

# PROGRESS OF BARE NECESSITIES INDEX OF PUNE DISTRICT: RURAL-URBAN ANALYSIS

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**Abstract:** *This analytical and pioneer study examines the progress of the Bare Necessities Index (BNI) of the Pune district, it has covered 13 tehsils along with sector base i.e., rural-urban analysis. The progress evaluation Bare Necessities Index (BNI) is more based on Census 2011 data from Pune district consist around 21 diverse basic/bare necessities under the domain drinking water, sanitation, housing, micro-environment, and other facilities. This study observed that Bhor tehsil has the highest BNI ranking in total (0.483), rural (0.487), and Mawal urban (0.451) has the highest but it all under the low category. Indapur tahsil total (0.409) and rural (0.406) has the lowest BNI ranking, and also both are under the low category of BNI in the Pune district. Overall progress in BNI of Pune district total (0.426), rural (0.436), and urban (0.420) has the low category of BNI.*

**Keywords:** *Water Index, Sanitation Index, Housing Index, Micro-Environment Index, Other Facilities Index, Bare Necessities Index.*

## I. INTRODUCTION:

Pune district is located in the state of Maharashtra, India that is distributed in western Maharashtra at the foothills of the Sahyadri Mountains and is divided into three parts as Ghatmatha, Maval and Desh. Pune district forms a part of the tropical monsoon land and shows a significant seasonal variation in temperature and rainfall conditions. In summer 22°C-41°C, in winter 8°C-25°C and rainfall is about 650-700 mm. It covered an area of 15643 sq/km. The total population size of the Pune district is 94.2 lakhs includes the male population is 49.3 lakhs and the female population is 44.9 lakhs. This district has a rural population of 41.9 % of its total. The sex ratio of the district is 915, the overall literacy rate is 86.1% and the density of population is 603 sq/km. [1,2]

The Ministry of Finance, Govt. India in its Economic Survey of India-2020-21 has formulated a novel metric to measure progress of the quality of bare necessities accessible such as drinking water, sanitation, hosing, electricity, other micro facilities and LPG called the Bare Necessities Index (BNI). The Bare Necessities Index concept which is a very comprehensive and its emphasis and evaluate access of bare/basic necessities to the people and its disparities. It is composite statistics of different bare necessities i.e., clean water, micro-environment sanitation, housing, and other facilities, etc. which needed to each individual to sustain lifespan. The BNI has been developed for measuring economic development using the "basic needs" approach, its approach has sets minimum specified quantities of 21 basic different necessities to assessing progress of BNI in Pune district of Maharashtra state. [3]

## II. OBJECTIVES:

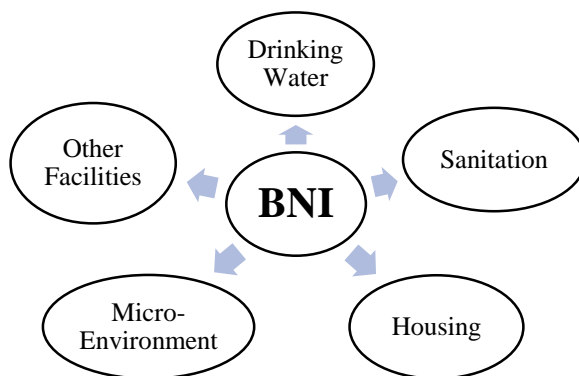
The major objectives of this study are as -

- (i) To evaluate progress of Bare Necessities Index of Pune district of Maharashtra state.
- (ii) To analysis of rural and urban inequalities in Bare Necessities Index of Pune district of Maharashtra.
- (iii) To suggest measures for improvement if necessary, for the study area.

## III. RESEARCH METHODOLOGY AND DATA BASE:

The present research study is analytical in nature and is mainly based on secondary data which collected form census of India 2011. Bare Necessities Index (BNI) is a comprehensive and recently formalized matrix it emphasizes the access to diverse basic/bare necessities each individual should have to sustain their life. It consists of five main dimensions such as clean water, sanitation, housing, micro-environment, and other facilities. The BNI has been developed for measuring economic development using the "basic needs" approach, its approach has sets smallest specified quantities of 21 basic different necessities to assessing improvement of BNI of Pune district in the Maharashtra state. [3,4]

**BNI Outline and Estimation procedure**



**Bare Necessities Index (BNI): Domain, Indicators, Types and Weightage**

Domain	Components/Indicator	Types	Weightage
<b>Water (5)</b> 1/5	Tap-Treated	+ve	1/5
	Tube/Borewell	+ve	1/5
	Well -Covered	+ve	1/5
	Within dwelling	+ve	1/5
	Outside dwelling	-ve	1/5
<b>Sanitation (5)</b> 1/5	Access of Latrine	+ve	1/5
	Latrine: Piped sewer system	+ve	1/5
	Latrine: Septic tank	+ve	1/5
	Latrine: Twin leach pit	+ve	1/5
	Latrine: Single pit	+ve	1/5
<b>Housing (3)</b> 1/5	Condition of structure: Good	+ve	1/3
	Type of the dwelling: Owned	+ve	1/3
	Pucca dwelling	+ve	1/3
<b>Micro-environment (3)</b> 1/5	No drainage	-ve	1/3
	Open drainage	-ve	1/3
	Use of Dirt Fuel for Cooking i.e., firewood, etc.	-ve	1/3
<b>Other Facilities (5)</b> 1/5	Access of separate kitchen	+ve	1/5
	No bathroom	-ve	1/5
	Access of Bathroom	+ve	1/5
	Access of electricity	+ve	1/5
	Use of modern fuel for cooking: LPG	+ve	1/5

(Source: Economic Survey of India- 2020-21)

The Bare Necessities Index is a composite statistic of its different original and proxy indicators comprises 5 main domain and its 21 sub-indicators covered 16 positive and 5 negatives, which are specified above table. The procedure of BNI estimation has involved in two steps, first step is aggregating the indicators and calculate each indicator’s index. The second step is that each dimension is aggregated through their indicators scores which are calculated in step first for estimating the BNI of the particular district. Aggregated BNI is the arithmetic mean of its components. The goalpost of each indicator has fixed at minimum value is set 0 (Zero) and maximum values set is 100, the value of the index ranges between 0 and 1, value closer to 0 indicates low access to bare necessities, and value closer to 1 reveals higher or better access to the bare necessities. While, for better understanding improvement of BNI in respective area there are made three categories of BNI i.e., above 0.700 indicates ‘High’ level, 0.500 to 0.700 indicates ‘Medium’ level and below 0.500 indicates ‘Very Low’ level of access. The complete exercise of creating Bare Necessities Index is given below - [3,5]

$$\text{Indicators Index} = \frac{(\text{Actual Value} - \text{Min. Value})}{(\text{Max. Value} - \text{Min. Value})} \text{-----(1)}$$

$$\text{BNI} = \frac{(I_W + I_S + I_H + I_{ME} + I_{OF})}{1/5} \text{----- (2)}$$

Where;

- $I_{Water}$  = Drinking Water Index
- $I_{Sanitation}$  = Sanitation Index
- $I_{Housing}$  = Housing Index
- $I_{Micro-Environment}$  = Micro-Environment Index
- $I_{Other Facilities}$  = Other Facilities Index

**IV. DATA ANALYSIS, DISCUSSION AND RESULT:**

This part of research paper deals with tehsil and sector-wise evaluation and estimation of the Bare Necessities Index (BNI) through the different components which are related to basic necessities of the Pune district across the thirteen tehsils. Important observations

related to BNI at each tehsil with rural and urban areas has been made. The assessment of the Bare Necessities Index by different components and its indicators of Pune district are given as below-

**Table – 01**  
**Tehsil & Sector-wise Access of Water Sources with Location of Pune District (Values in %)**

Sr. No.	Tehsil/ Sector	Water Sources									Location of Source					
		Tap - Treated			Tube/Borewell			Well -Covered			Within dwelling			Outside dwelling		
		T	R	U	T	R	U	T	R	U	T	R	U	T	R	U
1	Junnar	38.4	34.2	97.3	10.1	10.8	0.3	2.8	3.0	0.1	56.7	54.7	84.4	13.3	14.0	4.7
2	Ambegaon	35.9	31.0	92.3	4.1	4.4	0.1	4.1	4.3	1.5	50.0	46.9	85.3	15.1	16.2	2.8
3	Shirur	25.0	14.7	71.7	14.8	17.4	3.1	2.0	2.2	1.2	49.7	42.7	81.5	17.9	20.9	4.1
4	Khed	42.1	28.0	72.4	9.1	7.6	12.4	2.7	3.8	0.3	56.6	43.9	84.2	15.0	20.6	2.9
5	Mawal	63.1	47.2	82.9	3.0	5.0	0.6	0.8	1.4	0.2	68.2	53.6	86.2	9.1	14.0	3.0
6	Mulshi	44.9	41.7	60.4	16.4	15.1	22.6	1.7	2.0	0.2	59.0	55.0	78.8	11.3	12.5	5.6
7	Haveli	86.3	54.1	95.6	5.0	17.1	1.5	0.4	1.3	0.1	82.1	69.6	85.7	2.9	7.6	1.5
8	Pune City	97.7	93.6	97.7	0.3	1.0	0.3	0.1	0.6	0.1	90.9	86.0	90.9	1.3	2.3	1.3
9	Daund	35.8	24.9	94.1	13.4	15.6	1.3	1.5	1.8	0.2	52.1	48.9	69.2	15.9	17.7	6.3
10	Velhe	26.7	26.7	-	2.2	2.2	-	1.6	1.6	-	27.0	27.0	-	34.7	34.7	-
11	Bhor	47.3	42.6	87.2	5.9	6.5	1.5	0.7	0.8	0.1	56.8	53.7	83.4	12.3	13.5	2.4
12	Baramati	47.7	42.2	74.2	11.9	10.7	17.4	1.3	1.4	0.5	62.4	59.3	77.4	11.8	12.8	6.8
13	Indapur	28.8	24.1	92.3	10.4	10.9	3.3	1.7	1.7	0.3	48.4	45.8	83.8	16.6	17.8	1.4
<b>Pune District</b>		<b>74.1</b>	<b>36.1</b>	<b>95.3</b>	<b>4.9</b>	<b>11.4</b>	<b>1.3</b>	<b>0.8</b>	<b>2.1</b>	<b>0.1</b>	<b>75.9</b>	<b>53.6</b>	<b>88.3</b>	<b>6.4</b>	<b>14.9</b>	<b>1.7</b>

Source: Census 2011/Pune District (Note: T- Total, R- Rural, U-Urban)

Table-01 specifies that sector-wise population covered by the access of water sources and location of water sources used by households in thirteen tehsils of Pune district. Considering the use of Tap-Treated water sources, Pune City total and urban has 97.7% each and urban has 93.6% of the population covered, it all has highest and Shirur total and rural have 25.0% and 14.7% respectively and Mulshi urban has 60.4%, it all has the lowest population. Looking at overall Pune district about 74.1%, 36.1%, and 95.3% of the population covered by total, rural and urban respectively. Looking at the tube/Borewell sources in Mulshi total and urban has 16.4% and 22.6% respectively, Haveli rural has 17.1%, it all has highest and Pune City total and rural has only 0.3% and 1.0% and Ambegaon urban has 0.1%, it all has lowest population. Considering overall Satara district only 4.9%, 11.4% and 1.3% of the population covered by total, rural and urban respectively. Looking at well-covered tehsils Shirur total has 2.0%, Ambegaon rural and urban have 4.3% and 1.5% respectively, it all has highest. The lowest population from all areas has below 0.6%. Looking at overall Pune district about 0.8%, 2.1%, and 0.1% of the population is covered by total, rural and urban respectively. Talking about the location of water sources, Pune City total and urban has 90.9% of the population within a dwelling, it has highest and Velhe total and rural has 27.0% it has lowest. Looking at overall Pune district about 75.9%, 53.6%, and 88.3% of population covered by total, rural and urban respectively. Considering about the outside dwelling Velhe total and rural has 34.7%, it has highest and Pune City total and urban has 1.3%, it has lowest as compared to all tehsils of Pune district. Looking at overall Pune district only 6.4%, 14.9% and 1.7% of population covered by total, rural and urban respectively.

**Table - 02**  
**Tehsil & Sector-wise Access of Sanitation Facilities with Structure of Pune District (Values in %)**

Sr. No.	Tehsil/ Sector	Latrine types														
		Access of Latrine			Piped sewer system			Septic tank			Twin leach pit			Single pit		
		T	R	U	T	R	U	T	R	U	T	R	U	T	R	U
1	Junnar	68.6	68.1	76.2	4.7	3.5	21.7	41.1	40.4	51.3	20.9	22.2	2.7	0.1	0.1	0.0
2	Ambegaon	70.7	69.6	83.1	2.2	1.4	10.7	45.1	43.0	69.2	20.9	22.5	2.8	0.1	0.1	0.1
3	Shirur	62.0	58.4	78.5	2.5	2.2	3.7	39.4	34.8	60.2	18.9	20.2	13.0	0.1	0.1	0.1
4	Khed	70.7	62.1	89.2	6.2	3.0	13.0	43.6	31.5	69.8	18.8	25.0	5.4	0.2	0.2	0.1
5	Mawal	64.3	52.3	79.2	9.4	3.7	16.5	43.7	32.3	57.7	8.9	14.0	2.5	0.4	0.4	0.4
6	Mulshi	69.1	66.0	84.2	11.3	9.6	19.2	36.1	32.5	54.0	19.3	21.8	7.1	0.2	0.2	0.0
7	Haveli	82.1	76.9	83.6	57.1	25.6	66.2	19.5	40.5	13.5	2.6	7.3	1.3	0.1	0.2	0.1
8	Pune City	79.2	90.3	79.1	70.3	37.6	70.6	5.9	48.2	5.5	1.0	0.7	1.0	0.1	0.0	0.1
9	Daund	48.5	44.7	68.7	4.6	2.1	18.2	32.9	31.2	41.9	8.8	9.6	5.0	0.4	0.3	0.9
10	Velhe	57.0	57.0	-	2.2	2.2	-	14.4	14.4	-	35.9	35.9	-	0.5	0.5	-
11	Bhor	81.1	82.3	70.6	2.5	2.0	6.7	37.4	34.9	59.0	38.0	42.4	1.0	0.3	0.3	0.4
12	Baramati	65.2	63.7	72.4	4.7	4.1	7.2	38.6	34.1	60.3	19.8	23.3	2.9	0.2	0.3	0.0
13	Indapur	37.4	35.2	66.9	2.8	2.6	5.9	23.1	20.7	55.9	10.1	10.5	4.5	0.2	0.2	0.2
<b>Pune District</b>		<b>73.8</b>	<b>61.8</b>	<b>80.5</b>	<b>43.1</b>	<b>7.2</b>	<b>63.2</b>	<b>20.7</b>	<b>33.5</b>	<b>13.5</b>	<b>7.7</b>	<b>18.7</b>	<b>1.5</b>	<b>0.1</b>	<b>0.2</b>	<b>0.1</b>

Source: Census 2011/Pune District (Note: T- Total, R- Rural, U-Urban)

Table - 02 shows sector-wise population covered by sanitation facilities such as the access of Latrine and various types of Latrine facilities used by households in Pune district. Talking about the access to Latrine, Pune City rural has about 90.3% of the population and Indapur rural has only 35.2% of the population. The access of Latrine in Pune district has 73.8%, 61.8% and 80.5% of population covered by total, rural and urban area respectively. Considering the various types of Latrine used by people have different as Piped sewer system, Septic tank, Twin leach pit, single pit etc. The piped sewer system used by Pune City urban has about 70.6% and Ambegaon rural has only 1.4% of the Population. The piped sewer system used by the Pune district has 43.1%, 7.2% and 63.2% of the population covered by total, rural and urban areas respectively. The Septic tank used by Khed urban has about 69.8% and Pune City urban has only 5.5% of the Population. The Septic tank used by Pune district has 20.7%, 33.5% and 13.5% of population covered by total, rural and urban areas respectively. The twin leach pit used by Bhor total has about 38.0%.

The twin leach pit used by the Pune district has 7.7%, 18.7% and 1.5% of the population covered by total, rural and urban areas respectively. The single pit used by the Pune district has 0.1%, 0.2% and 0.1% of the population covered by total, rural and urban areas.

**Table – 03**  
**Tehsil & Sector-wise Access of Housing Facilities with Condition of Pune District** (Values in %)

Sr. No.	Tehsil/ Sector	Dwelling Structure: Good			Dwelling Type: Owned			Pucca dwelling		
		T	R	U	T	R	U	T	R	U
1	Junnar	67.9	67.7	70.6	80.4	81.4	67.1	90.5	90.5	89.5
2	Ambegaon	69.5	68.2	84.3	85.1	87.6	56.2	87.3	87.3	85.5
3	Shirur	74.8	74.9	74.6	75.8	81.9	47.9	89.3	87.9	96.3
4	Khed	73.4	67.9	85.1	69.5	82.3	41.8	94.2	93.2	96.3
5	Mawal	73.2	68.7	78.8	69.7	76.8	60.9	94.0	91.5	96.9
6	Mulshi	70.8	68.9	80.3	62.9	69.7	29.8	90.8	89.4	97.6
7	Haveli	80.6	79.7	80.9	52.1	58.8	50.2	97.1	95.4	97.6
8	Pune City	75.8	73.5	75.8	65.3	39.5	65.6	96.7	98.5	96.6
9	Daund	70.8	71.0	69.9	76.8	80.8	55.3	86.3	84.9	94.6
10	Velhe	44.2	44.2	-	91.2	91.2	-	84.8	84.8	-
11	Bhor	71.2	70.8	74.5	87.6	89.3	73.6	92.4	93.1	84.5
12	Baramati	74.6	72.8	82.9	83.3	87.5	63.3	87.2	85.9	93.2
13	Indapur	66.3	65.4	78.7	86.1	87.2	70.5	80.0	79.1	91.9
<b>Pune District</b>		<b>75.4</b>	<b>71.1</b>	<b>77.8</b>	<b>66.6</b>	<b>79.2</b>	<b>59.5</b>	<b>94.1</b>	<b>89.2</b>	<b>96.9</b>

Source: Census 2011/Pune District (Note: T- Total, R- Rural, U-Urban)

Table – 03 shows that tehsils and sector-wise access and situation of housing facilities which is essential to each human and also safe place for everyone, it is also third main dimension of Bare Necessities Index. Talking about the good structure of housing, Khed urban has about 85.1%, it has highest and Velhe total as well as rural has only 44.2%, it has lowest as compared to all thirteen tehsils. Observing overall good structure of houses of Pune district total, rural and urban has 75.4%, 71.1% and 77.8% respectively. The status of owned dwelling, Velhe total as well as rural has about 91.2%, it has highest and Mulshi urban has only 29.8%, it has lowest as compared to all tehsils of Pune district. Looking at the status of owned dwelling of overall Pune district total, rural and urban has 66.6%, 79.2% and 59.5% respectively. Talking about the condition of 'Pucca' dwelling or house, Pune City rural has about 98.5%, it has highest and Indapur rural has 79.9%, it has lowest as compared to all thirteen tehsils of Pune district. The overall Pune district share of 'Pucca' dwelling, Pune district total, rural and urban has 94.1%, 89.2% and 96.9% respectively.

**Table – 04**  
**Tehsil & Sector- wise Access of Micro-Environment Facilities of Pune District** (Values in %)

Sr. No.	Tehsil/ Sector	No drainage			Open drainage			Use of Dirt Fuel for Cooking		
		T	R	U	T	R	U	T	R	U
1	Junnar	52.5	55.8	7.2	20.7	21.4	11.7	53.6	56.3	16.5
2	Ambegaon	59.4	63.9	7.6	20.6	20.4	23.0	62.8	66.3	23.8
3	Shirur	60.8	70.6	16.0	16.7	14.8	25.5	55.3	61.4	27.6
4	Khed	46.9	65.4	7.1	21.0	20.7	21.6	48.3	61.4	20.1
5	Mawal	38.5	58.5	13.7	38.3	29.8	48.8	34.4	52.4	12.1
6	Mulshi	44.7	51.0	13.8	25.0	26.9	16.1	48.7	53.3	26.4
7	Haveli	10.9	27.3	6.1	16.4	15.5	16.7	21.4	26.8	19.9
8	Pune City	2.1	11.1	2.0	2.2	3.5	2.2	11.8	23.2	11.6
9	Daund	60.1	69.0	12.8	23.8	20.0	44.4	60.8	66.7	28.6
10	Velhe	64.5	64.5	-	29.1	29.1	-	87.8	87.8	-
11	Bhor	51.3	55.2	18.0	35.4	33.0	55.3	64.7	70.2	17.2
12	Baramati	57.8	67.2	13.0	17.0	18.4	10.6	55.8	62.9	21.6
13	Indapur	70.2	74.0	18.2	20.1	18.3	44.7	74.3	77.4	32.3
<b>Pune District</b>		<b>23.7</b>	<b>58.1</b>	<b>4.4</b>	<b>13.5</b>	<b>20.0</b>	<b>9.9</b>	<b>30.1</b>	<b>56.5</b>	<b>15.3</b>

Source: Census 2011/Pune District (Note: T- Total, R- Rural, U-Urban)

Table -04 illustrates that tehsils and sector-wise access of sanitation facilities to the people, which is important to each human and it is fourth main dimension of Bare Necessities Index. Speaking about the no-connectivity of drainage facility, Indapur rural has 74.0%, it has highest and Pune City urban has 2.0%, it has lowest, as compared all thirteen tehsils. Looking at the status of the no-connectivity of drainage facility of overall Pune district total, rural and urban has 23.7%, 58.1% and 4.4% respectively. Considering Connectivity of Open-drainage, Bhor urban has 55.3%, it has highest and Pune City total as well as urban has 2.2%, it has lowest, as compared all thirteen tehsils. Looking at the status of the connectivity of Open-drainage facility of overall Pune district total, rural and urban has 13.5%, 20.0% and 9.9% respectively. Use of dirt fuel i.e., firewood, kerosene, charcoal, etc., Velhe rural as well as the total has 87.8%, it has highest and Pune City urban has 11.6%, it has lowest, as compared all thirteen tehsils. Observing the use of dirt fuel in the overall Pune district total, rural and urban has 30.1%, 56.5% and 15.3% respectively.

**Table – 05**  
**Tehsil & Sector-wise Access of Other Facilities of Pune District**

Sr. No.	Tehsil/ Sector	Access of separate kitchen			Bathing Facility						Access of electricity			Use of modern fuel for cooking: LPG		
					No bathroom			Access of Bathroom								
		T	R	U	T	R	U	T	R	U	T	R	U	T	R	U
1	Junnar	74.7	73.9	84.6	13.3	14.1	2.8	21.0	22.3	2.7	83.2	82.3	96.2	44.2	41.5	82.1
2	Ambegaon	69.5	68.2	84.2	13.3	14.1	4.5	21.0	22.6	2.9	84.1	83.0	96.3	33.8	30.2	74.9
3	Shirur	63.1	60.4	75.5	18.1	20.9	5.4	19.0	20.3	13.1	80.8	77.6	95.3	43.2	37.2	70.8
4	Khed	67.9	65.8	72.5	12.4	17.1	2.1	19.0	25.2	5.5	85.1	79.1	98.1	49.9	37.1	77.7
5	Mawal	84.4	80.1	89.8	7.7	11.6	2.9	9.3	14.4	2.9	90.2	85.6	95.9	64.2	45.8	87.0
6	Mulshi	73.6	75.9	62.5	9.5	10.9	2.9	19.5	22.0	7.1	89.7	88.1	97.5	49.3	45.1	70.2
7	Haveli	72.0	75.2	71.1	4.3	9.2	2.9	2.7	7.5	1.4	97.3	95.1	98.0	76.1	72.0	77.3
8	Pune City	84.0	70.8	84.1	2.2	6.4	2.2	1.1	0.7	1.1	98.3	98.7	98.3	86.3	74.6	86.4
9	Daund	55.5	50.5	82.3	21.8	25.1	4.2	9.2	9.9	5.9	81.7	79.1	95.6	38.1	32.2	70.2
10	Velhe	60.7	60.7	-	24.0	24.0	-	36.4	36.4	-	82.9	82.9	-	10.6	10.6	-
11	Bhor	82.4	81.0	94.2	9.7	10.4	3.6	38.3	42.7	1.4	90.7	90.3	94.3	33.8	28.5	79.0
12	Baramati	63.3	59.1	83.0	19.0	21.9	5.2	20.0	23.6	2.9	84.3	82.1	94.7	42.2	35.0	76.6
13	Indapur	50.3	48.9	69.4	26.4	27.9	6.6	10.3	10.7	4.7	69.8	68.0	94.1	23.8	20.8	65.6
<b>Pune District</b>		<b>74.7</b>	<b>66.3</b>	<b>79.5</b>	<b>7.8</b>	<b>17.1</b>	<b>2.6</b>	<b>7.8</b>	<b>18.9</b>	<b>1.6</b>	<b>92.7</b>	<b>83.3</b>	<b>98.0</b>	<b>67.9</b>	<b>41.7</b>	<b>82.6</b>

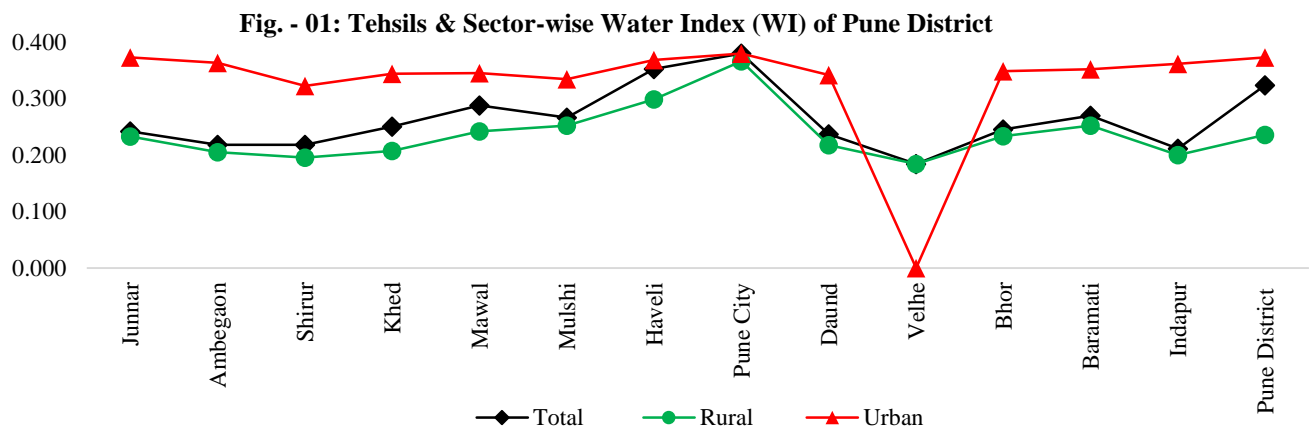
Source: Census 2011/Pune District (Note: T- Total, R- Rural, U-Urban)

Table -05 indicates that tehsils and sector-wise access of Other facilities, i.e., separate kitchen, bathrooms, electricity access, and clean cooking fuel in Pune district across thirteen tehsils. Other facilities which are explained above is the fifth key dimension of the Bare Necessities Index. Speaking about the access to separate kitchens, Bhor urban has 94.2%, it has highest and Indapur rural has 48.9%, it has lowest, as compared all thirteen tehsils. Looking at the overall Pune district total, rural and urban has 74.7%, 66.3% and 79.5% respectively. Access to no-bathroom facility Indapur rural has 27.9%, it has highest and Khed urban has 2.1%, it has lowest. Looking at the overall Pune district total, rural and urban has 7.8%, 17.1% and 2.6% respectively. Looking to access of bathroom facility Bhor total has 38.3%, it has highest and Pune City rural has 0.7%, it has lowest. Considering the overall Pune district total, rural and urban has 7.8%, 18.9% and 1.6% respectively. Looking to the access of electricity facility Pune City rural has 98.7%, it has highest and Indapur rural has 68.0%, it has lowest. Considering the overall Pune district total, rural and urban has 92.7%, 83.3% and 98.0% respectively. Looking at the use of LPG access Mawal urban has 87.0%, it has highest and Velhe total as well as rural has 10.6%, it has lowest. Considering the overall Pune district total, rural and urban has 67.9%, 41.7% and 82.6% respectively, as compared to all thirteen tehsils of Pune district.

**Table – 06**  
**Tehsils & Sector-wise Water Index (WI) of Pune District**

Sr. No.	Tehsil/ Sector	Water Index (WI)					
		Total	Rank	Rural	Rank	Urban	Rank
1	Junnar	0.243	8	0.233	7	0.374	2
2	Ambegaon	0.218	10	0.206	10	0.364	4
3	Shirur	0.219	11	0.196	12	0.323	12
4	Khed	0.251	6	0.208	9	0.344	9
5	Mawal	0.288	3	0.242	6	0.346	8
6	Mulshi	0.267	5	0.253	3	0.335	11
7	Haveli	0.353	2	0.299	2	0.369	3
8	Pune City	0.381	1	0.367	1	0.381	1
9	Daund	0.237	9	0.218	8	0.342	10
10	Velhe	0.184	13	0.184	13	-	-
11	Bhor	0.246	7	0.234	5	0.349	7
12	Baramati	0.270	4	0.253	4	0.353	6
13	Indapur	0.212	12	0.201	11	0.362	5
<b>Pune District</b>		<b>0.324</b>	<b>-</b>	<b>0.236</b>	<b>-</b>	<b>0.373</b>	<b>-</b>

Source: Authors Calculation/ from table - 01



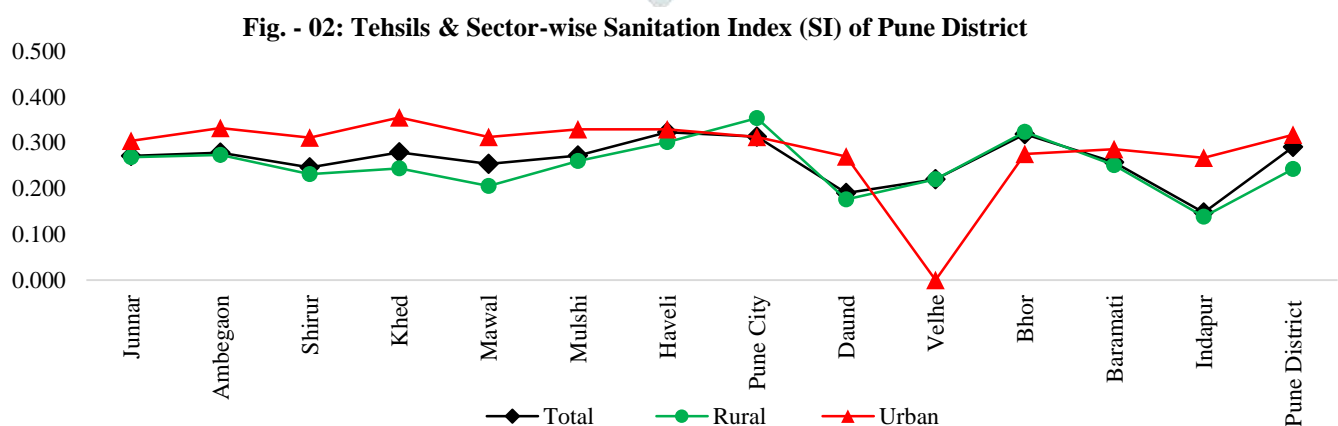
The clean and easy access to water is the primary basic need of each individual and, access to clean water is the first main dimension to evaluate the Bare Necessities Index of Pune district at tehsils level. There are five sub-indicators that have been selected for estimate Sanitation Index includes four positives and two negatives, such as Tap-treated covered well, tube/borewell water sources, location of the source i.e., within premises and away from premises.

Table – 06 & Fig. – 01 shows the tehsil and sector-wise the Water Index of Pune district across the thirteen tehsils. Looking at tehsil and sector-wise Water Index, Pune city total, rural and urban has calculated 0.381, 0.367 and 0.381 respectively which all highest and ranked 1<sup>st</sup>, but it all treated under very low category. While Velhe total and urban has 0.184 individually, Shirur has noted 0.323 which all lowest and ranked last, but it all observed under very low category. The overall sector-wise Water Index of the whole Pune district total, rural and urban as 0.324, 0.236, and 0.373 respectively, all existed under very low category. Shortly, the Water Index of all tehsils along with Pune district has counted under the very low category, it indicated inadequate access of clean water to people in Pune district. Sector-wise estimated Water Index of all tehsils and whole Pune district urban higher than total and rural, it treated the access of clean water to urban people is higher than total as well as rural people in Pune district.

**Table – 07**  
**Tehsil & Sector-wise Sanitation Index (SI) of Pune District**

Sr. No.	Tehsil/ Sector	Sanitation Index (SI)					
		Total	Rank	Rural	Rank	Urban	Rank
1	Junnar	0.271	7	0.269	5	0.304	8
2	Ambegaon	0.278	5	0.273	4	0.332	2
3	Shirur	0.246	10	0.231	9	0.311	7
4	Khed	0.279	4	0.244	8	0.355	1
5	Mawal	0.253	9	0.205	11	0.313	5
6	Mulshi	0.272	6	0.260	6	0.329	3
7	Haveli	0.323	1	0.301	3	0.329	4
8	Pune City	0.313	3	0.354	1	0.313	6
9	Daund	0.190	12	0.176	12	0.269	11
10	Velhe	0.220	11	0.220	10	-	-
11	Bhor	0.319	2	0.324	2	0.275	10
12	Baramati	0.257	8	0.251	7	0.286	9
13	Indapur	0.147	13	0.138	13	0.267	12
<b>Pune District</b>		<b>0.291</b>	<b>-</b>	<b>0.243</b>	<b>-</b>	<b>0.318</b>	<b>-</b>

Source: Authors Calculation/ from table - 02



Easily and well structural sanitation facility is the basic need of each individual and it played a vital role in public health and individual hygiene. Sanitation facilities are the second important dimension to evaluate the Bare Necessities Index of Pune district at tehsils level. There are five sub-indicators that have been selected for estimating the Sanitation Index includes such as access to a latrine, different structures and conditions of latrine which all positive indicators.

Table – 07 & Fig. – 02 indicates the tehsil and sector-wise Sanitation Index of the Pune district across the thirteen tehsils. Speaking about tehsil and sector-wise Sanitation Index, Haveli total has 0.323, Pune city rural has 0.354 and Khed urban has 0.355, which all highest and ranked 1<sup>st</sup> as compared to other tehsils, but it all observed under very low category. While Indapur total, rural and urban has recorded 0.147, 0.138 and 0.267 respectively it all highest and ranked last as compared to thirteen tehsils also which all treated under very low category.

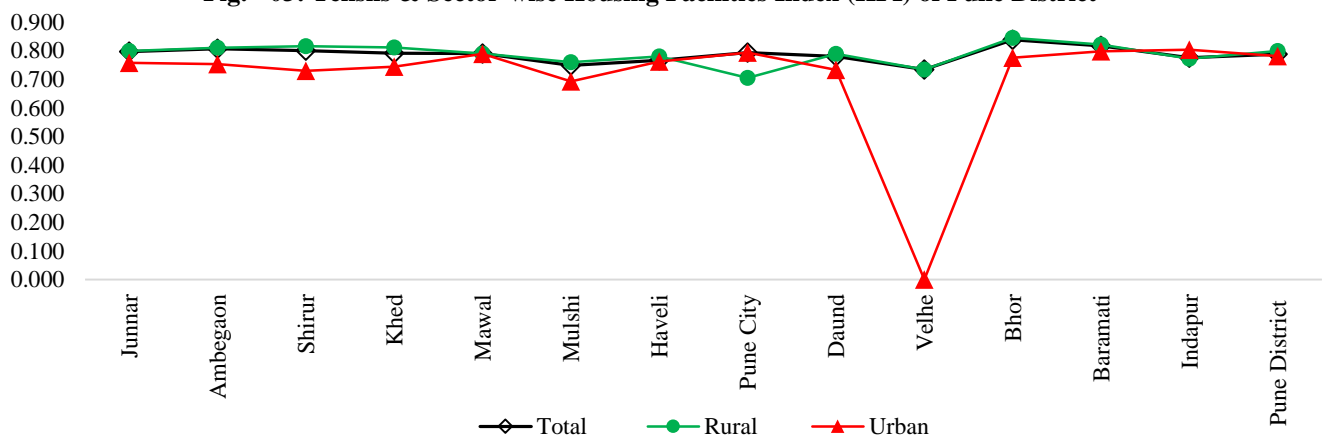
Considering at overall sector-wise Sanitation Index of the whole Pune district total, rural and urban as 0.291, 0.243, and 0.318 respectively, all existed under the very low category. Shortly, based on the estimated Sanitation Index all tehsils along with Pune district have consisted under the very low category, which specifies that inadequate access of well structural sanitation facilities to people in Pune district along with tehsils. Sector-wise estimated Sanitation Index of all tehsils and whole Pune district indicating that the Sanitation Index of urban was higher than a total and rural area, it treated access of sanitation facilities to urban people was higher than total and rural people in Pune district across the tehsils.

**Table – 08**  
**Tehsil & Sector-wise Housing Index (HI) of Pune District**

Sr. No.	Tehsil/ Sector	Housing Index (HI)					
		Total	Rank	Rural	Rank	Urban	Rank
1	Junnar	0.796	5	0.799	6	0.757	7
2	Ambegaon	0.806	3	0.810	5	0.753	8
3	Shirur	0.800	4	0.816	3	0.729	11
4	Khed	0.790	7	0.811	4	0.744	9
5	Mawal	0.790	8	0.790	7	0.789	4
6	Mulshi	0.748	12	0.760	11	0.692	12
7	Haveli	0.766	11	0.780	8	0.762	6
8	Pune City	0.793	6	0.705	13	0.793	3
9	Daund	0.780	10	0.789	9	0.733	10
10	Velhe	0.734	13	0.734	12	-	-
11	Bhor	0.837	1	0.844	1	0.775	5
12	Baramati	0.817	2	0.821	2	0.798	2
13	Indapur	0.775	9	0.772	10	0.804	1
<b>Pune District</b>		<b>0.787</b>	-	<b>0.798</b>	-	<b>0.781</b>	-

Source: Authors Calculation/ from table - 03

**Fig. - 03: Tehsils & Sector-wise Housing Facilities Index (HFI) of Pune District**



A good quality housing facility is a key element for ensuring a healthy individual as well as villages. Poor housing can lead to many health problems and it associated with infectious, stress, and depression, it also helps people stay healthy. The good quality housing facility is the third vital dimension to evaluate the Bare Necessities Index of Pune district at tehsils level. Three sub-indicators selected for estimating the Housing Index include such good structure house, Pucca house, and Owned house, it all positive indicators.

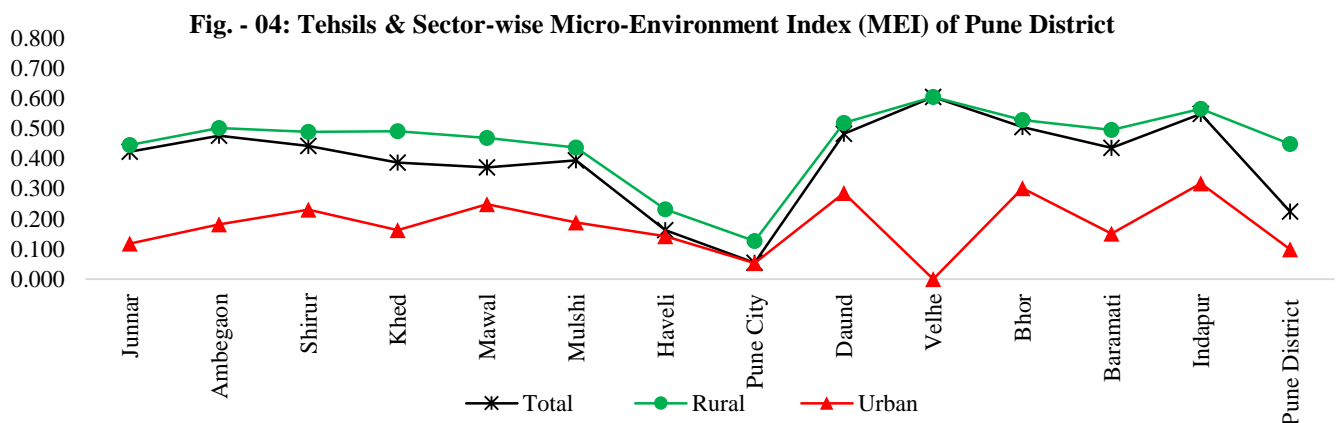
Table – 08 & Fig. – 03 indicates that tehsil and sector-wise progress of Housing Facilities Index of Pune district across the thirteen tehsils with rural-urban situation. The tehsil and sector-wise base Housing Facilities Index of Pune district revealed that, Bhor total (0.837), rural (0.844) and Indapur urban (0.804) has highest HFI, it all observed under very high category and it ranked 1<sup>st</sup> as compared to other tehsils. While Velhe total (0.734), Pune City rural (0.705) and Mulashi urban (0.692) recorded lowest and also it existed under medium category but it all ranked last during study period.

Looking at the overall sector-wise progress of Housing Facilities Index of whole Pune district total, rural and urban nearly calculated 0.787, 0.798 and 0.781 respectively, all existed under high category. But the progress of HFI of Pune district rural has higher than total and urban area. Briefly, Housing Facilities Index of Pune district revealed that all tehsils along with Pune districts rural and urban area have well-performed in HFI, but except Indapur, entire tehsils HFI of rural area was better than urban during study period.

Table – 09  
Tehsil & Sector-wise Micro-Environment Index (MEI) & of Pune District

Sr. No.	Tehsil/ Sector	Micro-Environment Index (MEI)					
		Total	Rank	Rural	Rank	Urban	Rank
1	Junnar	0.423	8	0.445	9	0.118	11
2	Ambegaon	0.476	5	0.502	5	0.181	7
3	Shirur	0.443	6	0.489	8	0.230	5
4	Khed	0.387	10	0.492	7	0.163	8
5	Mawal	0.371	11	0.469	10	0.249	4
6	Mulshi	0.395	9	0.437	11	0.188	6
7	Haveli	0.162	12	0.232	12	0.142	10
8	Pune City	0.054	13	0.126	13	0.053	12
9	Daund	0.482	4	0.519	4	0.286	3
10	Velhe	0.605	1	0.605	1	-	-
11	Bhor	0.505	3	0.528	3	0.302	2
12	Baramati	0.435	7	0.495	6	0.151	9
13	Indapur	0.549	2	0.566	2	0.317	1
<b>Pune District</b>		<b>0.224</b>	<b>-</b>	<b>0.449</b>	<b>-</b>	<b>0.099</b>	<b>-</b>

Source: Authors Calculation/ from table - 04



Micro-environment facilities which consist of drainage connectivity, cooking fuel, etc., are the least requirements to each household to sustain lifespan. Micro-environment facilities have played important role in health and individual hygiene as well as is also supporting for the make and maintain good health. In Micro- Environment which is an important domain of BNI, there are three sub-indicators that have been selected for estimating the MEI consist no-drainage connectivity, Open drainage and use of dirt fuel i.e., firewood which all negative indicators.

Table – 09 & Fig. – 04 shows the tehsil-wise improvement of Micro-Environment Facilities Index of rural-urban areas of Pune district. Micro-Environment Facilities Index of Vehle total (0.605) and rural (0.605) has highest, both come under medium category and it ranked 1<sup>st</sup> position. While Pune City total (0.054), rural (0.126), and urban (0.053) recorded lowest and also under very low category during the study period. Seeing about overall sector-wise improvement in Micro-Environment Facilities Index of Pune district total (0.224), rural (0.449) and urban (0.099) have lowest respectively, it all existed under very low and low category. But the MEFI of Pune district rural has higher than the total and urban during the study period. Shortly, overall Pune district have performed weakly in MEFI during the study period.

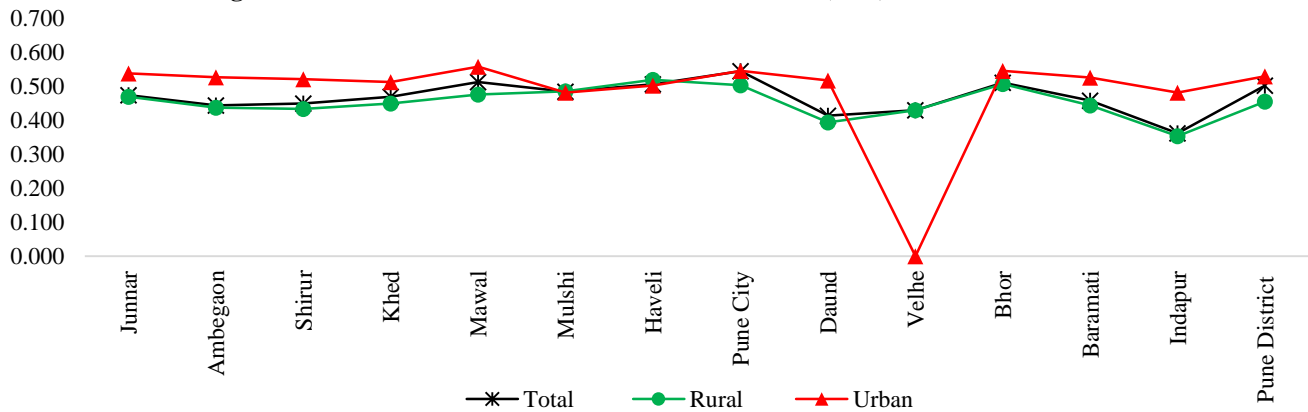
Table – 10  
Tehsil & Sector-wise Other Facilities Index (OFI) of Pune District

Sr. No.	Tehsil/ Sector	Other Facilities Index (OFI)					
		Total	Rank	Rural	Rank	Urban	Rank
1	Junnar	0.473	6	0.468	6	0.537	4
2	Ambegaon	0.443	10	0.436	9	0.526	5
3	Shirur	0.448	9	0.433	10	0.520	7
4	Khed	0.469	7	0.449	7	0.512	9
5	Mawal	0.512	2	0.475	5	0.557	1
6	Mulshi	0.483	5	0.484	4	0.480	12
7	Haveli	0.505	4	0.518	1	0.501	10
8	Pune City	0.544	1	0.502	3	0.544	3
9	Daund	0.413	12	0.394	12	0.516	8
10	Velhe	0.429	11	0.429	11	-	-
11	Bhor	0.510	3	0.506	2	0.545	2
12	Baramati	0.458	8	0.443	8	0.525	6
13	Indapur	0.361	13	0.353	13	0.481	11
<b>Pune District</b>		<b>0.502</b>	<b>-</b>	<b>0.455</b>	<b>-</b>	<b>0.529</b>	<b>-</b>

Source: Authors Calculation/ from table - 05



Fig. - 05: Tehsils & Sector-wise Other Facilities Index (OFI) of Pune District



To estimate each tehsil Other Facilities Index of Pune district, there are five different other facilities which consist of bathing facility, electricity connection, separate kitchen, use of modern cooking fuel etc., have selected. Other facilities have played unique role for making and maintain decent standard of living every people. Hence, the other facilities which are mentioned above a significant domain of BNI, it comprises four positive and one negative indicators.

Table – 10 & Fig. – 05 observed that tehsil-wise Other Facilities Index of rural-urban areas in Pune district. The Other Facilities Index (OFI) of Pune city total (0.544), Haveli rural (0.518) and Mawal urban (0.557) have highest, it all come under medium category and it ranked 1<sup>st</sup> position. While Indapur total (0.361), rural (0.353), and Mulshi urban (0.480) noted lowest and also under low category during the study period. Observing overall sector-wise progress in Other Facilities Index, the Pune district total (0.502), and urban (0.529) has recorded medium and Pune district rural (0.455) has lowest category respectively. But the overall OFI of Pune district urban was higher than the total and rural. Shortly, all tehsils of the Pune district total and rural have performed weakly in OFI during the study period.

Table – 11  
Tehsil & Sector-wise Bare Necessities Index (BNI) of Pune District

Sr. No.	Tehsil	Total	Rank	Rural	Rank	Urban	Rank
1	Junnar	0.441	5	0.443	4	0.418	10
2	Ambegaon	0.444	3	0.445	3	0.431	4
3	Shirur	0.431	9	0.433	9	0.423	7
4	Khed	0.435	6	0.441	5	0.424	6
5	Mawal	0.443	4	0.436	7	0.451	1
6	Mulshi	0.433	8	0.439	6	0.405	12
7	Haveli	0.422	10	0.426	10	0.421	9
8	Pune City	0.417	12	0.411	12	0.417	11
9	Daund	0.420	11	0.419	11	0.429	5
10	Velhe	0.434	7	0.434	8	-	-
11	Bhore	0.483	1	0.487	1	0.449	2
12	Baramati	0.447	2	0.453	2	0.422	8
13	Indapur	0.409	13	0.406	13	0.446	3
<b>Pune District</b>		<b>0.426</b>	<b>-</b>	<b>0.436</b>	<b>-</b>	<b>0.420</b>	<b>-</b>

Source: Authors Calculation/ From Table-6 to10

Fig. 06: Tehsil & Sector -wise Bare Necessities Index (BNI) of Pune District

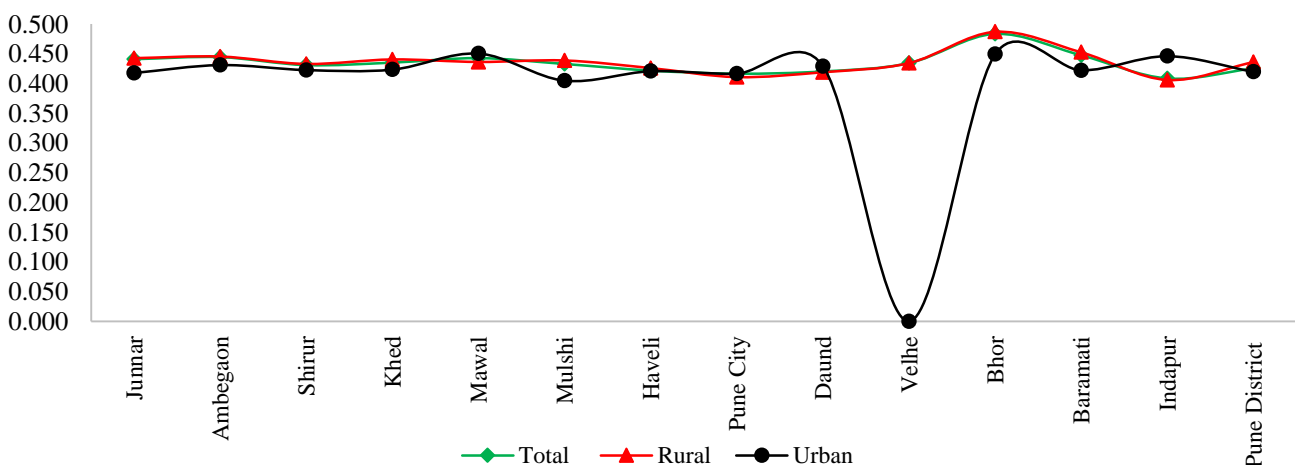


Table – 11 & Fig. – 06 indicates the tehsil and sector-wise progress of the Bare Necessities Index in the Pune district which has been calculated by five main domains and its different 21 indicators related to basic necessities. The Bare Necessities Index (BNI) of Bhore total (0.483) and rural (0.487), Mawal urban (0.451) having highest, but it all under low category and it ranked 1<sup>st</sup> position. While Indapur total (0.409), rural (0.406), and Mulashi urban (0.405) noted closely lowest and it all under the low category as compared to other tehsils during the study period. Seeing the overall progress in Bare Necessities Index of Pune district total (0.426), rural (0.436) and urban (0.420) has recorded low category respectively. The BNI of Pune district rural has higher than the total and urban during the study period. Briefly, as per the estimation of tehsil-wise BNI of the Pune district, all tehsils have been performed weak in the Pune district for the study period.

#### V. FINDINGS AND CONCLUDING REMARKS:

The tehsil-wise progress in Bare Necessities Index (BNI) of Pune district has been observed, Bhore tehsil have found highest BNI ranking in total (0.483), rural (0.487) areas, and Mawal urban (0.451), but it all observed under low category. Indapur tehsil total (0.409) and rural (0.406) having the lowest BNI, also both under the low category of BNI in Pune district. The overall progress in BNI of Pune district total (0.426), rural (0.436), and urban (0.420) has the low category of BNI. But it observed that the BNI of Pune district rural has higher than the total and urban area during the study period. As per the tehsil-wise estimated BNI, all tehsils along with Pune district have performed weakly in BNI for the study period.

This study concluded that the Bare Necessities Index (BNI) is a matrix of different components of basic necessities, it can uniquely work as a powerful instrument to measure quality access of bare/basic necessities which are required to every human. As a policy instrument, BNI identifies not only quality access of basic necessities but also inequalities in access to bare necessities between urban and rural areas from different income groups. Instant attention of policy makers for the improvement in BNI is needed and assessing economic development using the "basic needs" approach.

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