schools. The highest number of primary school was for North Solapur tahsil in the both years of 1991and2001. The lowest number of primary school was found in Mangalwedha tahsil, during the both census years. It is quite surprising, that the Sangola tahsil has represented the second highest primary school in same period and it was followed by Malshiras tahsil, the number was more than 300 primary schools. The region consists of Barshi, Akkalkot, Pandharpur and Madha have represented the number of primary school between 200 and 300, for

the both census year 1991 and 2001. On the other hand, South Solapur has shown a very little progress in the number of primary schools during the last two decades. The percentage change was more or less the same for the most tahsils in Solapur district, as it is between ten and eleven percent for the entire district.

5.3.2 Secondary School:

As expected the numbers of secondary schools went on increasing because of various socio-economic problems as well as distance between village and schools. In the year 1991, the number of secondary schools, was 609 in the entire region under study. During the next census years, the number of secondary school became 630, it means that there was net increase of 21 schools, which is estimated to 10.34 percent during the 1991-2001 period. The number of secondary schools was of the order of 121 and 127 for the years 1991-2001 respectively. It was because of the existence of Solapur city in North Solapur tahsil. On the other hand, all other tahsils of the district have below 100 secondary schools for the both census years. Mangalwedha tahsil have shown the least number for both years. Barshi tahsil occupied the second position as regard to the number of secondary schools. The tahsils which have number of secondary schools more than 50 are Madha, Malshiras, Sangola and Pandharpur during the period of investigation. On the other hand, all remaining tahsil had the number of secondary schools below 50 in both the years. There has been slow progress in the number of secondary schools during the concerned period. North solapur and Akkalkot tahsil have shown relatively higher increase in number of secondary schools. Barshi, Pandharpur and Malshiras have shown net increase of two secondary schools during the period 1991 and 2001. Karmala shows no change while rest other tahsils represented of number ‘one’ increase in secondary

education. As far as percentage change is concerned all the tahsils have represented percentage change above ten percent.

NUMBER OF PRIMARY AND SECONDARY SCHOOLS PER 10,000 POPULATIONS

5.3.3 Number of Primary School per 10,000 Populations:

The number of primary and secondary schools, in fact, does not give clear picture of the pressure of population on the primary and secondary schools. Therefore, an attempt has been made to assess the pressure of population on each primary and secondary school for the different tahsils of Solapur district. For the district as whole, the number of primary school was 8.78 per 10,000 populations in the year 2001.

The spatial pattern of number of primary schools per 10,000 populations varies enormously within the district for different tahsils. This is the ratio between numbers of primary schools on the one hand, and the population on the other, the highest number of primary schools was recorded of 14.59 for Sangola, while lowest was for North Solapur tahsil of 4.29. The region having less number of primary school below the region as a whole consists of Barshi and North Solapur tahsils. Rest other tahsils, have the higher number of primary school than the region average. The number of primary school does not represent the index of the development of education, because Barshi and North Solapur represent less number of primary school per 10,000 populations.

5.3.4 Number of Secondary School per 10,000 Populations:

It is an index to understand as the relation between secondary schools per 10,000 populations. For district as whole the number of secondary school was computed to 1.95. There are wide variations within different tahsils of Solapur district, the lowest number was recorded for

North Solapur while highest number of schools for Barshi tahsil. The tahsils which have higher number of schools per 10,000 populations are Madha, Sangola, Mohol, South Solapur and Barshi. Rest other tahsils of district have lower number of secondary school than the average

Table 5.11

Number of Primary and Secondary Schools per 10,000 Population

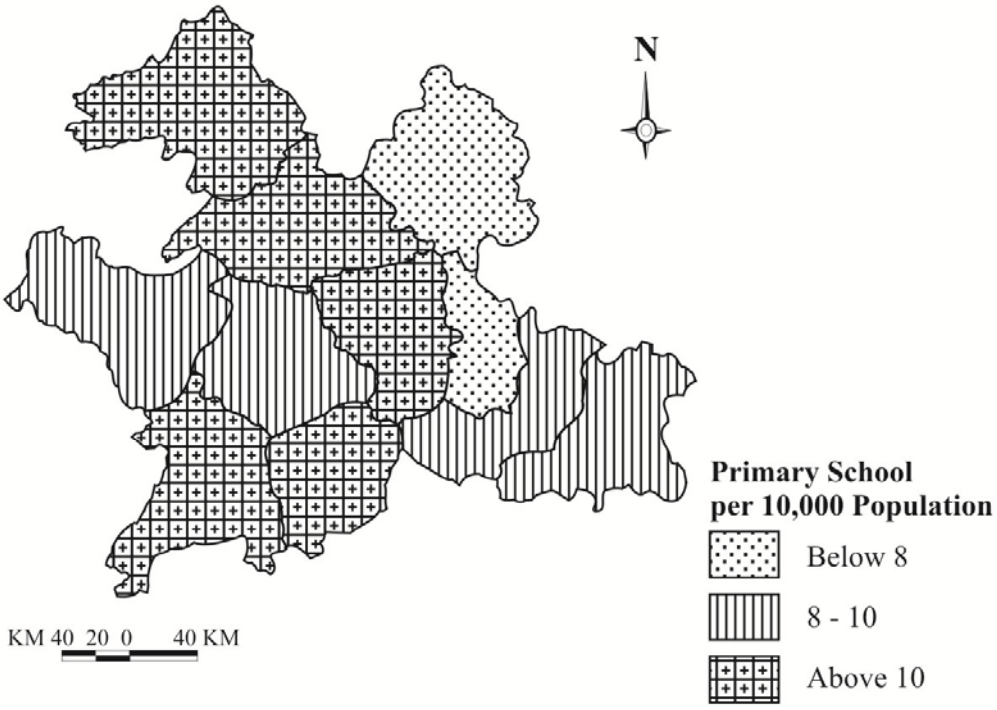
Sr. No.	Name of Tahsil	Number of Primary School	Number of Secondary School	Number of Primary per 10,000 Population	Number of Secondary school per 10,000 population
1	North Solapur	376	127	4.79	1.62
2	Barshi	217	78	7.18	2.88
3	Akkalkot	255	47	9.70	1.79
4	South Solapur	168	37	8.97	1.97
5	Mohol	209	41	10.30	2.02
6	Mangalwedha	158	29	10.61	1.94
7	Pandharpur	292	58	9.20	1.82
8	Sangola	336	59	14.59	2.56
9	Malshiras	329	62	9.39	1.77
10	Karmala	210	37	10.79	1.90
11	Madha	287	55	11.47	2.20
	District Total	**2837**	**630**	**8.78**	**1.95**

Source: District planning and development commission report March 2001**.**

for the region. It may be concluded that lower the number of secondary schools per 10,000 population, is the better developed region. For example in case of North Solapur tahsil the number of secondary schools per 10,000 populations is lowest among all the tahsil of the district. On the other hand, region like Sangola, the maximum value of number of

SOLAPUR DISTRICT

NUMBER OF PRIMARY SCHOOL PER 10,000 POPULATION



NUMBER OF SECONDARY SCHOOL PER 10,000 POPULATION

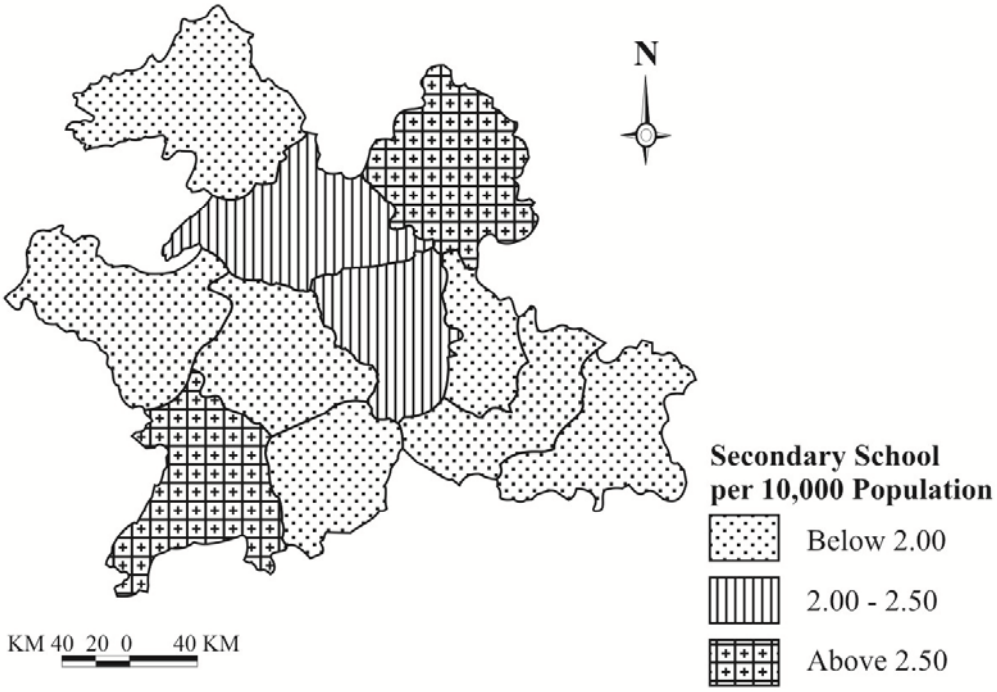


Figure 5.4

secondary schools is of 2.88 per 10,000 populations which represent poor social and economic development in the Solapur district. In other words quality and quantity also determine the number of secondary school per 10,000 populations in different parts of the district.

5.4 THE TRANSPORT FACILITIES:

The accessibility is considered as the lifeline of the economy in a particular region. The transportation facilities play a role like of venes in human body. As, the blood is circulated to the heart and brain by the venes, the goods and commodities including the accessibility of the people is done through, the means of transportation facilities in different parts of a geographical region. Among the various means of transportation facilities, the road network plays a vital role, since it provides door to door service. While, other means of transportation such as railways and airways do not serve this purpose. It is, therefore, most important to take an appraisal of roadways network in the region under study. It is road network, responsible for the overall social and economic development in a particular region. At the very outset, it may be stated that higher the density of road network, better developed socially and economically is the region.

This is an index of determining the region to understand how for a particular area is developed. India is a predominantly rural country, where more than two third population inhabitate in this sector. In order to understand, precisely the level of development in rural areas of the Solapur district, an attempt has been made to find out the percentage of villages having approach by pucca road and the percentage of rural population served by pucca road. For the district as whole, 47.21 percent villages having approach by pucca road, where as 55.46 percent rural

population is served by pucca road in Solapur district. However, there are wide variations within the different tahsils of the Solapur district as far as the percentage of villages having approach by pucca road is concerned. The North Solapur tahsil, within the district has the highest percentage of villages having approach by pucca road; on the one hand, Mangalwedha tahsil has shown the lowest percentage for the same. The Pandharpur tahsil occupied the second position as far as the better accessibility is concerned. The region consists of Barshi, South Solapur and Karmala tahsils, have also depicted the percentage of villages having approach by pucca road above the region average. It may the stated that even today, more than 50 percent tahsils, do not have better road network facilities, as it is clear from the fact that all these six tahsils of the Solapur district, show percentage of villages having approach by pucca road below the region average.

Table 5.12

Percentage of villages having approach by pucca road, and Percentage of rural population served by pucca road 2001

Sr. No.	Name of Tahsil	Percentage of village having approach by pucca road	Percentage of rural population served by pucca road
1	North Solapur	73.58	90.79
2	Barshi	58.52	69.41
3	Akkalkot	37.04	54.99
4	South Solapur	44.94	60.99
5	Mohol	32.35	53.99
6	Mangalwedha	18.52	24.27
7	Pandharpur	70.21	83.11
8	Sangola	26.73	36.28
9	Malshiras	22.73	40.68

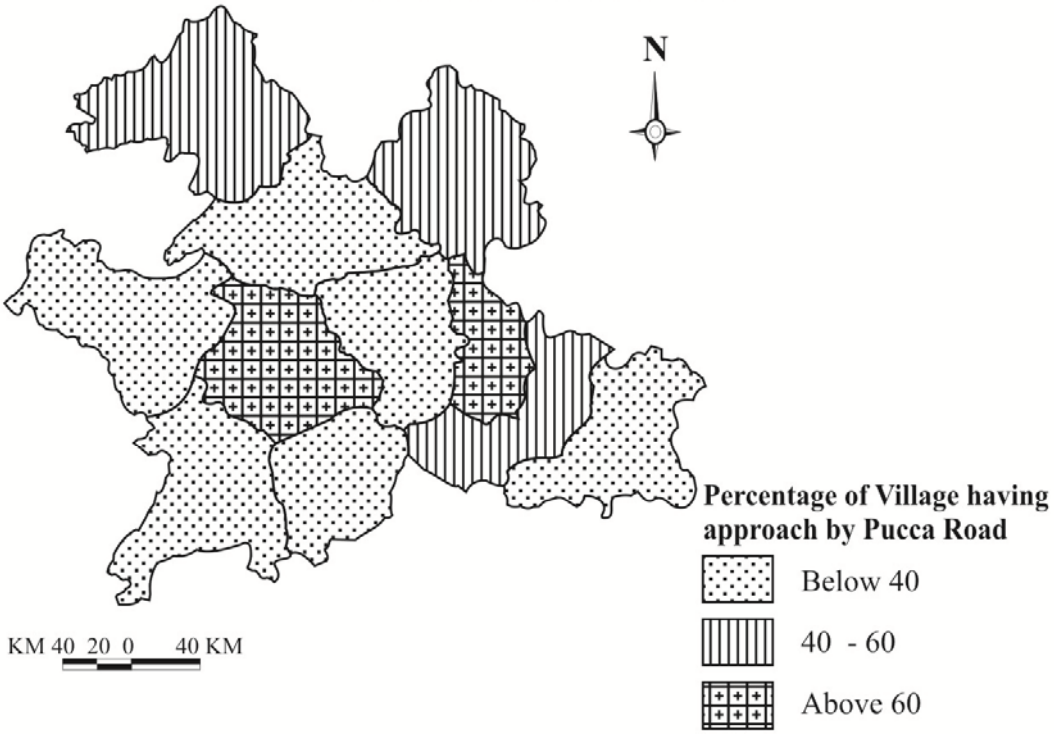
10	Karmala	42.37	54.78
11	Madha	27.59	43.89
	District Total	**40.21**	**55.46**

Source : Computed by the Researcher.

The percentage of rural population served by pucca road is another criterion to judge the degree of social and economic development in the Solapur district for the year 2001. As stated earlier, the percentage of rural population served by pucca road was calculated to 55.46 percent for Solapur district, the region under study as whole. Nevertheless, the percentage of rural population served by pucca road is not uniform for various tahsils of Solapur district. There are wide variations, being highest for North Solapur tahsil and lowest percentage of rural population served by pucca road in Mangalwedha tahsil. It clearly reveals that in the entire region of Solapur district, the North Solapur tahsil is the most accessible, while Mangalwedha is least. Owing to a chief pilgrimage centre in Solapur district, the Pandharpur has also represented quite higher percentage of rural population served by pucca road. Barshi is relatively large urban centre in Solapur district, also having railway approach, shows much better roadways network within the Solapur district. Apart from this, the region consist of Karmala, Madha, Malshiras, Sangola and Mangalwedha have much lower percentage of rural population served by pucca road within the district of Solapur. In other words, this region is comparatively less developed as far as road network is concerned. The better road network facilities are available in relation to percentage of rural population served by pucca road in North Solapur, Barshi, South Solapur and Pandharpur tahsils, since the percentages calculated for rural population served by pucca road is much higher than the district as a whole. In short, it may be concluded that

SOLAPUR DISTRICT

PERCENTAGE OF VILLAGES HAVING APPROACH
BY PUCCA ROAD FACILITY



PERCENT OF RURAL POPULATION SERVED BY PUCCA ROAD

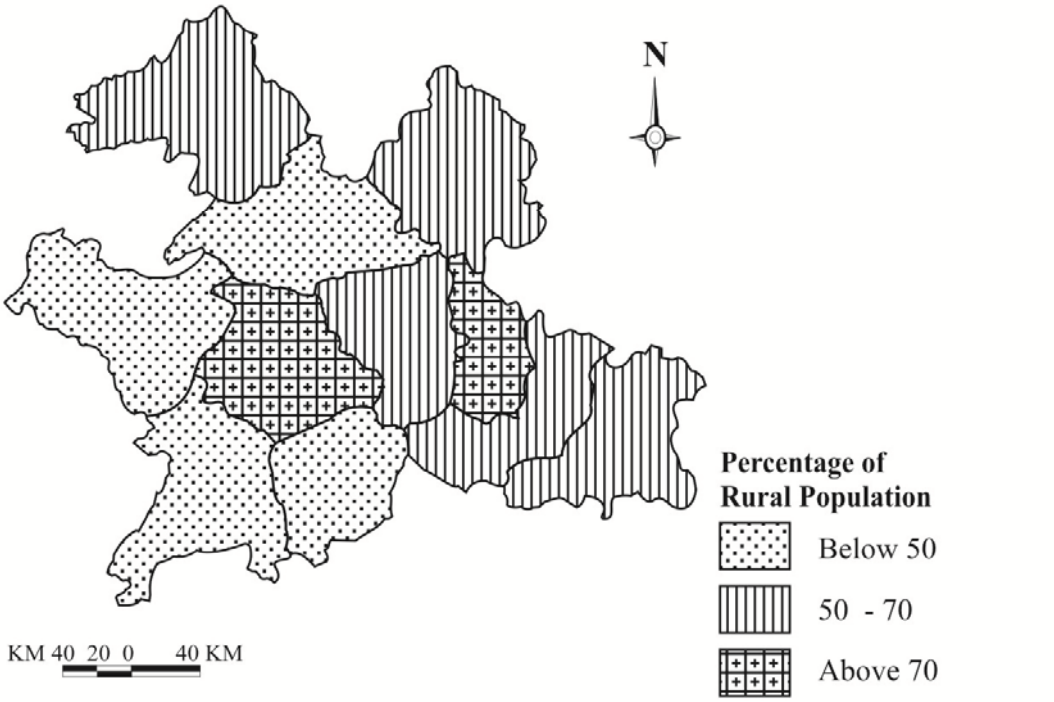


Figure 5.5

these two criteria mentioned for the percentage of villages having pucca road facilities on the one hand and percentage of rural population served by pucca road on the other, are best indices to assess the degree of accessibility. The most accessible region will have the higher density of road network and lower the road network density is the poor developed region and least accessible.

5.5 POST OFFICE FACILITIES IN SOLAPUR DISTRICT

Transportation and communication facilities are the most important facilities, joining the different settlements and population to one another for different purposes. In the preceding discussion, the importances of transportation facilities have been discussed in detail. Now, the role of communication facility in terms of percentage of settlement and population served by post facilities, found in the different parts of the Solapur district, have been taken into consideration. The communication facilities now are being changed by mobile, telephone, landline telephone, and satellite even, in rural areas of the world. Post office and telegraph facilities used to take a lot of time to communicate between the two parties. This delay has been replaced by modern communication facilities like telephone, mobile and electronic mail within no time over the globe.

Even today, the post facilities are of vital importance for the millions of people at reasonable rate for different areas. In Solapur district, the percentage of settlement having post office facility was recorded to 45.77 percent for the district total. Post facility varies within the district for different tahsils. The North Solapur tahsil recorded the highest percentage of settlement of 67.92 percent having post facility. On the other hand of the scale, the lowest percentage was for Akkalkot tahsil.

There were four tahsils namely South Solapur, Mohol, Mangalwedha and Karmala having lower percentage of settlement having post facilities below the region. The Solapur district have high percentage of settlement having post facility than the region average. It appears that availability of post offices depend upon the size of the settlements, political influence and proximity to the large urban centres.

Table 5.13

Percentage of settlement and population served by post facilities 2001

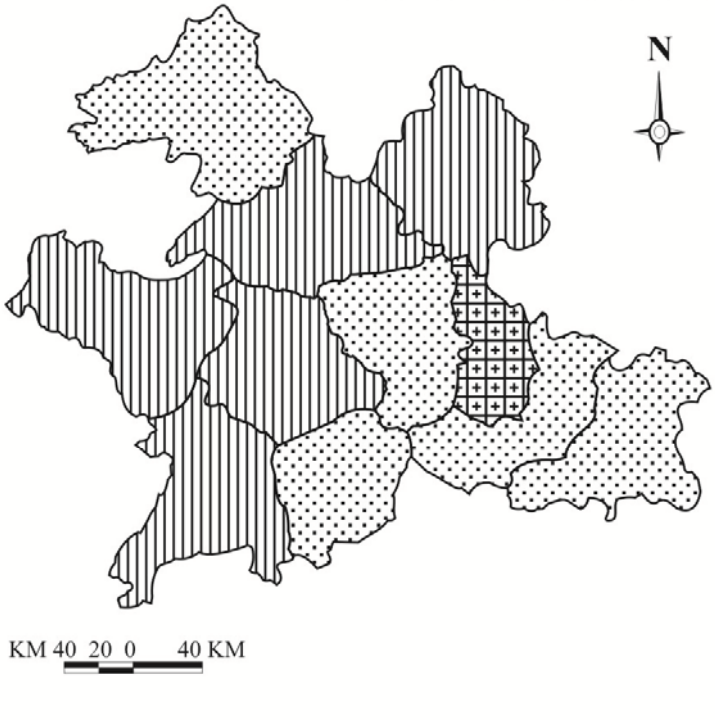
Sr. No.	Name of Tahsil	Percentage of Settlement having post facilties	Percentage of population served by post facilities
1	North Solapur	67.92	69.47
2	Barshi	48.89	71.77
3	Akkalkot	35.56	63.45
4	South Solapur	40.45	68.85
5	Mohol	43.14	67.83
6	Mangalwedha	38.27	55.20
7	Pandharpur	46.81	67.00
8	Sangola	51.59	75.63
9	Malshiras	48.18	71.50
10	Karmala	44.92	66.02
11	Madha	48.28	70.10
	District Total	**45.77**	**68.57**

Source : Computed by the Researcher.

This is also found that percentage of population served by post facilities in the Solapur district is much higher than many other parts of Maharashtra

SOLAPUR DISTRICT

PERCENTAGE OF VILLAGES HAVING APPROACH
BY POST FACILITY 2001



PERCENTAGE OF RURAL POPULATION SERVED BY POST FACILITY

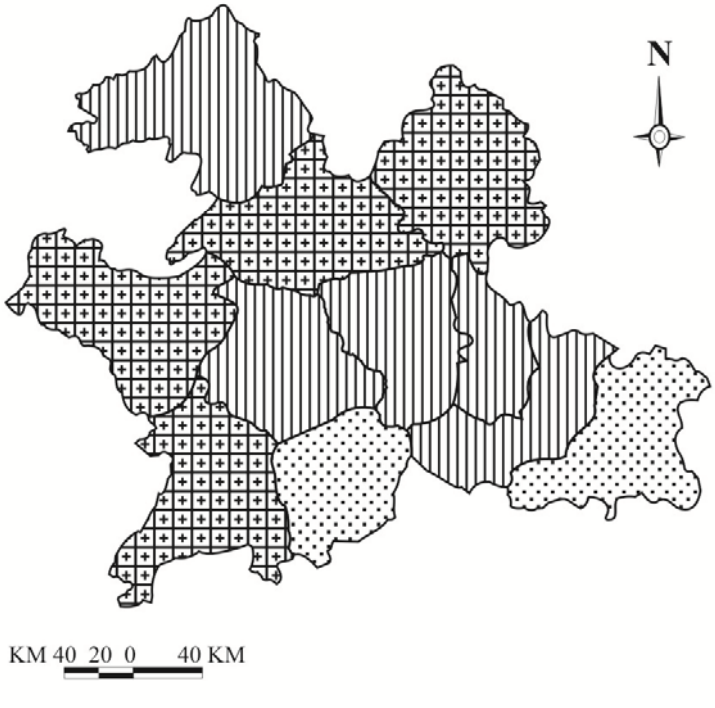


Figure 5.6

state. For the district of Solapur, the percentage of population served by post facilities was 68.57 percent. It was the highest for the Sangola tahsil probably due to the existence of post offices in large number. And the percentage of population served by post facility was lowest for Mangalwedha tahsil, the adjoining tahsils of Sangola. The lower percentage recorded for Karmala, Pandharpur, Mohol and Akkalkot, below the region. In other tahsils, it was higher than the region average. These facilities also represent the degree of development, higher the density for post facilities, the better conditions of that region, because it reduces the high pressure over the population in the region. It appears that even today, 100 percent settlements and population is not served by post facilities, hence, there is need to increase such facilities in the region under study.

5.6. MARKET FACILITY

5.6.1 Distribution of Weekly Market in Solapur District:

Market centres are the places, which supply the goods and services to surrounding areas. At the same time these market centres purchase surplus food grain from the surrounding villages. Various things which are required in day to day life are easily available in such centres. The larger urban places are the daily market centres, which supply the necessary things to people daily. On the other hand, weekly market centres are distributed in different parts of the district, particularly, at tahsils Head Quarters. In the district, in all there were 172 weekly market centres, which are widely distributed in different tahsils. It has been observed from the concerned table that the areas which are not under the influence of larger cities, have the maximum number of weekly market centres such as Mangalwedha and Madha, on the one hand and the lower number of weekly market centers for the areas which are under the

influence of Solapur city, have lower number of weekly market centre's. The example of these may be cited of North and South Solapur as well as of Mohol. These tahsils have below ten market centres; while between ten to twenty weekly market centres' have at Akkalkot, Barshi, Pandhapur, Sangola, Malshiras and Karmala. The Madha and Mangalwedha, though, socially and economically backward, yet have more than twenty weekly market centres.

Another criterion to understand the ratio between market centre and percentage of rural population served by weekly market centre, the average percentage for district was 29.52 percent; it shows that very low percentage served by weekly market centres. It is observed from table that economically poor and socially backward tahsils have higher percentage for the rural population served by weekly market centres such as Mangalwedha and Sangola. While lower percentage was for most urbanized tahsils of the district. Karmala, Pandharpur, Mohol, South Solapur and Barshi have represented lower percentage of rural population served by weekly market, than the region average. Remaining other tahsils have shown higher percentage than the region average. It may be concluded that availability of weekly market centres are the centres for the exchange of goods and services. The number of market centres directly influences the development in that area.

Table 5.14

Distribution of Weekly Market in Solapur District 2001

Sr. No.	Name of Tahsil	Number of weekly Markets	Percentage of villages served by weekly market
1	North Solapur	06	15.61
2	Barshi	16	24.95

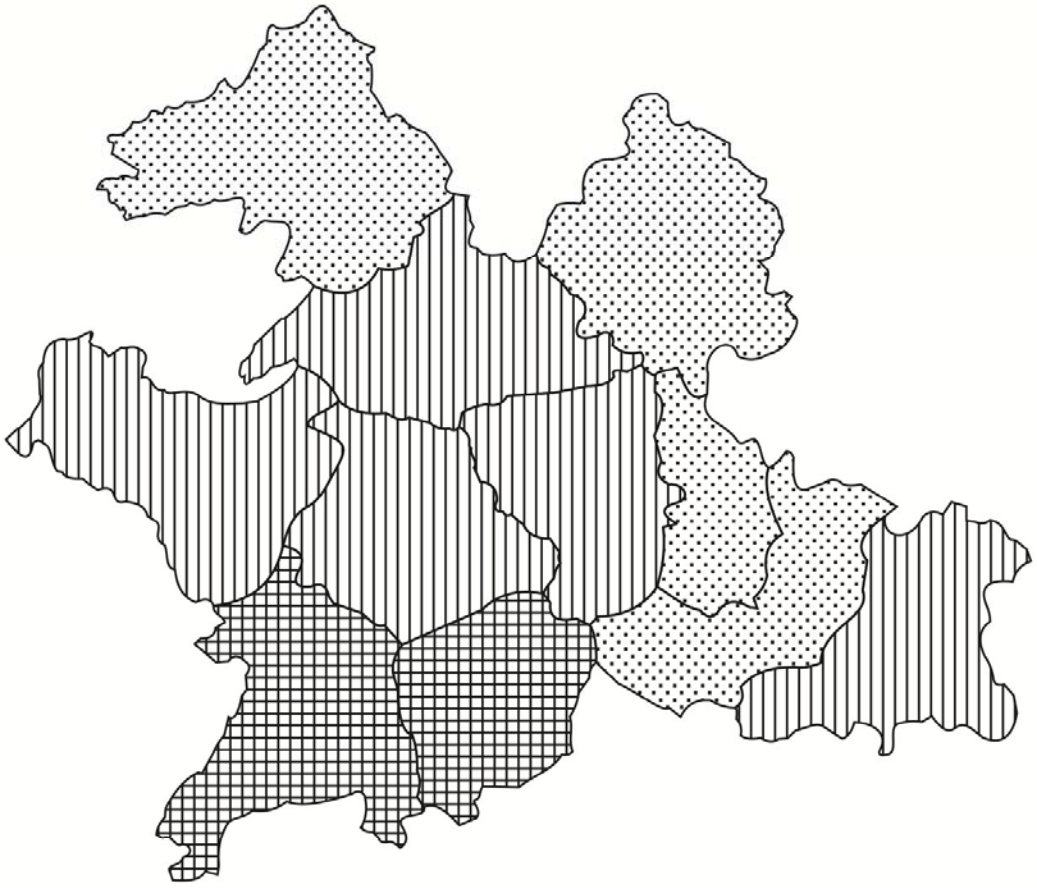
3	Akkalkot	15	31.67
4	South Solapur	09	24.48
5	Mohol	09	29.08
6	Mangalwedha	38	58.99
7	Pandharpur	13	25.63
8	Sangola	19	40.51
9	Malshiras	14	30.54
10	Karmala	10	15..49
11	Madha	23	33.13
	District Total	**172**	**29.52**

5.6.2. Distribution of Market Yards in Solapur District:

In addition, market centres which are retail as well as whole sale suppliers of goods and commodities for the surrounding areas, such market yards play a very prominent role in the distribution of goods and commodities within the region. According to 2001 census, there were ten market yards and 38 sub market yards. Due to close proximity of South Solapur tahsil to the city of Solapur and probably due to the Solapur city as a Head Quarter for tahsil, South Solapur tahsil has no market yards. It is observed from the table that each tahsil Head Quarter has one and only one market yards in their respective tahsil place. Most of the surplus food products from the tahsil are sold at market yard. The important products, which are sold from time to time to the market yards, are food grains of various types, vegetables products and fruits.

SOLAPUR DISTRICT

PERCENTAGE OF RURAL POPULATION SERVED BY WEEKLY MARKET (2001)



Percentage of Rural Population Served by Weekly Market

- Below 25
- 25 - 40
- Above 40

N

Figure 5.7

Table 5.15

Distribution of Market Yards and Sub Market Yards in Solapur District 2001

Sr. No.	Name of Tahsil	Market Yards	Sub Market Yards
1	North Solapur	01	06
2	Barshi	01	01
3	Akkalkot	01	03
4	South Solapur	-	02
5	Mohol	01	06
6	Mangalwedha	01	03
7	Pandharpur	01	03
8	Sangola	01	03
9	Malshiras	01	05
10	Karmala	01	03
11	Madha	01	03
	District Total	**10**	**38**

Source: District planning and development commission report march 2001.

In order to serve entire region, the sub market yards also have been established within the tahsil to purchase and sale different types of goods and commodities, as well as domestic animals. There were 38 sub market yards in the district distributed all over the region. The North Solapur and Mohol tahsils had each, six sub market yards, it was followed by Malshiras having five sub market yards. Barshi with one and South Solapur with two sub market yards, and other rest tahsils have three sub market yards within the various tahsils of the district. It has been observed that every tahsil in order to promote their business and trade of

the various products, have both market yards as well as sub market yards. This is the need of people to sale their agricultural products to the nearby market yards because of the perishability of the various products.

5.7 BANK FACILITIES

For the overall development of a region, the capital plays a very significant role. The financial aids and help, by the Government and people are made transfer through the cheques, demand draft and transfer order etc. through banks. Hence, bank facilities are of prime importance for the transaction of money. The banks facilities within the district have been studied by taking into consideration the number of settlements having banks in each tahsil, the number of scheduled banks and number of co-operative banks. Firstly, by adding total banks in each tahsil the percentage of settlements having bank facilities were also calculated to each tahsil.

Now, let us consider first the number of settlement having banks. Here, it should be made clear that number of settlements may have more than one bank in one settlement. In the district as whole, there were 194 settlements having banks facilities. North Solapur tahsil having the city of Solapur has highest number of co-operative and scheduled banks. The number of settlement having banks does not give clear picture because the Solapur city being one settlement has alone 118 banks. Therefore, the number of scheduled banks and co-operative banks are taken for the interpretations. In the year 2001, there have been 263 scheduled banks in the entire district. And 66 scheduled banks

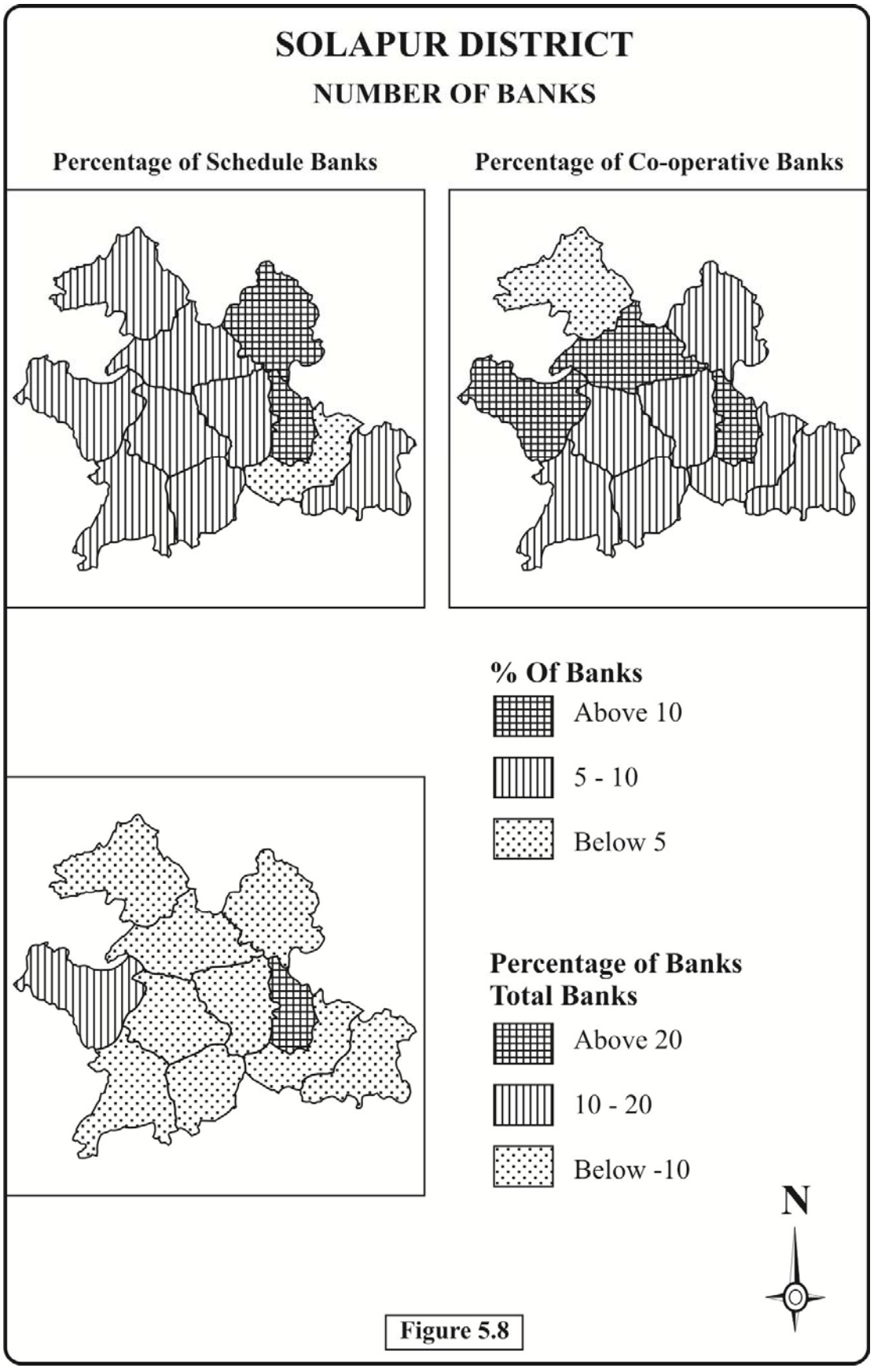

SOLAPUR DISTRICT
NUMBER OF BANKS
Percentage of Schedule Banks
Percentage of Co-operative Banks
% Of Banks
Above 10
5 - 10
Below 5
Percentage of Banks
Total Banks
Above 20
10 - 20
Below -10
N

Figure 5.8

Table 5.16

Distribution of Banks in Solapur District (2001)

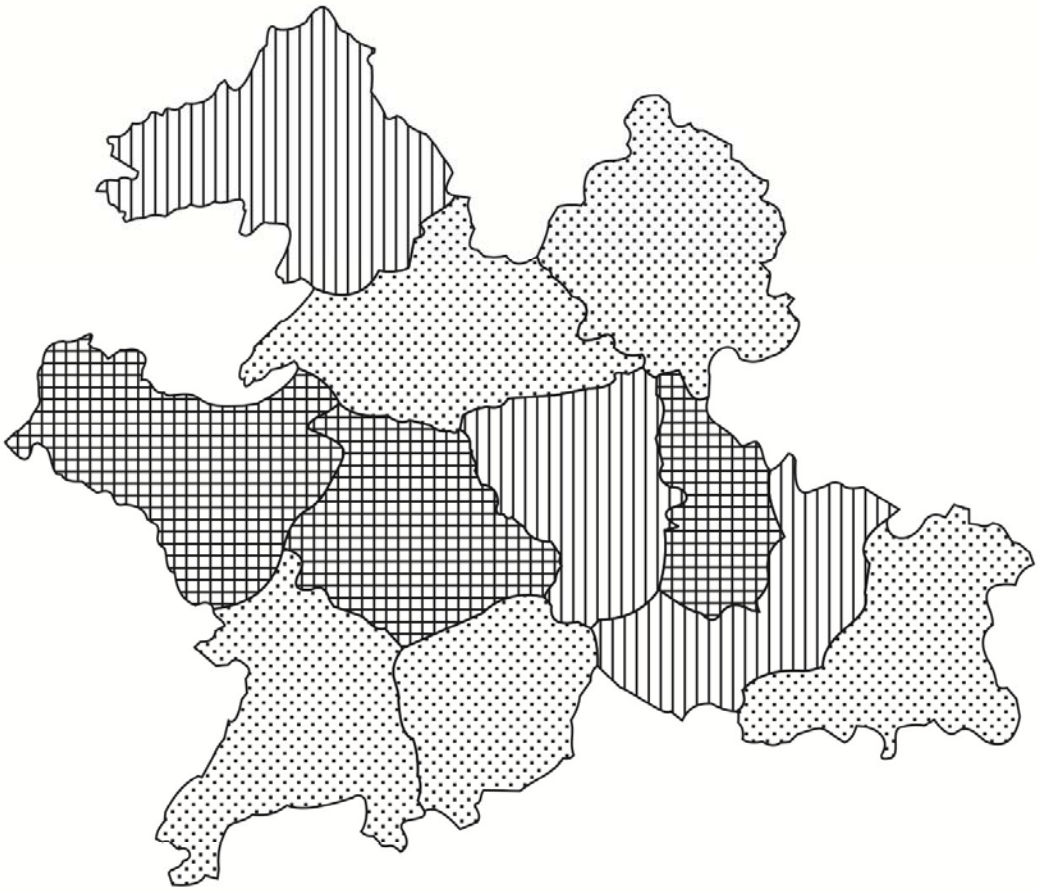
Sr. No.	Name of the tahsil	Number of settlements having banks	% of Scheduled Bank	Number of Scheduled Banks	% of Cotera tive Banks	Numb er of Co-operat ive Banks	Total Banks	% of Banks total Banks	Percentage of Settlement having Bank Facility
1	North Solapur	14	25.03	66	17.45	52	118	21.03	25.92
2	Barshi	20	10.26	27	7.71	23	50	8.91	14.70
3	Akkalkot	18	7.22	19	5.10	17	36	6.41	13.04
4	South Solapur	17	4.94	13	7.04	21	34	6.06	19.10
5	Mohol	17	7.22	19	8.05	24	43	7.66	16.66
6	Mangalwedha	12	7.60	20	6.37	19	39	6.95	14.63
7	Pandharpur	19	7.98	21	9.39	28	49	8.73	20.00
8	Sangola	14	7.22	19	7.38	22	41	7.31	13.72
9	Malshiras	29	9.50	25	14.09	42	67	11.94	26.36
10	Karmala	18	6.08	16	4.36	13	29	5.16	15.12
11	Madha	16	6.84	18	12.41	37	55	9.80	13.67
	District Total	**194**	**100%**	**263**	**100%**	**298**	**561**	**100%**	**16.95**

Source: District Planning and Development Commission Report March 2001.

located alone in the North Solapur tahsil which is more than 25 percent banks of the district this highest percentage is because of large urban city centre of Solapur. This is followed by both in number as well as percentage by Barshi tahsil. Malshiras tahsil occupied third rank as regard to number and percentage of schedule banks. Pandharpur tahsil have also shown quite large number of schedule bank which was around eight percent of the district. South Solapur tahsil had least number of banks and five percent of schedule bank in 2001. Other tahsils having medium number of schedule banks as well as around six to seven percents banks of the district.

SOLAPUR DISTRICT

PERCENTAGE OF SETTLEMENT HAVING BANKING FACILITIES



Percentage of Settlement having Bank Facility

- Below 20
- 15 - 20
- Above 15

N

Figure 5.9

Numbers of co-operative banks on the other hand, were also converted in to percentage for the district as well as for different tahsils. The number of co-operative bank were 298 for entire region and out of these total 52, were located alone in the North Solapur tahsil, which is more than 17 percent of the district total. As expected, because of political influence, Malshiras represented the second highest number of 42 which is more than 14 percent of the district. In order of importance, other tahsils are Madha, Pandharpur, Mohol and Barshi where the percentage of co-operative bank is more than 7 percent. While in other tahsils the percentage of banks is below seven.

The percentages of banks, to total banks of the district have also been represented in percentage. Out of the total, more than 21 percent banks including scheduled and co-operative banks were found only in North Solapur tahsil alone, due to presence of Solapur city in this tahsil. It was followed by Malshiras tahsil, having 12 percent banks of the district. It might be because of political influence in the Akluj. Barshi, Madha and Pandhapur also have the presented moderate percentage of bank in the Solapur district. Other tahsils of district have between five to seven percent banks of the district.

Finally, another approach to understand the availability of baking facilities in different tahsils, the percentage of settlements having bank facility also calculated for the district as well as for the various tahsils. It was observed that 16.95 percent settlement of the district, have banking facilities. The North Solapur, Malshiras and Pandharpur tahsils have represented the percentage of settlements more than 20 percent having banking facilities. The region consists of Karmala, Mohol and South Solapur has the percentage of settlements having 15and 20 percent. Remaining, five tahsils of Akkalkot, Barshi, Madha, Sangola and

Mangalwedha tahsils having below 15 percent settlements, with banking facilities in the study region. For spatial pattern of the banking facilities, in fact, there is no hard and fast rule because larger the settlement, higher percentage of banking facilities are found in such region.

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CHAPTER - VI

A CO-RRELATION MATRIX OF THE VARIABLES FOR THE DISTRIBUTION OF SETTLEMENTS IN SOLAPUR DISTRICT

CHAPTER - VI

A CO-RRELATION MATRIX OF THE VARIABLES FOR THE DISTRIBUTION OF SETTLEMENTS IN SOLAPUR DISTRICT

6.1 INTRODUCTION:

The subject matter of Geography like that the other social and natural sciences has been going changes during the last few decades. The traditionally held view, which Geography deals with distribution of the earth, is a challenge faced by contemporarily geographers. Advances in technology and scientific methods, have provided more accurate data and information about the various features of the geographical landscape, and this inturn has provided the geographers, an opportunity to search for the explanation about the patterns of distribution of physical, economic, socio-cultural and biological elements and the relationship among them. Thus, starting for qualitative description, the study of geography; now makes use of quantitative data in distribution analysis and interpretation of the spatial patterns and variations in socio-economic, biological and geographic elements.

The measurement of association among the different elements of the geographical landscape and differences of the spatial patterns, require the application of appropriate techniques. Geographers are familiar with the techniques of mapping and tabular analysis of data, even then the explanation of the patterns of distribution trends to be description of the features observed. Where the explanation is provided, it is likely to be based on a subjective judgment, for example given the maps of the distribution of rainfall and proportion of the area under forests to total geographical area may be compared, the pattern usually found in areas of high rainfall. The richness of natural vegetation is influenced by the

number of factors such as physical socio-economic and biological factor, have great bearing upon it. The theoretical aspects of any phenomena occurring over the surface of the earth may not some times give very authentic information, but when it is proved on scientific ground, then the facts and results become very clearer.

In Geography most of the aspects are descriptive with the reasoning of how and why, are the most important enquiries. Because, how and why provide an answer and support the argument discussed theoretically. In Geography, both qualitative and quantitative aspects have its importance which denotes the quality and quantity of any component.

Nowadays, the geography is not merely the descriptive subject. The use of statistical techniques and quantitative methods by using computers have enabled geographers to bring out the most authentic and correct results from analysis of the data and information, associated with a particular region. Geographical Information System (GIS) has opened the new ways for geographers to interprate various kinds of settlements problems within the region under study. Geographical Information Systems (GIS) are applied to find out exact situation and position of the various geographical facts. The analysis by using the computers, with the help of soft ware programme, solves the different delicate geographical problems within a short period of time.

Since, the present attempt is associated with the various physical, socio-economic and biological variables. Therefore, we have to establish relationship between number of settlements on the one hand, and other variables on the other. Now, let us take the variables one by one to find out the relationship between the numbers of settlements to total geographical area of each tahsil, which is an indicator of the distribution

of settlement in Solapur district on one hand and other variables on the other.

6.2 Number of Settlements and Percentage of Cultivable Land:

In order to understand the relationship between various socio-economic and physical factors on the one hand and number of settlements, a correlation matrix has been computed. The co-efficient of correlation have been interpreted. The number of settlements and percentage of cultivable land represents the inverse relationship, though not very significantly. This shows that with increasing percentage of cultivable land, the number of settlements declines in a particular region. This is against expectation because, it is anticipated that with the increase in percentage of cultivable land the number of settlement should increase, but this is not the case here. It may be interpreted that in a region like Solapur district with increase of cultivable land, the minimum land is left for the expansion of settlement. Generally, people would like to settle down in larger settlement in order to save the land for cultivation. The larger settlements grow in size and leaving no scope for the emergence of new settlement. The relationship, therefore, is found negative between the number of settlements and percentage of cultivable land.

6.3 Number of Settlements and Percentage of Net Sown Area:

The co-efficient of co-relation between the number of settlements and percentage of net sown area depicted the the value of 'r' 0.25. This means that the relationship between the number of settlements and percentage of net sown area has negative relationship. With increasing percentage of net sown area in the Solapur district, the number of settlements decline. It may be attributed to the expansion of netson area does not leave the scope for the development of new settlements. Generally, people do not settle down in new place because once a new settlement comes into existence a sizable land is given to settlement and

streets and roads, in order to save the considerable land for the utilization of different crops to enhance the agricultural productivity. It has been proved by the value of 'r' represented negative between the two

6.4 Number of Settlement and Per Capita Land Holding in Acre:

The relationship between the number of settlements and per capita land holding in acre also shows inverse relationship between the two. The co-efficient of co-relation has been computed to -0.38. With increasing the number of settlements, the per capita land holding in acre declines. It is as for the expectation because with growing number of settlement the population size also increases. It is a matter of commonsense that with increasing population, the per capita land-holding declines. The land resources are limited and fixed and can not be enhanced. If it is so that is an account of deforestation and grazing and pasture land is brought under cultivation which is not desirable. Since, the land is limited and fixed, with increasing population also means increase in the number of settlements. Therefore, with the increase in the number of settlements the per capita land holding declines. This has been proved by the negative co-efficient of co-relation between number of settlement and per capita land holding.

6.5 Number of Settlements and Percentage of Irrigated Land :

There is extremely insignificant inverse co-relation relationship between number of settlements and percentage of irrigated land, as the value of 'r' is -0.013 between the two. Even though the value of 'r' is insignificant and negative, yet with increasing percentage of irrigated land shows decline in the number of settlements. The proportions of increase irrigated land means expansion in the agricultural activities. As

Table No.6.1

Variables for Correlation Matrix influencing the distribution of Settelment in Solapur District

Sr No	Tahsil Name	No of settelments	% of cultivable land	% of Net Sown Area	Per capita land holding in Acre	% of irrigatated land	Road length per 100 sq K.M	% of People in Agriculture	% of Muslim population	% of Hindu population	% of persons per household	% of literacy	% of rural population	% of urban population	% of Area to total Geographical Area	% of density of population	% of villages having elecricity	% of no of house hold	% of villages having approch to pucca road	% of schools per tahsil	% of no of villages having post office	% of villages having bus stop
1	Karmala	118	94	67.7	1.9	28.5	202	27.3	4.9	92.57	5.6	68.7	90.6	9.4	10.82	145	100	5.6	42.37	100	44.92	76.27
2	Madha	116	73	71.2	2.2	25.8	103	31.7	8.81	92.01	5.5	70.1	92.2	7.8	10.26	189	98.28	5.5	27.59	100	48.28	47.41
3	Barshi	135	20	28.3	2.2	21.9	81	35.5	8.46	88.73	5.25	74.1	69.3	30.7	9.97	230	100	5.25	58.52	100	48.89	85.93
4	North Solapur	53	63.2	59.6	3.4	27.8	96	9.2	16.92	78.2	5.65	76.1	9.2	90.8	5.01	1287	98.11	5.65	73.58	100	67.92	69.8
5	Mohol	102	72.2	69.6	2.6	26.8	78	42.2	5.58	92.98	5.31	69.5	100		9.46	179	100	5.31	32.35	98.04	43.14	76.47
6	Pandharpur	94	73.3	70.8	2	57.3	28	34.5	4.84	93.48	5.62	69.8	77.3	22.7	8.76	309	98.54	5.62	70.21	100	46.81	78.72
7	malshiras	110	63.5	60	1.9	43.7	151	39.5	3.64	77.15	5.56	71.7	100		10.23	278	100	5.56	22.73	99.09	45.45	90
8	Sangola	101	53.1	51.3	1.8	28.2	49	30.2	3.57	93.2	5.72	66.3	89.7	10.3	10.42	175	98.02	5.72	26.73	100	51.49	65.35
9	Mangalwedha	81	69.8	67.8	2.7	10.5	94	33.4	5.34	93.37	5.65	66.7	87.3	12.7	7.66	150	100	5.65	18.52	100	38.27	100
10	South Solapur	89	72.5	69.3	3.6	26.2	60	49.9	12.59	86.07	5.69	67.4	100		8.03	176	87.64	5.69	44.94	96.63	40.45	84.27
11	Akkalkot	135	73.8	70.6	3.3	25.3	65	48.1	8.12	81.5	5.77	67.7	99.5	0.5	9.34	209	96.3	5.77	37.04	94.56	35.56	59.26
	SOLAPUR DISTRICT	1134	66.2182	62.3818	2.50909	29.2727	91.5455	34.6818	7.52455	88.1145	5.57455	69.8273	83.1909	23.1125	9.08727	302.455	97.8991	5.57455	41.3255	98.9382	46.4709	75.7709

Source : Socio-Economic Abstract of Solapur district 2000-01

discussed in the preceding variables the increase in irrigation again will be responsible for the lowering in the number of settlements in the Solapur district. It is, therefore, clear from the value of co-efficient of co-relation that there is opposite relationship between number of settlements and percentage of irrigated land.

6.6 Number of Settlements and Road Length per 100 square kilometer:

The positive value of co-efficient of co-relation between number of settlements on the one hand and road length per 100 square kilometer on the other demonstrates that with increasing road network density in the Solapur district results increase in the number of rural settlements. The road network system provides easy accessibility to the people for the movement of goods and commodities as well as for easy movement of man from one place to another. It has been observed that with increasing road density and road facilities is responsible for the emergence of new settlement in new sites. Particularly, in the nearby rural urban fringe area, the density of population increases bringing new peth's and nagar or wards by rural urban migration. It has been proved by the co-relation value that with increase in the road network density, the probability in the increase in the number of settlement is expected in high degree.

6.7 Number of Settlement and Percentage of the People in Agriculture:

The Solapur district is predominantly agriculture of Maharashtra. The 'r' value calculated between number of settlements and percentage of the people engaged in agriculture is to be found positive and quite significant (0.54). It means that with growing number of workers in agriculture, the number of settlements also increases. Though, size of the settlement may be smaller, yet the number of farmstead and hamlets

expandes in the form of the small villages resulting in increase in the number of rural settlements. The agriculture land is spread throughout the district, hence, the possibility of the new settlement become quite significant in order to look after their respective fields and farms. To avoid maximum distance from their agricultural field, generally people would like to make farm stead and hamlet nearby the agricultural land through the process of time. The farm stread and hamlet are grown in the form of smaller villages. This has been proved by the value of co-relation between the number of settlements and the proportions of the workers are engaged in the field.

6.8 Number of Settlements and Percentage of Muslim Population:

India is a predominantly Hindu country where more than 80 percent population belongs to Hinduism. Muslim belongs to minority community. From the point of view of security generally, Muslim prefer to inhabitat in the larger settlements preferably in urban areas. Therefore, the relationship between number of settlements and percentage of Muslim population shows negative relationship but significant to a certain extent. This clearly indicates that with percentage of Muslim population the number of settlements declines in Solapur district. In Indian contest most of the Muslim are confined in the larger urban centers. Muslim prefer generally other than agricultural work hence, such occupations available in urban and larger settlements in India. This is the reason, co-efficient of co-relation between number of settlement and Muslim population is inversely related in the region under study.

6.9 Number of Settlements and Percentage of Hindu Population:

Hindu population is widely distributed over the region. The proportion of cultivaters and even landless labours are also found throughout the region particularly among the Hindu community. The positive co-efficient of co-relation reveals, that with high percentage of

Hindu population the number of rural settlement also increases. It is because of the land holder of the sizable number in the rural areas of the Solapur district as well as dominated of the Hindu population both rural as well as in urban areas influence the positive growth of the number of settlements in the Solapur district. Hindus are more secured even in the rural areas than minority community.

6.10 Number of Settlements and Number of Person's per Household:

The relationship between number of settlements and persons per household has shown negative value of 'r' (-0.31). This means that with increasing number of household, the number of settlements in the region declines in the region a under study. This may be attributed to larger size of the family, less probability of splitting the family. The breakings of the family into two or more parts force to have new houses to a certain extent. The breaking of the family also motivates to push people from their houses to other areas. There by increasing the size of the settlement. Most of the joints families are responsible for to live in the groups in the same household, resulting in the low number of settlements in the region. Therefore, it may be stated that with increasing the size of the household negatively influencing the number of settlements. (table 6.2)

6.11 Number of Settlements and Percentage of Literates:

The percentage of literates means, the occupation particularly in secondary and tertiary sectors is dominated which is available in larger cities and urban centers. Therefore, the relationship between the number of settlements and percentage of literates is negative. Most of the literate persons would like to migrate from rural settlement to urban settlements for better employment opportunities. This rural urban migration is responsible for the declines in the rural settlement because of rural urban

Table No. 6.2

Correlation Matrix of variables influencing the distribution of Settelment in Solapur District

	No of settelments	% of cultivable land	% of Net Sown Area	Per capita land holding in Acre	% of irrigatated land	Road length per 100 sq K.M	% of People in Agriculture	% of Muslim population	% of Hindu population	% of persons pwe household	% of literacy	% of rural population	% of urban population	% of Non agriculture Area to total Geographical Area	% of density of population	% of villages having elecricity	% of no of house hold	% of villages having approch to pucca road	% of schools per tahsil	% of no of villages having post office	% of villages having bus stop
No of settelments	1																				
% of cultivable land	-0.184729	1																			
% of Net Sown Area	-0.253919	0.9190381	1																		
Per capita land holding in Acre	-0.37988	0.1162583	0.2680162	1																	
% of irrigatated land	-0.012737	0.1555973	0.1675417	-0.379171	1																
Road length per 100 sq K.M	0.1600149	0.3477145	0.0491384	-0.290877	-0.126534	1															
% of People in Agriculture	0.5389488	0.0474007	0.1934466	0.1431054	0.0166481	-0.263961	1														
% of Muslim population	-0.464191	-0.100148	-0.030184	0.780061	-0.246429	-0.144249	-0.329086	1													
% of Hindu population	0.1267162	0.1180201	0.0904379	-0.442053	-0.127935	-0.172298	0.059409	-0.479875	1												
% of persons per household	-0.313333	0.4789428	0.4744187	0.3043911	0.0779648	-0.116475	-0.032555	0.0966781	-0.229745	1											
% of literacy	-0.182121	-0.442445	-0.465872	0.0632628	0.1741346	0.1692639	-0.549981	0.5255318	-0.513274	-0.465225	1										
% of rural population	0.6013206	0.2695351	0.3009455	-0.270466	0.003028	0.0507329	0.83245	-0.675658	0.3379644	-0.003035	-0.752191	1									
% of urban population	-0.707412	-0.248771	-0.252119	0.4778777	0.0734309	-0.030602	-0.823956	0.8407874	-0.626617	-0.112226	0.8399373	-1	1								
% of Non Agriculture Area to Total Geog. Area	0.8308958	-0.009481	-0.136544	-0.719824	0.1386876	0.2774199	0.428417	-0.75128	0.3772829	-0.273739	-0.377791	0.7390909	-0.821853	1							
% of density of population	-0.669615	-0.09554	-0.092241	0.4038599	0.0878694	-0.013792	-0.740533	0.7266888	-0.560012	0.1343187	0.7295063	-0.933114	0.9608666	-0.791413	1						
% of villages having elecricity	0.1684273	-0.145486	-0.248748	-0.647073	0.0520852	0.3619671	-0.438222	-0.490061	0.1902192	-0.426057	0.292229	-0.154776	0.0305975	0.2575834	0.0406999	1					
% of no. of house hold	-0.313333	0.4789428	0.4744187	0.3043911	0.0779648	-0.116475	-0.032555	0.0966781	-0.229745	1	-0.465225	-0.003035	-0.112226	-0.273739	0.1343187	-0.426057	1				
% of villages having approch to pucca road	-0.279424	-0.190178	-0.221928	0.2364609	0.3906653	-0.254274	-0.404787	0.5584973	-0.17948	-0.077894	0.6214647	-0.716048	0.7162103	-0.493393	0.6251791	-0.116684	-0.077894	1			
% of schools per tahsil	-0.297844	-0.215211	-0.339507	-0.632539	0.1080008	0.2513264	-0.710437	-0.172412	0.3721556	-0.308619	0.3323444	-0.401183	0.3161728	0.0136181	0.1990075	0.5656701	-0.308619	0.1329038	1		
% of no. of villages having post office	-0.534113	-0.280191	-0.347736	-0.025335	0.1544165	0.0307712	-0.864137	0.5123455	-0.269714	-0.081866	0.7277415	-0.870343	0.8750355	-0.461247	0.8423068	0.196474	-0.081866	0.5611141	0.5587443	1	
% of villages having bus stop	-0.231978	-0.181696	-0.214652	-0.019179	-0.048224	0.1272592	0.145071	-0.208432	-0.014182	-0.157188	-0.001151	0.0478489	0.1075109	-0.181061	-0.118187	0.060597	-0.157188	-0.040292	0.1735109	-0.231546	1

Source : By statistical correlation method using microsoft excel

migration that is why the co-relation value between number of settlements and literacy is negative.

6.12 Number of settlements and Percentage of Rural Population:

It is a matter of commonsense that with growing rural population, the number of rural settlements increases. Therefore the co-efficient of co-relation calculated between number of rural settlements and percentage of rural population is positive and quite significant. The proportion of rural population has direct bearing upon the number of rural settlement. As a rural population increases in the percentage, than there is probability either in the expansion of the rural settlement or emergence of new rural settlements. The rural population generally depends upon the agriculture, and in order to reduce the distance between houses and fields, people make the farmstead nearby the agricultural land resulting in the emergence of new settlements. These farmstead and hamlet grow gradually and become a small rural settlement hence, the value of 'r' (0.61) is positive and in faviour of the argument made above.

6.13 Number of Settlements and Percentage of Urban Population:

This shows inverse relationship but very significant value of co-efficient of co-relation which is of -0.71. With growing urban population on account of rural urban migration, the numbers of rural settlements are of the larger size and many times a smaller rural settlement in the rural urban fringe or in suburb area are merged in the larger cities like Solapur. During 2001-02 more than ten villages were merged in the Solapur corporation area. Therefore, it may be stated that with expansion of urbanization, the number of rural settlements substantially declines. It is proved by the 'r' value between the number of settlement and percentage of urban population.

6.14 Number of Settlements and Percentage of Non-Agricultural Area To Total Geographical Area:

The number of rural settlements is positively increased by the percentage of non-agricultural land in the Solapur district. The co-efficient of co-relation value is calculated to 0.83 between the number of settlement and percentage of non-agricultural land which is quite significant. The scope for establishment of new settlement becomes quite fascinating in the non-agricultural land, the waste land, the barren land and other non agricultural land are having low price and can be easily purchased by the people to make new houses. Therefore, the high percentage of non-agricultural land, the emergence of new settlements becomes bright. It has been clearly indicated by the 'r' value between the number of settlement and percentage of non-agricultural area. The urban places also a spread in non-agricultural land but the number of settlement remain the same. However in case of rural settlement with growing rural population the number of settlements considerably increases.

6.15 Number of Settlements and Density of Population:

In urban areas, generally, the density of population is higher than that of rural areas. The co-relation between the number of settlement on the one hand and the density of population on the other depicts a negative relationship which is -0.67 and quite significant. As expected, with high density of population which is true for urban areas because of rural urban migration for better employment opportunities and for the utilization of urban facilities in larger cities. It may be concluded that the high density of population particularly of the larger cities and urban centers, inversely affect the number of rural settlement in Solapur district. The rapid orbanization means merging of the number of rural settlements in the larger cities, resulting in declines in the large number of settlements.

6.16 Number of Settlements and Percentage of Villages Having Electricity:

The basic amenities and facilities have positive impact upon the growth of settlement. Electricity is one such facility that helps in the functioning of number of activities. The electricity is responsible for the attraction of the people to settle down in areas where the supply of electricity is without breake. If electricity, is provided to rural settlement than people can get the work done through it, such as engine operation in agricultural sector for irrigation, floor mill and many other electricity ways activities may be operated very easily. The co-efficient of co-relation between the number of settlements and the percentage of villages having electricity, this shows the number of settlements increases with the increase in the percentage of villages having electricity is positive, which shows the number of settlements increases with the increase in the percentage of villages having electricity in the district of Solapur.

6.17 Percentage of Settlements and Number of Household:

With the increase in the number of household, it is expected that the number of settlement will increase, but it is not the case here. The co-efficient of co-relation between number of settlements and number of household shows the negative value of 'r' which is -0.31. When the number of household increases certainly, the size of the settlement also increases. The large size settlements contain large number of houses. In urban areas the number of household is relatively higher than the rural area. Therefore, it may be stated with increasing the number of household which turn into urban settlements, inversely affecting the number of rural settlement which has been proved by the value of 'r' between the number of settlement and number of household in Solapur district.

6.18 Number of Settlements and Percentage of Villages have Approach by Pucca Road:

The relationship between the number of settlements and percentage of villages having approach by pucca road is negative, though, not very significant. The value of co-relation is calculated to -0.28. The percentage of villages having approach by pucca road, when increases it results in the lowering the number of settlements. Now the question arises, why the number of settlements decline with the increase in the percentage of villages having approach by pucca road. This is because of the better road network system, the concerned settlement grow in size and leaving no scope for the emergence of new settlement. Such larger settlements having better road network, become urban centers in due course of time and rural settlement are adversely affected in the increase in the number of settlement. It is quite clear from the value of 'r' that the better accessibility is associated with the urban areas of the district. Hence, the number of rural settlements generally does not grow in number, as it is indicated by the co-efficient of co-relation between the two.

6.19 Number of Settlements and Percentage of School per Tahsil:

The large numbers of schools are expected to be found in urban areas. At the same time, the large size of the students is also attached with such institutions. Now a days, with the encouragement provided by the government for the school education, has also resulted in the increase in the number of schools even in rural areas of the district, though the size of the students may not be vary large. In such circumstances, the number of settlements remain constant because of the educational facilities are provided by the government in areas of settlement having threshold to run the school. It, therefore, discourages new settlements to come in to existence in new areas. This has been proved by the co-relation value between the number of settlements and percentage of school per tahsil.

6.20 Number of Settlements and Percentage of Villages Having Post Office:

The relationship between number of settlements and percentage of villages having post office facilities indicates opposite relationship as the co-efficient of co-relation is calculated -0.53. It is a significant value though negative. This means that with the increase in the percentage of villages having post office facilities, the number of settlements declines in Solapur district. It may be, probably due to the facilities of post office are provided to larger rural settlements having required population to run such facilities. Numbers of small size settlements are clubbed in to larger settlements in the Solapur district. This is the reason that the co-relation of co-efficient of co-relation shows negative value between the numbers of settlement on the one hand and percentage of villages having post office on the other.

6.21 Number of Settlements and Percentage of Villages having Bus Stop:

This has also been represented by negative value of co-efficient of co-relation which is -0.23. The bus stop facilities like post office facilities, School facilities having tendency to club a small settlement in the larger settlements. It is not possible to provide post office facilities in every a small settlement, because of the road network system is quite poor in rural areas. When the percentage of villages having bus stop increases, the number of settlement is adversely affected in the Solapur district. Larger rural settlements are selected to provide bus stop services because of their sufficient demand is fulfilled by the enough population in such region. Secondly, the larger villages having buses stop are profitable because of sufficient population. It is not possible to government to provide bus stop facilities to a smaller size of settlement, because it may result in loss of the economy. Hence, the relationship between the number of settlement and percentage of villages having bus stop is calculated to -0.23 between the two.

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CHAPTER - VII

CONCLUSIONS AND SUGGESTIONS

INTRODUCTION:

This chapter gives the conclusions and suggestions of the anylisis done in earlier chapters, at the same time it also provides, the findings and results along with problems found in the region. Some of the recomondations in order to solve the problems existing in the region have also been suggested. The **first chapter** is associated with the introduction of the topic and region. Food, cloth and shelter are the basic and fundamental needs of mankinds. The present work is an attempt to study the geography of settlement both for rual and urban settlements. Since, the development of mankind as he has been inhabititing in the groups of houses, hence, the significance of the settlements becomes most vital. The growth of settlements, types of settlements, distribution size of the settlements and functions of the settlements are the basic point to study in settlement geography. Historically and logically, the most basic requirement of dwelling is that it provides shelter against the more serious environmental stresses, which vary from place to place, even within the small geographical area.

The basic requirement of shelter have been made for comfort and retain efficiency in the sense of the security to a degree closely link with the culture of the dwellers. Now a day, the modern civilization is characterize, in the developing areas of the world. The technological innovations have been responsible for the industrialization in certain areas.

The growth of settlements to a certain extant is the result of rapid growing population in the history of human civilization. The rural urban interaction is therefore, ever on the increase. The study of settlement

geography has naturally assumed tremendous significance during contemporary times. The area under study is relatively backward area, is high potential for industrialization, urbanization and social and economic development considering its natural sources.

The meaning, scope and field of settlement geography hold and exceptional place in the geographical hierarchy of human phenomena a very recent branch of human geography. Modern innovations in the field of technology communication and transport have provided new amenities to people and rise to different setup occupance it has been observed that many settlements have grown up due to various developments. The functional structure of the settlement is closely related to social economic and political bahaviour of the society. These aspects influence the location farm and size of the settlement. The spatial distribution and the functional characteristics of urban settlements are generally, oriented by the need of rural settlements.

The settlement geography is closely related with the population geography, economic geography and historical geography. Sociologists, planners, economists and politictions have widely used quoted urban literature in the adjacent fields.

Though, a relatively recently developed branch the settlement geography is an important branch of human geography because it studies various characteristics of human settlements. The space relations of the settlements and the pattern of landuse facilities, sites and situations are some basic theme of the study in settlement geography. The settlements are considered as an index of human adjustment to the environment. The discipline of settlement geography has been divided in to two sub fields namely rural geography and urban geography.

Rural geography deals mainly with the study of the settlements based on the primary activities such as farming, fishing, meaning,

concerned with the study of the settlements based on the secondary and tertiary activities such as manufacturing, trade, transport and other services. The urban field is one of the major areas of concern of geographers these days.

The first section also deals, with the choice of the topic and region. The hypotheses are the pre supposition, on which entire research is based, has also been formulated for present study in the first chapter. The numbers of hypotheses have been made in order to test them either for or against. The objectives are the most important for the research and hence, without objective no study can be fulfilled and completed. As a matter of fact, the chief purpose of research is to obtain, the result by fulfilling its objectives. The objectives are the goals to obtain by the researcher therefore, the number of objectives have been selected for a study.

The source of the data and information are the most vital information and data research cannot be carried out. No desirable, conclusion and generalization may be obtained without proper data analysis. Hence, the data which is basic tools for research has been collected from different sources and processed in percentage and proportions and tabulated in different tables. Some cartographic techniques have been used to represents data in figures, diagrams and maps.

Review of the literature has also been included in the first chapter in order to get some idea about the previous work done in the field of settlement geography. The works of R.B. Mandal, P. Boregowda, V.S. Fadke and K.S. Seeta, Prof. Enayat Ahmed, Dr. A.S. Bhole and Dr. Choudhary have done a very appreciable work in the field of settlement geography.

The **second chapter** is associated with different kinds of backgrounds of the region under study.These backgrounds have a great bearing upon each other and one influences, other to a greater extent these backgrounds of the region such as physical, historical social, economic and political influence the overall scenario of the region concerned. Man can charge and modify the physical landscape into a cultural landscape with his expertise as he desired for his comfort. Political factors play a very prominent role in the changing the face of a region. Man can implement various policies and programmes by establishing different projects for improvement of socio-economic conditions of the region. In this way, the physical landscape such as converting forest area into agricultural land, arresting the river water into the artificial reservoirs, hence, bringing a tremendous change in the region. In view of this, it is most essential to give an account of each back ground briefly, in order to make clear, overall picture of the region to interpret various aspects.

The district of Solapur is one of the most important districts of Maharashtra state, in terms of area and population. The Solapur district constitutes 4.88 percent area and 4.51 percent population of the Maharashtra state. It ranks 4^{th} in terms of area and 7^{th} in terms of population among the districts of Maharashtra. It lies entirely in the Bhima, Sina and Man basins. The district of Solapur is located between $17^{0}10'$ and $18^{0}32'$ north latitudes and $74^{0}42'$ and $76^{0}15'$ east longitudes. The east west length of the district is about 200 kilometer and north south width is about 150 kilometer. The total geographical area of the Solapur district is about 14895 Sq.km. and a population of 3855383 according to2001.

On the basis of physical setup, the region is divided into three basic physiographic divisions: 1) The hilly region: Above 600 meters, 2) The

plateau region: between 450-600 meters andThe low land plain region: below 450 meter.

The hilly region occupies 3.34 percent of the area of the region; the plateau covers 16.66 percent and low land plain region occupies rest 80.00 percent area of the Solapur district.

As far as, the drainage pattern of the region is concerned, the river Bhima is most significant, originated from Bhimashankar plateau of Ambegaon tahsil in Pune district. Its main tributaries are Nira and Man of the right bank while, river Sina is left bank tributary and about 110 kilometer length is recorded within the district. The river Nira rises in the Bhor tahsil of the Pune district and out of its total length of 180 kilometer only 48 kilometer lies on the borders of the Pune and Solapur district. The river Man rises in Phaltan ranges of Mahadeo hills in Satara district. The total length of river Man is about 160 kilometer, out of which 80 kilometer lies within the Solapur district. The river Sina rises about 22 kilometer west of Torana in Ahmadnagar district. It has total length of 180 kilometer within district of Solapur and meets river Bhima near Kudal, about 25 kilometer south of Solapur city. Other small rivers are Bhogavati, Bhend and Bori flow within the district.

Since, the region under study is very small belongs to Deccan plateau of India. There are no evidences of folding and faulting. The trap basaltic lava flows, which are covered by thin mental of soil almost everywhere in the district. These lava flows, on account of differential weathering give rise to undulating relief.

Broadly, the climate of the Solapur district is monsoonal in nature. The year can be divided into four seasons. The cold weather season - December to February, the hot weather season- March to May, the southwest monsoon season - June to August and post mansoon season - September to November. Some climatic conditions of temperature,

rainfall,l wind and humidity in the district are of dry tropical regions of Maharashtra. The average annual maximum temperature is 29.39^0C and minimum temperature is of 14.18^0C. The minimum temperature may occasionally drop down to 4^0C and the maximum temperature may sometime go up 44^0C. An average annual rainfall of the district is about 584 mm. and of it about 75 percent rainfall during monsoon season about 17 percent during post monsoon season or retreating monsoon. The rest 8 percent rainfall is received during the pre-monsoon along with thunder storm. During the monsoon season from June to September, the humidity is recorded more than 75 percent while during the rest of the year, humidity is below 25 percent, but during summer season, the humidity is below 17 percent. Winds are light to moderate during the period May to August. In the south west monsoon season, winds blow form south west to north east while during October to January winds blow from north east to southwest direction.

Soil of the district can be broadly grouped into three types: i) shallow soil, ii) medium deep black soil, iii) Deep black soil.

The natural vegetation is consisting three fold divisions namely forest, grassland and scrubs. In the Solapur district, the forest cover is very poor. The forest of Solapur district occupies 357.9 square kilometer in which 345 square kilometer under classified and 12.9 square kilometer is unclassified forest. In other words, 157 square kilometer is under revenue department 188 square kilometer is under forest department and 12.9 square kilometer is unclassified reserved and claimed forest. Surprisingly, these scattered poor forests constitute only 2.14 percent of the total area of the district.

The district of Solapur was formed in the year 1838 and consisted of eight sub divisions. The district was included in Bombay state and since, 1960; it formed a part of Maharashtra. In 1961 the district

comprises eleven tahsisl and ten towns. There have been certain changes to the number of villages during last decade. With the reorganization of the states in 1956, the Solapur district was included in the larger bilingual state of Bombay. Since 1st May 1960, it forms a part of Maharashtra of unilingual state. Till today, (2009) the district has eleven tahsils and eleven towns.

The social structure of the district is made up of various religious communities like Hindus, Muslims, Buddhists, Christians, Jains and others. Hindus shares 87.3 percent, Muslims 9.3 percent, Buddhists 2.01 percent, Jain 0.94 percent, Christians 0.35 percent and other 0.05 percent.

Among the various backgrounds of the region, the economic background occupies a significant position, since many other sectors are influenced by the level of economy. It is directly related to the per capita income and hence with the standard of living of the people. The total geographical area of the district is 14895 square kilometer which comes to 4.88 percent area of the Maharashtra state. The area under forest is only 2.14 percent of the total geographical area of Solapur district. In fact, land use pattern is an index to understand, the place of Solapur within Maharashtra and India. In India, forest cover of total geographical area is 20.2 percent, while 6.8 percent area is covered by good forest, 13.4 percent areas is covered by open disturbed forest. Ecological required forest cover is 33 percent of the total geographical area. Net required forest cover is 12.8 percent. Land used for non agricultural purposes in the Solapur district is below one percent, land under fellow category is 4.3 percent, while pasture land 2.74 percent of the total geographical area of the district. The percentage of total cultivable land is quite impressive, which is about 89.07 percent of the total geographical area of the district.

Irrigation in Solapur district is poor and at present wells, bandaras tanks and canals are the main sources of the irrigation. The total irrigated area in the district is 1299.00 hectors which, comes to 11.58 percent of the total cultivated land of the district.

Transportation and communication is an index of social and economic development in a region, because all the activities are positively influenced by the network system available in that region. The total length of the railway line is 452.60 kilometer within the district, yet 126.90 kilometer is under construction from narrow gauge to broad gauge. The total length of the road ways is about 14108 kilometer, out of this 188 kilometer belongs to national highway, 173 kilometer major state highways, while 1332 kilometer state highways. The total district roads occupy 2238 kilometer and village roads comprise 7238 kilometer length within the district of Solapur.

The **third chapter** is associated with the spatial organization of settlements, which is determined by physical, social, cultural and economies conditions of a region concerned and depict the pattern, how society uses the space. The spatial organization of the settlements includes growth, Size, Spacing pattern and the functions. It opens the way for the planners and policy makers in formulating the development plans and to evolve and effective strategy to minimize the existing disparities in physical, Social, economic and cultural aspects.

The term pattern is often quoted with word shape. There are geometrical dissimilarities between these two terms; a close curve has a shape. Whereas, unclosed collections of point has a pattern. The settlements pattern is system of complex organization, with manmade habitats on the earth surface, representing an organize colony of the human beings including the buildings in which people live, work, store and use them. The settlement pattern denotes the shape in relation to

natural or manmade features such as a stream, ridge, canals and roads. Distribution and function pattern of settlement is outcome of the diverse phiso-cultural, socio-economic and historical factors over a period of time.

There are clear contract in the topography, soil types, Natural drainage, Agricultural practices Industries development and the level of socio economic development. Out of the 1150 inhabited settlements 1140 settlements are rural and 10 are urban. The rural settlements have been located according to their actual positions within the tahsil. Out of the 1150 settlement in the district highest number was found in Akkalkot tahsil, while the lowest number of settlement was the North Solapur tahsil.

The growth pattern of settlement is the temporal change in number of settlement as well as change in the number of population. In the year 1971, there were 948 settlements in the entire district of Solapur which has increased to 1150 in the year 2001. There has been total increase of the settlements of 20.48 percent during the concerned period.

The density pattern of the settlement is the number of unit in per 100 sq. km. of area. There were 6.32 settlements in 1971, which slightly increased to 7.67 in the year 2001. The tahsils having higher number of settlement density per 100 square kilometer were in Akkalkot, South Solapur, Mohol, Pandharpur and Barshi, while for other tahsils, it was below the region average, more or less this trend was observed for all the concerned decades.

Settlements according to population density are also calculated for the year 2001. The total numbers of settlements in the district are 1150, which makes 100 percent settlement of the district. More than 84 percent settlements are confined between 100 to 500 population density categories remaining 13 percent below 100 categories. It represents that

for the district as whole, the settlements are of a smaller size and only one percent represents population above one thousand. There are wide variations within the tahsils of Solapur district for the settlement according to their density.

Size of settlement based on population, five categories have been chosen for the population size of the settlements. For the district as whole, 7.65 percent, settlements were found having population less than 500. Whole 16.78 percent settlement had population in between 500 to 1000. The highest percentage of rural settlement was for the medium size of population having 1000 to 2000. Besides, 32.35 percent settlements were having population 2000 to 5000. Remaining 7.57 percent settlements have more than 5000 populaton in the district of Solapur.

The highest and lowest density of the settlement have been found out for the district and for Akluj stands in first rank having a lowest density per 100 square kilometer of and seven passions, similarly the table 5.5, represents the list of the settlement having highest and lowest density of population of various tahsils of Solapur district.

The nearest neighbour index analysis computed values for the district as well as different tahsil reveals that the spatial pattern of distribution of settlements in Solapur district shows, approaching uniformity (Rn = 1.35). Taking the case of tahsil wise settlement pattern, thus, the all indices values for the nearest neighbor are in between 1.07 and 1.78. It means that the pattern of the settlement is determined on the basis of value for district and as well as for its tahsils in between random and regular pattern.

Chapter four is concerned with the site and situation of the settlements and it plays a very significant role in the overall development. Any settlement, when established at any particular point, the occupance of the land is directly related to physical environment of the area it's

natural resources, social conditions and selection of the actual location of the settlements. The locational relationship of the rural settlement is affected by the factors of distance because, the locational decisions are generally taken in order minimize the movements. All the locations are the points with higher degree of accessibility than the other. The requirements of the settlements are basically land, water, buildings, fuel and accessibility. Most of the factors exert their influence on the location of the settlements and develop a theoretically regular distribution of settlements.

The term site should not be confused with situation, because the term site refers to the actual ground on which a place is built. It is therefore, concerned with the local relief, features, soil, rocks types with features like river, spring and weather and micro climate. On the other hand, the term situation is concerned with the widely positional aspects, such as location with respect to longitude and latitude, communications, agricultural, industrial, social, political and cultural regions. In the inintial stage, the immediate environment is of commonding importance but as settlements grow, its situation and the use of inhabitat becomes preedominent. An attempt has been made to study the sites of the rural settlements with the help of topographical maps.

The Solapur district, the region under study is covered by the various physiographic regions, which play an important role in the determining the site and situations of the rural settlements. Most of the settlements are found located along the places having the availability of water. Therefore, in the region under a study different locational site have been considered by tracing out various toposheets to represent respective locations in Solapur district. The important locations are river bank site settlements, confluence site settlement and stream site settlements. Besides these, there are other favourable sites for the location of rural

settlements such as tank site settlements, canal site settlements, spring site settlements, railway site settlements and hill site settlements, it may be concluded that the water availibilty is the most important factor for the site and location of the settlements in Solapur district.

The **chapter fifth** is associated with settlements facilities in Solapur district. The levels of socio-economic development reflect the economic as well as socio-cultural setup of a region and spatial organization of society. As a matter of fact, there exist close relationship between the spatial distribution of facilities and level of well beings. Uneven distribution of socio-economic facilities creates the functional gap between different regions under study. In order to understand the availability, demand and deficit, health services, transportation, communication, and banking services in the various tahsils of district have been taken into account to understand the magnitude of the problems related with these services.

Health services are available in the area through medical institutions, both by the Government and private bodies. Municipal hospital, primary health centers, family planning centres, tuber closes (T.B.) clinics and through private hospital and clinics. In Solapur district in the near 1961, there were three hospitals which went on increasing consistently for each successive decade and became as high as twenty hospitals in the district as whole. Barshi, Pandhapur and Malshiras have two hospital each in the year 2001 and rest other tahsils have one.

There were 35 dispensaries in Solapur district in year 1961, and consistently went on increasing for the next four decades and became as high as 104 in the year 2001 for entire district. The number of dispensaries varies enormously through space and time in the tahsils of Solapur district.

The number of primary health centres in Solapur district for the last five decades also went on increasing from 51 in 1961 to 71 in 2001. The numbers of primary health centre also vary within various tahsils during the last five decades.

The numbers of sub-primary health centres were 321 in 1991 and became 341 in 2001. Probably, these sub-primary health centres were bifurcated during eighties in order to facilitate such serious in rural areas of each tahsil.

Another aspect of medical facilities may be considered in the form of doctors in Solapur district. In the year 1961, there were 64 doctors which continuously went on increasing for each next decade and became as high as 491 in the year 2001. Similarly, for all tahsil of the Solapur district, the number of doctor's has also increased for the last five decades.

Number of nurses has also been found out for the district as whole and for its different tahsils during last five decades. In the year 1961 there were 89 nurses' collages in the region under study.

To assess the levels of medical facilities in the Solapur district the number of beds in the hospitals were taken as an indicator. In the year 1961 in total, 687 beds were available which increased to 2553 in 2001.

Percentages of villages served by medical facilities were also computed for the district as whole and for its various tahsils in 2001. The percentage of villages having medical facilities in Solapur district was 52.20 percent. The percentage of villages having medical facilities varies from tahsil to tahsil being highest for Mohol and lowest for Madha.

Besides, percentage of rural population served by medical facilities was calculated to 17.41 percent and highest for Mohol and lowest again for Madha tahsil.

Educational facilities play a very important role in the socio-economic development of a region in Solapur district; there have been considerable progress in the educational facilities. According to 2001, there were in all 3679 number of educational institutions in the Solapur district as a whole. As expected, the primary schools were highest in number, having 2837 in the various places in the district. This is because the Government encourages the primary education in order to eradicate illiteracy from the country. It has also been observed that as level of education increases, the number of educational institutions declines. It is clear from the fact, that there were only 630 secondary schools in the Solapur district, which are seven times less in number than the primary school. Similarly, junior colleges were 114 in district and are about six times less in the number than secondary school. Senior college are almost half in number than the junior college. Some professional college like D.Ed., B.Ed. College, ITI, Polytechnic, Law College, Medical College and Engineering College are much lesser in number in Solapur district. It is clear from the table 7.9, that there had been 17, D.Ed., 12, B.Ed. and 11, ITI colleges in entire district. It may be stated that the technical and professional colleges are quite less in number in relation to total population of the district. It is therefore, suggested that, number of technical and professional institute should be brought into existence in different part of the district in order to fulfill the demand of the increasing population.

Tahsilwise, number of primary and secondary schools as well as junior and senior colleges along with the technical and professional institutions have been represented in table 7.9. In the year 1991, there 2603 primary schools in Solapur district which increased to 2837 in 2001. For different tahsils of Solapur district, the number of primary schools

has also increased substantially. Similarly the number of secondary schools has also increased from 609 in 1991 to 630 in 2001.

The number of primary school for per 10000 populations was 8.78, in 2001. The highest number of primary schools was for Sangola tahsil of 14.59, while the lowest for North Solapur tahsil 4.79. The number of secondary school per 10000 populations was 1.95 for region as whole, the highest being for Barshi, while lowest for Malshiras tahsil.

The transportation facilities are considered as the life line of the economy in a particular region. The transportation facilities play role like of vanes in human body. In the year 2001, the percentage of villages having approach by pucca road and percentage of rural population by pucca road have been calculated for the district as well as for its various tahsils. For the region as whole, 40.21 percent of villages having approach by pucca road was observed in 2001, the highest percent was recorded for North Solapur tahsil, while, lowest for Mangalwedha. Similarly, percentage of rural population served by pucca road was calculated to 55.46 percent for region as whole in year 2001. Again North Solapur tahsil represented the highest percentage of rural population served by pucca road and lowest for Mangalwedha tahsil.

The transport and communication facilities are the most important, joining different settlements and population to one another for different purposes. In the 2001, the percentage of settlements having post facilities was calculated to 45.77 for region as whole. Highest is the North Solapur tahsil and lowest for Akkalkot tahsil was observed. Similarly, percentage of population served by post facilities was 68.57 for Solapur district and Sangola tahsil represented the highest percentage served by post facilities while, adjoining tahsil of Mangalwedha represented lowest percentage of population served by post facilities.

Distribution of weekly market helps in supplying goods and services to surrounding areas. At the same time, these market centres provide surplus food grains from the surrounding villages. Various things which are required in day to day life are easily available in such centres. The larger urban centres are the daily market centres, which supply the necessary things to the people daily. On the other hand, weekly market centres are distributed in different part of the district, particularly at tahsils headquarters. In the district in all there are 172 weekly market centres, which are widely distributed in different tahsils. The areas which are not under the influences of larger urban centers have the maximum number of weekly market centers, such as Mangalwedha and Madha. The North Solapur and south Solapur tahsil as well as Mohol tahsils have low weekly market centres.

The average percentage of the villages served by weekly market centres for the district was 29.52 percent. Economically and socially backward tahsils have higher percentage of villages served by weekly market centres, such as Mangalwedha, Sangola and Madha tahsils.

Distribution of market yards in Solapur district varies uniformly, since all tahsil head quarters have one market yard, except South Solapur tahsil. However, sub market yards are much in number and accounted to 38 in the district. Highest number of sub-market yard is for North Solapur, while the lowest for the Barshi.

For overall development of the region, the capital plays very significant role. The financial aids by the Government and people are made transfer through the cheques, demand draft and transfer order through banks. Hence, bank facilities are of prime importance for the transaction of money. There were 194 settlement having bank facilities in the district as a whole. The North Solapur tahsil has highest number of co-operative banks and city alone has 118 banks. In the year 2001, there

have been 263 scheduled bank in the entire district and alone 66 were located in North Solapur tahsil, which comes to 25 percent banks of the district. In order of both number and percentage, Barshi, Malshiras and Pandharpur occupied second, third and fourth rank.

The number of co-operative banks was 298 for entire region out of these 52 were located in North Solapur tahsil, which is more than 17 percent of the district total. Because of political influence, Malshiras represented the second highest number of 42, which is more than 14 percent of the district. Out of the total, more than 21 percent total banks were found only in North Solapur tahsil. Malshiras has 12 percent banks of the district. It was also observed that 16.95 percent settlements of the district have banking facilities. The percentage differs from one tahsil to another within the district of Solapur.

The sixth chapter is of the co-rrelation matrix of the variables influencing distribution of settlements in Solapur district has been computed and the results have been interpreted accordingly. Number of settlements and percentage of cultivable land represent the inverse relationship. This shows that with increasing percentage of cultivable land the number of settlements declined in the Solapur district. In a region like a Solapur district with the increase of cultivable land, the minimum land is left for the expansion of settlements. Generally people would like to settle down in larger settlements in order to save the land for cultivation. The largest settlement grows in size, leaving no scope for the emergence for new settlements. Hence, the relationship is negative between number of settlement and cultivable land.

The number of settlement and net sown are also represents a negative value of co-rrelation. This is because to save a considerable land for utilization of different crops to enhance the agreecultural productivity. With the increasing population per capita land holding declines. The land

resources are limited and fixed and can not be increased further. If it is so done, that is on account of deforestation converting grazing land, pasture land in to cultivable land which is not desirable. Therefore with increasing population the numbe of settlements also increases. Consequently, the per capita land holding declines.

The number of settlements and percentage of irrigated land also show inverse relationship. It is also related with the agricultural activities. As a stated earlier with increasing irrigation facilities the development of agriculture is remarkable. This in tern influences the negative growth in the settlements.

The number of settlements and road length per 100 square kilometer area has a positive value of co-efficient of co-rrelation. It has been observed that with increasing road density the emergence of new settlements in new site becomes quite bright, particularly in the near by rural urban fringe area. The road facilities become favourable factors for the emergence of the new settlements.

Number of settlements and percentage of people in agriculture is quite significant and positive. This shows that with growing number of workers in agriculture, the number of settlements also increases in Solapur district. Number of farmstead and hamlets expandes in the form of small villages, resulting in the increase of the rural settlement.

Number of settlement and percentage of Muslim population shows a negative relationship to a certain extant which is significant. This clearly indicates that muslim belong to minority community and from the point of view of security muslim prefer to inhabitat in the larger settlements preferably in urban areas this clearly indicates that with the high percentage of muslim population, the number of settlements declines in Solapur district.

Number of settlements and percentage of Hindu population, who are widely distribution all over the region. Hindu belong to majority community hence, they are secure in the rural areas in the Solapur district. The positive co-efficient of correlation reveals that with high percentage of Hindu population the number of rural settlement is also increases. It is because of the land holder of the sizable people in rural areas among the Hindus population influence the positive growth of the number of settlement in the Solapur district.

Number of settlements and persons per house hold has negative relationship. This shows that with increasing number of house holds, the number of settlements in the region declines. This may be attributed to larger size of the family, lesser probability of splitting the family. The breaking of the family also motivate people from there houses to other areas there by increasing the size of the settlements. Most of the joint families are responsible for to live in the groups in the same house hold, resulting in the low number of settlements in the region.

The relationship between number settlements and percentage of literates is negative. Most of the literate people would like to migrate from rural settlement to urban settlement for better employment in the tertiary sectors. This rural urban migration is responsible for the declines in the rural settlements; hence, the co-relation value between number of settlement and literacy is negative.

Number of settlements and percentage of rural population has a positive co-relation and quite significant. The rural population, generally depend upon the agriculture and in order to reduce the distance between houses and fields, people make the farmstead near by the agricultural land, resulting in the emergence of new settlements. In due course of time the farmstead and hamlet grow gradually and become a small rural

settlement. This has resulted in the positive value of 'r' of (0.61) which is in favour of increase in the number of settlements in the Solapur district.

Number of settlements and percentage of urban population shows inverse relationship but very significance value of co-efficient of co-relation which is (0.71) with growing urban population the numbers of rural settlements are adversally affected an accout of rural urban migration. Many times, rural settlements around the larger urban area merged with the larger cities like Solapur. During 2001-02 more than ten villages were merged in Solaur City Corporation resulting in the declines in the number of rural settlement in north Solapur tahsil. Therefore, it may be stated that with the expansion of urbanization the number of rural settlements declines.

Number of settlements and percentage of non-agricultural land is representing a very significant value of 0.83. The scope for new settlements become quite fascinating in the non-agricultural land, the waste land, the barren land, because of low prises these can be easily purchased of low prises these can be easily purchased by the people to make new houses. The urban centers also spread in non-agricultural land but the number of settlement remain the same.

The number of settlements and density of population has inverse relationship and quite significance as the value of 'r' is -0.67. With high density of population particularly in urban areas, the rural urban migration becomes quite significant for better employment opportunities. It may be concluded that the high density of population particularly of the larger cities and urban centers, inversely affect the number of rural settlements.

The number of settlements and percentage of villages having electricity has positive impact upon the growth of settlements. Electricity provides numbers of facilties which is responsible for the functioning of

the number of activities. Electricity is responsible for the operation of engine, refrigerators and other activities. Therefore, with electricity the numbers of rural settlements grow.

Number of settlements and percentage of household has negative value of 'r' which is -0.31. When the numbe of household increases certainly the number of settlements also increases. The large number of size of settlements, contain large number of houses, which in turn adversely affect the number of rural settlements.

The relationship between the number of settlements and percentage of villages having approach by pucca road is negative, though not very significant. The percentage of villages having approach by pucca road when increases, it results in the lowering the number of settlements. This is because of the better road network system, the concernd settlement grow in size and leaving no scope for the emergence of new settlements.

The large number schools are expected to be found in urban areas. Now days, with the encouragement provide by the government for the school education has resulted in the increase in the number of schools even in rural areas of the district, though the size of the student my not be vary large. It therefore, discourages new settlement to come in to existence in new areas.

The relationship between the number of settlements and percentage of villages having post office facilities indicates negative relationship this means that with the increase the percentage of villages having post office facilities, the number of settlement declines in the Solapur district. It may be probability due to the facilities of post office are provided to larger rural settlements having enough population to run such facilities and number of small size settlement are clubbed in to larger settlement. This is the reason for the negative relationship between the two.

Number of settlement and percentage of villages having bus stop has also represented of negative value of co-efficient of co-relation. The bus stop facilities like post office, school facilities have a tendency to club small settlements in the larger settlements. It is not possible to provide post office facility in every small settlement because of the road network system is quite poor in rural areas. When the percentage of village having bus stop increases, the number of rural settlement is adversely affected. Larger rural settlements are selected to provide bus stop services, because of their sufficient demand which is fulfilled by the enough population in such region. Hence, the relationship between the number of settlements and percentage of villages having bus stop is negative though insignificant.

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