



ORIGINAL RESEARCH PAPER

Education

CHANGE IN PHYSICAL ACCESSIBILITY OF ROAD NETWORK IN HARYANA

KEY WORDS: Physical Accessibility, Connectivity, Road Network, Distance

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ABSTRACT

The present research paper analyzes the change in physical accessibility of road network in Haryana from 1971 to 2011. The band of uniform width on both sides of the roads is the traditional analysis of the accessibility of roads. The analysis is restricted to parameter of **distance**. Keeping in view the average inter village distance of Haryana (2.74 kms), areas lying within bands of a uniform width of 3 kms on either side of a road (National highway and State highway) have been treated as fairly accessible and 6 kms from artery as moderate accessible while area beyond 6 kms from a transport artery has been defined inaccessible. It is recorded that the central part of Haryana is fairly accessible by roads due to good connectivity of road network in both years. South-eastern and western parts have a large inaccessible area.

Introduction

One of the most important attributes of a transportation network relates to accessibility. According to **Haig (1927)**, "accessibility means the ease of contact; contact with relatively little friction", that is less wastage of time, money and energy. A geographical perspective on any development issue seeks the attention on accessibility as a unit of observation as it affects the development process of any region. Accessibility is a measured approach within two referred points in two regions. It can be measured as relative or absolute. Relative measure highlights the regions of accessibility having varying degree of assessment, while absolute measure of accessibility is used to describe the total score of selected parameters. In the words of **Wilbanks (1972)**, "accessibility is a 'planning elastic' characteristic of an imprecision in planning process". It is an index of socio-economic development of a region and provides a measurement of effectiveness of transport cover. It is part and parcel of man's material progress in any area. According to **Sealy (1957)**, "the ease with which one can travel from one place to another is an essential factor of an expanding economy".

The ease of accessibility plays an important role in the regional development of an area. Accessibility indicates the importance of a place, particularly the ease with which one can travel from one place to another. In the words of **Wingo (1961)**, "accessibility, in a technical sense, is a relative quality accruing to a piece of land by virtue of its relationship to a system of transport"

Garner (1967) defined it as the variable quality of centrality or nearness to the other functions and locations. While defining the scope of accessibility, **Stamp (1962)** observed that accessibility covers broader aspect of the relationship between one region in one part of the country and another. Although accessibility can be measured in terms of time, money (cost) and gravity pull of population. The present analysis is restricted to parameter of **distance** by road network. Accessibility has a direct relation with the distance to be covered, greater the distance less the accessibility and vice-versa. In the light of this, the present research paper analyzes the change in physical accessibility of road network in Haryana from 1971 to 2011.

Study area- Haryana

Haryana is an important state of North Western India which consists of six divisions, 22 districts and 93 tehsils. Physiographically, the central part of Haryana is largely plain and featureless whereas the western part is traversed by numerous sand dunes. There are also some hills of Shivalik system in the north and Aravallis in the south. In 2011, total population of Haryana state is 2.54 crore. The total road length in the state was 11516 kms in 1971 which has increased to 27258 kms in 2011. Presently, Haryana is having a well knit system of roads comprising 14 national highways (1462 kms); 31 state highways (2521 kms); 37 major district roads (1471 kms) and other district roads (21804 kms).

Source of Data and Research Methodology

The present study is based on secondary data. District Statistical Offices and various other government offices have been consulted for the required data. Physical accessibility of roads in Haryana has been measured with some modification in the recommendation of Indian Road Congress Nagpur and Bombay plan. The band of uniform width on both sides of the roads is the traditional analysis of the accessibility of roads. According to the recommendations of 'Second Road Development plan' for India in 1958, popularly known as **Nagpur Report**, area lying within 4 kms from the transport artery was treated as fairly accessible, those within 8 kms as moderate accessible and area beyond 8 kms was declared inaccessible. Keeping in view the average inter village distance of Haryana (2.74 kms), areas lying within bands of a uniform width of 3 kms on either side of a road (National highway and State highway) have been treated as fairly accessible and 6 kms from artery as moderate accessible while area beyond 6 kms from a transport artery has been defined inaccessible. Arc-GIS (version 9.3) software has been used to prepare the maps.

Physical Accessibility of Road Network

The physical accessibility of roads in 1971 and 2011 in Haryana state is represented in the maps [Fig. 1.1 & 1.2]. The pattern of road accessibility as revealed by map can be briefly described as under:

- i. The central part of Haryana is fairly accessible by roads due to good connectivity of road network. That's why, only few patches of inaccessible area can be identified here. This area is endowed with rich alluvial soils and flat land, which is suitable for easier road constructions.
- ii. Sirsa, Bhiwani, Hisar and Fatehabad districts are having maximum inaccessible area in the western part of Haryana as they are located in the unfertile land and sand dunes sprinkled topography.
- iii. South-eastern part of Haryana (Faridabad, Gurgaon, Palwal and Mewat districts) has a large inaccessible area as they are located in the foothills of Aravalli hills.
- iv. North and north-eastern part of Haryana (Panchkula, Ambala, Yamunanagar and Kaithal districts) is fairly accessible.
- v. Most of the Moderate accessible area is also located in central part of Haryana.

Table- 1, Haryana: Physical Accessibility by Roads, 1971-2011.

Distance (kms)	Area in km _e (1971)	Area in km _e (2011)	Remarks
0-3	15926.76 (36%)	17985.28 (41%)	Fairly accessible
3-6	11185.23 (25%)	12153.21 (27%)	Moderate accessible
>6	17099.01 (39%)	14073.51 (32%)	Inaccessible
Total	44212.00	44212.00	

Source: Calculated by Author.

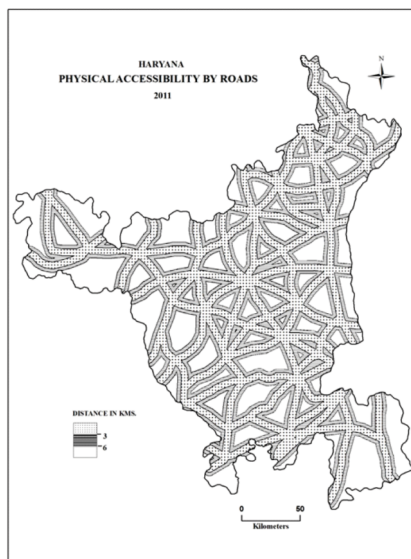


Fig. 1.1

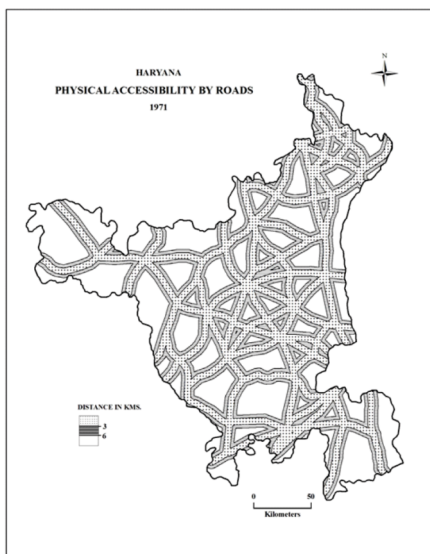


Fig. 1.2

It is very clear from the table [Table-1] that Haryana is highly accessible by roads. In 1971, 36 Percent of its total area lies within 3 kms as fairly accessible which has increased up to 41 percent in 2011. In 1971, 25 percent area is in between 3-6 kms as moderate accessible which has increased up to 27 percent in 2011. On the other hand, 39 percent area of the state is laid beyond 6 kms termed as inaccessible which has decreased up to 32 percent in 2011.

Conclusion

This research paper describes the change in physical accessibility of road network in Haryana from 1971- 2011. Approximate 5 percent area has been increased as fairly accessible in 2011. 2 percent area is increased in moderate accessible category whereas 7 percent area of the state is decreased in inaccessible category in 2011. Most of the inaccessible areas are located in the hilly and unfertile soil land especially in extreme eastern, southern and western parts which has proved to be a barrier in the development of a well connected road network. Finally, it is suggested that more state highways should be converted into national highways and major district roads into state highways to improve the physical accessibility of road network in state.

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