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Pattern of Infrastructural Facilities in Tribal District - Banswara

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Abstract

Development implies creating conditions in a given society for wholesome living of its members. Logically it stands for the rise in the standard of living of the weaker sections, the freedom from poverty and greater participation of all categories and availing maximum infrastructural facilities.

The development of infrastructural facilities is directly related to population and area threshold.

A sufficient quantity of people, as well as an area, is required for the generation of infrastructural facilities. The higher the level of specification of the facilities, the more population and area are demanded.

Keywords

Composite Index Method, Level of Development.

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Introduction

Tribal areas are facing a problem- the small size of settlement (regarding population and area) so infrastructural facilities are not developed up to satisfaction level. People have to depend on the town or tehsil headquarters not only for specified and higher-level facilities but also for basic amenities. This leads to a poor level of development and isolation in the race for progress.

In order to improve the life of tribal people, the development of proper infrastructure is quite necessary.

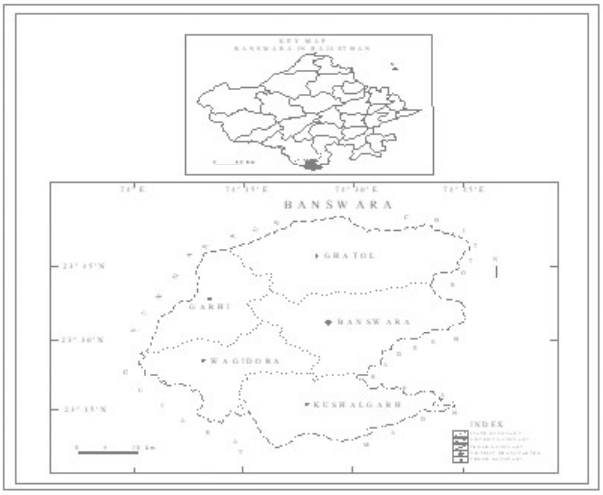
Study Area

Tribal District Banswara is the focal point of the study. It is situated in the southernmost part of the state. It extends from 23° 11' N to 23° 56' N and 74° E to 74° 47' E . The district is surrounded by Udaipur, Chittorgarh in the North and North East, M.P. state in the East and S. E. and Gujarat state in S. W. and Dungarpur district in W.(Fig.1).

The total population of the district is 15,01,589 (Census, 2001) out of which 72.3% is the tribal population so the district is tribal dominant district.

The district is located at 350 mts above mean sea level, varying from 510 mts in the east, 610 mts in the south, 440 mts in the north and 160 mts in the west. Central and western portions are cultivable . There is scattered range of Aravallis in the eastern half, but none of them has of a great height. Average elevation decreases in the west cause the eastern portion comprises the Deccan Trap. In the west, River Mahi along with its tributaries Anas and Chap, has reduced the average relief.

The district has five rivers- Mahi, Anas, Haran, Airav and Chap.



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Methodology

In order to access the level of development in the tribal district, it will be worthwhile to discuss the various facilities available in the district-

(1) Transportation

Well, a connected transport system is the blood circulating in the veins of a developed economy. Unless any center is connected with outer centers or even intracentres, it remains isolated regarding development.

According to the Census,2001 total road length of the district is 1756 km. The following table shows the changing pattern of road length in the district-

Table-1Changing Pattern of Road Length (in Km.)

Yr.	N.H.	Painted Road	Metalled Road	Graveled	Kuccha	Total
1996-97	-	1381.90	142.30	-	146.9	1671.10
1997-98	-	1434.65	112.80	-	136.90	1684.35
1998-99	-	1460.00	109.50	1.00	147.50	1718.00
1999-00	-	1475.00	109.50	1.00	138.50	1724.00
2010-11	-	1489.00	127.50	1.00	138.00	1756.00

Source : Directorate of Economics and Statistics, Rajasthan

So presently the district has 127.50 km. Metalled road, which is required to be increased. Besides this, 45% of villages are yet to be connected by the road. The district is one of the few districts of Rajasthan, not served by railways. It is another big interruption in the way of progress.

(2) Educational Facilities

The current position of the educational facilities is not satisfactory. The basic cause is a lack of awareness among tribal people.

The following table-2 shows the population and area served by each educational facility such as Primary, Middle, Sec. and Sr. Sec. Schools, Colleges and Other educational institutions include technical and professional institutes such as ITI, etc.

It is revealed from the table that the district has more number of primary schools. As the category of educational institutions increases, the total population and area served, also increases, showing decreasing no. of institutions.

(3) Medical Facilities

According to the Census, 2001 , the district has 416 Allopathic Medical institutions, whereas the state has 12247 Allopathic Medical centers.

The following table shows the population and areal threshold of medical facilities

Table-2 Population And Areal Threshold Of The Educational Institutions In The District

Sr. No.	Teshsil	Population served by each Primary School	Area Served by each Primary School (in km.)	Population served by each Middle School	Area served by each Primary School (in km.)	Population served by each Sec./Sr. Sec. School	Area served by each Sec./Sr. Sec. School (in km.)	Population served by each College	Area served by each College (in km.)	Population served by each other Educational Institutions	Area served by each Other Educational Institutions (in km.)
1.	Ghatol	813	3.4	2805	11.82	11119	46.82	-	-	77833	328.00
2.	Garhi	982	2.8	2133	6.10	6512	18.63	-	-	35352	101.15
3.	Banswara	1037	3.2	3789	11.80	14282	44.43	123773	385.06	33756	105.02
4.	Wagidora	823	2.45	2823	8.41	8725	26.00	-	-	57587	171.50
5.	Kushalgarh	707	2.6	3731	13.74	20252	74.60	283534	1044.45	94511	348.15
	District	**861**	**2.9**	**2985**	**10.01**	**10803**	**36.23**	**375397**	**1259**	**50053**	**167.9**

Table-3 Population And Areal Threshold Of Medical Facilities In The District

Sr. No.	Teshsil	Population served by each Primary Health Sub-Centre	Area served by each Primary Health Sub-Centre (In Km.)	Population served by each Primary Health Centre	Area served by each Primary Health Centre (in km.)	Population served by each Dispensary	Area served by each Dispensary (in km.)	Population served by each Hospital	Area served by each Hospital (in km.)	Population served by other medical facilities	Area served by other medical facilities (in km.)
1.	Ghatol	6105	25.72	20755	87.46	31133	131.20	103777	437.30	18314	77.2
2.	Garhi	4499	12.87	27496	78.67	41245	118.01	123734	354.03	82489	236.02
3.	Banswara	8841	27.50	33756	105.02	46415	144.4	185660	577.60	3094	96.27
4.	Wagidora	4799	14.82	14397	42.87	143968	428.67	143968	428.67	41134	122.50
5.	Kushalgarh	6033	22.22	35442	130.60	31504	116.05	141767	522.23	21810	80.34
	District	**5889**	**19.75**	**23835**	**79.95**	**42903**	**144.00**	**136508**	**458.00**	**28877**	**96.86**

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Primary health centers and sub-centers are more in number but hospitals and dispensaries are in miserable condition. The district has no specialized hospital. Habitants have to move towards Udaipur, Jaipur or Ahmedabad for major problems.

(4) Other Facilities

Communication, Banking, Marketing and co-operative societies are available in the district. But these facilities are specially located at the tehsil or district headquarters. Remote villages are still deprived of the facilities.

The level of development in the district depends upon the distribution of said infrastructural facilities.

The first Principle Component Method has been used to access the quality of life in the district, developed by H. Hotelling (1933) .

The following Indicators have been taken-

1. Population served by each Educational facility.
2. Area served by each Educational facility.(In km.)
3. Population served by each Medical facility
4. Area served by each Medical facility (In km.)
5. Population served by each Retail/ Petty shop.
6. Area served by each Retail/Petty shop(In km.)
7. Detour Index
8. Population served by each Post Office.
9. Area served by each Post Office (In km.)
10. Population served by each Telegraph Office
11. Area served by each Telegraph Office (In km.)
12. Population served by each Banking Facility
13. Area served by each Banking Facility (In km.)
14. Population served by each Co-Operative Society
15. Area served by each Co-Operative Society (In km.)

It can be observed from the above values that these indices are inversely related to the quality of life in human settlement i.e. lesser is the value of indices, the better is the infrastructural condition and vice versa.

Detour Index is the ratio of Road distance and Direct distance-

D.I.= Rd / Dd X 100

Rd= Actual Road Distance

Dd= Direct Road Distance

Thus minimum value shows, maximum connectivity.

So these indicators have been taken (as per Census, 2001) and shown in Table 4

Table 4 Development Indicators of Infrastructural Facilities in Banswara District.

Sr. No.	Tehsil	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1.	Ghatol	483	2.03	3243	13.66	64	17	155.58	5814	24.75	103777	437.3	22238	93.71	4578	19.30
2.	Garhi	527	1.51	3300	9.44	12	03	130.70	5265	15.06	82489	236.02	14557	41.65	3055	8.74
3.	Banswara	676	2.10	4951	15.40	55	14	117.40	10036	31.22	74264	231.04	26523	82.51	2526	7.86
4.	Wagidora	568	1.70	3164	9.42	17	07	142.11	5876	17.50	71983	214.34	19196	57.16	5051	15.04
5.	Kushalgarh	560	2.06	3589	15.22	57	15	140.00	8339	30.72	283534	1044.45	23628	87.04	4232	15.60
	Mean	562.8	1.88	3649.4	12.23	41	11.2	129.2	7078	23.85	104529.4	432.63	21228.4	72.41	3888.4	13.31
	S.D.	64.03	0.236	666.43	2.4	21.9	5.31	9.94	1817.76	6.63	53907.30	316.64	4085.3	19.74	948.25	4.35

The following steps have been followed for finding the level of development-

1. On the basis of 15 indicators of 5 tehsils, a Correlation Matrix (R) has been constructed (Table 2)
2. For each column sum of the correlation is obtained. It is referred to as Ua_1.
3. A normalization factor NF_1 is obtained by the square root of the sum of squares of Ua_1.
4. Normalized Vector Va_1 is obtained by using the formula : $Va_1 = Ua_1 / NF_1$
5. The elements of normalized column sums (Va_1) are multiplied by their respective coefficients in various rows of the correlation matrix one by one shorting with the first row and ending with the last row of the matrix and the sum of these products put at the end of the row. The resultant vector is referred to as Ua_2. With the help of the Ua_2 normalizing factor NF_2 has been found i.e. 7.26

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Table 5 Correlation Matrix(R)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Ua_2
1	+1.00	+0.5	+0.4	+0.1	-0.3	-0.3	+0.4	+0.8	+0.5	-0.6	-0.6	+0.5	-0.3	-0.3	-0.7	0.221
2	+0.5	+1.00	+0.7	+0.8	+0.6	+0.6	-0.3	+0.85	+1.00	+0.2	+0.2	+1.00	+0.6	+0.4	-0.7	2.456
3	+0.4	+0.7	+1.00	+0.7	+0.1	+0.1	-0.3	+0.6	+0.7	+0.3	+0.3	+0.7	+0.1	-0.9	-0.5	1.528
4	+0.1	+0.8	+0.7	+1.00	+0.6	+0.6	-0.8	+0.5	+0.8	+0.3	+0.3	+0.8	+0.6	-0.6	-0.1	2.294
5	-0.3	+0.6	+0.1	+0.6	+1.00	+1.00	-0.5	+0.3	+0.6	+0.6	+0.6	+0.6	+1.00	+0.2	+0.7	2.412
6	-0.3	+0.6	+0.1	+0.6	+1.00	+1.00	-0.5	+0.3	+0.6	+0.6	+0.6	+0.6	+1.00	+0.2	+0.7	2.412
7	+0.4	-0.3	-0.3	-0.8	-0.5	-0.5	+1.00	-0.1	-0.6	-0.3	-0.3	-0.3	-0.5	+0.4	-0.1	-1.413
8	+0.8	+0.85	+0.6	+0.5	+0.3	-0.3	-0.1	+1.00	+0.85	-0.1	-0.1	+0.85	+0.3	-0.3	-0.3	+1.741
9	+0.5	+1.00	+0.7	+0.8	+0.6	+0.6	-0.3	+0.85	+1.00	+0.2	+0.2	+1.00	+0.6	+0.4	-0.7	+2.456
10	-0.6	+0.2	+0.3	+0.3	+0.6	+0.6	-0.3	-0.1	+0.2	+1.00	+1.00	+0.2	+0.6	-0.1	+0.6	+1.472
11	-0.6	+0.2	+0.3	+0.3	+0.6	+0.6	-0.3	-0.1	+0.2	+1.00	+1.00	+0.2	+0.6	-0.1	+0.6	+1.472
12	+0.5	+1.00	+0.7	+0.8	+0.6	+0.6	-0.3	+0.85	+1.00	+0.2	+0.2	+1.00	+0.6	+0.4	-0.7	+2.456
13	-0.3	+0.6	+0.1	+0.6	+1.00	+1.00	-0.5	+0.3	+0.6	+0.6	+0.6	+0.6	+1.00	+0.2	+0.7	+2.412
14	-0.3	+0.4	-0.9	-0.6	+0.2	+0.2	+0.4	-0.3	+0.4	-0.1	-0.1	+0.4	+0.2	+1.00	+0.7	+0.285
15	-0.7	-0.7	-0.5	-0.1	+0.7	+0.7	-0.1	-0.3	-0.7	+0.6	+0.6	-0.7	+0.7	+0.7	+1.00	+0.241
Ua_1	+1.1	+7.45	+4.00	+5.6	+7.1	+7.1	-2.3	+5.45	+7.45	+4.5	+4.5	+7.4	+7.1	+1.6	+2.6	
Va_1	+0.05	+0.37	+0.20	+0.30	+0.35	+0.35	-0.11	+0.30	+0.37	+0.22	+0.22	+0.37	+0.35	+0.08	+0.13	

6. Now to find out the First Principal Component, various elements of vector Va_1 are multiplied with the square root of NF_2 i.e. 2.70. The products constitute the elements of the First Principal Component F_1.(Table 3)

7. With the help of the First Principal Component, Eigenvalue has been found, which is the sum of the square of F_1.
8. Eigen Vector (w) corresponding to the Eigenvalue for each variable has been calculated. With the help of an eigenvector, the relative importance of each variable has been found. More the value of the eigenvector, the more important of that function.

Table 6 Extraction of First Principal Component (F_1) and Eigen Vector(W)

Va_1	$\sqrt{N.F._2}$ $\sqrt{7.26}=2.70$	First Principal Component (F_1) $Va_1 \times \sqrt{N.F._2}$	Eigen Vector (W) $\frac{F_1 \times 10}{\sqrt{EV}}$
+0.05	2.70	+0.135	+0.44
+0.37	2.70	+1.00	+3.28
+0.20	2.70	+0.54	+1.77
+0.30	2.70	+0.81	+2.66
+0.35	2.70	+0.95	+3.11
+0.35	2.70	+0.95	+3.11
-0.11	2.70	-0.30	-0.98
+0.30	2.70	+0.54	+1.77
+0.37	2.70	+1.00	+3.28
+0.22	2.70	+0.60	+1.97
+0.22	2.70	+0.60	+1.97
+0.37	2.70	+1.00	+3.28
+0.35	2.70	+0.95	+3.11
+0.08	2.70	+0.22	+2.36
+0.13	2.70	+0.35	+1.15
	Eigen Value	+9.345	

9. A higher Eigen Vector shows higher importance of that variable. The percentage of Villages having different facilities with Eigen Vector more than +1.00 shows relatively more importance.
10. At last Composite Index Value for each district has been found by doing a total of standardized values for each variable with multiplication of their eigenvector.
11. Where standardized values, are assessed by extracting each value with its mean and dividing with its standard deviation.
12. Then the gross value is found by summing up the standardized values of each Tehsil. This gross value is divided by the total no. of variables i.e. 15, which shows the Composite Index Values of every Tehsil.

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13. High Composite Index Value shows, a higher level of development.(Table:7)

Table - 7 Composite Index Value, Standardized Values

Sr. No.	Tehsils	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	C.I. Values
1.	Ghatol	-0.55	+2.085	-1.080	+1.585	+3.266	+3.399	+1.343	-1.172	+0.445	-3.441	+0.03	+0.811	+3.34	+1.716	+1.60	+0.89
2.	Garhi	-0.25	-5.142	-0.928	-3.092	-4.118	-4.806	-0.148	-1.765	-4.349	-0.805	-1.223	-5.356	-4.846	-2.074	-1.208	–2.6
3.	Banswara	+0.77	+3.058	+3.457	+3.513	+1.988	+1.641	+1.163	+2.880	+3.646	-1.106	-1.254	+4.251	+1.60	-3.40	-1.44	+1.384
4.	Wagidora	+0.036	-2.502	-1.289	-3.114	-3.408	-2.462	-1.273	-1.170	-3.141	-1.190	-1.358	-1.632	-2.40	+2.90	+0.45	–1.44
5.	Kushalgarh	-0.02	+2.502	-0.160	+1.097	+2.272	+2.227	-1.065	+1.228	+3.40	+6.544	+3.81	+1.93	+2.305	+0.85	+0.605	+1.83

Level of Development in Banswara District

On the basis of Composite Index Value, all five tehsils can be categorized into three categories-

1) Average Level of Development

This category includes Garhi Tehsil and Wagidora Tehsil. Garhi Tehsil is leading with the least Composite Index Value i.e.-2.6. It indicates that the Tehsil has a higher level of development in comparison to other tehsils. The probable cause is its plain feature which helps it to groom. It has all the facilities more in amount which causes, higher level of development.

Tehsil Garhi is followed by Wagidora Tehsil with the Composite Index Value –of 1.44. This Tehsil is the Doab of Mahi and Anas Rivers. So it has an average level of development.

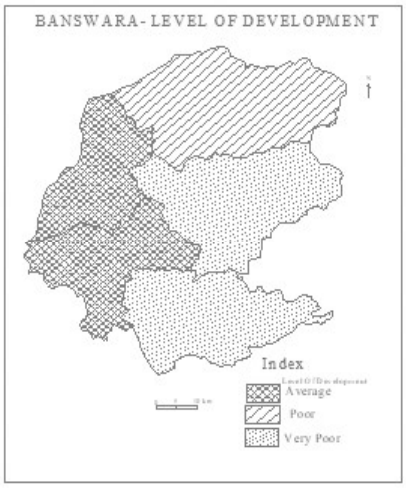
2) Poor Level of Development

Ghatol Tehsil has a poor level of development with a +0.89 Composite Index Value. There is an imbalanced trend in the tehsil. Ghatol Panchayat Samiti has an average level of facilities but Peepalkhoont Panchayat Samiti, being a hilly area, is deprived of amenities. Thus the total level of development of the tehsil is considered as poor, because Peepalkhoont has a hilly area so it is less developed.

3) Very Poor Level of Development

Banswara has a very poor level of development (with the Composite Index Value of +1.384) Banswara is presenting very poor level of development, because Talwara Panchayat Samiti shows good trend of development but is is decreased due to Peepalkhoont Panchayat Samiti, having low level of development.

Tehsil Kushalgarh shows the least development (with the Composite Index Value of +1.83) the physical barrier of plateau nature so it acquires the least transportation development, causes less availability of infrastructural facilities, and causes the least development level.



Conclusion

Thus it is revealed that the district is backward in comparison to other districts. The most important factor behind this bitter fact, is the insufficient transport connectivity to other states and districts. As we know that Transport is the soul and heart of the development. There is an absence of railways in the district, resulting in no industrial development as well.

Near about 70% of the villages are far from the road so deprived of the facilities. These villages are far from the development. This generates unequal development in the district.

Another dark side is the unequal distribution of facilities. The facilities are chiefly agglomerated in the areas, which are already developed to an extent, such as Tehsil and district headquarters or villages having more population, but the inhabitants of remote villages, far from the connectivity, untouched by the facilities, are still spending their lives in the thorough dark of backwardness.

So in this nick of time, it is required to develop the Transport Webb and to establish more infrastructural facilities in the remote and deprived villages and to include them in the flux of development, So the district may rise.

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