

Transportation Management for Tourism Development in Madurai

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Abstract: -- Transportation sector is one of the main important sectors of the economy. Many countries take advantage of covering the budget deficit with the help of profits coming from tourism. But tourism has its own unique features that differentiate this sector from the others. Like, in the other service industries, in tourism, the customers, that is, the tourists come to the destination where the tourism services are provided. The success of introducing a transportation facility depends upon the study which provides necessary information of to reduce parking difficulties, traffic congestion, public transport inadequacy, and loss of public space in Madurai. The main aim of this study is to conduct feasibility study of various possible transportation system management to enhance tourism development in Madurai district.

I. INTRODUCTION

1.1 GENERAL

With rapid development in the field of transport and communications, the size of the global tourism industry is likely to double in the next decade. The World Tourism Organization (WTO) declares 21st century will see a higher percentage of the total population travelling, especially in developing countries and people will be going on holidays more often. Travellers will also be going farther and farther. Tourism serves as an effective medium for transfer of wealth because here income earned in places of “residence” is spent in places of “visit”. Madurai being a tourist place attracts large number of tourist throughout the year. The city is mainly depending on the tourism related activity for the economy in addition to other industries. In the coming year tourism will remain key factor and continue to attract tourist. Considering the above, change in travel pattern in the city will be minimum. Also the city has reached saturation level in the land development. Any change in travel pattern would necessitate huge land acquisition and resettlement issues. The objective of this report to reflect current travel characteristics and to provide guidance on travel demand forecasting procedures and their application for solving common transportation problems

1.2 TRANSPORT AND TOURISM

The people have been using transportation in order to travel from one place to another since ancient times. At that time simple transportation forms existed. But in the 19th century the steam power engines, and lately diesel powered engines

were invented, as the matter of fact the inventions changed the transportation notion. The speed became one of the most important factors in transportation. In 1841 Thomas Cook realized the first organized travel using train with steam power engine. From that time, transportation became inseparable part of tourism. A transport system acts as a bridge between places of tourist origin and destination. It opens out a region by providing an access to its tourist places. In its absence, the resource potential for tourism i.e. attractions and amenities, we cannot talk of the planning of tourism in an area without organizing its transport system. The system consists of a network of routes or means of transport and the modes of transport. The former includes air, sea or water routes Inland routes include roads or the motorways and the rail transport. The modes of transport refer to aircraft, ships, steamers, cars, taxis, luxury coaches, buses and the railway trains. Taxis, cars, motor like auto rickshaws, mopeds, bicycles and trams are particularly important as items of local transport.

1.3 INTERNATIONAL TOURISM SCENARIO

The World Tourism Organization (WTO) plays a vital role in promoting the development of responsible, sustainable and universally acceptable tourism and is paying particular attention to the interests of developing countries. People in general now view tourism as a way of life rather than a luxury reserved for the affluent and the elite. Tourism has emerged as the largest service industry globally in terms of gross revenue, as well as foreign exchange earnings.

1.4 TOURISM IN INDIA

India has emerged as the fastest-growing market in Asia in terms of international tourist spending. India has incredible

Monuments, Forts, Palaces, Temples, Beaches, Wild Life Sanctuaries, Memorials, Music and Dance. There is vibrancy of the culture, both ancient and modern. The economic and social conditions prevailing in India today have created huge growth in domestic tourism. The economic growth achieved by the country over the years has created a powerful middle class with reasonable affluence and disposable income. The ‘visa on arrival’ scheme introduced by Government of India, will enhance foreign tourist arrivals. The tourism industry in India is economically important and it is growing rapidly.

Table 1.1 Foreign Exchange Earnings (Fees), In US\$ Million, From Tourism in India, 2006-2016

Year	FEEs from Tourism in India (in US\$ million)	Percentage(%) change over the previous year
2006	8634	15.2
2007	10729	24.3
2008	11832	10.3
2009	11136	-5.9
2010	14193	27.5
2011	16564	16.7
2012	17737	7.1
2013	18445	4.0
2014	20236	9.7
2015	21071	4.1
2016 (Jan to June)	10865	6.5

1.5 TOURISM IN TAMILNADU

Tamil Nadu is a State with multifarious tourist attractions. It has mountains, verdant vegetation, sandy beaches, mammoth monuments, timeless temples, fabulous wildlife, scintillating sculptures and reverberating rural life. It has picturesque spots, continuing heritage, cultural confluence and aesthetic magnificence. Tourism is declared as an “Industry”.

1.6 TOURIST ARRIVALS TO TAMILNADU

Tamil Nadu is ranked first in both domestic and foreign tourist arrivals in 2014 and 2015 consecutively in the country. Many steps are being taken to sustain the Top position in both domestic and foreign tourist arrivals in the ensuing years.

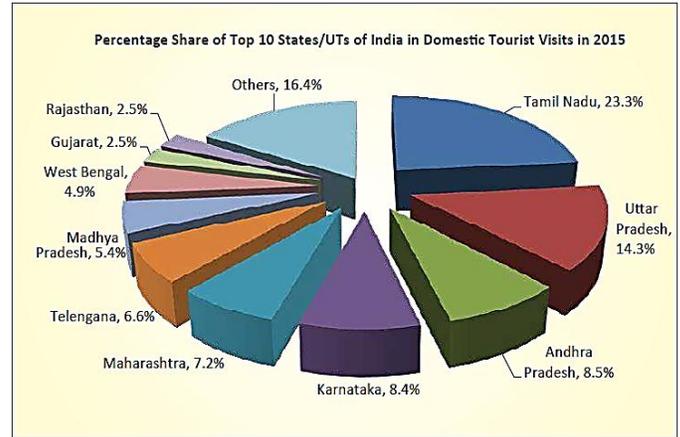


Fig 1.1 Tourist arrival to Tamilnadu

Table 1.2 Share of Top 10 States/UTs of India in Number of Foreign Tourist Visits in 2015

Rank	State	Domestic tourist visits in 2015	
		Number	Percentage (%)
1	Tamil Nadu	333459047	23.3
2	Uttar Pradesh	204888457	14.3
3	Andhra Pradesh	121591054	8.5
4	Karnataka	119863942	8.4
5	Maharashtra	103403934	7.2
6	Telengana	94516316	6.6
7	Madhya Pradesh	77975738	5.4
8	West Bengal	70193450	4.9
9	Gujarat	36288463	2.5
10	Rajasthan	35187537	2.5
Total of top ten state		1197367974	83.6
Other		234605820	16.4
Total		1431973794	100

2.1 Identification of Factors

- Traffic congestion

Traffic congestion is a condition on transport networks that occurs as use increases, and is characterized by slower speeds, longer trip times, and increased vehicular queuing. When traffic demand is great enough that the interaction between vehicles slows the speed of the traffic stream, this results in

some congestion. While congestion is a possibility for any mode of transportation.

- Longer commuting

An important factor behind this trend is related to residential affordability as housing located further away from central areas (where most of the employment remains) is more affordable. Therefore, commuters are trading time for housing affordability. However, long commuting is linked with several social problems, such as isolation, as well as poorer health (obesity).

- Public transport inadequacy

Many public transit systems, or parts of them, are either over or under used. During peak hours, crowdedness creates discomfort for users as the system copes with a temporary surge in demand. Low ridership makes many services financially unsustainable, particularly in suburban areas.

- Difficulties for non-motorized transport

These difficulties are either the outcome of intense traffic, where the mobility of pedestrians, bicycles and vehicles is impaired, but also because of a blatant lack of consideration for pedestrians and bicycles in the physical design of infrastructures and facilities.

- Accidents and safety

Growing traffic in urban areas is linked with a growing number of accidents and fatalities, especially in developing countries. Accidents account for a significant share of recurring delays. As traffic increases, people feel less safe to use the streets.

2.2. Factors in choosing the transportation mode in tourism

- Accessibility

This primarily deals with the ease of getting. Boarding a vehicle. If a mode is not easily accessible then it loses its usefulness because of its unavailability in a certain condition.

- Comfort

This factor is at times ignored while some makes it priority depending upon the affordability. This is essential in case of travelling and ignored in case of transporting goods. Humans undertakes the trip for various purpose like work, leisure journey, picnic, shopping and thus always prefer comfort. Those who can afford to pay more are expected to get more comfort while some prioritize cost over comfort depending on their personal decision.

- Security

Considering the increased cases of accidents safety becomes another important factor. Anyone will wish to ensure maximum available safety for their loved ones. In case of

logistics also safety matters a lot especially while dealing with fragile material.

- Price

Considering large number of trips taking place for different purposes and a modern capitalist economy, cost becomes one of the single most important determining factor. It can also be linked to affordability of the user. This factor is one of the most dynamic as the willingness to pay changes on the basis of urgency and need to travel/transport.

- Integration with other Modes

For long trips or trips which requires change of mode this factors becomes most significant for completion of the trip. In case the selected mode is not integrated with other modes than the trip will never get completed. In some cases to overcome the problem of integration a heavy cost will be incurred to complete the required trip.

- Speed

This factor is another most important and deterministic factor depending upon the situation. Fastest mode may seem to be best option but cost associated with it makes it less beneficial, a cheap mode might result in delay and the purpose of whole trip may be defeated. In cases of emergency speed gains much more significance as compared to day to day trips.

III. PASSENGER FLOW FORECAST IN TOURISM TRAFFIC

3.1 TOURIST TRAFFIC OCCURENCE AND ATTRACTION FORECAST

Tourist traffic occurrence and attraction were predicted with reference to the growth of scenic tourist spots. Besides, considering the economic development level of the surrounding areas, the Increase Law was used to predict the induced traffic volume. Based on the expected growth rate of the main tourist spots, the steps of prediction are

(1) Analyzing the variation of tourists' growth rates over the years.

(2) Determining growth rates during the forecast period according to the analysis

of developments and changes in relevant factors,

(3) Predicting the future value.

Taking into account the particularity of tourist flow in traffic demand, the passenger flow volume during annual national holidays and summer vacations shows a clear peak, while on weekdays the volume tends to be stabilized and far below the peak. Thus, in the course of traffic statistics in tourist scenic spots, the passenger traffic should be analyzed respectively during peak periods on weekdays and holidays. This method is so simple that it will be more applicable to short-term forecasts.

3.2 TRIP DISTRIBUTION

The decision to travel for a given purpose is called trip generation. These generated trips from each zone is then distributed to all other zones based on the choice of destination. This is called trip distribution which forms the second stage of travel demand modeling. There are a number of methods to distribute trips among destinations by gravity model. This model originally generated from an analogy with Newton's gravitational law. Newton's gravitational law says, while the gravity model is very successful in explaining the choice of a large number of individuals, the choice of any given individual varies greatly from the predicted value. As applied in an urban travel demand context, the disutility's are primarily time, distance, and cost, although discrete choice models with the application of more expansive utility expressions are sometimes used, as is stratification by income or vehicle ownership.

Mathematically, the gravity model often takes the form:

$$T_{i-j} = KP_i A_j / d_{ij}^n$$

(or)

$$T_{i-j} = A_j / (d_{i-j})^n / ((A_j / d_{i-j})^n + A_k / d_{i-k})^n$$

Where,

- T_{i-j} = Trips between zones i and j
- P_i = Trip production in zone i
- A_j = Trip attraction in zone j
- d_{ij} = distance between zone I and zone j
- K = constant

3.3 TRAFFIC FLOW ASSIGNMENT

Various distribution models have been put forward, such as the shortest path allocation model, the static multipath assignment model, the dynamic multi-path allocation model, the capacity constraints allocation model, the incremental load allocation model, and the stochastic user equilibrium distribution model. From the traveler's point of view, considering the main factors affecting transportation choice, the traffic choice behavior in the tourist traffic network has been analyzed in this paper. Traffic volume was assigned to the surrounding road network near the scenic spots to get the road service level during peak hours on weekdays and holidays. For the roads whose annual average daily traffic volume is close to saturation, measures such as widening the road to increase traffic capacity can be undertaken to maintain the smooth flow of the road network. In the corresponding peak time, safeguard measures such as opening temporary tourist traffic lanes can alleviate pressure on buses. At the same time, public transport service level analysis, as well as parking area utilization evaluation, should be conducted to

ensure the speed, comfort and reliability of traffic operations and improve overall satisfaction with tourist attractions.

3.4 TRANSPORTATION-LAND USE INTERACTIONS

Transportation and land use are part of a retroactive feedback system where they influence one-another. Changes in transportation technology, investment and service characteristics can alter overall accessibility levels as well as the relative accessibility of different locations. Land use changes also affect activity patterns. Of special importance are the changes in trip generation, both for passenger and freight. Trip patterns may change in a number of ways, such in terms of the number of trips, the timing of trips, their origin or destination, the mode, and trip chaining. These changes in travel demand exert considerable influence on the development of new transportation infrastructure or services.

IV. CONCLUSION

4.1 CONCLUSION

- The following conclusion were derived,
- The Transportation facility which provides necessary information to reduce parking difficulties, traffic congestion, public transport inadequacy, and loss of public space in Madurai have predicted.
- Factor considered for choosing transportation mode are Accessibility, Comfort, Security, Price, Integration with other Modes, Speed.
- The existing tourist population along the tourist place and critical issues in transportation with the road structure were studied.

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**International Journal of Engineering Research in Mechanical and Civil Engineering
(IJERMCE)**

Vol 3, Issue 2, February 2018

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