

## A STUDY OF FACTORS DETERMINING INFRASTRUCTURE PERFORMANCE AT TOURISM DESTINATIONS OF KASHMIR VALLEY

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### Abstract

*This paper studied the factors determining the performance of tourism infrastructure at tourism destinations in Kashmir Valley. Poor infrastructure performance is a stern obstacle to the development of the tourism sector. It requires a scientific move to wipe out hindrances. The factors determining the infrastructure performance may differ among the destinations. Accordingly, destination specific analysis is suitable for analyzing the significant factors. Data had collected from five popular tourism destinations through the pre-tested interview schedule, and perceptions were converted into the weights to test the hypothesis. A Multiple Linear Regression Model is adopted to study the significant factors and to verify the results. It is inferred that the factors of soft infrastructure have a strong influence on each destination, followed by sports infrastructure and security establishments, environment infrastructure, public utilities, and typical tourism infrastructure, respectively. The coefficient of determination is noticeably higher in the case of Yusmarg, followed by Srinagar, Pahalgam, Kokernag and Gulmarg.*

**Keywords:** *Infrastructure, performance, destinations, and influencing factors*

**JEL Classification:** *D1J; O15; O18*

### I. INTRODUCTION

Infrastructure is indispensable for the functioning of the tourism industry. It is mandatory to ensure continuous performance in the activities of the tourism industry (Bazargani and Hasan 2021). The availability of infrastructure is the first concern, and its condition highly determines its performance. Subsequently, factors determining its performance are broadly needed to remedy the bottlenecks.

The bad conditioning of infrastructure promotes uneasiness and, therefore, a cause for the annoyance of visitors. On the other hand, gorgeous tourism products supported by quality infrastructure are broadly obliging to magnetize the visitors (Guilding et al. 2002, 1-85). The superior performance of infrastructure and improvement in existing facilities has a crucial impact on the image of destinations. However, failure to bring momentous changes in tourism infrastructure could prove costly due to the burden on existing infrastructure, insufficient supply, and weak competitiveness and sustainability issues at destinations.

Infrastructure is not an end in itself; instead, it supports the functioning of destinations. The essential feature of infrastructure is that it works complementarily, and its elements interact closely. Any damage in a single element of infrastructure might cause ill-functioning of other elements, thereby posing new challenges of inconsistency (Delaplace et al. 2014; Abdullah, Razak and Jaffer 2014). So, the

adequate balance of its elements, maintenance, compatibility and resiliency is indispensable. Consequently, the performance of infrastructure needs to be raised to ensure the smooth operation of tourism destinations.

Infrastructure performance is highly rooted in its quantity; however, it is an individual entity dealing with augmentation, technology adoption, and periodical maintenance. Poor performance of infrastructure unconditionally worsens the outcomes of the tourism sector. Significantly, insufficiency and poor performance of environmental infrastructure affect the ambience of destinations and deteriorate nature-based tourism products. So, infrastructure performance highly depends upon the quantum, condition and maintenance of its numerous elements.

In India, several factors influence the growth of the tourism sector and however, the poor performance of tourism infrastructure is a solemn problem. Performance of tourism infrastructure is not at par with the neighboring countries like Singapore, Malaysia and China. That is why the government of India focused on developing tourism infrastructure in most of the states with the intuition to flourish the country's tourism industry (FICCI 2018, 10-18). States and Union Territories were guided to promote world-class touristic infrastructure, and special funds and incentives were given. Therefore, particular emphasis is being provided on the superior performance of tourism infrastructure to create a favourable setting for travelers towards the states of India.

As a part of the Incredible India Programme, the Union Territory of Jammu and Kashmir also emphasized quality infrastructure at touristic places. However, the promotion of infrastructure had not happened to the extent it should be. The dearth of infrastructure is a severe obstruction to the progress of the tourism industry (Ministry of Tourism-Government of India 2014). As a result, superior initiatives are needed to rectify deficiencies and obstacles. The performance of infrastructure and hindrances allied to its development may differ among the destinations. In this context, this study analyzed the infrastructure performance and determining factors at tourism destinations of Kashmir Valley.

## **II. REVIEW OF LITERATURE**

Prevalence of infrastructure gap puts a significant burden on destinations and damages the infrastructure establishments (Ministry of Tourism – Ontario, 2009; Mello, et al. 2016). As a result, ample infrastructure plays a significant role in ensuring the smooth functioning of destinations and building a superior image among tourists. For this, studies conducted focusing on a solid framework for identifying, prioritizing, and funding tourism specific infrastructure to combat constraints, issues and challenges (Ayyapan and Kumar 2014; Melo, Kamal and Anais, 2016; Abdullah, Razak and Jaffer 2014).

The literature of Khadaroo and Seetanah (2008) and Navickas and Kausaite (2009) confirmed that the attractiveness of transport infrastructure significantly influences the tourist influx. On the other hand, Ayyapan and Kumar (2014) revealed the positive influence of urban roads and railways on foreign and domestic tourist arrivals. Therefore, tourism development demands the adequate performance of road and transport to ensure frequent connections among destinations (Jamil and Paud 2010; Ramjit 2015).

Navickas and Kausaite (2009) declared that the destinations performing better in infrastructure presents a good image and high-quality services. In this connection, the availability of high-quality accommodation, versatile markets, and other facilities influence tourist arrivals (Seetanah and Juwaheer, 2011). On the other hand, few studies conferred positive influence of the better performance of markets, water supply; roads and transportation and boarding and lodging on the tourism sector and image

of destinations (Aniah and Out 2012; Delaplace et al. 2014; Augustine and Emmanuel 2016; Chi and Han, 2020). Therefore, superior performance of infrastructure is one of the significant factors to ensure tourist loyalty and revisit.

The development of green infrastructure is broadly obliging to reduce the ill effects of anthropogenic activities. Understanding the mechanism of green infrastructure and its elements strategic framework is essential. Therefore, a study conducted by Pakzad and Osmond (2016) tried to develop its indicators and dimensions for the vital use of protection of tourism resources. It is inferred that the erroneous recital of infrastructure would lead to the destruction of resources (Miloradov and Eidlina 2018). Studies are designed to enquire about the functioning of infrastructure and its role in environmental safeguard. However, few elements of lodging facilities are incorporated, and results verified environmental insensitivity (Erdogana and Tosunb 2009, 406-14). A study conducted by Assafa and Tsionasb (2015) analyzed tourism performance by incorporating several factors associated with the functioning of the tourism industry.

Reviewed studies broadly covered the infrastructure development and tourism industry and infrastructure performance in terms of transport and accommodation and the need for green infrastructure. As a whole, studies confirmed that the functioning and performance of infrastructure is mandatory for the working of the tourism industry. However, infrastructure performance and its determinants at destinations remained a critical question that must be solved empirically. Therefore, a study on the topic mentioned above may prove effective in contributing to the existing body of knowledge.

## **III. MATERIALS AND METHODS**

### **3.1 Sample Selection and Calculation of Index Values**

Information required to analyze tourism infrastructure performance was gathered through a primary survey due to the non-availability of a structured data set. It adopted area sampling (multi-stage stratified disproportionate random sampling technique). It surveyed 450 observations which comprise tourists (150), service providers (150) and residents (150) from Srinagar, Pahalgam, Kokernag, Gulmarg and Yusmarg by testing interview schedule.

Table 1 Particulars of Sample Group

Sl. No.	Destinations	Sample Group			All (N = 450)
		Tourists (n = 150)	Residents (n = 150)	Service Providers (n = 150)	
1.	Srinagar	30	30	30	90
2.	Pahalgam	30	30	30	90
3.	Kokernag	30	30	30	90
4.	Gulmarg	30	30	30	90
5.	Yousmarg	30	30	30	90
	<b>Total</b>	<b>150</b>	<b>150</b>	<b>150</b>	<b>450</b>

Different sample groups' perceptions regarding service quality had listed according to the prescribed value of the Likert scale. Aggregates of the perceptions had multiplied by the scale value, obtained the new product. At the next level, the outcome derived from the first stage had divided by the destination's sample size (Tourists 30 + Residents of the destination 30 + Service Providers 30 = Total sample 90). It gave an average individual weight given by a respondent to the performance of infrastructure at the destinations.

The exact process had conducted for each destination independently concerning sample groups.

$$\text{Index} = \frac{\text{Actual Score} - \text{Minimum Score}}{\text{Maximum Score} - \text{Minimum Score}}$$

The score gained ranges from '0' to '1'. Individual Index values of each variable were found out to calculate scores and then used to test the hypothesis for each destination separately.

### 3.2 Performance of Tourism Infrastructure in Kashmir Valley

In order to analyze the performance of tourism infrastructure, core functional capabilities of infrastructure have been taken into account. The capability of satisfying the customers, role in destination development, suitability of destination and environment, technology adoption and their

The individual calculated weights had loaded in the master table in the place of the Likert scale value. Though this was time-consuming, it gave continuous numbers that satisfied the probabilities, normality, and linearity conditions. It helped to test a hypothesis related to the factors influencing infrastructure performance through the Multiple Linear Regression Model application.

Estimated weights had used to create numerical data for infrastructure performance and the determining factors as well. Weights derived were normalized destination wise to get the index values for each variable and at each destination.

continuous functioning were gained through suitable variables as perceptions, and transformed into index values and presented in Table 2.

The infrastructure performance of the Kashmir valley scored 0.58 out of 1.00. Surveyed destinations scores of infrastructure performance are also close to the study area average. However, performance in each dimension varies due to the quantity of infrastructure, maintenance and periodic augmentation and level of tourism activities. Further, the factors determining the performance of infrastructure are discussed and presented in second part of the study.

Table 2. Tourism Infrastructure Performance at the Destinations

Sl. No.	Details	Destinations					Kashmir (N = 450)
		Srinagar (n = 90)	Pahalgam (n = 90)	Kokernag (n = 90)	Gulmarg (n = 90)	Yousmarg (n = 90)	
1.	Typical tourism infra.	0.65	0.57	0.60	0.42	0.47	0.54
2.	Infrastructure & Development	0.59	0.57	0.60	0.56	0.59	0.58
3.	Compatibility	0.62	0.65	0.54	0.53	0.54	0.58
4.	Technology	0.43	0.44	0.58	0.41	0.43	0.46
5.	Maintenance	0.82	0.73	0.73	0.62	0.76	0.73
	<b>Infrastructure Performance Index</b>	<b>0.62</b>	<b>0.59</b>	<b>0.61</b>	<b>0.51</b>	<b>0.56</b>	<b>0.58</b>

Source: Computed

### 3.3 USE OF MULTIPLE LINEAR REGRESSION MODEL

#### 3.3.1 Factors Determining Performance of Tourism Infrastructure

Literature review about the infrastructure confirms the need for empirical evidence for factors determining infrastructure performance at destinations. Respondents' perceptions about the functioning of different types of infrastructure facilities are considered for analyses. However, identifying factors determining the performance of tourism infrastructure and the contribution of each type of structure at destinations is crucial. Analysis of determining factors is essential to know whether there is any significant difference among the destinations. Therefore, the hypothesis stating that *"the factors determining the performance of tourism infrastructure differ among the destinations."* The nature and extent of factors influencing the performance of tourism infrastructure are tested individually for five destinations using the Multiple Linear Regression Model.

#### 3.3.2 Framework of the Model

Corollary between the performance of tourism infrastructure and the functioning of different types of infrastructure at destinations are analyzed by

applying the Multiple Linear Regression Model (MLRM). Index values representing the functioning (or factors) of typical tourism infrastructure, public utilities, environmental infrastructure, soft infrastructure and sports and entertainment infrastructure are explanatory variables (Table 5.16). The performance of tourism infrastructure is a dependent variable. It comprises infrastructure and tourism development variables, compatibility, technology adoption, and periodic maintenance of infrastructure facilities. By using the specified variables, the MLRM model is fitted after testing the multi-collinearity function and Variance Inflation Factors. This analysis tries to identify the factors influencing the performance of tourism infrastructure in each destination.

Tourism infrastructure is vital to ensure the functioning of industry and allied sectors. The performance of infrastructure provides an idea about the functioning of its components. Analysis of the performance of infrastructure is essential to substantiate the available facilities and how they are giving services. Later, a strategic framework could be applied to facilitate deficiencies and rectify related issues. In this context, infrastructure performance and related issues had studied to check the present status at destinations in Kashmir valley.

**Table 3. Performance of Tourism Infrastructure: Description of Variables**

S. N.	Variables	Type and Expected Sign	Justification and Relevance
<b>A</b>	<b>Typical Tourism Infrastructure</b>		
1	Road and Vehicle ( $X_1$ )	C/+	Road and vehicles are vital to provide services during high influx of visitors.
2	Ranges of stay ( $X_2$ )	C/+	Availability of ranges of stay crucial to provide accommodation according to capacity of the visitors.
3	Range of products in markets ( $X_3$ )	C/+	Sufficient range of products is obligatory for purchasing facilities and visitor satisfaction.
<b>B</b>	<b>Public Utilities</b>		
4	ICTs ( $X_4$ )	C/+	Availability of telecom services are basis for mobile and internet range and influence the functioning of telecom services.
5	Water supply and Sanitation ( $X_5$ )	C/+	Continuous functioning and maintenance of water quality determines the status of water supply provision at destinations. On the other hand, public toilets are obligatory at tourism spots and determine the condition and performance of sanitation in a particular area.
<b>C</b>	<b>Environment</b>		
6	Solid waste and sewage management ( $X_6$ )	C/+	Better functioning signifies the better status and determines the performance of sewage and solid waste arrangements in a particular area.
7	Pollution monitoring ( $X_7$ )	C/+	Air pollution monitoring is vital to safeguard destinations from negative externalities.
<b>D</b>	<b>Soft Infrastructure</b>		
8	Health, Bank and Information ( $X_8$ )	C/+	Availability of soft infrastructure positively associated with the provision of better healthcare, finance and information.
<b>E</b>	<b>Sports Establishments and Security</b>		

9	Sports infrastructure (X <sub>9</sub> )	C/+	Sports establishments constitute a significant part of tourism. On the other hand, Availability of Cultural theaters signify no. of the cultural activities.
10	Security arrangements (X <sub>10</sub> )	C/+	Security surveillance facilities are vital to safeguard visitors from untoward situations.

$$PTI = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \dots + \beta_{10} X_{10} + \mu$$

Where,

PTI = Performance of Tourism Infrastructure (index)

$$PTI = \frac{(TTI_{index} + ID_{index} + CI_{index} + TI_{index} + MI_{index})}{4}$$

TTI = Typical Tourism Infrastructure  
 ID = Infrastructure and Development  
 CI = Compatibility of Infrastructure  
 TI = Technology (Infrastructure)  
 MI = Maintenance of Infrastructure

In the specified model, the estimated regression coefficients ( $\beta_s$ ) give the marginal effects of each independent variable on the performance of tourism infrastructure in each destination of Kashmir Valley. The adjusted coefficient of multiple determinations ( $\bar{R}^2$ ) examines the contribution of the independent variable on a random variable. The Multiple Linear Regression Model's overall fitness had verified by using the 'F' test. Further, the contribution of each independent factor on the performance of tourism infrastructure had confirmed through students 't' test.

#### IV. RESULTS AND ANALYSIS

Descriptive statistics, model summary and the results of factors determining the performance of infrastructure at destinations are accessible in Table 4, Table 5, and Table 6. The  $\bar{R}^2$  of (multiple determination) Srinagar (0.73), Pahalgam (0.66), Kokernag (0.66), Gulmarg (0.65), and Yusmarg (0.82) are statistically significant at  $p < 0.01$  and  $p < 0.05$ . It confirms that the variation in performance of tourism infrastructure is explained by the fitted model and differs among the destinations. It is significantly higher for Yusmarg, followed by Srinagar, Pahalgam, Kokernag and Gulmarg. The overall fit of the model had checked through the derived values of the 'F' test. It confirms 'F' values of Srinagar (25.09), Pahalgam (18.30), Kokernag (18.23), Gulmarg (17.26), and Yusmarg (44.15) are statistically significant and suitability of the fitted multiple regression model.

##### a) Srinagar

The functioning of different infrastructure facilities except for typical tourism infrastructure determines the infrastructure performance of Srinagar. The weak relation of typical tourism infrastructure with the performance underlined that the existing quantum of typical tourism infrastructure is not sufficient to help the industry. Srinagar is a well-known city and entry point to other destinations; the

tourist wishes to stay at Srinagar due to the availability of a wide range of facilities. It gives burdens on the existing structure, reduces functional capacities, and affects overall performance.

In the case of public utilities, ICTs is helping the infrastructure performance, and the water supply and sanitation is insignificant. It shows the insufficiency of water supply and sanitation facilities and the strength of ICTs at Srinagar. As equal to tourist arrival and the local population size, water supply and sanitation facilities need to be improved. Solid waste and sewage water management help enhance the infrastructure performance of the destinations. The role of the pollution monitoring structure is negligible in the overall infrastructure performance of Srinagar. Pollution control and monitoring structure stock and functions are weak in Srinagar. Though the solid waste and sewage are functioning, surveyed respondents had underlined numerous deficiencies. Effective functioning of the soft, sports and entertainment, and security infrastructure facilities highly supports the overall infrastructure performance of Srinagar.

##### b) Pahalgam

The functioning of typical tourism infrastructure and water supply and sanitation facilities of public utilities did not contribute to the overall infrastructure performance of Pahalgam. It expresses the shortcomings of typical tourism infrastructure, and insufficiency of water supply and sanitation. Pahalgam is one of the leading destinations having a higher number of clusters of tourism spots. It helps the destination increase tourist arrivals, and the influx is high during peak season; at that point, limited facilities could not perform well and affected the overall performance of the destination. ICTs contribution to infrastructure performance of destination is appreciable. Enhanced facilities of internet, new connections and recharges facilities support the improvements in infrastructure performance.

Both solid waste and sewage water management and pollution monitoring effectively support the infrastructure performance of the Pahalgam. It shows the functioning of the specified infrastructure facilities. However, residents and service providers of the destinations had registered numerous complaints of insufficiency and failures. The respondent suggested technology augmentation, regular monitoring, and periodic maintenance to rectify the problems and achieve expected performance.

The functioning of soft, sports and entertainment, and security infrastructure significantly supports the destination overall infrastructure performance. In the case of soft, sports and entertainment, and security, involvement and investment of the respective state and local bodies at destination jointly functioning with private and central government departments. It helps them to enhance their performance. Further, certain facilities are cost-effective, especially sports and entertainment, mostly functioning with the sponsorship and the role of users to support the supply of facilities.

**c) Kokernag**

In the case of typical tourism infrastructure, roads and vehicles and a range of products and markets help the overall infrastructure performance of the destination. When Kokernag is compared with other destinations, Kokernag is the only destination showing performance in typical tourism infrastructure.

Kokernag is very nearby the well-known destination Anantnag, the tourist visiting the Anantnag visiting the tourism places of Kokernag. Therefore, Kokernag has roads and transportation and provides a wide range of products in the tourism market.

At the same time, the contribution of ICTs to infrastructure performance is insignificant, and it varies from other destinations. It shows that the non-availability of information and communication technologies infrastructure facilities at Kokernag. However, the availability of minimum ICTs facilities is available for the need. Effective functioning of water supply and sanitation and solid waste and sewage management strongly supports the infrastructure performance of the destination. It is due to the positive externalities of Anantnag, which is well-known religious destination at national level. It helps the Kokernag to get sufficient facilities for the tourism sector.

The contribution of pollution monitoring, soft infrastructure, sports and entertainment, and sports infrastructure is significantly high compared to other infrastructure facilities of the destination. Due to the high tourist influx and well-known tourism destination, authorities strictly monitor the environmental quality with sufficient monitoring structure. Similarly, the infrastructure facilities of health, bank and tourism information are available at a manageable level. Consequently, the functioning of these facilities strongly supports the overall infrastructure performance of the Kokernag.

**Table 4. Descriptive Statistics: Factors Determining the Performance of Tourism Infrastructure**

Details	N	Srinagar (n =90)		Pahalgam (n =90)		Kokernag (n =90)		Gulmarg (n =90)		Yusmarg (n =90)	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Tourism Infrastructure Index*	90	0.51	0.12	0.49	0.10	0.51	0.09	0.52	0.11	0.43	0.15
Road and Vehicles	90	0.72	0.23	0.63	0.27	0.61	0.21	0.61	0.23	0.60	0.22
Rang of Stay	90	0.62	0.35	0.67	0.31	0.23	0.20	0.55	0.31	0.18	0.16
Range of Product in Markets	90	0.59	0.28	0.72	0.25	0.72	0.26	0.69	0.21	0.62	0.28
ICTs	90	0.40	0.23	0.40	0.23	0.53	0.27	0.44	0.23	0.36	0.25
Water Supply and Sanitation	90	0.10	0.25	0.04	0.17	0.13	0.30	0.17	0.33	0.18	0.33
Solid Waste and Sewage Mgt.	90	0.50	0.33	0.49	0.33	0.47	0.33	0.51	0.31	0.50	0.39
Pollution Monitoring	90	0.64	0.38	0.62	0.40	0.63	0.38	0.63	0.40	0.50	0.40
Soft Infrastructure	90	0.28	0.36	0.20	0.31	0.51	0.37	0.44	0.35	0.21	0.33
Sports and Entertainment	90	0.31	0.15	0.33	0.14	0.34	0.13	0.23	0.16	0.25	0.16
Security Establishments	90	0.22	0.10	0.22	0.09	0.23	0.09	0.25	0.08	0.21	0.10

Note: \* Represents dependent variable

**Table 5. Model Summary of Multiple Regression Models: Determinants of Infrastructure Performance**

Details	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
Srinagar	.872	.761	.730	.06380	.761	25.089	10	79	<.001
Pahalgam	.836	.699	.660	.06039	.699	18.309	10	79	<.001
Kokernag	.835	.698	.660	.05194	.698	18.239	10	79	<.001
Gulmarg	.828	.686	.646	.06611	.686	17.264	10	79	<.001
Yusmarg	.921	.848	.829	.06047	.848	44.145	10	79	<.001

**Table 6. Determinants of Infrastructure Performance: Multiple Regression Model**

Sl. No.	Details	Srinagar (n =90)	Pahalgam (n =90)	Kokernag (n =90)	Gulmarg (n =90)	Yusmarg (n =90)
	Constant	0.20 (5.75)	0.17 (4.48)	0.18 (5.59)	0.11 (2.14)	0.10 (3.53)
<b>A.</b>	<b>Typical Tourism Infrastructure</b>					
1	Road and Vehicles	0.01 (0.40)	-0.03 (-1.15)	0.09* (3.31)	0.01 (0.26)	0.02 (0.59)
2	Rang of Stay	0.00 (-0.11)	0.03 (1.47)	-0.04 (-1.37)	0.05** (2.13)	0.00 (0.05)
3	Range of Product in Markets	0.02 (0.89)	0.03 (1.24)	0.06* (2.40)	0.03 (0.86)	0.00 (0.06)
<b>B.</b>	<b>Public Utilities</b>					
4	ICTs	0.07** (2.29)	0.10* (3.24)	0.02 (0.72)	0.16* (4.77)	0.23* (6.93)
5	Water Supply and Sanitation	0.04 (1.27)	0.03 (0.76)	0.04** (2.13)	0.04 (1.83)	0.02 (1.01)
<b>C.</b>	<b>Environment</b>					
6	Solid Waste and Sewage Mgt.	0.13* (6.31)	0.12* (5.69)	0.11* (6.27)	0.11* (4.46)	0.07* (3.02)
7	Pollution Monitoring	0.02 (0.97)	0.08* (4.78)	0.07* (4.24)	0.09* (4.80)	0.10* (5.04)
<b>D.</b>	<b>Soft Infrastructure</b>					
8	Soft Infrastructure (Health, Bank & Information)	0.17* (8.33)	0.15* (6.64)	0.05* (2.78)	0.15* (6.87)	0.13* (5.98)
<b>E.</b>	<b>Sports and Entertainment</b>					
9	Sports and Entertainment	0.18* (3.29)	0.25* (5.29)	0.12* (2.60)	0.07 (1.35)	0.26* (5.38)
<b>F.</b>	<b>Security</b>					
10	Security Establishments	0.33* (4.46)	0.16** (2.07)	0.32* (4.33)	0.35* (3.45)	0.29* (3.77)
<b>Adjusted R Square</b>		<b>0.73</b>	<b>0.66</b>	<b>0.66</b>	<b>0.65</b>	<b>0.82</b>
<b>F-Value</b>		<b>25.09*</b>	<b>18.30*</b>	<b>18.23*</b>	<b>17.26*</b>	<b>44.15</b>

Note: Figures in Parentheses represents' value, \* and \*\* represent 1 and 5 per cent level, respectively.

**d) Gulmarg**

Of the typical tourism infrastructure, the range of stay significantly influences the infrastructure performance of the Gulmarg. Availability of wide-range of destination-based accommodations and paying guest facilities enlarged the accommodation facilities. In addition, the number of tourists visiting

Gulmarg is manageable by the accommodation facilities available at the destinations. It favourably supports the overall infrastructure performance of the destination.

ICTs and infrastructure support the infrastructure from the category of public utilities. However, the water supply and sanitation facilities did

not show any influence on the overall performance of the Gulmarg. Though the location of Gulmarg is the interior part of Kashmir Valley, it has facilities required for information and communication technologies. However, the quantity of water supply and sanitation facilities and their functioning do not support the infrastructure performance of the destination.

Pollution monitoring, soft infrastructure and security infrastructure favourably influence the infrastructure performance of the Gulmarg. Pollution control and monitoring system is efficiently functioning in Gulmarg due to its environmental importance. Further, most of the tourism products are natural based and highly sensitive too. Like other destinations, hospitals, banks, ATMs, and tourism information effectively perform at Gulmarg and enable to support the overall performance of the destination. However, its sports and entertainment infrastructure facilities did not contribute to the destination due to its geographical location.

#### **e) Yusmarg**

The role of typical tourism infrastructure could not be visible in Yusmarg. The distance from the urban centre and its geographical location affected road, transport, and construction at Yusmarg. However, it is supported by the public utilities and soft infrastructure facilities of nearby towns. In the case of environmental infrastructure, solid waste and sewage management and pollution monitoring significantly contribute to overall performance. It conveys that the destination is cautious on environmental quality because its tourism activities depend on natural resources such as springs, gardens and rivers. Therefore, environmental aspects support the overall infrastructure performance of the destination.

Especially the support of sports and entertainment contribution to infrastructure performance is remarkably high in Yusmarg than other destinations. Yusmarg is one of the destinations offering sports tourism in Kashmir Valley. Therefore, related developments and initiatives support the destination. Further, the functions and contributions of soft and security infrastructure facilities to destination are appreciable. The results of the analyses also confirmed the same.

#### **V. CONCLUSION**

The results of MLRM confirmed the relationship between the functioning of different types of infrastructure facilities and the overall infrastructure performance of the destinations through empirical evidence.

Typical tourism infrastructure facilities, especially road and vehicles, range of product and range of stay supports the total infrastructure performance only in Kokernag and Gulmarg. The intensity of tourist influx and location influences the functioning of typical tourism infrastructure. Kokernag and Gulmarg tourist influx is comparatively lower than others, it helped them to manage the activities within the functional capacity of the infrastructure. However, components of typical tourism infrastructure did not contribute to the destination.

The role of public utilities such as ICTs, water supply and sanitation differed in supporting the overall infrastructure performance among the destinations. ICT positively supports the total infrastructure performance of all the destinations except for Kokernag. But performance of water supply and sanitation is insignificant to support in all the destinations except Kokernag. All the destinations were aware of the environmental impact of tourism and cautious about environmental quality. However, Srinagar environmental monitoring is poor and did not show a significant contribution to total infrastructure performance. Due to population density, high tourist inflow and urban expansion existing environmental infrastructure is not sufficient to support the destination.

The role of soft infrastructure is pivotal in the overall infrastructure performance of all the surveyed destinations. Hospitals, banks and ATMs, tourism information facilities are run by both private and public. Therefore, they can support destinations and improve infrastructure performance. Further, the security and sports infrastructure facilities functioning with the support of central government and user participation. It helps them perform in the destination with additional support from state government and local bodies and significantly contributes to the overall performance of the destinations.



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