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## “SPATIAL ANALYSIS OF MIGRATION TREND IN SANGLI DISTRICT”

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### ABSTRACT :

The study of migration occupies an important place in population studies because, in combination with fertility and mortality, it determines the size and the rate of population growth, as well as its structure and characteristics. The task of analyzing migrational pattern in India is handicapped by lack of direct data on migration. The only statistical information available for this purpose is the place of birth data. Unfortunately even these data are not available for an areal unit smaller than the district. Here an attempt has been made to analyse the migrational pattern of population at tahsil level in *Sangli District* for the period of 1981 to 2001. For this the data have been collected through various sources like censuses, govt. vital statistical records, socio-economic abstracts, books, journals etc. Tahsils of *in* and *out* migrations are identified, their intensity indices have been calculated. Different statistical methods are used for the analysis of collected data and it has been shown by using relational maps and diagrams. Sangli district is a case of under-utilization of human resource, which is a result of lack of coordination between land resources and human resources. The spatial distribution of both negative and positive flow of human population, is a case of concern for the planners. This entire study is intended to bring out the salient features of human mobility in this district and the patterns of it. It is desired that, the areas from where the human resource is siphoned out, and the areas in which the human population is poured, both types are to be viewed from the viewpoint of better and proper utilization of human resources in the context of resource planning and development. It may be sound as a warning for the planners because, one has to pay a price for negative or positive mobility of human population, as it is an actively influencing factor in the regional development. Therefore, for implementation of development plans in the region, local natural resources and human resources must be constructive co-relationship.

**Key Words:** Fertility, mortality, mobility, growth, intensity of migration, in-migration, out-migration.

### INTRODUCTION:

The mobility of man has increased fitfully with technical and economic progress and enabled increased migrations. According to Concise Oxford Dictionary<sup>1</sup>, to migrate means to move from one place, country or town to other. People constantly move from one place to another and these movements are diverse in nature. Mobility, a term widely used in migration studies includes all kinds of territorial movements both temporary and permanent. It is

accepted a more or less permanency is essential character of migration. In contrast to migration among animals, migration among human beings has been defined by Donald J. Bogue<sup>2</sup>, thus: ‘ It is thus a response of human organisms to economic, social and demographic forces in the environment ’. According to the United Nation’s Multilingual Demographic Dictionary<sup>3</sup>, ‘ Migration is a form of geographical mobility or spatial mobility between one geographical unit and another, generally involving a change

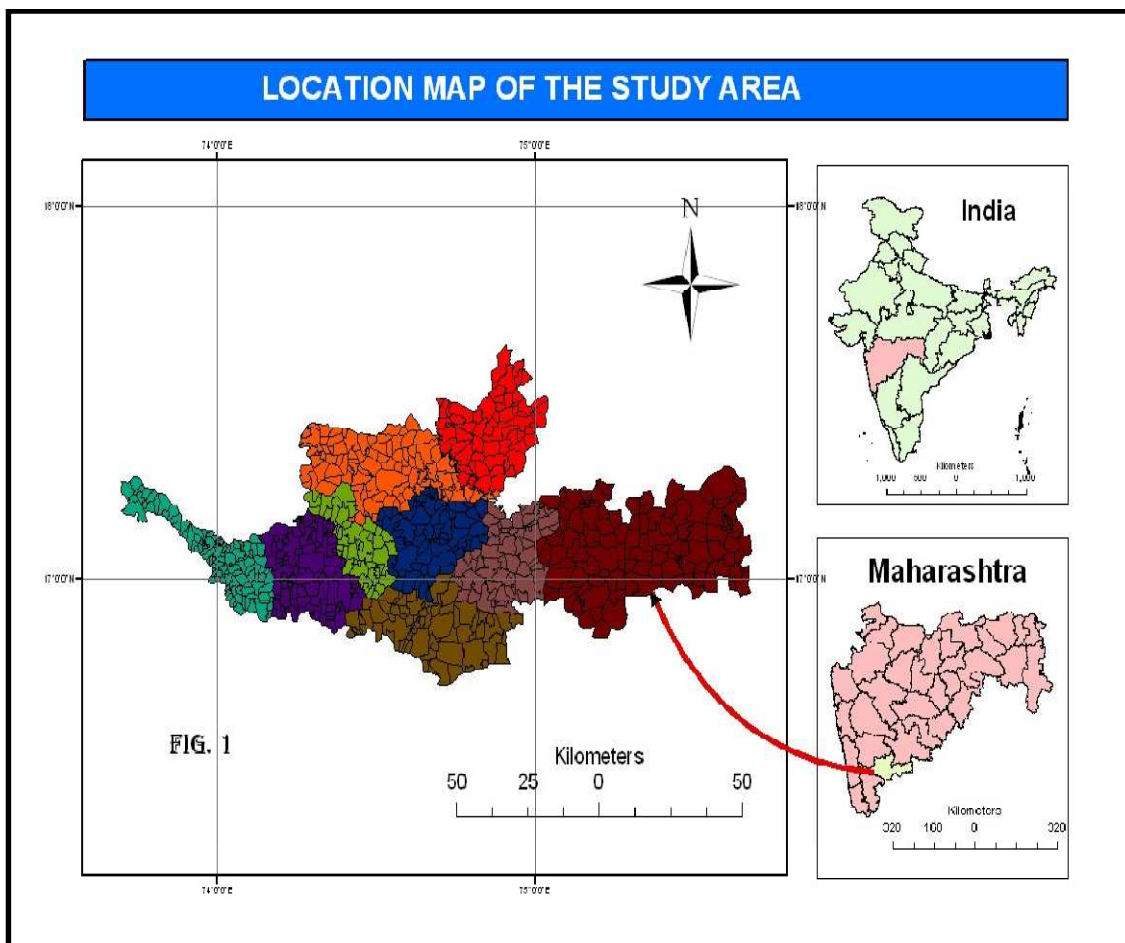
in residence from the place of origin or the place of departure to the place of destination or place of arrival. ' Wilber Zelinsky<sup>4</sup> defined it as a permanent or semi-permanent change in residence involving some distance from one's community. Everett S.Lee<sup>5</sup> is the view that many a times a decision taken about migration is not rational and based on emotions, though in a large number of cases such decisions are well thought out and planned. According to Matho<sup>6</sup> each movement provides an important network for the diffusion of ideas and information. Migration of population affects on old and new areas of migrations and also on the migrants themselves. The study of migration occupies an important place in population studies , because , in combination with fertility and mortality, it determines the size and the rate of the population growth, as well as its structure and characteristics. The task of analyzing migrational pattern in India is handicapped by lack of direct data on migration. The only statistical information available for this purpose is the place of birth data. Unfortunately even these data are not available for an areal unit smaller than the district, which with an average area of 5600 sq. km and a population of about 1.3 million is fairly large in itself and is usually quite heterogeneous in terms of population and their characteristics ( Pardeshi )<sup>7</sup>. Thus a population geographer working on the problem of migration in India or any part of it has to work these limitations of data ( Chandana )<sup>8</sup>.

### **THE STUDY AREA :**

The district of Sangli is one of the most important districts of the Maharashtra state both in terms of area and population. It lies entirely in the Krishna basin and located in between 16<sup>0</sup> 40' N. to 17<sup>0</sup> 33' N. latitudes and 73<sup>0</sup> 42' E. to 75<sup>0</sup> 40' E. longitudes. It is a border district of Maharashtra, located along the Karnataka state border on the southern part of Maharashtra state. According to 2001 census the total geographical area of Sangli district is 8572 sq. km with a population of 25,83,524. Physiographically, the district is divided into three distinct divisions such as, The Western Hilly Area, The Central River Plain Area and The Eastern Plateau Area. The northern and eastern parts of the district come under drought prone area. Hilly topography and drought condition are the major important reasons for out-migration and prosperous agriculture for in-migration of people in the study area.

### **OBJECTIVES :**

1. To study overall migration pattern of the district.
2. To identify the tahsils of in and out migrations.
3. To find the intensity indices of in and out migrations.



#### **DATABASE AND METHODOLOGY:**

The present research work is entirely based on secondary sources of data collected from District Census Handbooks, District Socio-economic Abstracts, Annual Vital Statistical Reports of Health Services, journals, books, research articles, etc. the collected information is processed by using different statistical techniques. 'Rees Technique' has been used to

calculate in and out migration trends. The processed data is presented through various cartographic techniques.

#### **ANALYSIS:**

#### **IDENTIFICATION OF TAHSILS OF IN AND OUT MIGRATIONS**

The task of identifying migrational pattern is handicapped by lack of direct data on

migration, hence, to identify the ‘In’ and ‘Out’ migration patterns of the study area at various levels ‘Rees’<sup>9</sup> technique has been used. It is determined with the help of the difference between natural increase of the population in a particular area at a given period. The natural increase is measured with the help of the difference between the average total number of births and total number of deaths during the study period. While the actual increase is measured with the help of the difference between the two population counts at the beginning and at the end of the study period . Here two decades 1981-91 and 1991-2001 have been taken as a study period.

The formula used for the same is as under :

$$P_2 - P_1 > (B - D)$$

Where , 1.  $P_1$  = Population of 1981 Census.

2.  $P_2$  = Population of 2001 Census.

3. B = Total no. of births recorded during 1981-2001.

4. D = Total no. of deaths recorded during 1981-2001.

**Table : 1**

**Sangli District : Tahsils of In and Out Migrations ( 1981 – 2001 )**

Sr. No.	Tahsil	Natural Increase ( B – D )	Actual Increase ( $P_2 - P_1$ )	Difference	Remarks
1.	Walwa	97,818	126,075	+28,257	In-Migration
2.	Atpadi	33,510	41,247	+7,737	„
3.	Miraj	203,195	249,728	+46,533	„
4.	Kavathe Mahankal	45,199	47,322	+2,123	„
5.	Jat	82,170	90,854	+8,684	„
6.	Shirala	36,982	27,649	-9,333	Out-Migration
7.	Khanapur	83,763	80,359	-3,404	„
8.	Tasgaon	99,957	89,078	-10,879	„
	<b>Sangli Dist.</b>	<b>682,594</b>	<b>752,312</b>	<b>+69,718</b>	<b>In-Migration</b>

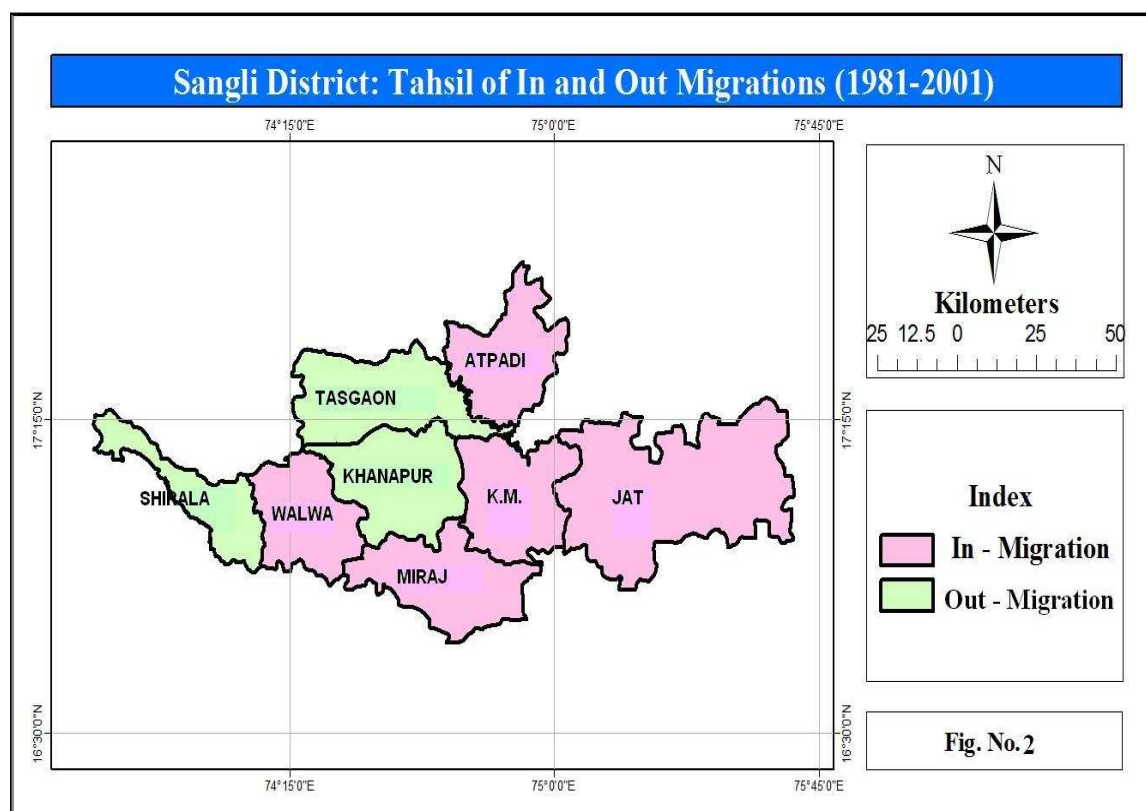
Source: i. *Census of India, Sangali District : 1981,1991 and 2001*

ii. *Annual Vital Statistical Reports (1981-2001), Dy. Director of Health Services and Dy. Chief Registrar Of Births and Deaths, Maharashtra states, Pune-1.*

It reveals from Table 1 that the actual increase in the population of Sangli District during 1981-2001 (two decades ) is 752,312 as against natural increase of 682,594 persons. It means 69,718 persons are added in the district's population by In-migration. This indicates that the district is developing and progressive district in the state. Various sectors like agriculture , irrigation, industry, transportation, co-operative, education have made remarkable progress during these decades. This made an overall socio-economic development of the study area which attracted the people not only from other

districts of the state but also from other states of the country. Out of eight\* tahsils the districts five tahsils show Out- Migration trends. Walwa, Atpadi, Miraj, Kavathe Mahankal and Jat tahsils have human In – migration flow, while Shirala, Khanpur and Tasgaon tahsils have Out-migration flow of the population.

\* [Note: On 1<sup>st</sup> July, 1999 an another (ninth) tahsil 'Palus' has been created by splitting Khanapur and Tasgaon tahsils. Here only eight tahsils have been taken into consideration and their populations are adjusted accordingly.]



## TAHSILS OF IN-MIGRATION

### a) Miraj and Walwa Tahsils:

As stated earlier five tahsils in study area show In- migration trend. Amongst them Miraj and Walwa tahsils are leading in attracting the people from other areas of the district, state and country. During the study period of two decades (1981-2001), 46,533 persons in Miraj tahsil and 28,257 persons in Walwa tahsil are In – migrated. Both the tahsils are located in the Central River Plane Zone of the study area. River Krishna flows through this region. Medium to deep black fertile soils and adequate irrigation facilities (canals, lift irrigations, wells, tube wells etc.) made this region agriculturally rich and densely populated. Extension of irrigation and consequent intensity of agriculture influence the In-migration flow in this region<sup>10</sup>. Both are the leading tahsils of the district as far as irrigation facilities are concerned. Moreover, Warana Irrigation Project is beneficial to these tahsil. Miraj tahsil has 39.42% and Walwa tahsil has 28.99% net soon area under the irrigation.

Commercial agriculture is an important incentive for in migration<sup>11</sup>. Irrigation facilities provided to the agriculture have resulted in the changing cropping patterns of the region. The cropping patterns have changed from traditional crops to commercial crops. Both the tahsils are leading in the commercial agriculture in the study area. Therefore, it needs more agriculture laborers for the commercial agriculture practices. Sugarcane, grape, pomegranate, banana, guava, turmeric, tobacco are the

important commercial crops growing in this region.

Agro-based industrial centers are favorable for attracting the population. Both tahsils are the gifted flanks in the agro-base industrial centers. Sugar industry is the most important agro-based industry in this region. Miraj tahsil has two and Walwa tahsil has three sugar industries. The cotton spinning mill is the another leading agro-based industrial unit induces In-migration in this region. Apart from these engineering, agro-equipments, cotton textile, milk processing and various small scale industries are also located in this region attract industrial labors. Sangli, Miraj. Kupwad, Madhavnagar, Buthgaon, Uran-Islampur etc. are the major industrial centers of the district are located in this region.

Large urban centers, District Headquarter, professional and other higher educational institutions, Miraj Medical Hub etc. are the other causes are of In-migration in these tahsils.

### b) Jat, Atpadi and Kavathe Mahankal Tahsils :

Remaining three tahsils in the study area, viz. Jat, Atpadi and Kavathe Mahankal also show in-migration trend of population during the study span. All these tahsils are drought affected tahsils of the district. Scanty rainfall, undulating topography, industrially backwardness, socio-

economically underdevelopment, sparse population etc. are the major characteristics of this region. Only 9.84%, 14.03% and 14.83% area net sown are under irrigation in Jat, Atpadi and Kavathe Mahankal tahsils respectively. This dry land area is mostly suitable for fruit farming of pomegranate, ber and grape. It needs more agriculture labourers for commercial fruit farming. Percentage of cultivable waste and fallow land is higher in this region. The most important cause of in-migration of people in this area is availability of land. Thousands of 'Dam Affected' families from various places are rehabilitated in these tahsils. Government provided not only houses to them but also agricultural lands. Overall, 8,684 persons in Jat, 7,737 persons in Atpadi and only 2,123 persons in Kavathe Mahankal tahsil are in-migrated during the study period of two decades.

### TAHSILS OF OUT-MIGRATION

Three tahsils in the study area namely, Shirala, Tasgaon and Khanapur show out-migration trend of population during the study period (1981-2001).

#### a) Shirala Tahsil :

Constraints on the regional development due to adverse relief is the major cause for pushing the population in the area. Shirala thasil, located in the extreme west part of the study area has highly undulating topography. High hill ranges, heavy rainfall, more forest cover (20.69%) , paucity of cash crops, less

urbanization, less industrialization, sparse population etc. are the major characteristics of this tahsil. Uncertainty of jobs, scarcity of job generation and more landless labourers are the *push factors* in this tahsil. All these factors induce out-migration of people from this tahsil. Moreover, Chandoli Dam constructed across the Warana river during the study span, shifted thousands of dam-affected families elsewhere. Overall, 9,333 persons are out-migrated from Shirala tahsil during 1981-2001.

#### b) Tasgaon and Khanapur Tahsils :

Mejority parts of Tasgaon and Khanapur tahsils come under drought prone area of this district. Scanty rainfall, undulating topography and moderate density of population are the major characteristics of this region. Tasgaon tahsil has only 22.66% and Khanapur tahsil has only 17.93% area net sown are under irrigation. Paucity of irrigation facility is an important cause to induce out-migration flow of population. Dry land agriculture is more practiced in this region, which has less need of manpower than the irrigated land agriculture. Susceptibility to drought is an important cause for the out-migration flow of the population<sup>11</sup>. This area is frequently affected by famine conditions. It is affected by famine at least once in four years. The average annual rainfall of these tahsils is about 600mm.

Above all, many people from rural areas of these tahsils go for 'Sona-Chandi Udyog' (Gold and Silver Work) in various cities of the country. There are many villages in this region which

have at least a person from each family gone for this work. In a similar way thousands of young men from the rural areas of these tahsils have joined the Indian Army. During 1981-2001, 10,879 persons from Tasgaon tahsil and 3,404 persons from Khanapur tahsil have out-migrated.

### INTENSITY INDEX OF IN-MIGRATION ( III )

It is clear from the above discussions that the entire In-migration have no uniform spatial distribution in all the tahsils of the study area. It is essential to find out the intensity of in-migration and decide its hierarchy within the different tahsils. To determine the intensity of

in-migration actual increase and natural increase of population for a definite period for each tahsil have been taken into consideration. The formula used for the same is as under :

$$III = (A - N) / T \times 100$$

Where, 1. III = Intensity index of in-migration

2. A = Actual increase of population during 1981-2001

3. N = Natural increase of population during 1981-2001

4. T = Total population of base year (i.e. 1981).

**Table : 2**

#### Sangli District : Intensity Index of In Migration at Tahsil Level (1981-2001)

Sr. No.	Tahsil	A (P <sub>2</sub> - P <sub>1</sub> )	N - D	(B)	T	Intensity (%)
1.	Walwa	126,075	97,818		301,302	9.38
2.	Atpadi	41,247	33,510		84,016	9.21
3.	Miraj	249,728	203,195		506,320	9.19
4.	Jat	90,854	82,170		193,096	4.50
5.	Kavathe Mahankal	47,322	45,199		97,274	2.18

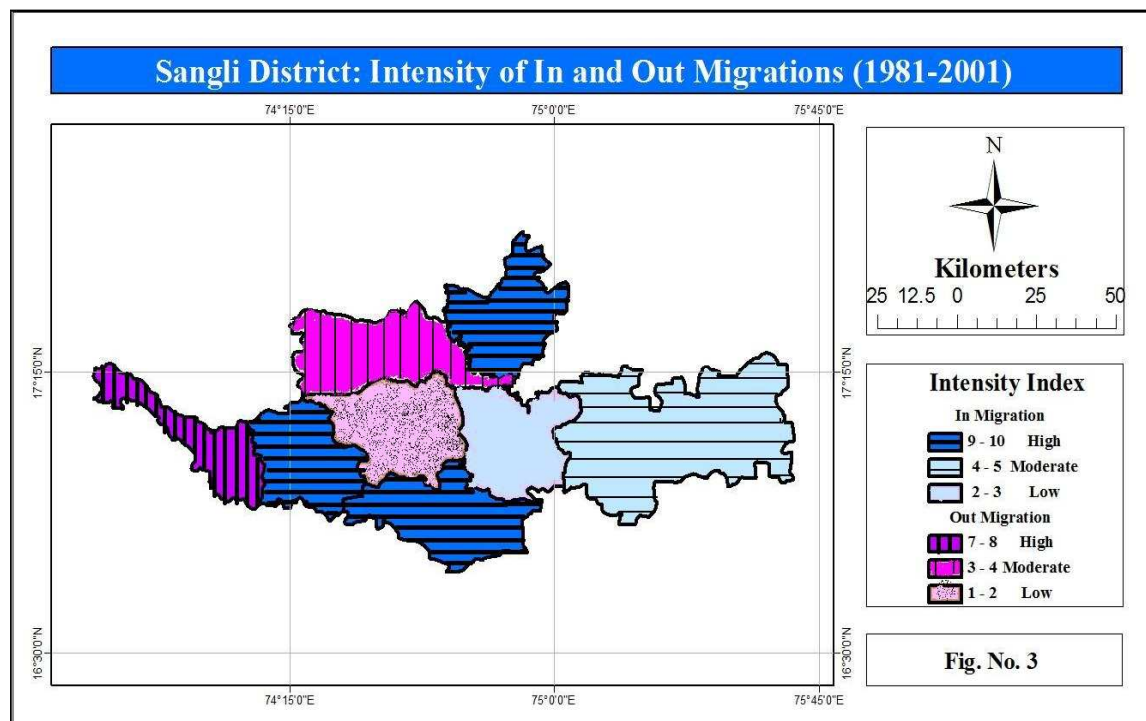
Source : i) *Census Of India, Sangli District, 1981.*

ii) *Table 1 of this article*

It is revealed from table 2 and fig.2 that the spatial intensity of in-migration is not uniform throughout the study region. Some tahsils have high intensity of in-migration, while some of them have low intensity of in-migration. Walwa tahsil is leading in the intensity of in-migration (

9.38% ), Atpadi (9.21% ) and Miraj ( 9.19% ) tahsils follow it. Jat tahsil possesses medium ( 4.50% ) intensity, while KavathMahankal tahsil has low ( 2.18% ) intensity trend of in-migration.





**INTENSITY INDEX OF OUT-MIGRATION ( I I O )**

As stated earlier it is also essential to find out the intensity of out-migration and decide its hierarchy within the different tahsils. Formula used for the same is as under:

$$I I O = ( N - A ) / T \times 100$$

Where, 1. I I O = Intensity index of out-migration

2. N = Natural increase of population during 1981-2001

3. A = Actual increase of population during 1981-2001

4. T = Total population of base year (i.e. 1981).

**Table: 3 Sangli District : Intensity Index of Out-Migration at Tahsil Level (1981-2001)**

Sr.No.	Tahsil	N (B - D)	A (P <sub>1</sub> )	T (P <sub>2</sub> )	Intensity (%)
1.	Shirala	36,982	27,649	130,649	7.14
2.	Tasgaon	99,957	89,078	300,597	3.62
3.	Khanapur	83,763	80,359	217,958	1.56

Source : i) Census Of India, Sangli District, 1981.

ii) Table 1 of this article

Table 3 and fig.3 show that there is no uniformity in the intensity index of out-migration within the tahsils. Shirala tahsil has high ( 7.14% ), Tasgaon has medium (3.62% ) and Khanapur has low ( 1.56% ) intensity of out-migration trend.

### CONCLUSION AND SUGGESTIONS :

Sangli district is a case of under-utilization of human resource, which is a result of lack of coordination between land resources and human resources. This area has a large land resource potential in the form of water receipt, soil fertility and agro-industrial prospects, proper use of resources commensurate with human resource wealth is most demanding factor in this area. The spatial distribution of both negative and positive flow of human population, is a case of concern for the planners. This entire study is intended to bring out the salient features of human mobility in this district and the patterns of it. It is desired that, the areas from where the human resource is siphoned out, and the areas in which the human population is poured, both types are to be viewed from the viewpoint of better and proper utilization of human resources in the context of resource planning and development. It may be sound as a warning for the planners because, one has to pay a price for negative or positive mobility of human population, as it is an actively influencing factor in the regional development. Therefore, for implementation of development plans in the region, local natural resources and human resources must be constructive co-relationship.

The forecast of migration or its direction, analysis of the causes of migration, necessary planning and execution of programmes are essential for migration study. With this point of view, development of socio-economic facilities and public utilities in the rural areas becomes an important step. Hence, it would be necessary to develop the means of transport, electricity, irrigation facilities, industries and provisions for income in the rural areas.

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