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PUBLIC TRANSPORTATION SYSTEM MECHANISM WITH REFERNCE TO CITY OF HYDERABAD, TELANGANA

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Abstract:-Public transportation plays a critical role in socio & economic development of the country, the vast majority of people in Telangana state travel by public transportation. The study intends to understand the dependency of people on PTS & the risks that they are exposed to and to scout for solutions than can reduce the problems, inconvenience faced by common man. It also provides drivers perspective of the RTC services and the required improvements needed for them. This study reveals the plans proposed by the government to improvise public transportation system in Hyderabad.

Keywords:RTC , scout , public transportation system (PTS), socio & economic development .

INTRODUCTION

RTC was established in 1932 as a unit of Nizam's State Railways – Road Transportation Division. Later by State Recognition Act, Andhra Pradesh formed with merger of Hyderabad state with Andhra state. On 11 January 1958 RTC was incorporated as APSRTC. The initial fleet consisted of 27 buses and has expanded since to about 22,459 buses as of 31 May 2014.

Current Status of TSRTC: Network connects cities, towns and villages in the state every town has a Bus Depot, which have administration to plan and oversee the operations. It operates in all cities and towns of Andhra Pradesh. It also operates to the neighboring states as per the agreement reached with the respective state bus corporations of Telangana, Tamil Nadu, Karnataka, Pondicherry, Maharashtra, Orissa, Chhattisgarh and Goa.

- ❖ Total zones in states are 7
- ❖ 3 zones for Telangana
- ❖ 4 zones for AP
- ❖ State wise total RTC bus depot's are 216
- ❖ In that depot's located in Telangana are 94 and depot's located in Seemandhra are 122
- ❖ Total buses are 19,416 in this busses allotted to Telangana are 9,064 and busses allotted to AP are 10352
- ❖ Staff allotted to Telangana is 63,479
- ❖ Staff allotted to AP is 70,231
- ❖ Credit rupees allotted to Telangana is 2,096 Crores
- ❖ Credit rupees allotted to AP is 2,631 Crores
- ❖ If we look at region wise, we are getting 45% of profit from 3 zones in Telangana
- ❖ And we are getting 55% of profit from 4 zones in Seemandhra
- ❖ Total profit from Seemandhra is 12 Crores
- ❖ And 7 Crores from Telangana but in future definitely profits will be increased and these profits are used to develop TSRTC.

Present Condition of RTC

If we look at occupancy, the percentage of occupancy of Telangana is more than Seemandhra; After partition, there is little chances of loss in Seemandhra RTC, but Telangana RTC will run in profits. And previously government use to develop Seemandhra Depot's and busses from the profit of Telangana. Nearly 1300 busses from Seemandhra are departing in Telangana. Nearly 15000 people are going to get jobs in TSRTC.

Views of Rtc Union Leaders (Drivers)

As Telangana RTC has already proposed for 14 bus depots in Hyderabad and 1 depot in Karimnagar zone the drivers say that there is a need for increasing number of buses too. Based on this account drivers are estimating that there will be an increase in jobs and are expecting increase in salaries on par with state government employees.

Different Types of Services offered by TSRTC.

CITY BUSES: Initially the city buses very primarily called ordinary buses with green and dark green shades. They were supplemented with few double-deckerbuses in the same color scheme. But in the year 2003 the corporation has decided to withdraw double-deckers because of the operational difficulties. The color scheme of the ordinary city buses has also been changed to white and orange gradually from the year 2002.

In the year 1994 a new kind of buses with dark blue and white color scheme called the Metro liners were introduced in Hyderabad similar kind were introduced in Visakhapatnam under the name of City Liners these were instant hit but the passengers had to pay higher for the services which had fewer stops. APSRTC then introduced Metro Express buses whose charges were in between that of the ordinary and the Metro liners. In the year 2002 when the National games were held in the city of Hyderabad the APSRTC complimented the Hyderabad's successful organization by providing new Yellow colored buses for transporting the participants/organizers between the venues and places of stay. These buses were named Veera who was the mascot for the 2002 National Games. Veera is based on Ongole Bull. After 2002 National Games Veera buses are used for Hyderabad Local Transport.

Then came few AC buses called SeethalaHamsa's .But the city regions got a big boost with the coverage of urban transportation under the JNNURM scheme in which the Union Government funds the purchase of buses to be used for improving urban transport. APSRTC has got more than 2000 buses sanctioned under this scheme. Out of these buses 1000 were sanctioned to Hyderabad city region in which 750 were Semi Low Floor (SLF,

Current services :Unlike the past there is less standardization in the body structure or the color scheme of a particular kind of buses even leading to confusion among the passengers in identifying them.

Different type of intercity, district, and village services are:

Deluxe: Previously known Luxury buses have been named as Deluxe. Can be seen in different color patterns but mostly in Purple and white combination.

Super Luxury: Most popular non-AC service between towns and cities and vice versa. Usually in a single predominant color with black windows. The color is usually pink, light Green, Blue, Orange.

Indra A/C [Ashok Leyland] : APSRTC has introduced 155 air-conditioned Leyland vehicles christened 'Indra' for people who wish to travel air-conditioned buses at affordable fares. To begin with, these buses would be run on Hyderabad-Vijayawada.Hyderabad-Ongole, Hyderabad-Kakinada,Hyderabad-Visakhapatnam, Hyderabad-Nellore, Hyderabad-Kadapa and other routes.

Garuda A/C [Volvo, Isuzu]: When the Swedish Auto major Volvo entered the South Indian Market with its B7R (Volvo 9400) buses APSRTC was among the few operators who have brought the Volvo B7R buses. They have named the bus Services as Garuda. These buses are very fast, comfortable and safe. People have patronized these services even at a higher ticket costs. APSRTC is operating Garudas between major cities in the state and to cities in the neighboring states like Bangalore, Mumbai. Now the enhanced version B9R, Multivalve with more seating capacity is to come with advanced features.

Garuda Plus A/C Multi-axle [Volvo, Benz]: To provide smooth comfortable riding and faster journey to the passengers of interstate and Intra state, APSRTC planned to introduce Multi Axle A/C buses of Mercedes Benz and Volvo make under brand name of "GARUDA PLUS". Initially 41 buses (20 Mercedes Benz & 21 Volvo) are planned which meet BS-III emission norm.

TSRTC state transport unit (STU) ACHIEVEMENTS: Andhra Pradesh State Road Transport Corporation has been leading by an example. It has a number of firsts to its credit in India.

- First to nationalize passenger Road Transport Services in the country-1932.
- First to introduce long distance night express services.
- First to introduce A/C Sleeper, Hi-tech, Metro Liner, Inter-City Services and Metro Express.
- First to introduce Depot computerisation-1986.

REVIEW OF LITERATURE:

A sincere effort is made in this chapter to review selected general studies on transport and studies on Andhra Pradesh Road Transport Corporation (APSRTC). The research work undertaken is "Performance Appraisal of Urban Transport of Visakhapatnam – A Study". Relevant information available on the subject in the literature collected relating to the present studies has been cited and discussed wherever necessary in the chapter concerned.

Vijaya Rani K. & E. Raja Justus (2005) studied the impact of Absenteeism among transport employees causes and efforts with reference to TNSSTC, Kumbakonam, Division – 1. The study revealed the following impacts on the organisation due to absenteeism. They are: higher employee turn over; loss of income; loss of good will; emergence of competitors; poor industrial relation; low work culture and increase in costs.

Ayesha Bangi (2004) studied the increased motorization and its impact on traffic congestion and higher level of pollution in Hyderabad city. Rapid urbanization and increasing land use changes have led to a tremendous increase in the travel demand. A high vehicle density with mixed traffic conditions coupled with an inadequate road network have led to an increase in traffic congestion. Traffic management measures discouraging individual modes of travel is the most effective way to reduce congestion and hence noise levels. Segregating the 47 vehicles according to their speeds into different exclusive lanes would also help in reducing the effect of mixed traffic behaviours, thereby increasing mobility. Since sufficient space is not available in the city center for transport improvement, a careful inventory of land uses in the city should be carried out to consider the possibility of shifting some non-conforming or non-required land uses away from the central business district.

Deshpande and Ashwini Dalvi (2004) stated that the sustainability of the transport system will be largely affected by environmental factors. They asserted that the application of traditional economic rules for decision making will prove inadequate to evaluate overall sustainability of transport system and therefore shall need a comprehensive and multidisciplinary approach in solution finding. Socio-environmental awareness is most important to ensure sustainable transport.

Pradeep Singh Kharola (2004) in his study discussed the importance of urban transportation. Urban Transport in India has been dominated by the buses and a demand driven approach as for better where an efficient public transport system weans away the demand for the personalized vehicles.

Sunil Kumar K. and Madhu N. (2004) The importance of Urban Transportation for providing mobility to men and materials for the growth of urban economy has been discussed by Sunil Kumar K. and N. Madhu (2004). Urban Transportation has become the basic ingredient for providing the much mobility to men and material and also for the growth of the urban economy.

Vittal Data Prabhu & S. Murali (2004) suggested that awareness about the causes of road accidents can bring down accident rates. Various factors such as human, automobile, geographical, infrastructure, information and legal factors are discussed with suitable examples.

Ken G. William and Masami Kojima (2002) discussed with the complex nature of urban transport and its impact on economic, social and environmental spheres. It is Urban Transport directly influences the welfare of the city dwellers and plays an extremely important role in the quality of life of urban dwellers.

Gundam Rajeswari (1998) examines the performance of Andhra Pradesh State Road Transport Corporation both at the state and regional levels. It particularly deals with the pricing policies of the transport service as being implemented by the corporation. The organizational set up of the corporation along with its various features like capital investment and staffing has been described in full length. Both financial and social performance were examined using indicators like cost per kilometer earnings, load factor and arrived at gross margins for the survey period.

Rang Nathan N. (1992) the importance of urban transport in enabling urban growth and ensuring its well being is discussed by Rang Nathan (1992). In an urban area activities get distributed over space. It is the urban transport that enables their interaction, interlink ages and integration. If the urban areas are considered as engines of growth and generators of economic momentum their transport system is both, the wheel and the lubricant of such an engine. Urbanization in the world as a whole is outstripping the population growth. India is experiencing both massive and rapid urbanization. The National Council on urbanization was emphatic in stating that urban Transportation is the most important single component instrumental in shaping urban development and urban living. Statement of the problem: TSRTC is the public transportation system that is providing services to all the places in the city. However, there are many problems faced by public from this system. Therefore it is of utmost importance to

understand and evaluate these problems to provide solutions so that the public transportation system develops rapidly.

OBJECTIVES OF THE STUDY

- ❖ To identify the major factors responsible for accidents.
- ❖ To study the growth & availability of transportation infrastructure in Hyderabad city.
- ❖ To identify the problem faced by public in TSRTC with respect to Hyderabad city.
- ❖ The study is to assess the public transportation system & provide solution for strengthen the condition of transportation modes to be used by all income groups.

Hypotheses

From the above research questions and propositions as explained above, the following hypotheses are formulated for testing of their statistical significance:

- 1.H0 1: There is a significant relationship between the need to have a guide at the bus stop and also a computerized system providing details of bus services from that particular bus stop
- 2.H0 2 There is a significant relationship between the problems faced by drivers and the reasons for accidents.
- 3.H0 3: There is a significant relationship between the reasons for accidents and type of automobile causing accidents.
- 4.H04: There is a significant relationship between the working hours an job satisfaction.
- 5.H0 5 : There is a significant relationship between the number of trips per shift and the possibility of meeting the assigned trips per shift.

Research Methodology

It is an empirical study. The population of the study includes RTC Drivers .The study is based on primary and secondary data. Primary data is collected through questionnaires designed for RTC drivers. The secondary data is collected from news papers, television news and from different web sites

Sampling design: - For the purpose of study a total of 170 questionnaires were administered and we have received a response form 100 respondents who are chosen in Hyderabad. A structured and close-ended questionnaire was prepared and administered in person to all respondents. In this study the following tools were used: CHI-SQUARE, and ANOVA.

DISCUSSION AND RESULTS

Table-1

		Guide to Ass st Public	
		Yes	No
Necessary computerized system	Yes	57	29
	No	11	3

Observed (O _i)	Expected (E _i)
57	58.48
29	27.52
11	9.52
3	4.48

$$X^2 = \sum_{i=1}^n \frac{(O_i - E_i)^2}{E_i}$$

X² = 0.8345

H1: Accept the null Hypotheses.

Inference: Since the χ^2 calculated value is less than the χ^2 critical value we accept the null hypothesis. Therefore there is a significant relationship between the need to have a guide at the bus stop and also a computerized system providing details of bus services from that particular bus stop. We clearly see that the public see the computerized system as a necessity as there are times when the guide may not be available or there may be language barriers for the public to communicate with general public or the guide.

Table-2

Problems faced by drivers	Reasons for accidents			
	Traffic	Non-Compliance	Negligence	Improper Maintenance
Flut Boarding	21	11	6	
Over Crowded	13	4	6	
Non-Compliance	13	4	6	24

SUMMARY	Count	Sum	Average	Variance
Traffic	34	40	1.176471	46.333333
Flut Boarding	3	20	3.666667	8.333333
Over Crowded	3	40	13.333333	89.333333
Non-Compliance	3	41	13.666667	40.333333
Negligence	3	21	7	19
Improper Maintenance	3	38	12.666667	87.333333

ANOVA					
Source of Variation	SS	df	MS	F	F crit
Problems faced by Drivers	88.368889	2	44.184444	0.8303201	6.9442719
Reasons for accidents	77.555556	2	38.777778	0.7301255	6.9442719
Error	212.444444	4	53.111111		
Total	378.368889	6			

Inference: Since the F calculated value is less than the F critical value we accept null hypothesis. Therefore we conclude that there is a significant relationship between problems faced by drivers while maneuvering on the city roads and the reasons for accidents. We find that traffic is the major problem faced by drivers and a major relation between the improper maintenance of the RTC buses and overcrowded buses as causes for accidents.

Table-3

Reasons for accidents	Type of Automobile				
	Non-Compliance	Two-Wheeler	Four Wheeler	Large Trucks	Trailers
Negligence	8	9	9	2	2
Improper Maintenance	17	13	5	3	3

SUMMARY	Count	Sum	Average	Variance
Non-Compliance	4	41	10.25	38.25
Negligence	4	21	5.25	14.25
Improper Maintenance	4	38	9.5	43.6666667
Two-Wheeler	3	36	12	21
Four Wheeler	3	31	10.33333333	5.333333333
Large Trucks	3	25	8.333333333	72.33333333
Trailers	3	8	2.666666667	0.333333333

ANOVA					
Source of Variation	SS	df	MS	F	F crit
Reasons for accidents	58.16666667	2	29.08333333	1.247914184	5.14325285
Type of automobile	148.6666667	3	49.55555556	2.126340882	4.757062664
Error	139.8333333	6	23.30555556		
Total	346.6666667	11			

Inference: Since the F calculated value is less than the F critical value we accept null hypothesis. Therefore we conclude that there is a significant relationship between the reasons for accidents and the type of automobiles causing accidents. We also see that Non-compliance of traffic rules by two wheelers and large trucks as the major reasons for accidents and Improper maintenance by two wheelers and four wheelers also as primary reasons for cause of accidents.

Table-4

Satisfaction	Working Hours			
		7	8	9
Yes	1	2	2	1
No	1	2	2	1

SUMMARY	Count	Sum	Average	Variance
Yes	3	80	26.666667	1417.333333
No	3	20	6.666667	97.33333333
7	2	70	35	2450
8	2	10	5	18
9	2	20	10	128

ANOVA					
Source of Variation	SS	df	MS	F	F crit
Satisfaction	600	1	600	0.601202405	18.51282051
Working Hours	1033.333333	2	516.666667	0.517702071	19
Error	1996	2	998		
Total	3629.333333	5			

Inference: Since the F calculated value is less than the F critical value we accept null hypothesis. Therefore we conclude that there is a significant relationship between the working hours and job satisfaction. It is very evident from the data that seven hours of shift gives higher job satisfaction to the drivers.

Table-5

Meeting the trips	Number of Trips per shift			
		3	4	5
Yes	62	17	6	1
No	3	3	4	4

SUMMARY	Count	Sum	Average	Variance
Yes	4	66	21.5	173.6666667
No	4	14	3.5	0.333333333
3	2	66	33	1740
4	2	20	10	90
5	2	10	5	2
>5	2	6	2.5	4.5

ANOVA					
Source of Variation	SS	df	MS	F	F crit
Meeting the trips	648	1	648	0.62408015	10.12733228
Number of trips per shift	1125	3	375	0.939049624	9.276323154
Error	1996	5	399		
Total	2970	9			

Inference: Since the F calculated value is less than the F critical value we accept null hypothesis. Therefore we conclude that there is a significant relationship between the number of trips per shift and the possibility of meeting the assigned trips per shift. It is also observed that 3 trips per shift is ideal as the drivers can only meet these many trips due to the constant traffic problems faced by the drivers in the city.

FINDINGS

1. The basic qualification required to get a job as a driver is 7th standard.

2. It is found that 7hrs of work has higher satisfaction among drivers.
3. Drivers are expecting extra benefits from the government such as Government pay scales, Children Educational Allowances, Housing Scheme and Insurance Schemes.
4. Traffic being the major problem, improper maintenance was also found to be another reason for accidents.
5. There is a significant relationship between the reasons for accidents and type of automobile causing accidents. Non-compliance of traffic rules by two wheelers and large trucks was identified as the key reason for accidents.
6. There is a significant relationship between the number of trips per shift and the possibility of meeting the assigned trips per shift. It was identified that 3 trips per shift has proved to be the ideal number of trips per shift.
7. Due to improper maintenance, higher pollution exists.

SUGGESTIONS:

1. Personal Accident Insurance policy and Life Insurance policy must be provided to employees of RTC.
2. Retirement benefits must be considerably increased.
3. Individual performance must be monitored for providing Annual performance Incentive.
4. Drivers and conductors must be given a duty to mandatorily check the condition of bus before starting the bus every day and submit the report.
5. In case of break downs drivers must get immediate help from nearest depots
6. Drivers and employees must be given training relating to behavior to avoid impolite language and unacceptable attitude/behavior towards public.
7. One/ two types of tickets should be issued to the passengers. One for a short distance and the other for long distance travel. This reduces the menial work of conductors and increases the possibility of RTC.
8. It is suggested to use CNG fuel to reduce pollution problems.

LIMITATIONS

1. The survey was limited to the population of Hyderabad city.
2. The sample size may not be appropriate to analyze the accurate data.
3. The survey cannot be generalized as the opinions from the public and drivers may not be true and biased.
4. The survey was carried out with a limited time and resources.

CONCLUSION

From the detailed analysis we conclude that for TSRTC to gear up as a hi-tech service provider, major problems should be addressed. It is concluded that the facilities provided for drivers should be improved for them to provide better service to the public. Drivers have expressed their major problems as overcrowded buses, potholes on roads, and non-compliance of traffic rules by two wheelers, no queue system for boarding buses and foot boarding. It is concluded that the causes for accidents are also the problems as mentioned above. Hence it is important to increase the number of buses to reduce these problems.

The government has assured allocation of fund which will be collected from major companies in the form of a corporate social responsibility initiative to address these issues and has released a statement professing its support in technology based bus stops enabling full-time surveillance through CCTV cameras and police personnel.

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