ISSN: 2278-4632
Vol-10 Issue-5 No. 15 May 2020

Kolhapur District Transport Development vis-a-versa Regional Development

Shri. Sanjay Salokhe
Assistant Professor,
Department of Geography
Bhogawati Mahavidyalaya, Kurukali

Dr.A. S. Patil
Associate Professor
Department of Geography
Chh. Shivaji College, Satara

Abstract

Transport has played an indispensable part in the growth of modern socio-economic system and now at as controller of socio-economic and regional development. The present chapter has been designed to discuss the role of transport in socio-economic and regional development.Theobjects of present study are to (i) compute aggregate transportation score (ATS) and composite index of development (CID) in each tehsil of Kolhapur district, and (ii) to find out the relationship between transport network development and levels of regional development. All the twelve tehsil have been calculated separately for each variable according to their aggregate transportation score and composite index of development. Transport and regional development is closely related to each other. The correlation coefficient between levels of regional development and transport network development is 0.80, which is statistically high. In this study to find that four out of twelve tehsil of Kolhapur district recorded high road network development and high level of regional development. In the same way we find that five out of twelve tehsil have low level of regional development and moderate level of road network development. There are one tehsil where level of regional development and road network development is both low. This means that in two other tehsil, the level of road network development do not correspond with their levels of regional development.

Key word: Aggregate Transportation Score, Composite Index of Development.

Introduction

Transport has played an indispensable part in the growth of modern socio-economic system and now at as controller of socio-economic and regional development. The present chapter has been designed to discuss the role of transport in socio-economic and regional development. The relationship between transport and socio-economic and regional development is a matter of practical as well as theoretical importance, and one that has

ISSN: 2278-4632
Vol-10 Issue-5 No. 15 May 2020

received considerable attention over many years in both advanced and developing countries. It is also on extremely topical and developing countries. Economists seek to explain how transport infrastructure development and improvements can be included in the theories of regional socio-economic growth. The geographer is more concerned with the spatial implications of such developments and their impact upon the activities in a particular region. In fact, the degree of development of the transport network in any area is a factor of crucial significance influencing political, economic and social progress in every stage of national and regional development planning. Hoyle (1973) has written. In the advanced countries, much attention was paid to transport innovation during the formative years of industrial growth. Today new strategies of economic planning require the modification or renewal of inherited transport systems. In the less developed countries there is widespread concern for transport in the context of the desire to promote rapid economic development. Although, transport is the focus of attention to regional planners, but difference of opinion exist regarding transport as a fundamental prerequisite for economic development.

Study Area:

Kolhapur district is situated in the extreme southern part of Maharashtra State. It lies between 15^{o} 43' and 17^{o} 17' north latitudes and 73^{o} 40' and 74^{o} 42' east longitudes.It is surrounded by Sangli district to the north, Karnataka State to the east and south and Ratnagiri and Sindhudurg districts to the west. The Sahyadri ranges to the west and Varna River to the north form the natural boundaries. The shape of district is triangular; base of triangular is west side and two edges from north-east and south-east direction. District north and south side are narrow but western side is so wide. The district has an area of 7,685.00 sq km and a population of 3876001 populations as per census 2011. While the geographical area of the district accounts for 2.5 percent of the total area out of the Maharashtra State.

The density of population is 504 persons per sq km Among the 35 districts of the State, the district ranks 20^{th} in terms of area as per 2011 census. The headquarters of the district is at Kolhapur, a city with a population of 549236 (2011) Census. Kolhapur was the capital of the former Kolhapur State, a premier State of the Deccan and was also the seat of the Residency for Deccan States.

ISSN: 2278-4632
Vol-10 Issue-5 No. 15 May 2020

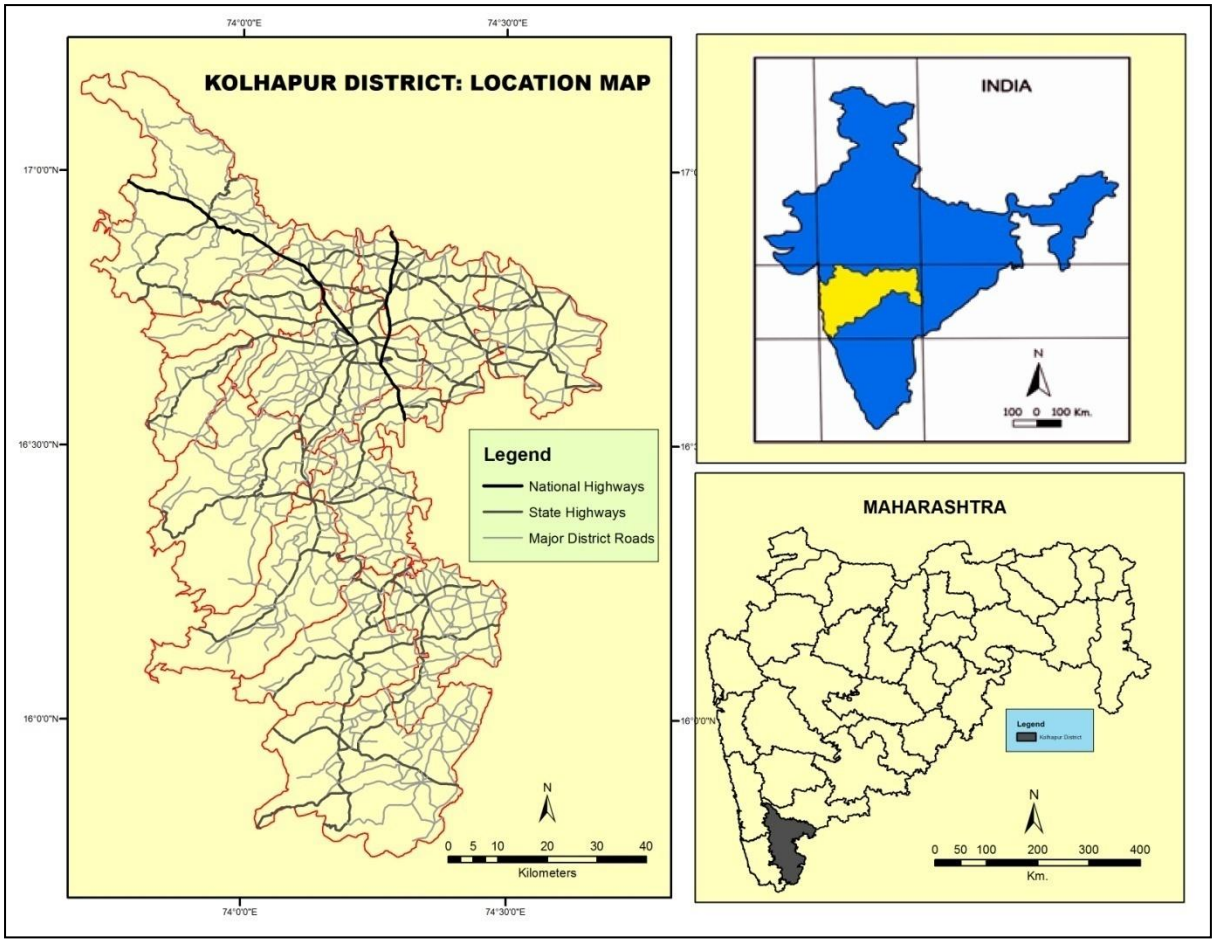

Fig. No 1

It derives its importance from its past political connections and its present position as a great commercial, religious, cultural and educational centre. It is well linked both by road as well as by rail.The district has an area of 7,685.00 sq km and a population of 2989507 (1991), 3523162 (2001) and 3876001 population as per census 1991, 2001 and 2011.While the geographical area of the district accounts for 2.5 percent of the total area out of the Maharashtra State.

Objective

1. To compute Aggregate Transportation Score, Composite Index of Development in each tehsil of study area.

2. To find out the relationship between transport network development and levels of regional development.

ISSN: 2278-4632
Vol-10 Issue-5 No. 15 May 2020

Database And Methodology:

In present research paper is based on secondary datawhich is collected from Socio Economic Abstract of Kolhapur District, Director, Ground water survey and Development Agency, Government of Maharashtra and District census handbook 2011.GIS mapping techniques is used for distribution of road network. Besides this, few information and secondary data regarding the present research work have been collected from the books, journals, reports, miscellaneous sources, published, and unpublished sources.

The transport development relationship is essentially a two-way interaction process and the results of the interaction depend upon the type of economy involved and upon the level of development at which transport improvements are affected (Hoyle, 1973). In the present case for identify the transport development (roads), an Aggregate Transport Score technique has been applied. With the help of 17^{th} indicators, the level of development has been identified. It has been calculated in two steps, in the first step the level of development of tehsil in terms of discrete variable and then in second step integration of the values obtained to give a composite index of development taking the entire variable in to account.

The co-efficient of a tehsil in terms of a single variable is expressed as,

$$CDI = \frac{Pi}{PI} \times 100$$

Where,

CDI = the Coefficient of development for variable, i

Pi = Percentage of variable i, in the area unit (Tehsil),

PI = Mean percentage of variable i, in study region (District).

$$CID = \frac{CDI_1 + CDI_2 + CDI_3 \ldots\ldots\ldots CDI_n}{N}$$

Where,

CID = Composite index of development

CDI_1 = the Coefficient of development for variable 1

N = Number of variables

ISSN: 2278-4632
Vol-10 Issue-5 No. 15 May 2020

Anlytical Discussion And Results

Levels Of Development Of Transportation Facility

The concept of Aggregate Transportation Score is postulated Mukharji (1974). With the help of this the development levels of transportation facility was calculated. The aggregate transportation score was calculated and presented.

Table No 1

Tehsil Wise Values of Aggregate Transportation Score

Sr. No	Tehsil	Road Density	Alpha Index	Beta Index	Gamma Index	Total Score	**ATS**
1	Shahuwadi	0.74	0.28	1.45	0.53	3	**0.75**
2	Panhala	1.18	0.43	1.8	0.62	4.03	1.01
3	Hatkanangale	1.89	0.5	1.94	0.67	5	1.25
4	Shirol	1.42	0.65	2.18	0.77	5.02	1.26
5	Karvir	1.88	0.49	1.95	0.66	4.98	1.25
6	Bavda	0.67	0.33	1.55	0.57	3.12	**0.78**
7	Radhanagari	0.93	0.49	1.9	0.67	3.99	**1.00**
8	Kagal	1.59	0.63	2.2	0.76	5.18	1.30
9	Bhudargad	0.93	0.3	1.56	0.54	3.33	**0.83**
10	Ajra	0.82	0.35	1.64	0.57	3.38	**0.85**
11	Gadhinglaj	0.99	0.56	2.06	0.71	4.32	1.08
12	Chandgad	0.82	0.37	1.7	0.58	3.47	**0.87**
Kolhapur District		1.09	0.43	1.85	0.62	3.99	**0.99**

Source: Compiled by Researcher Note: ATS is Aggregate Transportation Score.

In the above table no. 1 On the basis of this aggregate transportation score entire district is classified in three categories as High (Above 1.01), Medium (0.76 – 1.00) and Low (Below 0.75). The district average of Aggregate Transportation Score is 0.99 and above district average there are seven tehsil. The highest 1.30 ATS found in Kagal tehsil and lowest 0.75 ATS found in Shahuwadi tehsil. It means that Kolhapur district except western region other tehsil are well developed in transportation facilities because out of 12 tehsil 7 are above district average. The high aggregate transportation score are found in eastern part of tehsil and moderate level are found in western and south part of tehsil. It is clearly demarcated that physiographic played dominant role in transportation development.

ISSN: 2278-4632
Vol-10 Issue-5 No. 15 May 2020

Composite Index of Regional Development

Table No. 2 revealed composite index of development in Kolhapur district. The following indicators have been selected for determining the levels of regional development in Kolhapur district. Low Land Area, Share of Population, Urban Population, Literacy Rate, Total Worker, No. of Urban Centre, No. of Large Village, Household above Poverty Line, NET Sown Area, Irrigated Area, No. of Sugar Industry, No. of Milk Diary, Daily & Weekly Market Centre, Bank Facility, No of Factory, Medical Facility and Consumption of Electricity. The indicators are not exhaustive and would require refinement in any future work. But these are indicative of the situation in some meaningful ways.

Table No 2

Kolhapur District Composite Index of Development

Sr. No	Tehsil	Total CDI	CID	Rank
1	Shahuwadi	903.16	53.13	**9**
2	Panhala	1276.65	**75.10**	**5**
3	Hatkanangale	3944.21	**232.01**	**2**
4	Shirol	2313.31	**136.08**	**3**
5	Karvir	4647.98	**273.41**	**1**
6	Bavda	419.15	24.66	**12**
7	Radhanagari	982.17	57.77	**7**
8	Kagal	2162.43	**127.20**	**4**
9	Bhudargad	780.02	45.88	**10**
10	Ajra	729.15	42.89	**11**
11	Gadhinglaj	1187.34	69.84	**6**
12	Chandgad	951.33	55.96	**8**
Kolhapur District		1691.41	99.49	

Source: Compiled by Researcher

The regional developments have been determined on the basis of composite scores and the same have been depicted in Table no. 2. In district to find that four out of the twelve tehsil of Kolhapur recorded high transport development and high level of development. In the district average composite index of development is 99.49 and above district average there are four tehsil. The highest 272.41 composite index of development found in Karvir tehsil and lowest 24.66 found in Gaganbavda tehsil. It means that Kolhapur district except eastern region other tehsil are well developed in composite indexes of development because out of 12 tehsil 4 are high developed. The high composite indexes of development are recorded in eastern part of tehsil and low levels are recorded in western and south part of tehsil. It is clearly demarcated that physiographic played dominant role in transportation development.

ISSN: 2278-4632
Vol-10 Issue-5 No. 15 May 2020

Relation of Transport Development and Regional Development

Theobjects of present study are to (i) compute aggregate transportation score (ATS) and composite index of development (CID) in each tehsil of Kolhapur district, and (ii) to find out the relationship between transport network development and levels of regional development. All the twelve tehsil have been calculated separately for each variable according to their aggregate transportation score and composite index of development. Transport and regional development is closely related to each other. The correlation coefficient between levels of regional development and transport network development is 0.80, which is statistically high. To examine this phenomenon, tehsil of Kolhapur district are classified in nine categories.

Table No 3

Kolhapur District: Transport Development and Regional Development Index

Sr. No	Tehsil	ATS	CID
1	Shahuwadi	0.75	53.13
2	Panhala	1.01	75.10
3	Hatkanangale	1.25	232.01
4	Shirol	1.26	136.08
5	Karvir	1.25	273.41
6	Bavda	0.78	24.66
7	Radhanagari	1.00	57.77
8	Kagal	1.30	127.20
9	Bhudargad	0.83	45.88
10	Ajra	0.85	42.89
11	Gadhinglaj	1.08	69.84
12	Chandgad	0.87	55.96
Kolhapur District		**0.99**	**99.49**
Correlation			**0.80**

Source: Compiled by Researcher

The relationship between transport development and regional development is dimensionally represented in table 3 and fig. 2. On the vertical axis shows transport development and on horizontal axis represent the regional development. The tehsil were put in the appropriate cells in this table as per their scores. By comparing table 3 and fig. 3, we find that four out of twelve tehsil of Kolhapur district recorded high road network development and high level of regional development. In the same way we find that five out of twelve tehsil have low level of regional development and moderate level of road network development. There are one tehsil where level of regional development and road network

ISSN: 2278-4632
Vol-10 Issue-5 No. 15 May 2020

development is both low. This means that in two other tehsil, the level of road network development do not correspond with their levels of regional development. The correlation coefficient between levels of regional development and transport network development is high (0.80), which is statistically significant. This means that the factors governing the development of road network are related to the factors governing the regional pattern of development. There are at least four tehsil viz. Karvir, Hatkanangale, Kagal and Shirol where the order of transport network development is relatively high although the levels of regional development are high. Similarly, in five tehsil, viz. Radhanagari, Chandgad, Bhudargad Ajra Gaganbavda and Shahuwadi the levels of regional development are low although the transport network indices are of moderate order.

Kolhapur District Transport Development vis-a-versa Regional Development

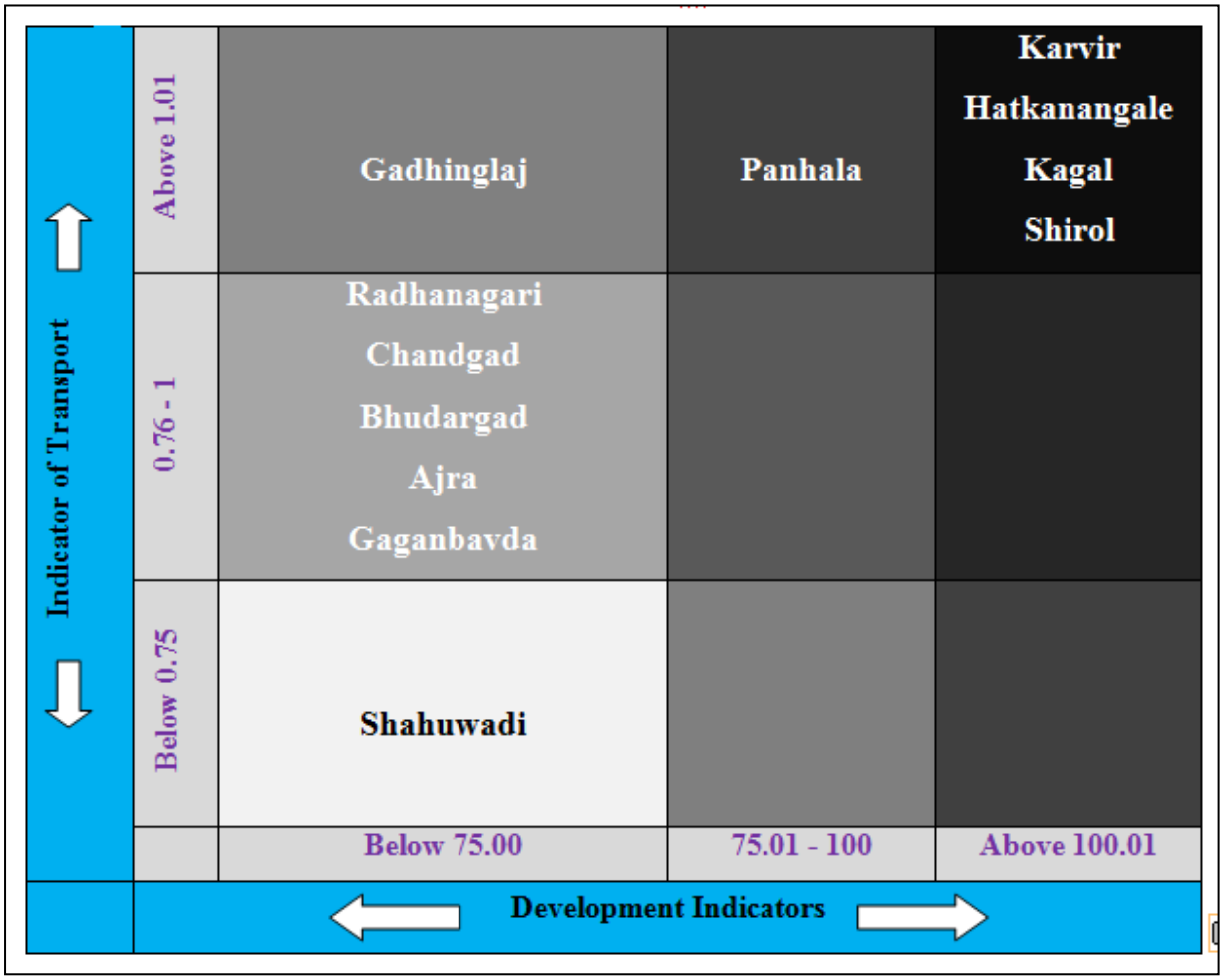

Fig. No: 2

ISSN: 2278-4632
Vol-10 Issue-5 No. 15 May 2020

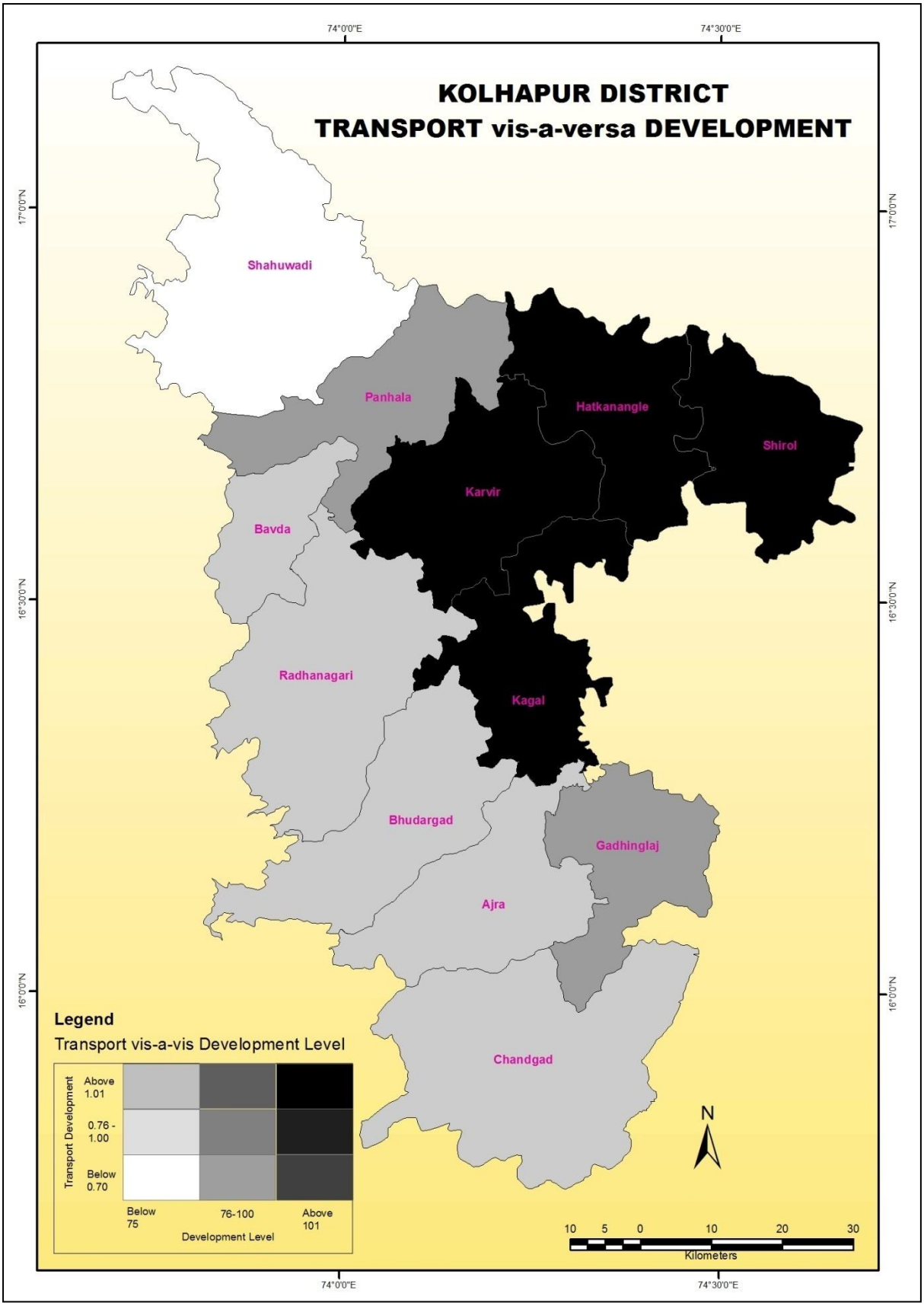

Fig. No. 3

ISSN: 2278-4632
Vol-10 Issue-5 No. 15 May 2020

1) **Low transport development and Low regional development**

Shahuwadi tehsil fall under this category because of this region comes under hilly area and it located to north-west part of district. These tehsil covered 14.31 percent area and 4.79 percent population of district. Shahuwadi tehsil have 0.75 aggregate transport score and 53.13 composite index of development. In this low level transport development Kolhapur-Ratnagiri national highways 204 play a major role. It is passing through central part of Shahuwadi tehsil. Low land area, Literacy rate, Bank facility, No. of Factory and Consumption of electricity these indicators are determined to low level regional development.

2) **Moderate transport development and Low regional development**

Radhanagari, Bhudargad, Ajra, Chandgad and Gaganbavda tehsil are falls in moderate transport development and low regional development categories. It is covered by 45.53 percent area and 17.88 percent population of district. Hilly area is mostly determined factor in regional development of these five tehsil, because of western ghat is spread over west to east in these tehsil. The total geographic area of these five tehsil 59.97 percent area is covered by hilly are 34.46 percent foot hill are and only 5.53 percent area is low land area (Director, Ground water survey and Development Agency). In transport network development these five tehsil are moderately developed because of undulating topography and forest area is mostly determined.

3) **High transport development and Low regional development**

Gadhinglaj tehsil is a south headquarters of Kolhapur district because of Chandgad, Ajra, Bhudargad and South part of Kagal tehsil connected to Gadhinglaj. In transport development these tehsil rank 5^{th} and rank 6^{th} in levels of regional development. In transport network development Gadhinglaj tehsil fall in high level of category but in term of levels of regional development it is denoted in low level category. These high transport development and low regional development tehsil covered 6.52 percent area and 5.82 percent population of district. In the transport development of Gadhinglaj tehsil state highway No. 188 Amboli-Ajra-Gadhinglaj-Sankeshwar, 189 Kolhapur-Parite-Gargoti-Gadhinglaj-Nesri and 201 Chandgad-Halkarni-Khanapur play vital role. Gadhinglaj is an urban centre and it's providing marketing facility of whole tehsil and other surrounding area.

4) **Low transport development and Moderate regional development**

ISSN: 2278-4632
Vol-10 Issue-5 No. 15 May 2020

The study revealed that high transport development and low regional development is not found.

5) Moderate transport development and Moderate regional development

The study shows that moderate transport development and moderate regional development is absent.

6) High transport development and Moderate regional development

Panhala is a historical tourist place and hill station of Kolhapur district. It is famous in historical period of Maratha Empire. Panhala tehsil is falls in high transport development and moderate regional development and its covered 7.70 percent area and 6.69 percent population of district. The aggregate transport score of Panhala tehsil is 1.01 and 75.10 composite index of development. NH 204 Kolhapur-Ratnagiri, SH 191 Kerle-Porle-KoltoliNandgaon, SH 192 Panhala-Borpadale-Vathar-Vadgaon-Ichalkaranji, SH 193 Varangepadali-Punal-Bajarbhogaon-Karanjfhen, SH 199 from NH204-Sadale-Madale-Top to NH04 and SH 177 Gaganbvda-Kolhapur-Aasgaon-Jangamhatti played important role in road network development of Panhala tehsil. In regional development it is falls moderate level categories because of it closely connected to developed tehsil as far as its historical importance. In development indicators it is leads to literacy rate, No. of urban centre's, Sugar Industries, No of Milk Dairy and Medical Facilities. The regional development of Panhala tehsil is depend on Varnangar, Kodoli, Jotiba and Panhala hill station also it is a backbone of tehsil.

7) Low transport development and High regional development

The study shows that low transport development and high regional development is not found in any tehsil of district.

8) Moderate transport development and High regional development

The study revealed that moderate transport development and high regional development is not found any tehsil of district.

9) **High transport development and High regional development**

In Kolhapur district highest composite index of regional (273.41) development is recorded in Karvir tehsil and lowest in Gaganbavda (24.66) tehsil. The difference of composite index of regional development in highest and lowest developed tehsil is 248.75. The highest aggregate transport score is recorded in Kagal (1.30) tehsil and lowest in Shahuwadi (0.75) tehsil. The difference of highest and lowest transport developed tehsil is 0.55. It means that in transport network development there in no

ISSN: 2278-4632
Vol-10 Issue-5 No. 15 May 2020

large gap but in regional development there is a huge gap. In term of regional development Kolhapur is growth pole centre and development is percolated nearest tehsil. In the category of high transport developed and high regional developed tehsil, there are four tehsil viz. Karvir, Hatkanangale, Shirol and Kagal. The 64.8 percent population and 25.96 percent areas out of district are highly developed in transport and regional development. Because of these four tehsil are closely connected to each other. In all development indicters these four tehsil are between first five ranks only Hatkanangale and Shirol tehsil are in dairy industry rank nine and ten. These four tehsil are developed in various sectors viz. Karvir is District Headquarter and central market centre, Kagal and Hatkanangale are developed in Cotton Textile and Steel Industry and Shirol is in Agriculture sector.

CONCLUSION:

In Karvir, Hatkanangale, Kagal and Shirol tehsil where the order of transport network development is relatively high although the levels of regional development are high. Similarly, in five tehsil, viz. Radhanagari, Chandgad, Bhudargad Ajra Gaganbavda and Shahuwadi the levels of regional development are low although the transport network indices are of moderate order.

The correlation coefficient between levels of regional development and transport network development is high (0.80), which is statistically significant. This means that the factors governing the development of road network are related to the factors governing the regional pattern of development. There are at least four tehsil viz. Karvir, Hatkanangale, Kagal and Shirol where the order of transport network development is relatively high although the levels of regional development are high. Similarly, in five tehsil, viz. Radhanagari, Chandgad, Bhudargad Ajra Gaganbavda and Shahuwadi the levels of regional development are low although the transport network indices are of moderate order.

Reference:

1. B. C. Vaidya (2003): Road and Railway Transport Development in Maharashtra State, Geography of Transport Development in India, Concept Publishing, New Delhi.
2. Ground water survey and Development Agency, Government of Maharashtra 2001.

ISSN: 2278-4632
Vol-10 Issue-5 No. 15 May 2020

3. Hoyle.B.C (1973): transport and Development, Macmillan Press, London, P. 51.
4. Kolhapur District Census Handbook 2011.
5. Kolhapur Gazetteer.
6. Mukharji.A.B (1973): Road Transportation Network and Levels of Urbanization in Rajasthan, Transport Communications monthly Review: May, P.p. 3-14.
7. Raut.S.S (2015): Solapur District: A Study in Transportation Geography, Unpublished Ph.D Thesis, Solapur University Solapur, P.p 106-194.
8. Saxena. H. M. (2016): Transport Geography, Rawat Publication, New Delhi.
9. Socio Economic Abstract of Kolhapur District 2016.
10. Subodh Rani (2016): Unpublished Ph.D Thesis "Road Transport Network And RegionalDevelopment In Haryana", MaharshiDayanand University, Rohtak, P.p 41-53.
11. https://mahasdb.maharashtra.gov.in/districtReport.do?rpt=5&dist=530

