

# Regional Disparities In The Socio-Economic Development Ofthe Konkan Region, Maharashtra

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Regional disparities prevail within different districts of Maharashtra. Previous work has highlighted the disparities within the districts. The present work is an attempt at bringing out the regional disparities within the tehsils from the Konkan region (excluding Mumbai). Forty-seven tehsils of the Konkan region excluding Mumbai district have been included in the study. The status of development has been worked out on the basis of a number of developmental indicators. The data for the year 2014 with 27 indicators pertaining to agriculture, infrastructure and demography have been employed to obtain the level of development. The developmental level was estimated with the help of composite index based on the best possible combination of all the developmental indicators. The tehsils falling in different levels of development, such as high, middle (moderate) and low have been identified in the study region. It was observed that the correlation between infrastructure and agriculture was better than the one between infrastructure and demographic sector. This indicated that the agricultural development is more sensitive to the infrastructural conditions. For considering the future development of the region, model tehsils have been identified for enhancing the level of overall socio-economic development. Low development.

# I. INTRODUCTION

Regional disparities prevail at the international as well as national level and often bring ina socio-economic divide between the regions. Development is associated with growth alongsocial justice where it is intended that the final stage of development should lead to the provisionof increased opportunities to all people for raising their living standard. In order to say that aregion is developed, it is necessary to compare its level of development with some other region.

In this sense disparities are brought forward. The position, a scale that a region or a state orcountry or any other unit has attained in terms of development, is referred to as levels of development. Development is a multidimensional process which includes economic, social,political and ecological dimensions of development. The main thrust of this study is on spatialperspective of development.

In India, a notable increase in the net production in agricultural and manufactured goodshas been observedespecially after the green revolution and industrial boom. Despite thesepositive developmental indicators, the states have failed to exhibit any kind of indicator thatdisplayed such activities that would have reduced significantly the level of regional disparities interms of development. During the last two decades, there has been a considerable rise in thestudies on inter-state disparity across the Indian states using sophisticated analytical tools andbetter data giving emphasis on the level of development and also bringing out the disparitiesamongst the regions. Singh and Srinivasan (2002) carried out a study for the period 1990-91 to 1998-99 and found that the evidence does not permit one to reach very definite conclusion onconvergence or divergence across the of major states. The level socio-economic developmentwas estimated for different states for the year 1971-72 and 1981-82 by Narain et al. (1999) inwhich it was observed that there were wide disparities in the level of development amongdifferent states. The studies regarding evaluation of status of development at district level haveso far been completed for the state of Orissa (Narain et al. 1992, 1993, 2005), Andhra Pradesh(Narain et al. 1994), Kerala (Narain et al. 1994, 2005), Uttar Pradesh (Narain et al. 1995, 2001), Maharashtra (Narain et al. 1996), Karnataka (Narain et al. 1997,2003), Tamilnadu (Narain et al.2000), States of southern region (Narain et al. 1999), Madhya Pradesh (Narain et al. 2003), Assam (Rai and Bhatia 2004), Hilly States (Narain et al. 2004), Jammu and Kashmir (Narain etal. 2005). It was found that entire parts of the low developed districts are not backward but thereare some parts which are also better developed.

In Maharashtra a number of scholars have worked and published their studies on the regional disparity within the districts. Brahme et al, (1975) discussed the relative levels of development ofGreater Mumbai, Pune region, Marathwada and Vidharba while working on a publication onregional planning for Marathwada. Levels of development and developmental disparities amongstthe various districts of Maharashtra were brought out as early as in 1980's through a publicationby Shah in 1980. Prabhu and Sarker (1992) identified the levels of development for the districts of Maharashtra where they employed the data for the years 1985-86. According to this study out of29 districts of Maharashtra, 11 districts emerged as highly developed districts and 15 districtsattained the status of low developed districts. It was interesting to note that these low developeddistricts mostly

belonged to the Vidharba and Marathwada regions. Ahuja and Nikam (2015) haveanalysed the interdistrict inequality based on the per capita income in Maharashtra for the period 2001-2013. It was observed by Suryanarayana (2009) that half of the Maharashtra state's incomecomes from the four major districts Mumbai, Thane, Pune and Nashik, whereas remaining 31 districts account for the remaining share of states income. Kurulkar (2009) in his study has highlighted the problem of regional disparities in Maharashtra and stated that during the period 1984 and 1994 the regional disparities instead of reducing have actually increased. He also broadly mentioned that from the various studies carried out at the district level, the districts which conspicuously stands out as low developed regions (both at the national and state level) are mostly from Vidharba and Marathwada. Moreover, there are also a few districts which show low level of development like Dhule, Nandurbar, Ratnagiri and Sindhudurg.

To sum up it may be said that so far the regional disparities work is widely carried out from the state to district level. In the present work, an attempt is made to analyse and understand the level of disparity in the development of a region with respect to its smaller administrative unit that is, tehsil. Thus, the main aim of the study is to assess the overall level of development of the Konkan region from Maharashtra State. The specific objectives set are: i) To observe the regional disparities in Agricultural, Infrastructural and Demographical development at tehsil level and ii) To ascertain the developmental distances between the tehsils and obtain the model tehsil for each tehsil.





Figure 1. Location of the study area

Konkan region includes five main districts viz: Mumbai (along with its suburbs), Thane, Raigarh, Ratnagiri and Sindhudurg. Figure 1 depicts the location of the study area. For the present study Mumbai is excluded from the Konkan region. The study area falls entirely under the coastal regime and has the spurs of the Western Ghat drained mostly by the steep gradient short distance rivers running westwards and draining into the Arabian Sea. The total number of tehsils within the administrative borders of the four districts is 47. Out of these 15 are from Thane district, 15 from Raigarh, 09 from Ratnagiri and 08 from Sindhudurg.

#### RATIONALE FOR CHOOSING KONKAN REGION:

Maharashtra is considered as one of the most developed states of India. Maharashtra ranks second in the country according to the population rank with a population of 11.24 crore as per the 2011 census. On the economic front, Maharashtra with its GSDP at Rs. 16, 47,506 crore ranked first amongst the states of India. For administrative purpose Maharashtra is divided into six administrative divisions viz: Konkan, Pune, Nashik, Aurangabad, Amravati and Nagpur. Table 1 depicts the GDP for these six divisions along with the population.

			GDP(at
Administra		Population	current
tive		(2011)	price
divisions		in '000	2014-15)
			in crore
Pune		23449	3,38,052
Konkan		28601	6,03,481
	Mumbai	12442	3,34,423
Konkon	Post of		
NUIIKaii	Rest OI	16150	2 60 050
KUIIKaii	Konkan	16159	2,69,059
Nashik	Konkan	<b>16159</b> 18579	<b>2,69,059</b> 1,84,427
Nashik Aurangaba	Konkan	16159 18579	<b>2,69,059</b> 1,84,427
Nashik Aurangaba d	Konkan	16159           18579           18731	<b>2,69,059</b> 1,84,427 1,53,885
Nashik Aurangaba d Amravati	Konkan	16159           18579           18731           11257	2,69,059           1,84,427           1,53,885           93,796
Nashik Aurangaba d Amravati Nagpur	Konkan	16159           18579           18731           11257           11755	2,69,059 1,84,427 1,53,885 93,796 1,36,493
Nashik Aurangaba d Amravati Nagpur Maharasht	Konkan	16159         18579         18731         11257         11755         11.24 crore	2,69,059 1,84,427 1,53,885 93,796 1,36,493 16,47,506

**Table 1.** Division wise population and GDP inMaharashtra (2011)

Source: Census of India, District economics and statistical bureau.

Out of the six divisions, Konkan has the highest GDP and also the highest populationindicating highest level of development within the state. However, a closer look at the furtherbifurcation of the Konkan division clearly brings out the disparity between Mumbai and rest of theKonkan. As is observed from the table 1, Mumbai along with its suburbs contributes more than50% of GDP to the Konkan division. Thus in order to understand the developmental disparities inthe Konkan region, one has to exclude Mumbai so that the regional disparities in the region can betruly derived.

# II. METHODS AND MATERIAL

# DATA AND METHOD:

This study is based on the secondary data which was obtained from various sources. ThePopulation related indicators were taken from the Census of India

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handbook (2011). Agriculturaland Infrastructural indicators were obtained from the District Economic and Statistical Bureau, socio-economic abstracts and periodicals publication (2014).

#### INDICATORS OF LEVEL OF DEVELOPMENT

A total of **27** development indicators have been used in the present study to analyse thelevel of socioeconomic and demographic development of different tehsils in the Konkan region.

These indicators are listed in table 2.

**Table 2.** Indicators used to measure level of overall

development				
Agricultural	Infrastructural	Demographic		
indicators	indicators	indicators		
Area under				
agricultural	Number of post	Percentage of		
production in	offices and PCO	total literates		
hectares				
Production of	Number of	Percentage of		
rice and ragi	primary schools	urban literates		
Fish production	Road length per	Percentage of		
Fish production	100 sq. km/area	rural literates		
Mille	Number of	Percentage of		
IVIIIK	secondary	SC and ST		
production	schools	literates		
Number of	Number of	Infant mortality		
veterinary	colleges	rate		
hospitals	concges	Tate		
Percentage of	Number of			
using chemical	higher secondary	Birth rate		
fertilizers	school			
Number of total	Number of PHC			
agricultural	(Public Health	Mortality rate		
agricultural	Centre) & sub	wortanty rate		
pumps	centres			

From the detail literature survey carried out the following method was thought to be apt for the present study and thus the same was adopted.

#### COMPOSITE INDEX OF DEVELOPMENT

The following statistical procedure for estimation of composite index of development is adopted in the study.

i. Standardization of the original data matrix: Each data matrix  $(X_{ij})$  was converted to a standardized data matrix  $[Z_{ij}]$ . This was thought essential as  $[X_{ij}]$  come from different population distribution and they might be recorded in different units of measurement and thus may not be quite suitable for the simple addition to obtain the composite index standardized scores.

$$[\mathsf{Z}_{ij}] = \frac{\mathsf{X}_{ij} - \mathsf{X}_j}{\mathsf{S}_i} \dots eq.1$$

Here  $[X_{ij}]$  is the data matrix with i = 1, 2...n(number of area unit) and j = 1, 2....k (number of indicators),  $\overline{X}_j$  relates to the mean of the  $j^{th}$ indicator,  $S_j$  is the standard deviation of the  $j^{th}$ indicator, and  $Z_{ij}$  is the matrix of standardized indicators.

Once the standardized matrix was obtained[Z<sub>ij</sub>]
the next step involved identification of the best value of each indicator (Z<sub>oj</sub>). The best value is
either the maximum value or minimum value of the indicator depending upon the direction of the impact of indicator on the level of development. The pattern of development P<sub>ij</sub> is further calculated using the equation 2.

$$\begin{split} \mathbf{P}_{ij} &= (\mathbf{Z}_{ij} - \mathbf{Z}_{oj})^2 \dots \text{eq. } \mathbf{q}, 2 \\ & \text{Pattern of development } \mathbf{C}_i \text{ is given as} \\ \mathbf{C}_i &= \left[ \sum_{j=1}^k \mathbf{P}_{ij} / (\mathbf{c}. \mathbf{v}.)_j \right]^{\frac{1}{2}} \dots \text{eq. } 3 \end{split}$$

Here  $(c.v)_j$  is the coefficient of

variation of the jth indicator in  $\boldsymbol{X}_{ij}$ 

ii.

iii. Finally, the Composite index  $D_i$  is computed using the equation 4.

$$D_i = C_i / C$$
 for  $i = 1, 2,..., n$  .....eq. 4  
Where,  $C = \overline{C} + 3S_{Di}$ ,

 $\overline{C}$  = mean of  $C_i$  and  $S_{Di}$  = Standard deviatrion of  $C_i$ Smaller value of  $D_i$  will indicate high level of development and higher value of  $D_i$  will indicate low level of development.

4

# ESTIMATION OF DEVELOPMENTAL DISTANCES BETWEEN PAIRS OF TEHSILS

The distance between tehsils is given by  $d_{ip}$ ,

Where,  $\mathbf{d}_{ip} = \left[\sum_{j=1}^{k} (\mathbf{z}_{ij} - \mathbf{z}_{pj})^2\right]^{\frac{1}{2}} \dots \dots eq.5$ i =1, 2...n; p= 1, 2...n

Here,  $d_{ii=0 \text{ and }} d_{ip=d_{pi}}$ , The minimum distance for each row is considered. The critical distance (C.D) is further computed using equation 6.

Where,

 $\bar{d}$  = mean of  $d_i$  and sd = standard deviation of  $d_i$ 

### **IDENTIFICATION OF MODEL TEHSILS**

The identification of the model tehsil for each tehsil is obtained by setting a simple criterion. This criterion relates to the comparison of composite index and critical distance of the tehsil under consideration with other tehsil. For the tehsil under consideration that tehsil will be considered as a model tehsil whose composite index is less than the tehsil under consideration and the developmental distance from the tehsil under consideration is greater than or equal to Critical Distance (C.D.) of the other tehsil. Thus, the model tehsil will be a better developed tehsil as compared to the other tehsil. The best value of each developmental indicator of the model tehsil will be the potential target for other tehsil.

In order to achieve a more meaningful categorization, suitable fractile classification from the assumed distribution of the mean of composite indices is employed as given in table 3. For relative comparison, it is assumed that the tehsils having the composite index  $\leq$  (Mean – SD) are levelled as high developed, those tehsils with the composite index ranging between (Mean <u>+</u> SD) are middle level developed and composite index > (Mean + SD) are low level developed tehsils.

VALUE OF	LEVEL OF	
COMPOSITE INDEX	DEVELOPMENT	
≤ Mean-S.D.	High	
Mean to (Mean +	Moderate	
S.D.)	Moderate	
Mean + S.D. ≥	Low	

### III. RESULTS AND DISCUSSION

#### THE LEVEL OF DEVELOPMENT

The composite indices of development (C.I.) have been worked out for different tehsils separately for agriculture, infrastructural service and demographic development. The tehsils have been ranked on the basis of development indices. Table 4 shows the composite indices (C.I.) of development along with the ranks of different tehsils. In this table, a simple ranking of the tehsils on the basis of level of development has been presented.

It may be observed from table 4 that the value of composite indices of agriculture sector ranges from 0.58 to 0.95. Out of 47 tehsils of Konkan region, the tehsil of Alibag is ranked first in agriculture having high agricultural production (rice), fish production, high use of chemical fertilizers and electric pumps and Ulhasnagar is ranked last due to absence of agriculture. The values of composite indices of infrastructural services varies from 0.49 to 0.89. Thane is ranked first in infrastructural facilities with high amenities like educational facilities, transportation facilities and banking. Whereas, Tala ranks last. The values of composite indices of demography vary from 0.43 to 1.56. Panvel is ranked first in demographic sector with high urbanization and high literacy rate and Talsari is ranked last because this tehsil is totally rural.

Cr. No. Tabail		Agriculture		Infrastructure		Demography	
5r. 110.	NO. IEnsii		Rank	Di	Rank	Di	Rank
1	Mandangarh	0.84	18	0.83	20	0.99	29
2	Dapoli	0.73	8	0.71	12	0.83	22
3	Khed	0.75	10	0.64	6	0.92	26
4	Chiplun	0.72	7	0.61	3	0.83	22
5	Guhagar	0.77	12	0.76	16	0.90	24
6	Ratnagiri	0.68	4	0.60	2	0.67	16
7	Sangmeshwar	0.71	6	0.67	8	0.94	27
8	Lanja	0.77	12	0.77	17	0.99	29
9	Rajapur	0.72	7	0.69	10	0.95	28
10	Devgad	0.78	13	0.76	16	0.64	14
11	Vaibhavwadi	0.85	19	0.85	22	0.91	25
12	Kankavali	0.74	9	0.74	14	0.60	10
13	Malvan	0.74	9	0.74	14	0.57	09
14	Vengurle	0.82	16	0.81	19	0.69	18
15	Kudal	0.69	5	0.71	12	0.63	13
16	Sawantwadi	0.76	11	0.74	14	0.57	09
17	Doddamarg	0.86	20	0.85	22	0.82	21
18	Uaran	0.88	21	0.84	21	0.47	03
19	Panvel	0.68	4	0.63	05	0.43	01
20	Karjat	0.73	8	0.70	11	0.52	06
21	Khalapur	0.83	17	0.73	13	0.62	12
22	Pen	0.73	8	0.76	16	0.68	17
23	Alibag	0.58	1	0.71	12	0.47	03
24	Murud	0.81	15	0.85	22	0.51	05
25	Roha	0.71	6	0.75	15	0.66	15
26	Sudhagad	0.81	15	0.84	21	1.01	30
27	Mangaon	0.68	4	0.73	13	0.71	19
28	Tala	0.88	21	0.89	24	0.82	21
29	Shrivardhan	0.81	15	0.85	22	0.46	02
30	Mhasala	0.88	21	0.86	23	0.63	13
31	Mahad	0.65	3	0.71	12	0.61	11
32	Poladpur	0.83	17	0.86	23	0.75	20
33	Talsari	0.81	15	0.81	19	1.56	35
34	Dhanu	0.64	2	0.68	09	1.06	31
35	Vikramgad	0.80	14	0.79	18	0.87	23
36	Jwahar	0.74	9	0.76	16	1.11	32
37	Mokhada	0.82	16	0.81	19	1.37	34

 Table4. Composite Index of Development

38	Vada	0.76	11	0.76	16	0.71	19
39	Palghar	0.69	5	0.65	07	0.55	08
40	Vasai	0.73	8	0.61	03	0.51	05
41	Thane	0.92	22	0.49	01	0.46	02
42	Bhawandi	0.74	9	0.67	08	0.75	20
43	Shahpur	0.72	7	0.67	08	0.69	18
44	Kalyan	0.88	21	0.62	04	0.49	04
45	Ulhasnagar	0.95	23	0.84	21	1.22	33
46	Ambarnath	0.80	14	0.74	14	0.54	07
47	Murbad	0.69	5	0.75	15	0.83	22





# AREA UNDER DIFFERENT STAGES OF DEVELOPMENT:

It would be quite interesting and useful to find out the relative share of area affected, under different levels of development, in the region. The area covered by the tehsils falling under different levels of development is presented in table 5 and Figure 2, 3 and 4.



Sector of	Level of	No. Of	A man 0/2
economy	development	Tehsils	Area %
Agriculture	High ( ≤0.69 ) Moderate (0.69-0.85) Low (≥0.85)	09 30 08	24.86 68.63 6.51
Infrastructural facilities	High ( <u>&lt;</u> 0.66) Moderate (0.66-0.83) Low (≥0.83)	08 28 11	19.76 68.44 11.80
Demographic	High ( ≤0.51 ) Moderate ( 0.51-1.00 ) Low ( ≥1.00 )	06 35 06	7.47 83.78 8.75

Source : Compiled by authors

The analysis reveals that about 18.70% area is highly developed in all the sectors. In agricultural sector, about 24.86% area is highly developed and 68.63% area is moderately developed and low level developed tehsils cover about 6.51% area.In infrastructural services, about 19.76% area is highly developed, 68.44% area is moderately developed and 11.80% area fall in the tehsils which are low developed. In demographic sector, about 7.47% area is highly developed and only 8.75% area fall in the level of low developed tehsils. It is observed that lowdeveloped tehsils are not as thickly populated as the tehsils belonging to the category of high development.

Table 6 depicts the model tehsils for agricultural development. The analysis reveals that 34 tehsils have model tehsils and there are no model tehsils for 13 tehsils. The composite indicesare equal or the critical distances are equal or high for these thirteen tehsils which leaves them with such a situation. However, these tehsils are the model tehsils of the other tehsils. Shahpur with a composite index of 0.72 is the model tehsil for Vasai, Pen, Karjat and Dapoli whereas, Alibag with the lowest composite index (0.58) assumes the status of model tehsil for all the tehsils in the study area. Dhanu is the model tehsil for Mahad whereas Guhagar and Lanja are the model tehsils for Vikramgad. Ratnagiri is the model tehsil for Mhasala and Vaibhavwadi. Sawantwadi is the model tehsil for Lanja. Alibag is found highly developed having the least composite index as well as critical distance in agricultural sector.

Table 6.	Model tehsils	in agricultural	development
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Sr.No	Tehsils	Model tehsils
1	Mandang	Khalapur,Poladpur,Chiplun
	arh	
2	Dapoli	Shahpur
3	Khed	Bhiwandi,Pen,Vasai,Dapoli
		,Karjat
4	Guhagar	Sawantwadi,Vada,Khed
5	Lanja	Sawantwadi,Vada,Khed
6	Devgad	Guhagar,Lanja
7	Vaibhavw	Khalapur,Poladpur,Murbad
	adi	,Kudal,Palghar,Mangaon,Pa
		nvel,Ratnagiri
8	Kankavali	Bhiwandi,Pen,Vasai,Dapoli
		,Karjat
9	Malvan	Bhiwandi,Pen,Vasai,Dapoli
		,Karjat
10	Vengurle	Talsari,Murud,Kshrivardha
		n,Sudhagad,Ambarnath,Vi
		kramgad
11	Sawantwa	Khed,Bhiwandi,Jwahar,Mal
	di	wan,Kankavali
12	Doddama	Vaibhavwadi,Mandangarh,
	rg	Rajapur,Sangmeshwar,Roh
		а
13	Uaran	Doddamarg,Vaibhavwadi
14	Karjat	Shahpur
15	Khalapur	Mokhada,Murud,Vengurle,
		Talsari,Kshrivardhan,Sudha
		gad,
		Ambarnath,Vikramgad
16	Pen	Shahpur
17	Murud	Ambarnath,Vikramgad

18	Sudhagad	Ambarnath,Vikramgad
19	Tala	Doddamarg,Vaibhavwadi
20	Shrivardh	Ambarnath,Vikramgad
	an	
21	Mhasala	Doddamarg,Vaibhavwadi,
		Murbad,Kudal,Palghar,Ma
		ngaon,Panvel,
		Ratnagiri
22	Poladpur	Mokhada,Vengurle,Talsari,
		Kshrivardhan,Sudhagad,A
		mbarnath,
		Vikramgad
23	Talasari	Ambarnath,Vikramgad
24	Vikramga	Guhagar,Lanja
	d	
25	Jwahar	Bhiwandi,Pen,Vasai,Dapoli
		,Karjat
26	Mokhada	Talsari,Murud,Shrivardhan,
		Sudhagad,Ambarnath,Vikr
		amgad
27	Vada	Khed,Bhiwandi,Jwahar,Mal
		wan,Kankavali
28	Vasai	Shahpur
29	Thane	Uaran,Kalyan,Tala,Mhasala
		,Mahad,Dhanu
30	Bhiwandi	Pen,Vasai,Dapoli,Karjat
31	Mahad	Dhanu
32	Kalyan	Doddamarg,Vaibhavwadi
33	Ulhasnaga	Thane
	r	
34	Ambarnat	Devgad,Guhagar,Lanja,
	h	

The model tehsils for infrastructural development are represented in table 7. It is observed that 30 tehsils have model tehsils but remaining 17 tehsils fail to have any model tehsils because some of them have the same composite index values and their critical distances are increasing. But these tehsils are the model tehsils of the other tehsils. Kudal, Alibag, Dapoli and Karjat are the model tehsils for various tehsils having composite index 0.71. Thane is the model tehsil for all tehsils which is the highly developed tehsil in the study region having composite index 0.49.

Sr.	Tehsils	Model tehsils (Infrastructural			
No.		development)			
	Mandan				
1	garh	Talsari,Khed, Panvel			
2	Guhagar	Devgad,Vada,Jwahar,Pen			
		Guhagar,Rajapur,Dhanu,Shahpur,Sa			
3	Lanja	ngmeshwar,Bhwandi			
4	Devgad	Murbad,Roha,Kankavali			
	Vaibhav	Shrivardhan, Murud, Ulhasnagr, Uara			
5	wadi	n			
	Kankav	Malvan,Ambarnath,Savantwadi,Man			
6	ali	gaon			
	Malwan	Khalapur,Mahad,Kudal,Dapoli,Aliba			
7	Walvall	g,Karjat			
	Vengurl				
8	e	Vikramgarh,Palghar			
	Sawant	Khalapur,Mahad,Kudal,Dapoli,Aliba			
9	wadi	g,Karjat			
	Doddam	Shrivardhan,Murud,Ulhasnagr,Uara			
10	arg	n			
	Uaran	Mandangarh,Kalyan,Vasai,Chiplun,R			
11		atnagiri			
	Khalapu	Mahad Kudal Dapoli Alibag Kariat			
12	r	manad,Kudai,Dapoli,Alibag,Karjat			
13	Pen	Murbad,Roha,Kankavali			
	Maria 1	Ulhasnagar,Kalyan,Vasai,Chiplun,Ra			
14	wiuluu	tnagiri			
	Roha	Malvan,Ambarnath,Savantwadi,Man			
15		gaon			
	Sudhaga	Mandangarh,Kalyan,Vasai,Chiplun,R			
16	d	atnagiri			
	Mangao	Khalapur,Mahad,Kudal,Dapoli,Aliba			
17	n	g,Karjat			
18	Tala	Mhasala,Poladpur,Vaibhavwadi,Dod			
		damarg			
	Shrivard	Ulhasnagar,Kalyan,Vasai,Chiplun,Ra			
19	han	tnagiri			
20	Mhasala	Shrivardhan,Murud,Ulhasnagr,Uara			

		n,Thane		
21	Mahad	Kudal,Dapoli,Alibag,Karjat		
	Poladpu	Shrivardhan,Murud,Ulhasnagr,Uara		
22	r	n,Thane		
23	Talasari	Vikramgarh,Lanja		
	Vikram			
24	gad	Lanja,Guhagar		
25	Jwahar	Murbad,Roha,Kankavali		
	Mokhad			
26	а	Vikramgarh,Lanja		
27	Vada	Murbad,Roha,Kankavali		
	Ulhasna	Mandangarh,Kalyan,Vasai,Chiplun,R		
28	gar	atnagiri		
	Ambarn	Khalapur,Mahad,Kudal,Dapoli,Aliba		
29	ath	g,Karjat		
		Malvan,Ambarnath,Savantwadi,Man		
30	Murbad	gaon		

Table 8 represents the model tehsils for demographical development. Thane and Panvel are the model tehsils for all other tehsils with the least composite index i.e. 0.43 and 0.46 respectively. Ambarnath, Bhiwandi, Shrivardhan, Khalapur and Poladpur have no model tehsils because composite index values of various tehsils are decreasing but the critical distances are increasing gradually.

Table 8.	Model t	ehsils in	demographie	c develo	pment
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Sr.No	Tehsils	Model tehsils(Demographic		
•		development)		
	Mandanga			
1	rh	Rajapur,Sangmeshwar		
2	Dapoli	Doddamarg,Tala		
3	Khed	Vaibhavwadi,Guhagar		
4	Chiplun	Doddamarg,Tala		
5	Guhagar	Vikramgad,Dapoli,Chiplun		
6	Ratnagiri	Roha,Devgad		
	Sangmesh			
7	war	Khed		
8	Lanja	Rajapur,Sangmeshwar		
9	Rajapur	Khed,Sangmeshwar		
10	Devgad	Mhasala,Kudal		
11	Vaibhavwa	Guhagar,Vikramgad		

di	
Kankavali	Malvan,Savantwadi,Palghar
Malvan	Palghar,Ambarnath
Vengurle	Pen,Ratnagiri
Kudal	Khalapur
Savantwad i	Palghar,Ambarnath
Doddamar	
g	Bhiwandi, Poladpur
Uaran	Srivardhan
Karjat	Murud,Vasai,Kalyan
Pen	Ratnagiri,Roha,Devgad
Alibag	Srivardhan
Murud	Kalyan,Uaran,Alibag
Roha	Devgad,Mhasala
Sudhagad	Lanja,Mandangarh
Mangaon	Vengurle,Shahpur,Pen
Tala	Bhiwandi, Poladpur
Mhasala	Khalapur
Mahad	Kankavali,Malvan
Talasari	Mokhada,Ulhasnagar,Jwahar
Dhanu	Sudhagad,Lanja,Mandangarh
Vikramgad	Dapoli,Chiplun,Murbad
Jwahar	Dhanu,Sudhagad
Mokhada	Ulhasnagar,Jwahar
Vada	Vengurle,Shahpur,Pen
Palghar	Ambarnath
Vasai	Kalyan,Uaran,Alibag,Thane, Panvel
Murbad	Doddamarg,Tala
Shahpur	Pen,Ratnagiri
Kalyan	Uaran,Thane,Alibag,Shrivard han
Ulhasnagar	Jwahar,Dhanu,Sudhagad,Shri vardhan,Thane,Panvel
	diKankavaliKalvanVengurleKudalSavantwadiDoddamargUaranKarjatPenAlibagMurudSudhagadMangaonTalaMahadTalasariDhanuVikramgadJwaharVadaYasaiVasaiShahpurKalyanUlhasnagar

# INTERRELATIONSHIPS AMONG DIFFERENT SECTORS

Table 9 depicts the pair wise correlation analysis for the agricultural, infrastructural and demographic development indices. The correlation coefficient

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between the development in infrastructural and demographic sectors is found to be significant at 0.05 probability level whereas, the correlation coefficient between the developments in agriculture and infrastructure service facilities significant at 0.01 probability level. On deeper examinations of indicators included under infrastructural facilities, it was found that most of the indicators are highly influenced by the level of education. The agricultural development is found to be significantly affected by the level of education. The growth and progress of agriculture development fully utilise the infrastructural facilities. The level of education and other related infrastructural facilities are found to have a very high significant co-relation coefficient with the demographic development in the region.

	Agricultur	Infrastructu	Demograph	
	е	re	у	ii
Agriculture	1			
Infrastructu	0 45**	1.00		
re	0.15	1.00		
Demograph	0.15	0 31*	1	
У	0.15	0.01	1	

 Table 9. Pair wise Correlation Coefficient

\*'Significant at 0.01 level 'Significant at 0.05 level

#### **IV. CONCLUSIONS**

i. With respect to overall Demographic development, the tehsils likePanvel, Thane, Shrivardhan, Alibag, Uaran, Kalyan, Vasai and iv. Murudare better developed as compared tothe remaining tehsils of the region. On the other hand, Mandangarh, Sudhagad, Uaran, Ulhasnagar, Murud, Shrivardhan, Doddamarg, Vaibhavwadi, Poladpur, Mhasala and Tala are low developed tehsils of the region. Rest of the tehsils have a moderate level of development but thev also show an inclination towardsupgrading the developmental level. In vi. demographical development, Thane and Panvel are the model tehsils for all other tehsils with

the least composite index i.e. 0.43 and 0.46 respectively.

- The nine tehsils namely Alibag, Dhanu, Mahad, ii. Ratnagiri, Panvel, Mangaon, Palghar, Kudal and Murbad have high developmental level in agricultural sector. Low level of development in the agricultural sector is mostly observed in Vaibhavwadi, Doddamarg, Mhasala, Tala, Kalyan, Uaran, Thane and Ulhasnagar. These are mostly the tehsils which are having more of urban influence. Moderate level of the development in the rest of the tehsils is noted. There is a probability of these tehsils to move towards the higher values of composite index in the present-day scenario of urban expansion. In agricultural sector, Alibag with the lowest composite index (0.58) assumes the status of model tehsil for all the tehsils in the study area.
  - High level of Infrastructural Development is found in Thane, Ratnagiri, Chiplun, Vasai, Kalyan, Panvel, Khed and Palghar.Whereas, Mandangarh,Sudhagad, Uaran, Ulhasnagar, Murud, Shrivardhan, Doddamarg, Vaibhavwadi, Poladpur, Mhasala and Talaare low developed tehsils of the region. With least variations in the developmental levels of the tehsils the rest of the tehsilshave moderate level of infrastructural development. In infrastructural development, Thane is the model tehsil for all tehsils which is the highly developed tehsil in the study region having composite index 0.49.
  - . Overall development is positively associated with both agricultural development and infrastructural facilities. The impact of infrastructural facilities on overall development is higher than the agricultural development.

v. Wide disparities in the levels of development has been observed in different tehsils with respect to the developmental levels of agriculture, infrastructure and demographic.

Better Development tehsils are found to be thickly populated as compared to low developed tehsils.

- vii. Agricultural development along with the better avenues for education, medical facilities and transport systems will enhance the level of overall development
- viii. In order to reduce the disparities in development among different tehsils, potential targets of various important developmental indicators are estimated for low developed tehsils. These tehsils required improvements of various dimensions in different indicators for enhancing the level of development.

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