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Accessibility of Main Road Network in West Vidarbha Region of Maharashtra State

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Abstract

Road network is the main indicator of regional development and roads are likes the blood veins of any region. Normally the area near the main road is accessible, as such an area is easily accessible from the main road as well as easy access to the main road from that area. The economic development of the region which is more accessible is found to be comparatively higher. In the present research paper, district-wise study of accessibility of main roads in the study area has been done.

Keywords - *Accessibility, road network, zone, development*

Introduction

Roads in any region play an important role in development. This is because the movement of goods and human beings from one place to another is mainly done by road transport. Accessibility is mainly based on time and distance. This area is known as high accessibility if the distance from the main road is short and the time taken to reach it is short. As the distance from the main road increases, the accessibility decreases. In the present research paper, the study of Sugmata of main roads in West Vidarbha is done district wise.

Objectives

The main objective of the present research paper is to calculate and valuate district wise accessibility of road network in the study region.

Data Source and Research Methodology

Present investigation is mainly based on the graphical analysis. Road map of West Vidarbha region is collected from PWD Divisional Office, Amravati. The accessibility zone from the main road network is created in GIS software. Also their district wise area is presented in the table. The zone wise accessibility is shown in the map of West Vidarbha. The present analysis based on the year 1981 and 2011.

Study Area

Geographically study region is located in between 19^0 23' N to 21^0 43' N latitude and 75^0 57' E to 79^0 09' E longitudes. This region is the west part of Vidarbha region therefore it is known as West Vidarbha. It is also known as Amravati Divisions. Amravati, Yavatmal, Akola, Washim, Buldhana districts are included in this region. West Vidarbha region covered total 46547 sqkm area and it is 14.75% to the area of Maharashtra state. Region has total 11258117 populations according to the census 2011.

Accessibility of Road Network

Road accessibility is measured by distance. The area within a certain distance from the main road in the study area is accessible and then the accessibility decreases. In the present section, National Highways, Raj Highways and major District Roads have been selected under Main Roads. Distance from main road up to 3 kms is high access area, 3 to 6 kms is

accessible area, 6 to 9 kms is moderately accessible area, 9 to 12 is low access area, 12 to 15 is very low access area and more than 15 kms is non accessibility area.

Very High (0 to 3 Km)

This zone occupied 18053sqkm area in 1981 and 21696 sqkm in 2011. It is increased by 3643 sqkm during this period. All the urban centers and tahsilcenters are included in this very high accessibility zone. The main market centers are also located in this zone. Table 1 shows the total access area by distance from the study area.

Table No 1

West Vidarbha Region – Total Accessibility of Main Road Network

Distance from Main Road in Km	Accessibility Zone	Year 1981 (Area in SqKm)	Year 2011 (Area in SqKm)
0 to 3	Very High	18053	21696
3 to 6	High Accessible	13013	13497
6 to 9	Moderate	7943	6438
9 to 12	Low	3768	2686
12 to 15	Very Low	1814	1185
Above 15	Non Accessible	1427	516
Total		**46018**	**46018**

Source:- Calculated by Author

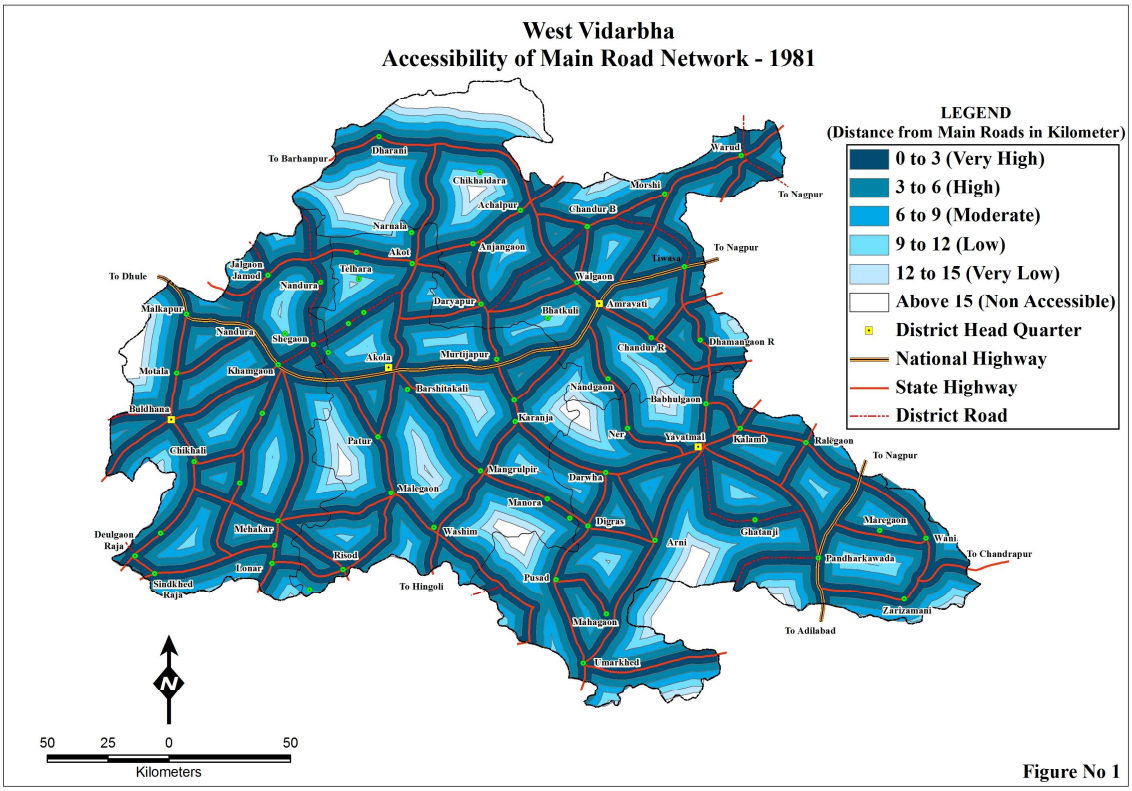

Figure No 1

High (3 to 6 Km)

This accessibility zone covered total 13013 sqkm area in 1981 and 13497 sqkm areas in 2011. The area under this zone is also increased during this period and it is increased 484 sqkm, but the rate of increasing this accessibility is very low. Maximum educational facilities are included in this accessibility zone.

Moderate (6 to 9 Km)

This zone is covered 7943 sqkm area in 1981 and 6438 sqkm in 2011. The area under

this moderate zone is found to be decreased by 1505 sqkm. The high accessibility area has increased during this period in the region where the moderate accessibility area has decreased. The development of main roads in the region during this period increased the accessibility.

Low (9 to 12 Km)

This zone of road accessibility has also found decreased in 2011 than 1981. Area under this zone was 3768 sqkm in 1981 and 2686 sqkm in 2011. During this period 1082 sqkm area has been decreased of low accessibility region and mostly included increased in 0 to 3 km zone.

Very Low (12 to 15 Km)

In the region 12 to 15 kms area from main road network is found very low accessibility. This low accessibility region covered 1814 sqkm area and 1185 sqkm in 2011. This part is also decreased in this period, means the road network is developed during this period and therefore accessibility is also increased.

Non Accessibility Region (Above 15 Km)

Above 15 km area from main road network is non accessibility region and this part is covered 1427 sqkm area in 1981 and 516 sqkm in 2011. In this period total 911 sqkm area is decreased and it was added in high accessibility zone because of the development of new main road network in this region. In 1981 northern and northwest part of West Vidarbha region found non accessible also middle of Washim and Pusad, lower part of Ghatanji, middle part of Chandur railway is also non accessible. In 2011 Melghat region, northeast part of Patur tahsil, some part of Pusad and Washim, east of Karanja, southern part of Chandur railway tahsil is still non accessible. In 2011the accessibility is increased but it is not increased in hilly and rough topography region.

Figure No 1 and Figure No 2 show the accessibility of main road network in West Vidarbha region of the year 1991 and 2011 respectively.

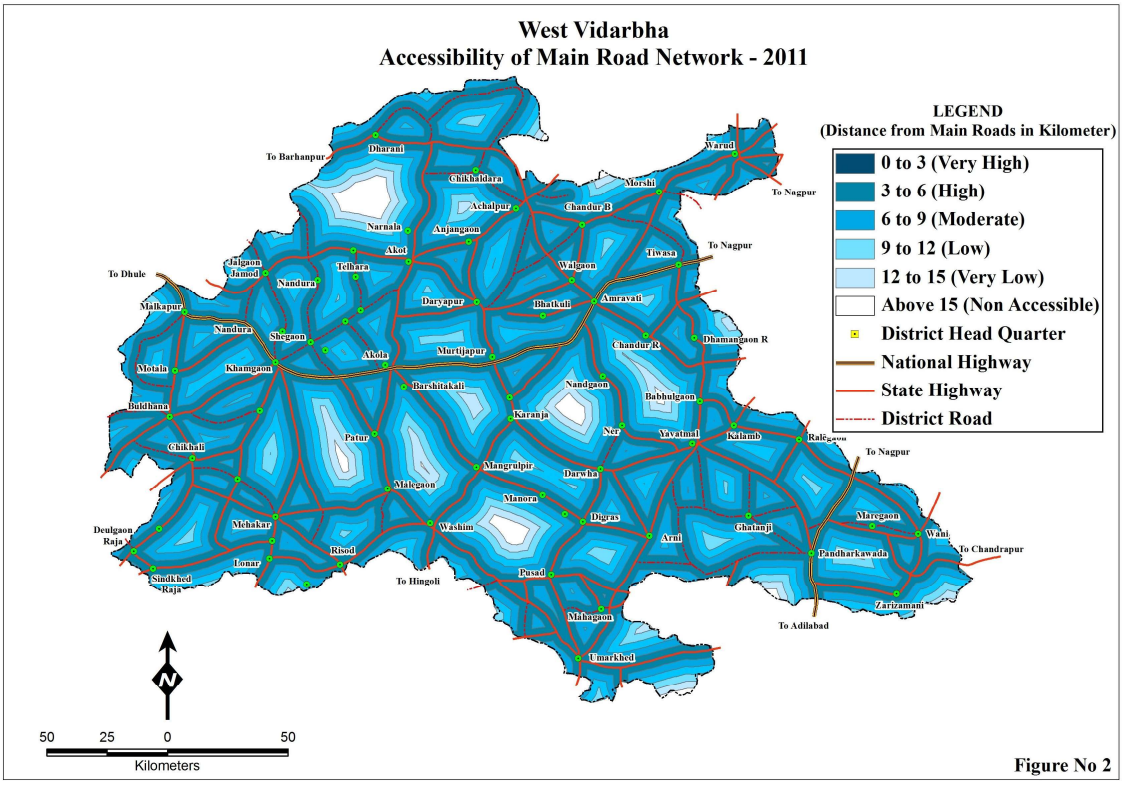

Figure No 2

District wise Accessibility of Road Network

This part is included the district wise analysis of road accessibility in West Vidarbha region. Table No 2 indicates the district wise accessibility zone and its area in 2011.

Amravati District

Near about 70% area of Amravati district is included in 0 to 3 and 3 to 6 km accessibility zone. The non accessible part is higher in Amravati district compare to the other district of West Vidarbha region. Melghat part of the district having maximum area and road network is low compare to its geographical area. The road accessibility is also lower in this part. The east and north part of the district has found developed road network.

Akola District

Akola district is located at middle of the West Vidarbha region. In the district 68% part is found in 0 to 3 and 3 to 6km accessibility region. Total 372 sqkm area of the region is still found non accessibility of main road network. Northwest of Patur, north and south of Murtijapur tahsil has poor development of main roads and poor accessibility in the entire district.

Table No 2

West Vidarbha Region – District wise Accessibility of Main Road Network (2011)

Area in SqKm

Distance from Main Road in Km	Accessibility Zone	Amravati	Akola	Washim	Buldhana	Yavatmal
0 to 3	Very High	5737	2179	2042	5136	6536
3 to 6	High Accessible	3140	1513	1510	3034	3899
6 to 9	Moderate	1452	855	984	1134	1884
9 to 12	Low	671	391	506	285	781
12 to 15	Very Low	340	164	249	76	344
Above 15	Non Accessible	870	327	43	-	140
Total		**12210**	**5429**	**5134**	**9661**	**13584**

Source:- Calculated by Author

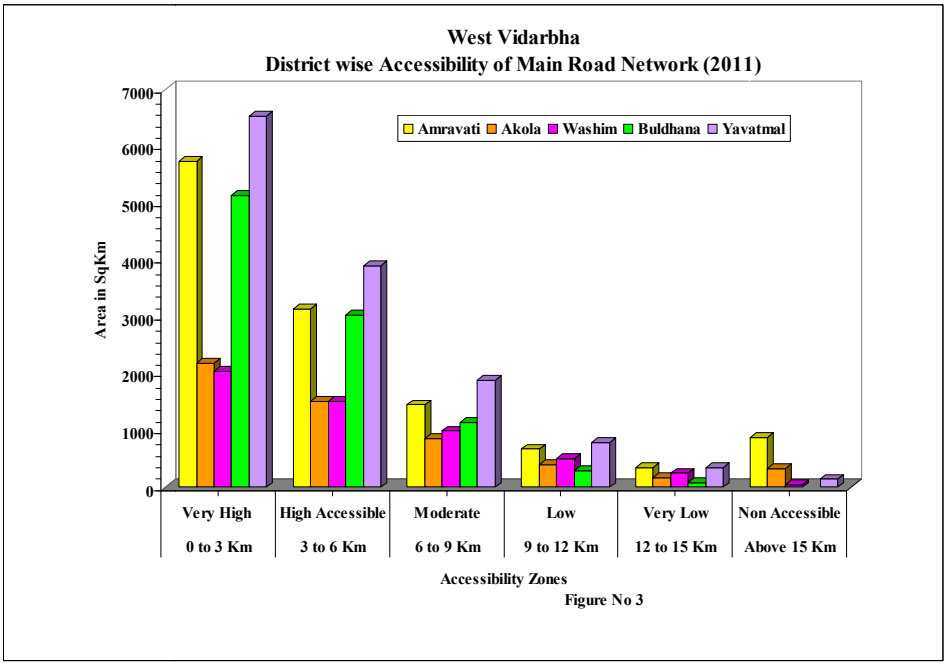

Figure No 3

Washim District

Washim district has also found maximum area under high accessibility zone. Washim district has lowest geographical area in the study region and also found the non accessibility

zone where main road network is not developed. West part of Mangrulpir, east part of Karanja tahsil has low accessibility and poor main road network.

Buldhana District

Near about more than 80% area of Buldhana district has found in high accessibility region. This district is not found area of non accessibility region and it indicates good road development compare to the area in the study region. Northern part of Mehakar, and eastern part of Sindkhed Raja tahsil found the low accessibility.

Yavatmal District

Yavatmal district is mainly famous for cotton production. Coal mines are found in Wani and it is situated in the east of the district. Yavatmal district occupied highest geographical area in West Vidarbha region. Total 6536 sqkm area is covered with very high accessibility zone and 3899 under high accessibility network. Near about 76.82% area of the district is found 0 to 6 km accessibility region. Total 140 sqkm area of the district is found non accessible. Some part in Babhulgaon, Darwha, Pusad, Umarkhed and Kelapur tahsil is included in this non accessibility zone. It is necessary to develop main road network in Yavatmal district according its geographical area.

Conclusions and Suggestions

In 1981 Mainly high accessibility is found in Amravati, Yavatmal, Warud, Achalpur, Daryapur, Akot, Akola, Khamgaon, Buldhana and Mehkar urban centers. Amravati city is the central part and Divisional head quarter of West Vidarbha region. Therefore the accessibility is high in this region. Chikhaldara is near from Achalpur also it is a historical place. Yavatmal is the market of cotton also Khamgaon, Akola and Mehkar at the centre of main transport network. It all impacts the high accessibility of this region.

In 2011 the accessibility is increased compare to the1981. In 2011 mainly high accessibility is occurred in Wani, Pandharkwada, Yavatmal, Darwha, Mahagaon, Umarkhed, Washim, Mangrulpir, Amravati, Warud, Achalpur, Akot, Daryapur, Akola, Jalgaon Jamod, Khamgaon, Buldhana, Chikhali and Mehkar urban centers. During 1981 to 2011 mainly accessibility is increased in Wani center because coal mines are situated here. This city has its own importance in industry development. It is necessary to develop main road network in Melghat part of Amravati district, south part of Washim, west part of Yavatmal district. This part is rough topography but proper planning can be developed road network in such regions. Although it is difficult to build a new main road considering the area in a region where road development is abundant, the construction of flyovers and subways in such a region can increase accessibility and control traffic congestion. It is also necessary to develop roads in remote areas keeping in view the balance of nature, as increasing the ease of transportation will lead to regional development.`

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