

A Study of Public Transport Accessibility in Pauri Garhwal District of Uttrakhand, India

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Abstract:- Accessibility is the main essential part of the transportation system. Transport accessibility is to make available a healthier connectivity location to reduce the overcrowding on the road. In this research paper, we discuss the transport accessibility on the different main road of Garhwal district of Uttrakhand. Transport in urban areas has gained a larger concentration in modern years for civilizing sustainability and the worth of existence. For this purpose, we selected the main four sites of transport accessibility in the district namely Srinagar, Pauri, Lansdowne and Kotdwar. The transport cognition on these sites is very high. We noted the different types of transport vehicle volume on a different road and collect the data. The different transport vehicles are Bus, Mini Bus Truck, Tracker, Car and Two-wheeler on the road.

Keywords:- Transport System, Transport Accessibility, Healthier Connectivity, Civilizing Sustainability, Public Health.

I. INTRODUCTION

Accessibility is the mainly significant outcome of the transportation system. Public transport can be further eye-catching by providing "Door to door mobility" and enlargement of transportation services is an imperative feature of social eminence. Transport accessibility has gained crucial value in conniving and evaluating the transit system in conditions sustainability. Distant from the transport system itself, public transport accessibility has a significant collision on the fulfillment and needs of life in the remote area of the district. In addition, researchers have exposed numerous impacts and relationships and conditions of transport accessibility to the surroundings and daily life which would have a perceptible effect on community health and other aspects of inhabitant's daily life. Transport in urban areas has gained a larger concentration in modern years for civilizing sustainability and the worth of existence.

In general, accessibility is labeled as physical access to goods, services, and destinations. In the context of urban economics and geography, accessibility, which is one of the most important outcomes of the transportation system, is

characterized as the facilitation in accessing a specific area or location (Mavoa et al., 2012).

It is a measure of the advantage of the location of a zone or area compared to the other zones and areas (Biosca and Stepniak, 2013). Good accessibility of public transport improves the accessibility to other services as well (Abreha, 2007).

Service access and urban public transport accessibility have always been a major service issue in urban public transport. In the network design of transit services, researchers are often more focused on minimizing the user and operator costs rather than incorporating the issues of equity and access (Murray, 2003 et al., 2017).

➤ Location of Study AR EA

District Pauri or Pauri Garhwal is located in the state of Uttarakhand in Northern India with the town of Pauri as its headquarters. It lies between latitude 29.26 and 30.19 N and longitude 78.12 and 79.14 E. The maximum length from east to west is 103 km. and the maximum breadth from north to south about 100 km. The total geographical area of the district is 5,329 km². The district is bounded by Dehradun and Hardwar on the west, district Bijnor (Uttar Pradesh) on the south, district Nainital and Almora in the south-east, districts Chamoli and Rudraprayag on northeast and north and the north-west is Tehri Garhwal. District Pauri is part of Garhwal Himalaya; Siwalik and Doors as per regional division's scheme. The average height varies between 500 and 3000 meters from the mean sea level. The district is entirely mountainous. It consists of a succession of steep mountain ridges separated from each other by deep glens. The sub-mountain tract in the southern part of the district is known as Bhabar.

The study area consists of mainly main four sampling site Srinagar, Pauri, Lansdowne and Kotdwar and other main roads as shown in the map given below. The distance between the Pauri to Srinagar 35km approximately and the distance between Lansdowne to Kotdwar is 39.1 km via NH534. The accessibility noted on these roads on the bases of data collection numbers of vehicles travel per hour.

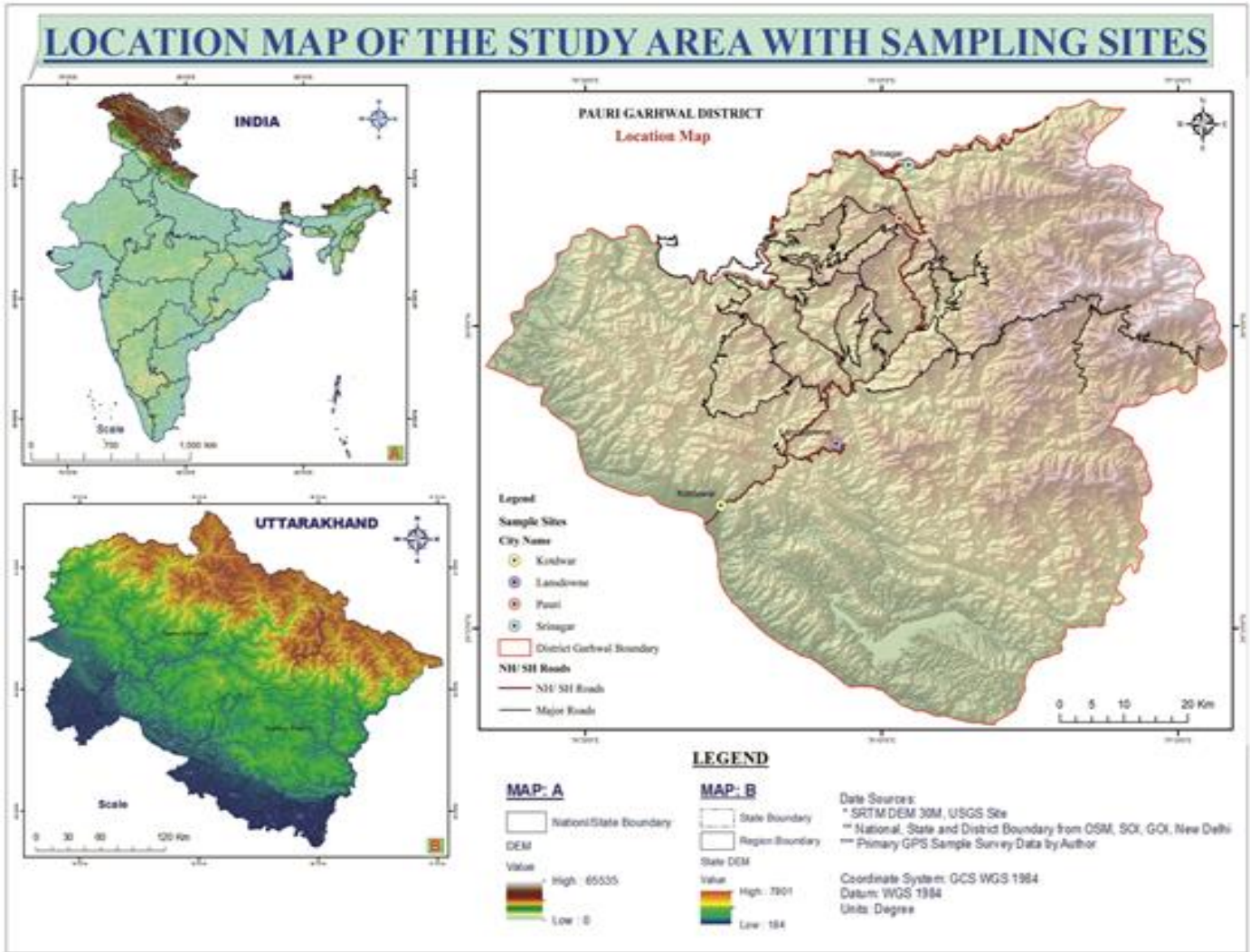


Fig 1

➤ *Objective*

1. To analyse the public transport accessibility in different roads of Pauri Garhwal District of Uttarakhand.
2. To know the minimum and maximum Transport volume on the roads.

II. METHODOLOGY

For this study both primary and secondary data is collected. Primary data based on the field survey conducted in various parts of the district. Secondary data collected from books, article and various journals.

➤ *Method and Observation:*

The accessibility of transport is studied under the below table through data collation and observation of study area.

➤ *Bus Accessibility in Pauri Garhwal District*

The bus is one of the key transports in Garhwal District. It is one of the most important sources to carry the goods and services at various locations in the remote area of the District. The maximum accessibility of Bus is lying on the Srinagar to Rudraprayag Road is 4.74% and the Minimum accessibility of bus is lying on the Kotdwar to Dehradun and another Road have shown medium accessibility index as in the (Table No.1).

Bus Accessibility		
S.R. No	Link Road	Accessibility index
	1	2
1	Kotdwar to Lansdowne	2.79
2	Kotdwar to Srinagar	2.91
3	Kotdwar to Dehradun	2.16
4	Pauri to Kotdwar	3.51
5	Pauri to Srinagar	2.95
6	Srinagar to Rishikesh	2.60
7	Srinagar to Rudraprayag	4.74

Source:- Data based on field Survey

Table 1:- Bus Accessibility In Pauri Garhwal District

➤ *Mini Bus Accessibility In Pauri Garhwal*

Mini Bus is another major source of transport in the rural and urban areas of Garhwal district. Most of the peoples of Garhwal travel in mini bus because the fare is very low and it provide comfort transport facilities. The accessibility of mini bus in the district is not good but it considers being average. The maximum accessibility of mini bus is recorded on the Srinagar to Rudraprayag and minimum mini bus accessibility recorded on the Kotdwar to Dehradun and other roads have moderate accessibility as in the (Table No.2)

Mini Bus Accessibility		
S.R. No	Link Road	Accessibility Index
	1	2
1	Kotdwar to Lansdowne	2.01
2	Kotdwar to Srinagar	2.18
3	Kotdwar to Dehradun	1.76
4	Pauri to kotdwar	2.40
5	Pauri to Srinagar	1.84
6	Srinagar to Rishikesh	1.95
7	Srinagar to Rudraprayag	2.81

Source:- Data based on field Survey

Table 2: Mini Bus Accessibility In Pauri Garhwal

➤ *Tracker Accessibility In Pauri Garhwal*

The accessibility of Tracker in district is very high and maximum no of tracker noticed on the Pauri, Srinagar, and Rudraprayag and the concentration of tracker is very low is on the Kotdwar and Lansdowne Road. The maximum accessibility in Srinagar to Rishikesh is 14.56% and minimum accessibility in Kotdwar to Dehradun is 5.15% as shown in (Table No.3). Tracker is also one of the major sources of transport in Rural as well as the Urban Area in the District.

Tracker Accessibility		
S.R. No	Link Road	Accessibility index
	1	2
1	Kotdwar to Lansdowne	6.97
2	Kotdwar to Srinagar	6.31
3	Kotdwar to Dehradun	5.15
4	Pauri to kotdwar	8.30
5	Pauri to Srinagar	6.81
6	Srinagar to Rishikesh	14.56
7	Srinagar to Rudraprayag	13.51

Source:- Data based on field Survey

Table 3: Tracker Accessibility In Pauri Garhwal

➤ *Truck Accessibility In Pauri Garhwal*

The concentration of Truck accessibility in the Garhwal district is very high because it is a hilly district and no other source of Transportation of goods and services from one place to another. The maximum accessibility of Truck in Pauri to Kotdwar is 20.30 % and minimum accessibility in Kotdwar to Dehradun 11.63% as shown in (Table No.4).

Truck Accessibility		
S.R. No	Link Road	Accessibility index
	1	2
1	Kotdwar to Lansdowne	19.35
2	Kotdwar to Srinagar	15.92
3	Kotdwar to Dehradun	11.63
4	Pauri to kotdwar	20.30
5	Pauri to Srinagar	16.57
6	Srinagar to Rishikesh	17.17
7	Srinagar to Rudraprayag	12.11

Source:- Data based on field Survey

Table 4: Truck Accessibility In Pauri Garhwal

➤ *Car Accessibility In Pauri Garhwal*

Car is another most important Commercial and personal transport service in the district. The maximum Accessibility of car in Kotdwar to Lansdowne road is 31.73% and Minimum Accessibility in Pauri to Kotdwar Road is 27.96% and other road accessibility is defiantly very high as shown in (Table No.5)

Car Accessibility		
S.R. No	Link Road	Accessibility index
	1	2
1	Kotdwar to Lansdowne	31.73
2	Kotdwar to Srinagar	29.39
3	Kotdwar to Dehradun	36.38
4	Pauri to kotdwar	30.44
5	Pauri to Srinagar	30.39
6	Srinagar to Rishikesh	27.96
7	Srinagar to Rudraprayag	30.00

Source:- Data based on field Survey

Table 5: Car Accessibility In Pauri Garhwal

➤ *Two Wheeler Accessibility In Pauri Garhwal*

Two Wheeler is also a major Source of transport in the rural Area of the Garhwal. The concentration of Two-wheeler is very high in the district. The Maximum Accessibility of Two Wheeler in Kotdwar to Dehradun is 43.30% and Minimum accessibility in Kotdwar to Srinagar is 35.76% as shown in (Table No.6

Two wheeler Accessibility		
S.R. No	Link Road	Accessibility index
	1	2
1	Kotdwar to Lansdowne	37.15
2	Kotdwar to Srinagar	43.30
3	Kotdwar to Dehradun	42.92
4	Pauri to kotdwar	35.06
5	Pauri to Srinagar	41.44
6	Srinagar to Rishikesh	35.76
7	Srinagar to Rudraprayag	36.84

Source:- Data based on field Survey

Table 6: Two Wheeler Accessibility In Pauri Garhwal

➤ *Total Spatial Road Transport Accessibility Of Pauri Garhwal District*

The below map shows the total accessibility of road transports in the district. Total accessibility of transport varies with time and volume of the road transports. This show that the traffic saturation is varied from the level of bus accessibility is (2.16 to 4.74%), Mini Bus Accessibility is (1.76 to 2.81%), Tracker Accessibility (5.15 to14.56%), Truck accessibility (11.63 to 20.30%), Car Accessibility (27.96 to36.38%) and Two-wheeler Accessibility (35.06 to 43.30%).

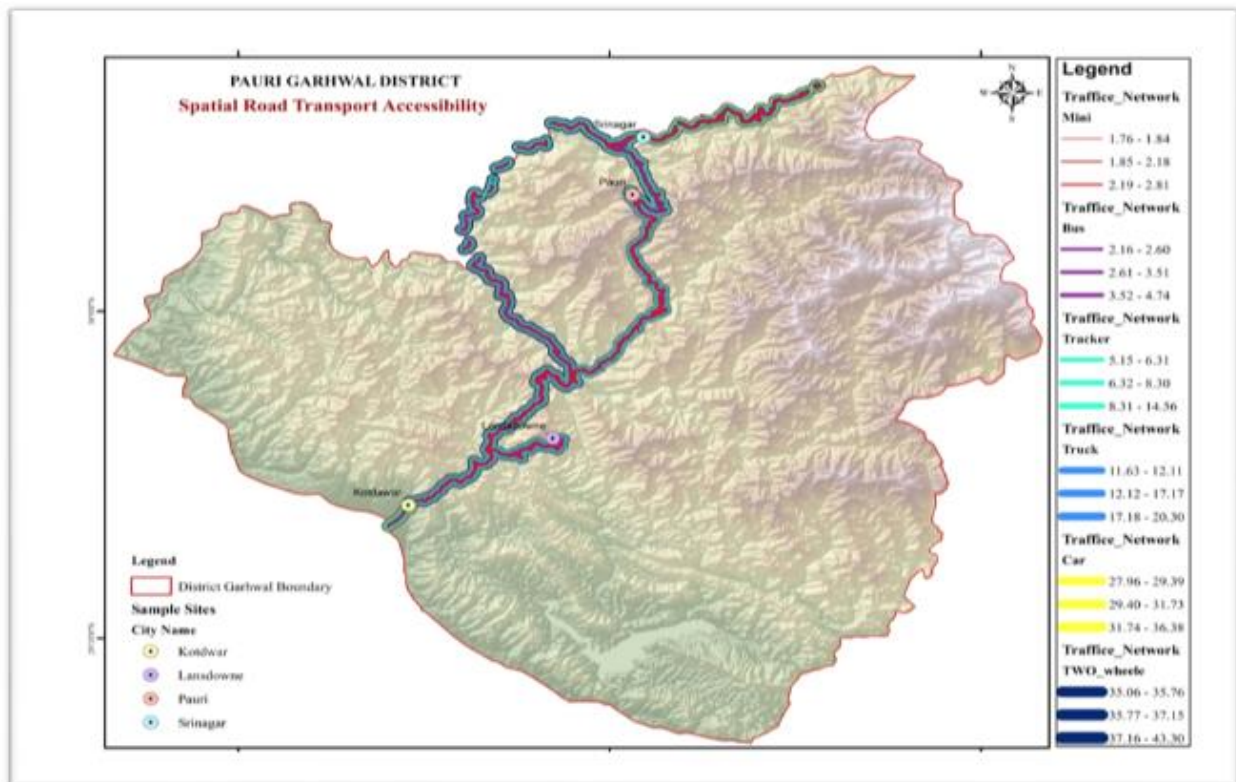


Fig 2:- Map of Total Spatial Road Transport Accessibility in Pauri District

III. CONCLUSION AND RESULTS

At last, we conclude that the bus and truck accessibility in the hilly area is maximum due to the poor transport infrastructure, poor quality of roads, hilly and terrain slope. There is no other source for the transport of goods and services without the truck and bus in the hilly area of the District Garhwal. Otherwise, in the plain area of the district, various other types of sources that provide the proper connectivity and many sources of income, so for that, the accessibility of car and Two-wheelers is very high in the plane area of the District.

Improvement of recent means of transport is an assessment of the culture and economic development of a nation. The national government in all countries irrespective of the financial systems they adopted embarked on a huge state towards the development of transport communications corresponding with the necessities of the economy and the obtainable wealth.

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