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An Analysis of Social Impacts of Road Transport Development in Bharatpur District

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Abstract

Road transport plays a vital role in influencing social development, particularly in rural and semi-urban regions. The present study examines the social impacts of road transport development in Bharatpur based on primary data collected from 421 households across 13 villages. An empirical and mix research design has been adopted, using both quantitative and qualitative approaches to analyze changes in social interaction, access to education, healthcare, and participation in social activities.

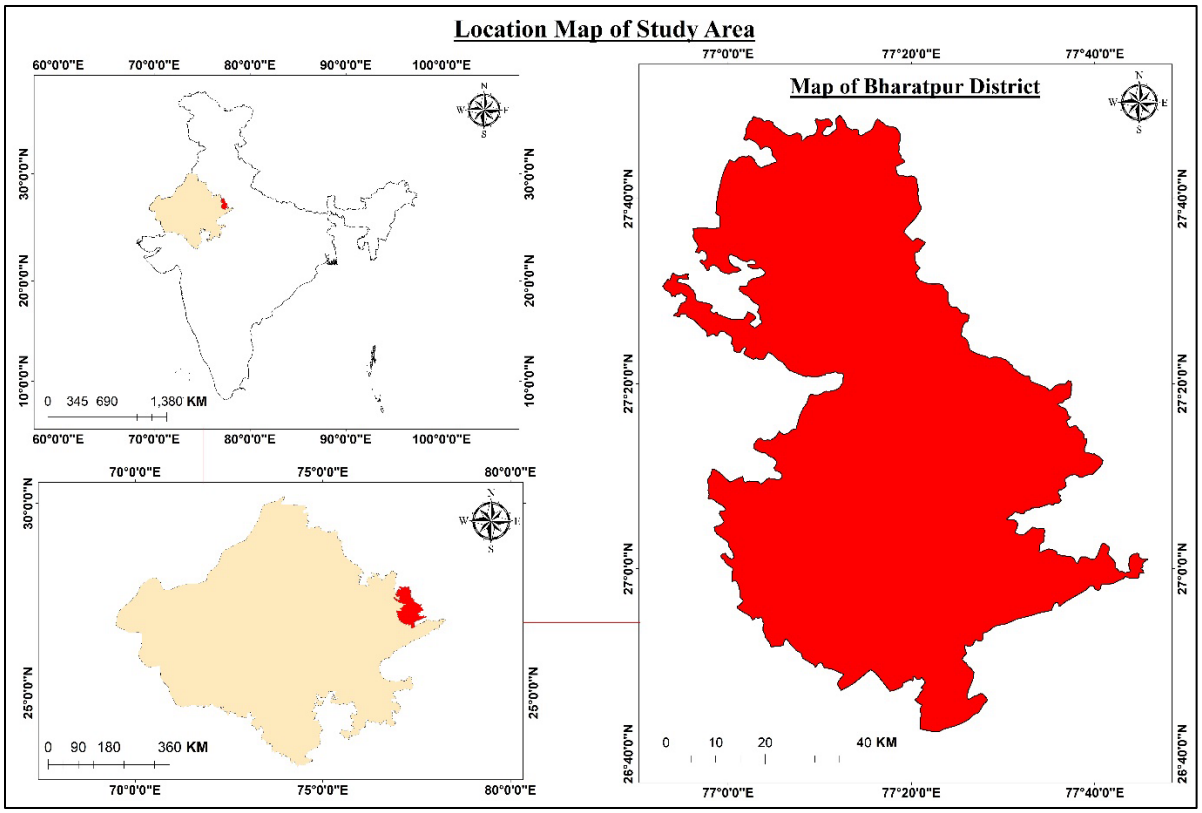
The findings reveal that improved road connectivity has significantly enhanced mobility and social interaction, with a majority of households reporting increased frequency of visits to relatives and greater participation in social and cultural events. Access to education has improved, as a large proportion of students commute outside the village using public and private transport, although travel time varies by mode. Similarly, most households have moderate access to health facilities, though distance remains a constraint for some. Perception-based analysis indicates that over 75 percent of respondents experienced improvement in interaction levels, educational access, and healthcare services after road development.

However, the study also identifies certain disparities, as a small proportion of households reported limited or no improvement, highlighting unequal distribution of benefits. The study concludes that while road transport development has contributed significantly to social transformation and improved quality of life, more inclusive and region-specific planning is required to ensure equitable access to its benefits.

Keywords: *Road Transport, Social Impact, Rural Connectivity, Social Transformation, Bharatpur District, Infrastructure Development.*

2. Study Area

The present study is conducted in Bharatpur, a district located in the Brij region and popularly known as the "Eastern Gate of Rajasthan." It lies approximately 180 km from New Delhi and enjoys a strategic location near major urban centers such as Jaipur, Agra, and Mathura. Geographically, the district extends between 26°22′ to 27°83′ North latitude and 76°53′ to 78°17′ East longitude, with an average elevation of about 183 meters above sea level. According to the Census of India 2011, Bharatpur has a population of 2,548,762, a sex ratio of 877 females per 1000 males, and a literacy rate of 71.16 percent, reflecting its moderate level of socio-economic development and making it a suitable area for examining the social impacts of road transport.



Map: 1

3. Research Methodology

This study employs an empirical, mixed-method research design to analyze the social impacts of road transport development in Bharatpur, with primary data forming the core basis of analysis, supported by limited secondary sources for contextual understanding. Primary data are collected through structured Schedule designed to capture information on accessibility to road infrastructure,

availability of transport services, access to education and healthcare and changes in social mobility and interaction patterns.

The research follows a two-stage sampling design, beginning with the selection of villages and subsequently households within those villages. A total of 13 villages, one from each block of the district, are selected through purposive sampling method. In the second stage, households are selected using a random sampling technique to maintain representativeness, considering socio-economic parameters such as social category, occupation, housing condition and literacy level. The study includes a total sample of 421 households drawn from 4,209 households across the selected villages, representing approximately 10 percent of the total, which provides a reliable basis for empirical analysis.

The collected data were analyzed using descriptive and basic statistical techniques to examine patterns and variations in social outcomes, thereby enabling an in-depth understanding of the role of road infrastructure in shaping local socio-economic conditions.

4. Data Analysis and Results

4.1 Demographic Profile of Respondents

The demographic profile of 421 respondents from Bharatpur indicates a balanced gender distribution, with 51.31 percent males and 48.69 percent females. Most respondents belong to the economically active age groups, with 35.00 percent aged 19–30 years and 31.67 percent aged 31–45 years, while only 11.67 percent are above 60 years.

Table 1: Demographic Characteristics of Respondents (N= 421)

Demographic Characteristics	Category	% of Respondents
Gender	Male	51.31
	Female	48.69
Age Group	19-30	35.00
	31-45	31.67
	46-60	21.67
	More than 60	11.67
Family Size	1–4	10.93

	5–8	49.64
	9- 12	28.74
	13 and above	10.69
Education Level	Illiterate	26.13
	Up to Primary	30.88
	Primary to Higher Secondary	39.19
	Graduate & above	3.80

Source: Primary Survey, 2024-25

In terms of family size, most households are medium-sized, with 49.64 percent having 5–8 members, followed by 28.74 percent with 9–12 members, reflecting the prevalence of joint family systems. Educationally, a large proportion of respondents have low to moderate education levels, with 26.13 percent illiterate and 30.88 percent educated up to primary level, while 39.19 percent have studied up to higher secondary and only 3.80 percent possess higher education. Overall, the sample represents a moderately educated, working-age population, suitable for analyzing the social impacts of road transport.

4.2 Frequency of Visits to Relatives/Friends

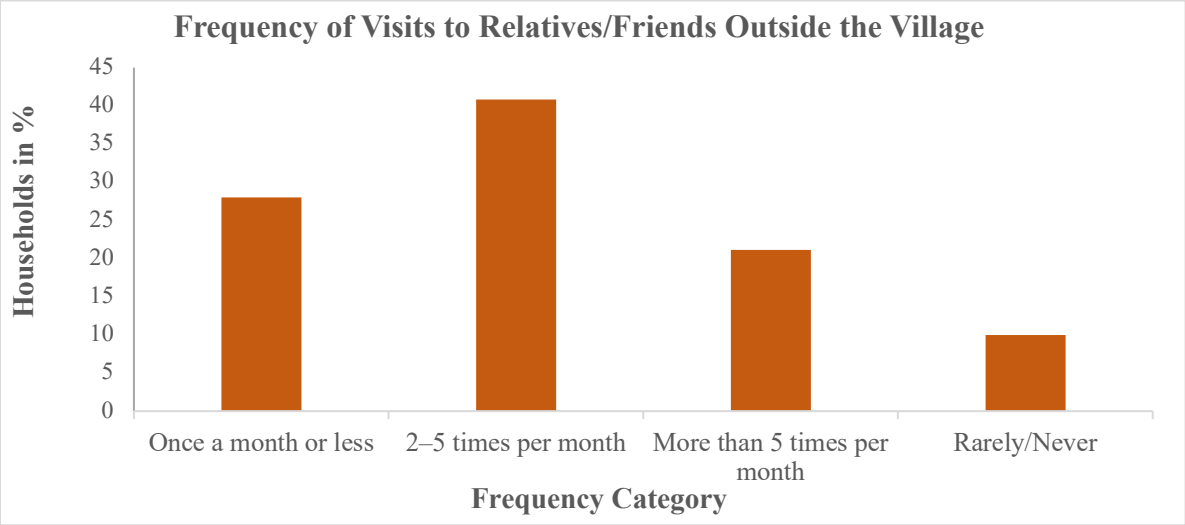
The data in table 2 shows that most households maintain regular social contact, with 40.86 percent visiting relatives or friends 2–5 times per month. About 28.03 percent visit once a month or less, while 21.14 percent visit more than five times, indicating a good level of mobility. Only 9.97 percent of households rarely or never visit, suggesting limited social interaction among a small group. Overall, the findings reflect moderate to high social connectivity supported by road transport.

Table 2: Frequency of Visits to Relatives/Friends Outside the Village

S. N.	Frequency Category	% of Respondents
1	Once a month or less	28.03
2	2–5 times per month	40.86
3	More than 5 times per month	21.14
4	Rarely/Never	9.97

Total	**100.00**

Source: Primary Survey, 2024-25



Source: Primary Survey, 2024-25

Figure: 1

4.3 Participation in Social and Cultural Events

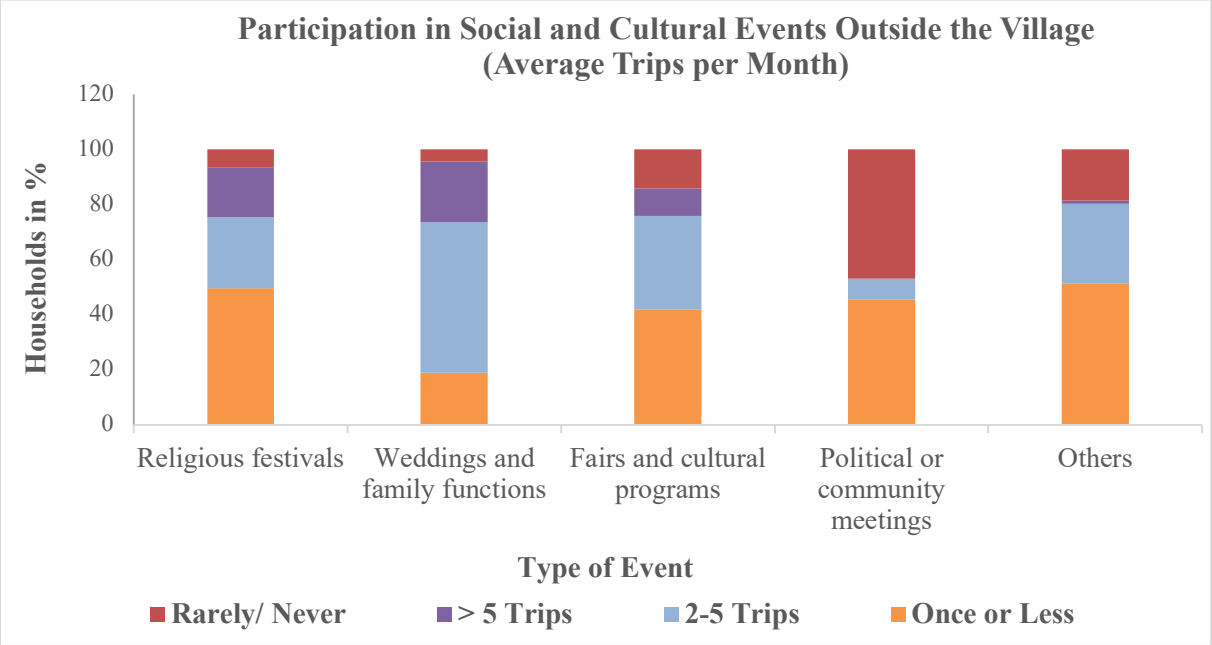
Participation in social and cultural events varies by type, with the highest involvement seen in weddings and family functions, where 54.63 percent of households attend 2–5 times per month. Religious festivals are mostly attended occasionally (49.64 percent once or less), while fairs and cultural programs also show moderate participation. In contrast, political or community meetings have low participation, with 46.79 percent of households rarely or never attending. Overall, households are more engaged in informal and cultural events than in formal community activities.

Table 3: Participation in Social and Cultural Events Outside the Village (Average Trips per Month)

S. N.	Type of Event	% of Households				
		Once or Less	2-5 Trips	> 5 Trips	Rarely/ Never	Total
1	Religious festivals	49.64	25.89	18.05	6.42	100.00
2	Weddings and family functions	19.00	54.63	22.09	4.28	100.00

3	Fairs and cultural programs	42.04	33.97	9.98	14.01	100.00
4	Political or community meetings	45.37	7.84	0.00	46.79	100.00
5	Others	51.31	28.98	1.19	18.52	100.00

Source: Primary Survey, 2024-25



Source: Primary Survey, 2024-25

Figure: 2

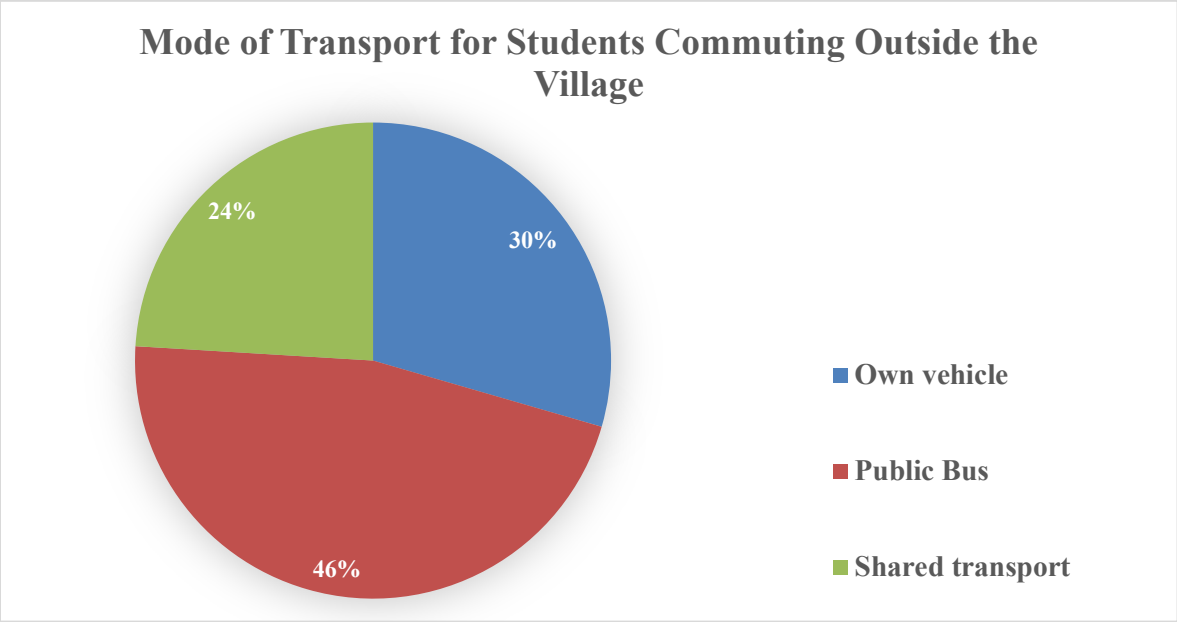
4.4 Access to Education

Access to education outside the village in Bharatpur is largely dependent on road transport and available commuting options. The data in table 4 reveal that public buses are the most commonly used mode, accounting for 46.47 percent of commuting students, although they involve the highest average travel time of 34 minutes. About 29.49 percent of students use their own vehicles, which provide faster access with an average travel time of 18 minutes, indicating better convenience and efficiency. Shared transport is used by 24.04 percent of students, with an average travel time of 30 minutes. Overall, the findings suggest that while public transport plays a dominant role in educational access, private vehicles significantly reduce travel time and improve accessibility.

Table 4: Mode of Transport for Students Commuting Outside the Village

S. N.	Mode of Transport	No. of Students	% of Commuting Students	Average Travel Time (minutes)
1	Own vehicle	92	29.49	18
2	Public Bus	145	46.47	34
3	Shared transport	75	24.04	30
Total		**312**	**100.00**	

Source: Primary Survey, 2024-25



Source: Primary Survey, 2024-25

Figure: 3

4.5 Access to Health Services

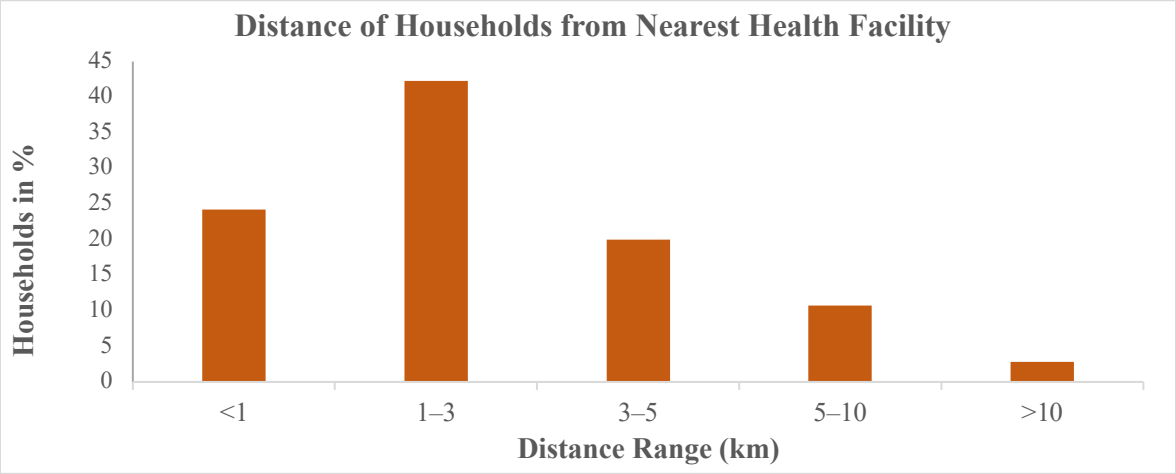
The accessibility of health services varies across households, reflecting spatial differences in infrastructure. The data show that 42.28 percent of households are located within 1–3 km of the nearest health facility, while 24.23 percent are within 1 km, indicating relatively good access for a majority of the population. However, 19.95 percent of households are situated 3–5 km away, and about 13.54 percent (5–10 km and above) face longer travel distances, which may hinder timely access to healthcare services. Overall, while most households have moderate access to health

facilities, a notable proportion still experiences distance-related challenges, highlighting the importance of improved road connectivity and transport services.

Table 5: Distance of Households from Nearest Health Facility

S. N.	Distance Range (km)	No. of Households	% of Households
1	<1	102	24.23
2	1–3	178	42.28
3	3–5	84	19.95
4	5–10	45	10.69
5	>10	12	2.85
Total		**421**	**100.00**

Source: Primary Survey, 2024-25



Source: Primary Survey, 2024-25

Figure: 4

4.6 Change in Interaction Levels, Educational and Health Facilities after Road development

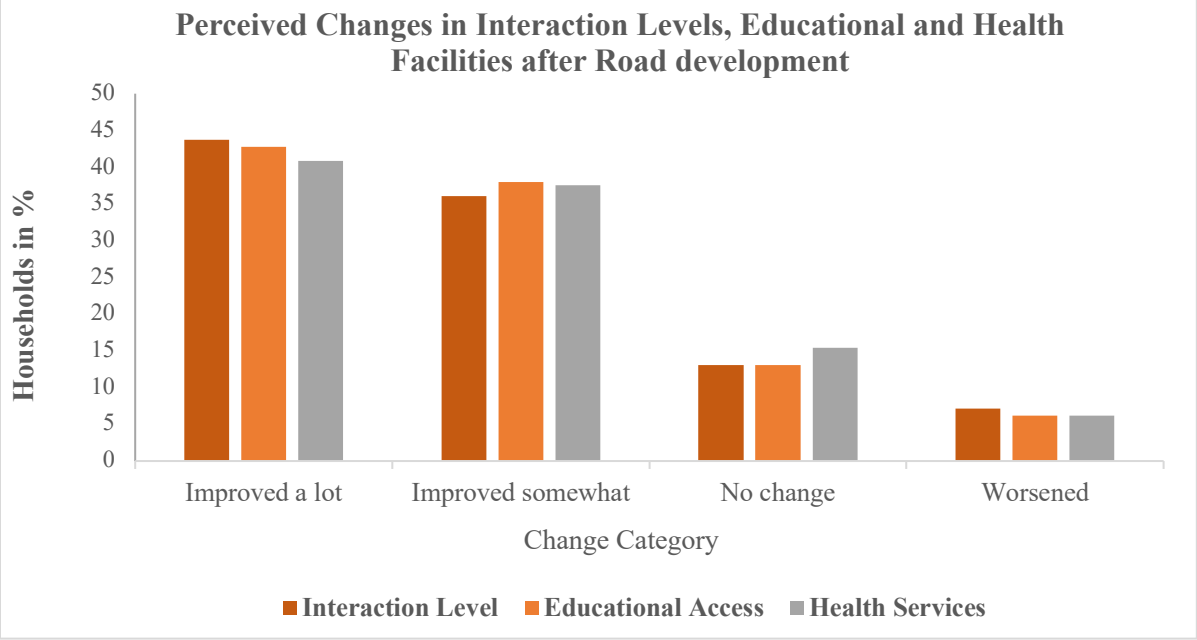
The perception of respondents clearly indicates that road development has led to noticeable improvements in social interaction and access to essential services. A majority of respondents reported positive changes, with 43.71 percent stating that interaction levels have improved significantly, while 36.10 percent observed moderate improvement, reflecting enhanced social connectivity and mobility. Similarly, access to education has improved considerably, with 42.76 percent reporting substantial improvement and 38.00 percent indicating moderate gains. In terms

of health services, 40.85 percent of households experienced major improvement and 37.53 percent reported some improvement, suggesting better accessibility to healthcare facilities.

Table 6: Perceived Changes in Interaction Levels, Educational and Health Facilities after Road development

S. N.	Change Category	% of Households		
		Interaction Level	Educational Access	Health Services
1	Improved a lot	43.71	42.76	40.85
2	Improved somewhat	36.10	38.00	37.53
3	No change	13.06	13.06	15.44
4	Worsened	7.13	6.18	6.18
Total		**100.00**	**100.00**	**100.00**

Source: Primary Survey, 2024-25



Source: Primary Survey, 2024-25

Figure: 4

However, a small proportion of respondents reported no change (around 13–15 percent) or even worsening conditions (about 6–7 percent), indicating that the benefits of road development are not

uniformly distributed across all areas. Overall, the findings highlight that road infrastructure has played a significant role in improving social interaction and access to education and health services, though certain gaps and inequalities still persist.

5. Conclusion

The present study highlights the significant role of road transport development in shaping the social dynamics of Bharatpur based on primary data analysis. The findings reveal that improved road connectivity has enhanced mobility, strengthened social interactions, and facilitated greater access to essential services such as education and healthcare. A majority of households reported increased frequency of visits to relatives and higher participation in social and cultural activities, indicating improved social cohesion and connectivity across villages.

In terms of education, road infrastructure has enabled students to commute more easily to institutions outside their villages, with public transport playing a key role despite longer travel times, while private vehicles offer greater efficiency. Similarly, access to health services has improved for a large proportion of households, although distance remains a challenge for some segments of the population. The perception-based analysis further confirms that most respondents experienced noticeable improvements in interaction levels, educational access, and healthcare services following road development.

However, the study also identifies certain limitations in the distribution of benefits. A small proportion of households reported little or no change, and in some cases, worsening conditions, suggesting that infrastructural improvements have not been equally effective across all areas. Additionally, disparities in access due to distance, income, and availability of transport modes continue to influence the extent of social benefits derived from road connectivity.

Overall, the study concludes that road transport development has been a key driver of social transformation in the region, contributing to improved quality of life and increased socio-economic opportunities. At the same time, it underscores the need for more inclusive and region-specific planning to ensure that the benefits of infrastructure development are equitably distributed across all sections of society.

6. Suggestions

- The quality and maintenance of rural roads should be improved to ensure reliable and year-round connectivity.
- Public transport services should be strengthened by increasing their frequency, affordability, and coverage.
- Special attention should be given to remote and underserved areas to improve access to healthcare and other essential services.
- Transport planning should be made more inclusive by addressing the needs of women, the elderly, and economically weaker sections.
- Community participation should be encouraged in transport and infrastructure planning processes.
- Road development should be integrated with education, healthcare, and employment programs to maximize social benefits.

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