# TOURIST TRANSPORT POLLUTION AND THE ENVIRONMENT IN NAINITAL TOWNSHIP-AN ANALYSIS OF RESIDENT'S PERCEPTION

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**Abstract**
The Nainital Township is like most hill stations of the British colonial era. It is a mountain destination comparable to any European mountain destination. Nainital was once a summer retreat for the Britishers and other tourists. After independence, tourism growth in Nainital flourished. Affluent people travelled to Nainital to escape the dry and humid climate of the cities. Tourists used to lease and rent houses in Nainital to spend summer vacations in Nainital. The calm, soothing, and slow-paced environment of the Nainital city provided perfect recreation. Since mass tourism took over leisure tourism Nainital township has changed. Nainital has transformed from a leisure tourist destination to a mass tourist destination. Souring holidaying demand has forced an increasing number of tourists. That has caused an expansion of tourism supplies in the local tourism industry. Travel patterns of tourists have also changed over time in Nainital. Higher ownership of cars is related to the comfort, style, and status of tourists. Private tourist cars and taxis flood the Nainital regions during the summer months. Vehicle movement in mountain regions increases problems of the environmentally fragile zones. Irrespective of various challenges and problems, tourists still visit Nainital. Geographical limitations and conservation efforts of residents have highlighted critical issues in Nainital. The current study focuses on the perception of residents of Nainital. The study captures the environment and leisure mobility issues of respondents.

**Keywords:** Environment, Tourism transport, Pollution and Nainital Township

## INTRODUCTION

Until the late 1970s, in many regions and countries, tourism was considered a smokeless golden goose, an industry reaping more benefits with fewer financial resources and causing negligible damage on human society and nature. However, in the wake of countless reports by hundreds of researchers, the environmental movement pressured tourism industry and governments to refashion the conventional tourism development framework to meet the needs of new environmentalism standards while sustaining an optimal level of socioeconomic benefits **(Choi & Sirakaya, 2005).**Local governments, developers, and community residents have been known to overlook or dismiss the importance of the surrounding environment and aspire only to maximize economic growth. As argued by Glasson, Godfrey, and Goode (1995) that "tourism contains the seeds of its own destruction: tourism can kill tourism, destroying the very environmental attraction which visitors come to a location to experience" and stated by Brackenbury (1993) that "the end of environment is the end of tourism." Rapid and unplanned town development to meet the demands of increasing number of visitors results in various negative effects on the natural, constructed, and cultural resources(e.g., the loss of authenticity or the adaptation of tourist demands souvenirs, arts, crafts, and so forth and commodification). Environments are one of the main attractions of tourist destinations and therefore are valuable resources. In this regard, the meaning of the environment in the tourism context has expanded from the physical environment to include wildlife, the farmed environment, built environments, and natural resources. In tourism, the environment is the main

 

source of attraction that traditionally has lured tourists. For tourism to be truly sustainable, it needs to protect local and national culture, improve social and individual well-being, and conserve/preserve the surrounding environment. Both social and natural environments have the right to be conserved and to have their eco-centric and/or bio-centric value protected. Evidently, sustainable tourism can reduce adverse impacts on the environment by reinforcing the management capability by implementing education and training programs and by developing monitoring systems (Brackenbury, 1993; Choi & Sirakaya, 2005; Croall, 1995; Fennell, 1999; Glasson et al., 1995; Mowforth & Munt, 1998; Stabler, 1997; Swarbrooke, 1999).

## STUDY AREA

Nainital, which occupies a place of pride on the tourist map of India, is a growing centre located on the outer margin of the Central Himalaya, about 300 km northeast of Delhi (Joshi & Pant, 1990) and located at 29° 24′ N latitude and 79° 28′ E longitude (Joshi & Pant, 1990; A. Kumar & Tamta, 2023; M. Sharma, 2014).

Famed for its scenic beauty, sung in lore and legend, Nainital stands out, for it is an ideal resort for all types of holiday-makers–the serious, the curious and the pleasure-seeking (Shah, 1999; Tamta, 2019). The study area is located at 29° 24′ N latitude and 79° 28′ E longitude(M. Sharma, 2014), and is characterized by a mountainous landscape and varied relief. It is situated in a valley running from west to east and bounded by the peak of Cheena continued by Alma and Sher-ka-Danda to the eastern extremity where the ridge descends to the level of the lake 1805 metres above sea level(Shah, 1999). The lake itself is situated at a height of 1938 meters (6350 feet) encircled by beautiful tree-clad mountains. It measures 1400 meters in length and 200-300 meters in width(Shah, 1999). The maximum and mean depth of the lake are 27.3 m and 16.2 m, respectively(M. Sharma, 2014). On the west, is the rugged hill of Deopata and on the south, the Ayarpata attains an elevation and diminishes gradually towards the east. The eastern boundary is a pass, through which runs the source of the Baliya river, which in turn is the principal feeder of the Gaula river. Oak, Cypress and other beautiful trees continue from the margin of the lake upwards to the ridge for 2 kms up to the peaks, which stand at the extreme of this vest amphitheatre(Shah, 1999). The lake's basin is formed of folded and faulted rocks of krol and Tal formation attributed to the Cambrian age the lake support around 45,000 local inhabitants presents in its catchment area(Valdiya, 1987). Nainital is a prime example of Lake Township that has been severely impacted by human activities owing to expansion of urbanization catchment area(Valdiya, 1987). Today, Nainital is not that beautiful from the scenic point of view as it used to be with its spacious bazaars and by-lanes in the background of the deodars(Shah, 1999). Planners, politicians, and bureaucrats think that every bungalow on the hillside should be connected to a motorable road(Shah, 1999).

The government is not clear what it wants from tourism (R. Bhargav, personal communication, May 21, 2015). During the few decades increasing local population and the logarithmic increase in tourist influx into the watershed has affected the water resources and biodiversity of the area. Scientific studies from Uttarakhand record many instances of accelerated soil erosion, landslide activities, increasing soil erosion, landslide activities increasing food hazards and diminishing discharge in springs and rivers all associated with forest degradation and lose of forest cover (Valdiya, 1987). The fast development if township and urban areas all over the world caused excess utilization of natural resources resulting in production of tremendous amounts of domestic waste (Klang et al., 2002).The enlarge in quantity and complexity of waste that been generated is a result of urbanization and high living standards in urban area. fast growth of population and industrialization degrades the town environment and places serious stress on natural resources in Nainital(Baud et al., 2001).

## LITERATURE REVIEW

The rise of tourism and its associated developments in the Western world after World War II reflected the philosophies of this industrial-era paradigm(Choi & Sirakaya, 2005). For decades,

 

tourism has been celebrated as the saviour of many communities around the world because of its ability to generate hard currency, new income, and jobs. “Not surprisingly, many destinations have been caught off-guard in dealing with the adverse impacts of tourism on natural, social, and cultural resources” (Choi & Sirakaya, 2005; Sirakaya et al., 2001).

Tourism, a multifaceted economic activity, interacts with the environment in the framework of a two-way process. On the one hand, environmental resources provide one of the basic "ingredients", a critical production factor, for the production of the tourist product: the natural and/or manmade setting for the tourist to enjoy, live in, and relax. On the other hand, tourism produces a variety of unwanted by-products, which are disposed, intentionally and unintentionally, to and modify the environment; the case of negative environmental externalities (Bhattacharya et al., 2005; Briassoulis, 1992). The theory on environmental damage, which addresses the questions of population and economic growth, is relevant to tourism due to tourism demand and supply growth. It is ever present in the tourism literature and is referred to in almost every work that relates to tourism development and business.

At the same time, it is argued that because sustainable tourism is a set of principles, not a type of tourism, it can be applied to any tourism type or destination type, including concentrated mass tourism destinations (Mihalic, 2013; UNEP-WTO, 2005). As stated by Hares (2009)a theme that emerged was that mass tourism has had a considerable impact on the local environment at many popular destinations. This confusion between the impacts of tourism on global climate change and on the local environment of holiday destinations was also encountered by Gossling et al. (2006) in their study of tourists’ perceptions of climate change. Although most of the environmental impact of tourism relates to the journey to and from the destination area, tourist and day visitor travel within an area also creates environmental problems, which can reduce the attractiveness of the area (Böhler et al., 2006; Guiver et al., 2006; Guiver & Lumsdon, 2009; Høyer, 2000; Paul Peeters & Schouten, 2006).There is a growing awareness that something needs to be done. Yet the causal link between transport and environmental conditions are rarely understood at the level of detail necessary to design targeted interventions and assess their effectiveness(Mukherjee, 2006).

Saxena (2005) highlights on the paradox where on one hand, modern industrial societies pursue economic growth through the open exchange of people, raw materials, energy, goods and services in an increasingly global marketplace, yet on the other, the transport system required to allow such exchange may be exerting pressure on the environment that degrade the functional integrity and quality of natural ecosystem to the extent that prospects of maintaining or achieving a high quality of life in many human societies is threatened. It means the dependency will go on which makes it all the more important to evolve a policy that can cope up with the side effects of this technology. Inevitably, environmental trade-offs lie at the heart of sustainable development policy in the tourism sector. While at a destination level, tourism is seen as a relatively sustainable activity, the safeguarding of long-term ecological systems is brought into question when origin to destination travel comes into the equation(Dickinson et al., 2013; Gössling et al., 2009; Høyer & Aall, 2005; Jones & Munday, 2007). This relevance is what is calls the impact of the volume perspective, as environmental problems are caused by the total transport movements independently of the passengers’ destinations, versus the intensity perspective, or the transportation within tourists’ destinations (Cadarso et al., 2015; Høyer, 2000).The way ideas circulate and particular practices become accepted is significant for tourism, especially where such practices have negative implications for society or the environment.

Practices become accepted and difficult to question especially where there is a collective need to maintain mobility due to the range of personal benefits(Dickinson & Robbins, 2008). Today, majority of the administrative settings has a focus on the economic benefits obtained by the areas due to the development of tourism, the adverse non-economic, socio-cultural and environmental-impacts are totally ignored(Bhattacharya et al., 2005). The environmental costs continued to be neglected because of the prevalent belief of the nature being inexhaustible and renewable. This led to an indiscriminate and unplanned growth of tourism infrastructure in many countries and soon the

 

negative effects in the form of social and environmental degradation started emerging(Bhattacharya et al., 2005).It is undeniable that tourism has enormous potentials for the environment conservation of environment. However, it must also be borne in mind that the balance between tourism and the environment is very fragile one(Bhattacharya et al., 2005).There is also a growing awareness of tourism impact and the tensions that may exist in seeking to balance economic development with social and environmental goals(Scott et al., 2014). Rapid increase in travel demand and increasing reliance on road transport has serious implications for environment. Already, transport sector is the major cause of air pollution in urban areas. It contributes significantly to major environmental challenges both at local as well as global levels(Singh, n.d.).

When one talks of the environmental effects of transport system, it is to the noise, air pollution and social disruption caused by motor vehicles in use thoughts usually turn. It is these effects that are immediately apparent to every member of the community whenever he walks down a street(Nash, 1976). Although car use is the most popular visitor transport mode, congestion, pollution, traffic problems, and demands for sustainable transport practices have led to a renewed focus on the importance of public transportation in urban tourism development. However, encouraging a modal shift is not an easy task (Dickinson et al., 2009; Guiver et al., 2007; Le-Klähn et al., 2014; Lumsdon et al., 2006; Redman et al., 2013; Regnerus et al., 2007). As a growing city with increasing numbers of tourists, having a well-developed public transport system is part of the city's forward-looking transport policy, which emphasized an efficient transport system as pivotal for the proper functioning of a large modern city (Le-Klähn et al., 2014; Munich, 2005a, 2005b). Residents' perceptions should be viewed as an essential and integral part in the process of planning community-based tourism for sustainable development. Impact literature also suggests that people who enjoy or suffer most from tourism are those who live in the community, where tourism is developed.

So, the perceptions of the local people is also important as they are the real witnesses of the tourism scene, both as spectators and as actors, and eventually they are the ones who are directly (or indirectly) affected by tourism (Singh, 1989;Xiao & Li, 2004)(Besculides et al., 2002; R. Sharma, 2012). In short, given that resident behaviour is an essential aspect of the tourism product, the ultimate goal is to understand and subsequently manage residents' attitudes and seek support for the area's tourism development model (Díaz & Gutiérrez, 2010)(Akis et al., 1996; Sánchez-Cañizares et al., 2014). Past research has shown the different impacts of tourism on the local community, and the perceptions and attitudes of residents towards tourism, however no research has shown how and how much these perceptions and attitudes change according to a change in the demographic profile of the local community (Kamat et al., 2014).

The impacts of tourism on destinations and host communities, and associated residents' perceptions and attitudes toward tourism, continue to be an important issue. The age of a resident was not a determinant of attitude, and hence attitudes shown by longer stay residents were not being influenced by the fact that they were simply older people. Perceptions are significantly differentiated according to one's social status and class.(Cavus & Tanrisevdi, 2003; Husbands, 1989; Lindberg et al., 1999; Ryan & Montgomery, 1994; Snaith & Haley, 1999). (Cavus & Tanrisevdi, 2003) also suggests that local and central administrators should pay more attention to the problems and residents' feelings. They also should try to educate residents about both costs and benefits of tourism. Residents' efforts in the planning process also should not be ignored.

In the field of tourism impacts, literature suggests that tourism-related social changes can evoke a variety of both positive and negative perceptions in the host community members. Thus, residents' perceptions should be viewed as an essential and integral part in the process of planning community-based tourism for sustainable development. Impact literature also suggests that people who enjoy or suffer most from tourism are those who live in the community, where tourism is developed. So, the perceptions of the local people is also important as they are the real witnesses of the tourism scene, both as spectators and as actors, and eventually they are the ones who are directly (or indirectly) affected by tourism (Singh, 1989;Xiao & Li, 2004)(Besculides et al., 2002; R. Sharma, 2012). Furthermore, studies of resident's perception of the impact of tourism on the environment imply that

 

residents may view tourism as having either a positive or negative impact on their environment (K. S. Kumar, 2013). Researches also indicate that economic and socio-cultural factors such as community attachment, length of dwelling, economic dependency on tourism and stage of development can influence residents' perceptions of and/or attitudes towards tourism (Ap & Crompton, 1998; Lankford & Howard, 1994; R. Sharma, 2012). However, it must be understood that many a times - the social, environmental and economic needs of local communities are met through the offering of a tourism product of the local region (Raj, 2016) and residents who are much involved in tourism and have consequently derived greater benefits from the industry, are more likely to hold supportive attitudes towards its further development (R. Sharma, 2012).

## METHODOLOGY

A Schedule-based resident survey was conducted and due to time and labour constraints, self-administered surveys were used. The scale was developed to understand the residents' perceptions on tourism transport pollution related to Nainital Township. The prepared scale was pre-tested and revised with the aid of an initial pilot survey carried out using a tool with a five-point summated scale; however, due to less than 7% representation in each scale, the scale was reduced to a three-point scale, where the degrees stood between (1 to 3); where 1 stands for No, 2 is for Can't say, and 3 is for Yes. Statements in general considered residents' perceptions on transport pollution and correlated with educational level, occupational status and traffic affected population of the respondents in Nainital Township.

### *Data Collection*

To reach a wide range of potential participants as possible, the polls were carried out at various workplaces, schools, and public locations. These locations were convenient for approaching residents and were familiar with them.

Respondents were recruited using an incidental sampling method and random intercept approach. The researcher reached out to the residents, introduced himself, briefly explained the research work, and offered the participants to participate in the survey. Those who decided to participate were offered schedules. Following pilot testing, the surveys were conducted in November and December 2016, and January 2017. In totality, 537 people were approached and a total of 500 schedules were distributed. Out of the 495 schedules collected, 471 were found to be valid due to fulfilling the required parameters. 24 were rejected because the schedules were not filled properly, or the responses were not selected. Such schedules were discarded because no proper information was yielded through them.

### *Data Analysis*

The data were analysed in two different phases.

First, means, medians, and modes were utilised to compare residents' opinions of each aspect. Second, chi-square test was used to determine the significant difference in attitudes across various educational levels, employment status and traffic affected state of residents with transport in Nainital Township. Different demographic profiles on the claims allowed for the measurement of the significant difference in opinion. Numerous compelling insights have been made based on the results of various statistical tests used for analysis.

## DISCUSSION

### *Resident Profile*

The survey sample includes 471 respondents, which were analysed with the help of a structured closed-ended schedule. As per the data analysed, most of the respondents were male, and the majority (64.3 percent) were in the age group 20-40, i.e., youth were the major respondents of the study. The education level profile of respondents reveals that 31 percent are university/college graduates and 43.7 percent post-graduates. This implies that the respondents are well-educated and understood the objectives and modules of the study of which they are a part of. As far as income groups are concerned, major population of the study, 69.9 percent, falls in the category of middle-

 

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income group, and a high percentage of respondents represents an employed status at 74.1 percent. Respondents living in Nainital also reveal their composition of family type and family size, with 54 percent being nuclear families and 42.5 percent being joint families, while, 54.6 percent families had 2-4 members and 44.6 percent had more than 4 members. The data of family type and family size correlates to each other and justifies the data.

Most respondents have maintained their place of stay for more than 10 years at 79.9 percent representation. Regarding the place of residence from major road heads, substantial respondents, around 62.2 percent, stay far away from the main road. Respondents staying along minor roads and relatively far from minor roads are 32.27 percent and 33.97 percent respectively. Data regarding benefits gained through tourism reveals that almost half of the respondents, 49.7 percent, are directly or indirectly associated to, and are reaping the benefits out of the tourism business. This shows that almost about half of the population is dependent on the tourism sector in Nainital. This highlights that the major economic spinner in Nainital is tourism, which leads to the declaration that Nainital is a tourism-dependent economy. About 70.1 percent of the respondents show a state of being affected by traffic problems in Nainital.

***Cross Table Analysis***

Several chi-square tests were performed between educational level and tourism transport pollution (categorical variables), employment status and tourism transport pollution (categorical variables) and traffic affected population and tourism transport pollution (categorical variables). Number of respondents (n) for various chi-square groupings was as follows:

**Table 1:Chi-Square Analysis Groupings**

| **Chi-Square Groupings** | | **N** |
|---|---|---|
| Education Level | Intermediate | 118 |
| | Graduate | 147 |
| | Post-graduate | 206 |
| Employment Status | Non-working | 122 |
| | Working | 349 |
| Traffic-Affected Population | Untroubled | 141 |
| | Troubled | 330 |

***Source: Researcher's Survey***

Multiple statistically significant relationships between the categorical variables were found by chi-square analysis. Appendix I contains the chi-square values generated to assess the significance of associations between various variables. On the basis of the items in Appendix I, Table 2 has been created for the present investigation, where Perception of residents' of Nainital township, with different categorical variables, namely, educational level, employment status, traffic affected population and tourism transport pollution are compiled, outcomes are thoroughly reviewed, and implications are drawn from the results.

**Table2: Comparison of Chi-square analysis of tourism transport pollution among respondents belonging to education level, employment status and traffic affected population**

| **SN** | **Statement** | ***Education Level*** | ***Employment Status*** | ***Traffic Affected Population*** |
|---|---|---|---|---|
| 1 | Air pollution from vehicles is a serious problem in Nainital | *Insignificant* | *Insignificant* | *Significant at .01 level* |
| 2 | Road transport is a source of visible air pollution in Nainital Town | *Significant at .01 level* | *Insignificant* | *Significant at .01 level* |
| 3 | Road transport is a source of invisible air pollution in Nainital Town | *Significant at .01 level* | *Insignificant* | *Significant at .01 level* |

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| | | | | |
|---|---|---|---|---|
| 4 | Tourist vehicles are a major source of air pollution | *Insignificant* | *Significant at .05 level* | *Significant at .01 level* |
| 5 | Tourist vehicles are a major source of carbon emission in Nainital town | *Significant at .01 level* | *Insignificant* | *Significant at .01 level* |
| 6 | Direct relationship between road transport and air pollution in Nainital town | *Significant at .01 level* | *Insignificant* | *Significant at .01 level* |
| 7 | Direct relationship between air pollution and environmental change caused by road transportation in Nainital town | *Significant at .01 level* | *Significant at .05 level* | *Significant at .01 level* |
| 8 | Traffic-related pollution affects environmental health in Nainital town | *Significant at .01 level* | *Insignificant* | *Significant at .01 level* |
| 9 | Traffic-related pollution affects public health in Nainital town | *Significant at .01 level* | *Significant at .05 level* | *Significant at .01 level* |
| 10 | Carbon emission affects the environment | *Significant at .01 level* | *Significant at .01 level* | *Significant at .01 level* |
| 11 | Experience of health effects from carbon emission | *Significant at .01 level* | *Insignificant* | *Significant at .05 level* |
| 12 | Experience of environment-related effects from carbon emission | *Significant at .01 level* | *Insignificant* | *Significant at .01 level* |

***Source: Researcher's Survey***

1. Statement 'air pollution from vehicles is a serious problem in Nainital', show no significant difference in education level and employment status groupings, but the opinions of respondents of traffic affected groupings show a high significant difference.
2. Statement 'road transport is a source of visible air pollution in Nainital Town', it is found that there is no significant difference in employment status grouping of the respondents, but the opinions of respondents of education level and traffic affected groupings shows a high significant difference.
3. Statement 'road transport is a source of invisible air pollution in Nainital Town', shows that there is no significant difference in employment status grouping of the respondents, but the opinion of respondents of education level and traffic affected groupings shows a high significant difference.
4. Statement 'tourist vehicles are a major source of air pollution', it was found that there is no significant difference in education level groupings of the respondents, but the opinions of respondents of employment status grouping shows a significant difference and traffic affected population grouping shows a high significant difference.
5. Statement 'tourist vehicles are a major source of carbon emission in Nainital town', shows that there is no significant difference in employment status grouping of the respondents, but the opinion of respondents of education level and traffic affected groupings shows a high significant difference.
6. Statement 'direct relationship between road transport and air pollution in Nainital town', shows that there is no significant difference in employment status grouping of the respondents, but the opinions of respondents of education level and traffic affected groupings shows a high significant difference.
7. Statement 'direct relationship between air pollution and environmental change caused by road transportation in Nainital town', it was found that there is a significant difference in the

employment status grouping and there is a high significant difference in the education level and traffic affected population groupings

8. Statement 'traffic-related pollution affects environmental health in Nainital town', shows that there is no significant difference in employment status grouping of the respondents, but the opinions of respondent's education level and traffic affected groupings shows a high significant difference.
9. Statement 'traffic-related pollution affects public health in Nainital town', it was found that there is a significant difference in the employment status grouping and there is a high significant difference in the education level and traffic affected population groupings
10. Statement 'carbon emission affects the environment', it was found that there is a very high significant difference in the education level, employment status and traffic affected population groupings.
11. Statement 'Experience of health effects from carbon emission' show that there is no significant difference in the views of employment status groupings, there is a significant difference in the opinions of traffic affected groupings and a high significant difference in the opinions of education level groupings.
12. Statement 'experience of environment-related effects from carbon emission', shows that there is no significant difference in employment status grouping of the respondents, but the opinions of respondent's education level and traffic affected groupings shows a high significant difference.
13. Responders' perspectives on three propositions –direct relationship between air pollution and environmental change caused by road transportation in Nainital town, traffic-related pollution affects public health in Nainital town and carbon emission affects the environment, have been discovered to be significant. The fact that all of the assertions exhibit a very high significance difference in terms of the traffic affected groupings is also significant.

## CONCLUSION

The results showed that varying citizens' perspectives on tourism and tourists have influenced the creation of perception-support-development models, which aim to take into account both the positive and negative responses from the local population. According to research, socio-cultural and economic factors like relationships with the community, length of residence, economic dependence on tourism, and stage of tourist development might affect how locals view and/or feel about travel. It is also suggested that residents who had stronger attachment to their community viewed tourism impacts with more concerns than did those who were less attached. Moreover, residents' perceptions of tourism are also connected with the stage of development in their respective communities (Xiao & Li, 2004)(Ap & Crompton, 1998; Butler, 1980; Cooper & Jackson, 1989; Lankford & Howard, 1994; Mccool & Martin, 1994; C. J. A. Mitchell, 1998; C. J. A. Mitchell & Coghill, 2000; R. Mitchell & Hall, 2001; Plog, 1973; R. Sharma, 2012). In this regard, the existence of environmental damage is explained through the absence of environmental social ethics (and awareness) and as a product of human ignorance(Mihalic,2013).Based on this argument, the theory claims that the absence of so-called social environmental ethics has caused the current negative attitude to our environment(Frey, 1985; Mihalic, 2013).

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