



PERFORMANCE EVALUATION OF PHYSICAL PARAMETERS (NON-FINANCIAL) OF STATE ROAD TRANSPORT CORPORATION – A STUDY WITH FOCUS ON NEKRTC

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KEYWORDS :

LIST OF ABBREVIATIONS

NEKRTC	: North East Karnataka Road Transport Corporation
CPKM	: Cost per Kilometer
EPKM	: Earnings per Kilometer
CIRT	: Central Institute of Road Transport
STU	: State Transport Undertaking
BEP	: Break Even Point
AC	: Air Conditioner
AWATAR	: AnyWhere AnyTime Advance Reservation
ETMs	: Electronic Ticketing Machines
MIS	: Management Information System
DCS	: Depot Computerization Software
IT	: Information Technology
KMs	: Kilometers
HSD	: High Speed Diesel.
KMPL	: Kilometer per liter

Synopsis:

- I. Introduction
- II. Review of Literature
- III. Statement of the problem
- IV. Objectives of the studies
- V. Profile of NEKRTC
- VI. Non Financial Indicators of NEKRTC
 - Load Factor
 - Vehicle breakdowns
 - Tyre mileage
 - KMPL
 - Vehicle utilization
- VII. Summary of Findings, Suggestions and Conclusions

I. INTRODUCTION:

It is usual to judge the performance of private sector units by the yardstick of net profit or loss; hence in their case maximization of the profit is the sole aim. This yardstick fails in the case of public sector undertakings, since they give more preference to attain other priorities which in the public interest. Due to this the performance of the public sector should not be judged by what they earn in the form of profits but by the total additions they make to the flow of goods and services in the economy. Thus instead of profits, the yardstick should be the total the sales value of the enterprises.

Though there is no dispute regarding the role of the public sector undertaking in country's economic development, yet the feeling widely prevalent is that the rate of profit in these undertakings is either too low or is negative. Accordingly their performance is not up to the expected standard.

However it is not so easy to decide about the efficiency of the public sector undertakings. As noted by us earlier the rate of profit might be a good criterion to judge the efficiency of a private sector enterprise but cannot be deemed so for public sector enterprise. To judge the efficiency of the public sector undertaking it is recommended the criterion of social marginal productivity and the

utility of investment in any project should be judged by its impact on national income, balance of payments and distribution of income. Further the evolution of investment in the public sector should be done on the basis of marginal per capita investment quotient. According to this criterion, we must examine whether investment of capital in any project will lead to maximization of national income at any point in the future or not. Without entering into the controversy regarding determination of investment in the public sector at this juncture, we would like emphasize that evaluation of any state enterprise should be done on the basis of social benefit and social cost and not on the basis of rate of profit.

The fields of engineering and management associate efficiency with how well a relevant action is performed, i.e. "doing things right", and effectiveness with selecting the best action, i.e. "doing the right thing". Thus, a firm is effective if identifies appropriate strategic goals, and efficient if it achieves them with minimal resources. Operational efficiency or the ability to deliver products and services cost effectively without sacrificing quality. Efficiency with both queuing models and productivity, and efficiency analysis methods that identify maximum productivity and measure efficiency as a ratio of observed productivity to maximum productivity. The maximum productivity levels serves as a benchmark for desired perform.

II. REVIEW OF LITERATURE:

This study is based on the Non financial Performance factors of NEKRTC, and it is seen that much data is not available on this specific topic data due to non availability of written literature for Non financial factors of public sectors, hence revived the relevant topics on the transport industry for the reference. Performance analysis of any organization facilitates to know its functioning in key performance areas to suggest suitable steps, where ever necessary for its improvement in efficiency and successful performance. Lau, (1997) suggests that evaluation of public transport services can be divided into two aspects. The first one is to evaluate the public transport based on its efficiency. The second one is to evaluate the systems on its ability to meet the basic objective like service to the public.

Shambhag (1972) examined the peculiar desires of the commuters like "he (wants to) should get a bus within a reasonable period. He should be able to reach his destination by a direct bus; he should be able to travel to his destination by the shortest route". He also observed the losses on transport due to city transport, because its very nature of operations is uneconomic, as a large number of fleet is required to be maintained and to take off peak hour traffic, etc. He also discussed the facts of shortage of capital, absenteeism of staff. (Efficient network with adequate frequency)

Venkaji Rao (1974) analyzed the managerial problem of state transport undertaking with special reference to Mysore State. He identified some administrative problem to improve the performance of a state transport undertaking. They are: (i) Balancing the transport requirements of the community as against other

facilities, requirements of the community as against other facilities served, based on costs and income and finance, (ii) Peak-load problems, (iii) the most efficient utilization of vehicles and staff on the basis of moving of given loads of passengers. (iv) Forecasting the picture of transport. (Optimal utilization of resources)

Jakaria (1975) explained the need for the establishment of adequate criteria for evaluating the performance of urban transport systems.

Pereira, W.(1975) suggested that overcrowding, foot board travel and indiscipline in the bus should be reduced. Special standee buses should be introduced during peak hours, and checking should be strengthened. Dishonesty and cheating should be severely punished. (Comfort and Safety approach)

Purushotham, P.W., (1992) examined the organization and management of the road transport corporation administered under public sector in Andhra Pradesh with a view to promote performance standards and organizational efficiency.

Prasad, Srinivas, and Khan (1996) conducted a case study on APSRTC and identified the operations of city services, with negative margin and operation of obligatory services, concessional passes to various categories of commuters, provision for passenger amenities and operation of buses on bad roads with additional cost of operation are for the social benefit and hence cannot be taken as wastage or ill utilization of funds. (Shouldering of Social obligations)

Gundam Rajeswari (1998) examined the performance of Andhra Pradesh Road Transport Corporation at the state and regional levels. Both financial and social performance were examined using indicators like cost per kilometer, earnings, load factor etc. and arrived at gross margins for the survey period.

Pradeep Singh Karola (2004) in his study explained the economy of public transport system, factors affecting the cost of operation of bus system, the manpower related parameters, the mechanized parameters and the traffic related parameters relating to public transport system.

Bhaskar, G. and N.V. Ramana Murthy (2004) analyzed the difficult role played by Transport Undertakings in meeting the dual objectives i.e. social objectives on one side and the commercial objectives on the other side. (Social service with business principles)

III. STATEMENT OF THE PROBLEM

Appraisal of operational performance of public transport service can be divided in two aspects. The first one is to evaluate the public transport based on its efficiency. The second one is to evaluate the systems on its ability to meet the basic objective like service to the public. The performance of the public transport can't be determined on the financial performance. Now a day's performance of public transportation is assessed more on financial parameters rather than physical parameters. A public transport corporation like NEKRTC is giving equal importance to both financial physical parameters performance evaluation. The reason for giving importance to financial aspects here that all the expenditures borne by the corporation, it has to manage with the revenue earned by the corporation (Self sustaining organization). Therefore the survival of the organization is depended on the revenue accumulated by way of traffic revenue as well as other commercial revenue. It is a known fact that any organization may be private or public can survive only if it is financially sound in its business. In case of public sector it may generate revenue on its own business or government may give financial assistance. On the other hand performance of the public sector like NEKRTC is measured with operational parameters which also play an important role for the organization. People (public) and State Transport Undertakings both are very much depended on each other for their survival. The concept of the public sector is emerged only to facilitate people to travel from one place to other. In earlier days the performance of the public transport Undertakings is assessed depending on the extent of reach of its

vehicles to the commuters. Later on the performance is assessed on the load factor, frequency, number of schedules etc., though these are the physical parameters for performance evaluation but considered as a major techniques to assess the quality of the services delivered and for performance improvements.

IV. OBJECTIVES OF THE STUDY:

- To Study and analyze the Performance of NEKRTC, with reference to the Non Financial Parameters
- To study and analyze the diesel mileage of the corporation by taking KMPL as a factor
- To study and analyze tyre mileage of the corporation.
- To analyze the load factor of NEKRTC for a period of 10 years.
- To Analyze the vehicle utilization of the corporation over a period of 10 years
- To study and analyze the vehicle breakdowns and accidents.
- To offer suggestions, alternative ways and means to improve the operations of the organization in particular, Sector in general.

V. PROFILE OF NEKRTC

NEKRTC was established on 1.10.2000 having been separated from KSRTC for providing "adequate, efficient, economic and properly coordinated road transport services" in the North eastern part of the state of Karnataka. As on 31.03.2015 NEKRTC is operating 3970 schedules covering 12.46 lakhs kms carrying 12.00 lakhs passengers every day. NEKRTC is serving 92% of the villages in its area (3859 out of 4203) with transport facility. NEKRTC owns a wide Infrastructure consisting one corporate office, 09-Divisional offices, 48 Depots, 134 bus stands and 4369 buses. NEKRTC provides the wide range of services to the commuters like AC sleeper, AC Semi Sleeper, AC Jumbo, AC Mofussil, Rajahansa and Suhas (Executive services) Karnatak Sarige (Branded and Regular services), Mofussil (Express and ordinary city/sub urban services).

The corporation is financially not depended on the state government as state road transport should operate the schedules and generate the revenue to meet its expenditures. Likewise NEKRTC is managing its expenditure by generating the revenue. Major components of the expenditure is fuel and staff salary, here fuel contributes around 40% of the total cost and staff salary around 15 % of total cost. Being major cost components these two are playing a vital role in the finance management. Public transport corporation is directly linked to the common man hence can't avoid any cost due to losses and lower earnings.

FACILITIES PROVIDED BY THE NEKRTC ITS TO COMMUTERS:

- **Reservation of seats for lady passengers:** Two seats have been reserved in Rajahansa and higher classes of services for lady passengers travelling single. In Mofussil buses, nine seats and fourteen seats in City/Suburban services are reserved for lady passengers.
- **Reservation of seats for physically handicapped persons:** Two seats (24 & 25) have been reserved in Mofussil and City/Suburban services.
- **Free / Concessional Passes:** NEKRTC is extending free / concessional travel facility to students, physically Challenged persons, Visually Challenged persons, Freedom Fighters, SHOURYA' Awardees, National Award Winners (Kannada & Sanskrit Dept.), Freedom Fighters Wives/Widows, Free travel facility to the Dependents of Soldiers who died for Country and Journalists.
- **Concession for senior citizens:** NEKRTC provides Concession in passengers fare for senior citizens about 25% of the Bus fare, having the age 60 and above.
- **Discount on Return Journey Tickets:** A discount of 10% is offered on return journey tickets, if both onward and return journey tickets are booked simultaneously.

- **Discount on Group bookings:** A discount of 5% on the fare, if four or more passengers book a single ticket. Further, discount of 8% is given for a group of 10 or more passengers.
- **Special services:** Additional services to pilgrimage / tourist places are operated during festivals, summer vacation, other fairs/festivals, weekends and holidays.
- **Casual Contract services:** For special occasions like weddings, excursions, pilgrimage or study tour etc, NEKRTC is providing dedicated buses on hire basis at competitive rates.
- **Monthly Season Tickets** are available to the passengers travelling between two selected destinations daily. These passes are most suited for office / industry employees, teachers, businessmen etc.
- Pass Issue counters are working at all bus stands for the convenience of the travelling public in obtaining student passes, Monthly Season Tickets and One Day Passes.
- **Advance reservation booking network (AWATAR):** NEKRTC has implemented on-line advance reservation network called AWATAR (Any Where Any Time Advance Reservation), wherein tickets can be booked through Internet. Presently, 16 NEKRTC counters and 46 Franchisees are working on this system. There are 03 on-line booking counters in Gulbarga, 13 Counters in Hospet, 4 Counters in Raichur, 7 Counters in Koppal, 3 Counters in Bijapur, 13 counters in Bellary, 1 Counter at in Bidar and 2 Counters in Yadagiri. Tickets can be booked 30 days in advance including return journey tickets from selected destinations.
- **Electronic Ticketing Machines:** To enhance the usage of IT in day-to-day operations ETMs have been deployed in all 48 Depots. ETMs are convenient, user-friendly, light in weight apart from other benefits like speedy issue of tickets, reduction in manual entry of waybills, generation of MIS reports on the no. of passengers travelled, distance of travel, integration with DCS etc.
- **Passenger Amenities at bus stands:** Refreshment rooms, drinking water facility, sitting arrangements, display of Time-Tables, Enquiry counters, Pass issue counters, Advance booking counters, Luggage booking counters, separate toilets / urinals for Gents/Ladies, cycle/ scooter/ car parking stands, CCTV, book stall, fruit stall. STD/local telephone booths etc are provided at bus stands. All the bus stands in NEKRTC jurisdiction are taken up for up gradation.
- **Advertisement media:** NEKRTC has an extensive media for advertisement like bus panels, hoardings, on the backside of bus tickets, advance reservation tickets, various types of passes which can be utilized for display of commercial advertisements.
- **Environment friendly initiatives:** NEKRTC has undertaken massive afforestation programmes in its premises in Depots, Divisions, and Workshop etc. Modern vehicle testing equipments are procured to adhere to vehicular emission norms. Diesel particulate filters have been fitted to reduce particulate emission on trial basis. Afforestation is taken up in large scale.

VI NON FINANCIAL PERFORMANCE INDICATORS (TECHNICAL EVALUATION)

Non-financial measures can be better indicators of future financial performance. Even when the ultimate goal is maximizing financial performance, current financial measures may not capture long-term benefits from decisions made now. Improvisation in facility to commuters helps to improve customer satisfaction and improves subsequent economic performance by increasing revenues and loyalty of existing commuters, attracting new commuters and

reducing transaction costs. Non-financial data can provide the missing link between these beneficial activities and financial results by providing forward-looking information in decision making process. The non-financial improvements help round out the corporation's strengths in areas like customer service in general and commuters/passengers satisfaction in particular of NEKRTC. Quality of service by NEKRTC is judged by each passenger. Therefore improvements in financial parameters does not give the actual status of public sector specially corporation like NEKRTC. The parameters such as vehicle breakdowns, cancellation of schedules, punctuality in arrivals and departures are depended on the efficiency of the management. Tyre mileage is depended on the road conditions as well as the driver's driving habits. Similarly load factor is depended on the demand of the buses in the particular route. KMPL is totally depended on the driver's habit and vehicle maintenance.

Thus some of the important Technical parameters are discussed in this paper to evaluate the performance of NEKRTC. Technical parameters such as Load factor, Fleet utilization, KMPL, Tyre mileage, Accidents, vehicles breakdowns, public complaints and punctuality in arrivals and departures.

(I) LOAD FACTOR:

This shows the extent of optimum use of fleet. Load factor is the ratio between the seats kilometers occupied to the seat kilometers offered during a period by the transport industry. On the other hand it can be said that load factor is the ratio of actual earning to the expected earnings. For example if a vehicle is of 60 seats and its vehicle utilization is 300 kilometers per day, here the 18000 seat kilometers offered to the commuters. Here if, for any reason commuters utilizes lesser than the offered seats kilometers, it has a negative financial implication on the corporation. Higher rate of load factor always contributes to accumulate revenue and on other hand it helps reduce the cost per kilometer by distributing fixed cost.

Table No. 3 represents that over a period of 10 years from 2005-06 to 2014-15 load factor increased from 61% to 64% in spite of ups and downs in growth rates during the period. It is desirable to have highest growth rate of load factor for any transport organization which reduces the cost per kilometer and increases the EPKM. Load factor always considered to be the prime factor for analyzing the financial parameters of NEKRTC. Growth rate of 3% over a period of 10 years is acceptable but it could have done much better than this growth rate. It is known fact that load factor may not be 100%, but management should make efforts to make it at least to reach 85% to 90% which in turns helps to fetch more traffic revenue, reduces the variable cost and increases the EPKM.

Table No. 1: LOAD FACTOR

YEAR	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Load Factor %	60.8	58.0	61.0	59.9	56.9	60.4	64.9	72.3	63.0	64.3

Source : Annual Administrative Reports.

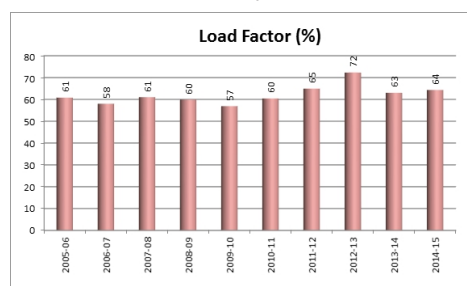


Table 3 exhibits the load factor of NEKRTC is not constant and

fluctuating every year, during 2005-06 it was 60.8% and which reduced to 58% in its next year 2006-07, it is increased to 61 % in 2007-08. A load factor varies every year in NEKRT. In 2008-09 it is 60%, and 2009-10 it shows 57%. In 2010-11 and 2011-12 load factor stands with growth rate of 60% and 65 % respectively. The highest rate in load factor is observed in 2012-13 which is 72%. In 2013-14 and 2014-15 growth rate of load factor is 63 and 64% respectively. It is difficult to measure the accurate financial impact due to changes in the load factor because every route and schedule operated in the corporation has its own commuters/passengers. Load factors again depends on the private services providers which is basically attracted due to lesser fare rate. Therefore higher the percentage of load factor always leads to accumulate higher revenue which makes the organization financially sustainable. It is needed in public sector Corporation like NEKRTC, because the corporation is financially depended on its revenue. More the passengers travel in public transport, more the load factor, which ultimately results in increased revenue. Overall during the period of 10 years load factor is increased by 3% which stand 64% in 2014-15 and which was 61% in 2005-06.

In the table No. 3 , by analyzing the table and graphs it can be concluded that over a period of 10 years from 2005-06 to 2014-15 load factor increased from 61% to 64% in spite of ups and downs in growth rates. It is desirable to have highest growth rate of load factor for any transport organization which reduces the cost per kilometer by increasing the EPKM.

(i) Rate of Break-downs

A vehicle **breakdown** is the mechanical failure of a vehicle in such a way that the underlying problem prevents the vehicle from being operated at all, or impedes the vehicle's operation so much, that it is very difficult, nearly impossible, or else dangerous to operate. Vehicle breakdowns can occur for a large number of reasons. Depending on the nature of the problem, the vehicle may or may not need to be towed to the repair shop. A "breakdown" is also referred to when a vehicles stalls on the road. A vehicle stalls for a number of reasons ranging from a dead battery, fuel pump, poor quality fuel, faulty electrical wiring, fuel pressure problems, overlooked leaks or missing caps etc.

Types of Breakdowns:

There are basically two types of breakdowns such as Total breakdowns and partial breakdown.

• **Total breakdown**

A *total breakdown* is when the vehicle becomes totally immobile and cannot be driven even a short distance to reach a repair shop, thereby necessitating a tow. This can occur for a variety of reasons, including complete engine failure, or a dead starter or battery, though a dead battery may be able to be temporarily resolved with a jump start.

• **Partial breakdown**

In a partial breakdown, the vehicle may still be operable, but its operation may become more limited or more dangerous, or else its continued operation may contribute to further damage to the vehicle. Often, when this occurs, it may be possible to drive the vehicle to a garage, thereby avoiding a tow.

Some common causes of breakdowns in NEKRTC are as follows.

- Battery
- Wheel change
- Fuel
- Mechanical problems
- Puncture (no spare)
- Electrical problems
- Charging electrical vehicles
- Clutch
- Ignition
- Cooling, heating, ventilation and air conditioning

For studying the overall maintenance efficiency all breakdowns should be counted while breakdowns causing inconvenience to the passengers may be classified for indicating quality service to the passengers. Breakdowns not only affect the revenue, but also cause inconvenience to the public. There must be action to minimize the break down rate by regular inspection and better maintenance of vehicles by improving performance of mechanical action. Rate of breakdowns are calculated as follows.

$$\text{Rate per 10000 effective KMS} = (\text{Total Nos of breakdowns} / \text{Total effective KMs}) \times 10000$$

Table No. 2: RATE OF BREAKDOWNS

YEAR	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Rate of Breakdowns per 10000	0.22	0.15	0.11	0.10	0.10	0.11	0.10	0.11	0.11	0.09

Source : Annual Administrative Reports.

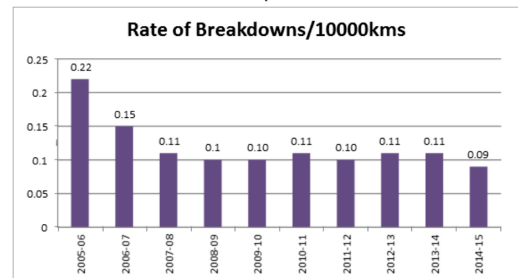


Table.2 exhibits rate of breakdowns during the period of 2005-06 to 2014-15. In 2005-06 rate of breakdowns for every 10000 Kms is 0.22%. Which is the highest in a tenure of 10 years. The table shows decreasing breakdown rate every year from 2005-06. During the financial year 2006-07, 2007-08 and 2008-09 the breakdown rate of the corporation is 0.15%, 0.11% and 0.10% respectively. In the financial year 2009-10 rate of breakdown is 0.10% and it is 0.11% in 2010-2011. During 2011-12, 2012-13 and 2013-14 rate of breakdown stands at 0.10%, 0.11% and 0.11% respectively. In the year 2014-15 the corporation showed the lowest breakdown rate over a period of 10 years with 0.09% to per 10000 Kms.

(iii) TYRE MILEAGE :

Total cost of NEKRTC comprises various components like HSD, staff cost, Tyre cost, Spares and assemblies etc. Deisel cost is sharing highest share in the total cost nearly 40% , and staff cost remains second in total cost. The third major cost component is tyre cost, for which the management need to give more concentration for improvising the tyre life for better performance of the non financial factor. Tyre mileage or performance of the tyre depended on various factors which can be controlled by the management like keeping accurate air pressure in the tyres, regular switching and matching of the tyres, using proper combination of all six tyres such as nylon tyres for front and radial tyres for rear side of the vehicle, during the docking of the vehicle all the four tyres must be replaced at a time for better performance of resoled tyres etc are the practices to be followed by the corporation for the better tyre mileage. Tyre mileage also depend on the road condition and drivers habit. Good road and good driving habits always enhances the tyre life. Basically tyres are designed for long life are made from harder compounds, but these may make more noise. Tread pattern can affect noise too. Tyres made from softer compounds will give a quieter ride but will wear out more quickly. First fit (original equipment) tyres often last longer than replacements. As well as wearing out in use, tyres degrade naturally through exposure to heat, sunlight (Ultraviolet/UV) and rain. The amount of damage depends on the exposure and the severity of the weather. Check for signs of cracking on the sidewalls of tyres four or five years old if your car is parked outside and get them replaced if cracking is severe. Any tyre specialist will be able to give you advice if you're not sure.

In NEKRTC tyres such as 9x20 Nylon, 10x20 Nylon, 9x20 Radial, and 10x20 radial tyres are used most commonly. Some of the vehicles are fitted with tubeless tyres. So overall new tyre life and overall retreaded tyre life is calculated for the performance analysis irrespective of the tyre size and type of tyre. Table 3 exhibits tyre life and retreaded tyre life for the study period. Further it reveals the total average tyre kms during the selected period. Overall during the 10 years tenure new tyre life is increased positively and retreaded tyre life increased slightly.

Table.3 TYRE MILEAGE

YEAR	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
New tyre life	37340	39376	41080	48261	48114	47041	52043	54113	55337	64411
Changes in %	-	5.45	4.33	17.48	0.30	2.23	10.64	3.97	2.26	16.40
Retreaded tyre life	22253	22603	22056	22082	20388	19740	18034	19212	19554	23482
Changes in %	-	1.57	2.42	0.12	7.67	3.18	8.64	6.53	1.78	20.09
Total Tyre Life	118983	111781	110548	106973	112598	107081	106475	111325	108791	116914
Changes in %	-	-6.1	-1.1	-3.3	5.3	-4.8	-0.6	4.6	-2.3	7.5

Source : Annual Administrative Reports.

TYRE MILEAGE

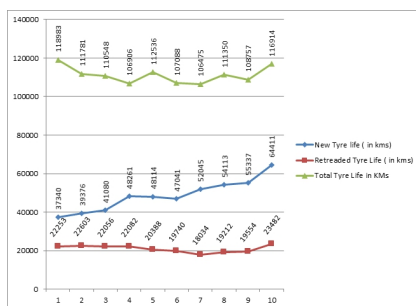


Table No.3 reveals that new tyre life in 2006-07 and 2007-08 is increased by 5.45% and 4.33% respectively where as the retreaded life increased in the same period is 1.57% in 2006-07 and decreased by 2.42% in 2007-08. The highest growth rate of new tyre life is seen in the year 2008-09 with a growth rate of 17.48% but in the same year retreaded life is not increased proportionate to this which shows mere increase by less than 1%. During the financial year 2009-10 and 2010-11 both new tyre life and retreaded tyres life are showing a negative growth rate as 0.3% and 2.23% in new tyre life and 7.67% and 3.18% in retreaded tyre life. During the financial year 2011-12,2012-13,2013-14 and 2014-15 new tyre life growth rate stands 10.64%, 3.97%, 2.26% and 16.40% respectively. Further retreaded tyre life shows growth rate of -8.64%, 6.53%,1.78% and 20.09% respectively. During the 10 years which is selected for the study from 2005-06 to 2014-15, overall growth rate of new tyre life increased by 72.5%, retreaded life is increased by 5% and total tyre life decreased by -1.7%. This is due to the reduction in number of tyres consumption total tyre life is showing a negative growth. As the detailed analysis will be done in the final thesis , basic figures of the tyre mileage over a period of 10 years is discussed here.

(iv) KMPL (HSD)

In the context of transport, fuel economy is the energy efficiency of a particular vehicle, given as a ratio of distance traveled per unit of fuel consumed. It is dependent on engine efficiency, transmission design, and tire design. In NEKRTC fuel economy is expressed in kilometers travelled per liter (KMPL). Fuel consumption is a more accurate measure of a vehicle's performance and Fuel efficiency is dependent on many parameters of a vehicle, including its engine parameters, aero dynamic drag, weight, and rolling resistance etc.

There have been advances in all areas of vehicle design in recent decades Many drivers have the potential to improve their fuel efficiency significantly. The basic fuel-efficient driving techniques should be more effective. Simple things such as keeping tires properly inflated, having a vehicle well-maintained and avoiding idling can dramatically improve fuel efficiency.

The highest cost contribution factor in total cost of NEKRTC is HSD cost. Though HSD contributes 40 % of the total cost, the performance indicating factor KMPL is considered as non financial factor. Improvements in KMPL reflect a huge financial savings in overall cost. In NEKRTC various measures are undertaken to improve fuel efficiency including training to mechanical staff as well as training to drivers also. Up keeping of vehicle condition is also important for fuel efficiency and good driving habits also helps to improve the fuel efficiency.

Table 4. KMPL (HSD)

YEAR	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
KMPL	5.44	5.45	5.41	5.34	5.29	5.25	5.25	5.22	5.14	5.15
Changes in %	-	0.18	-0.73	-1.29	-0.94	-0.76	0.00	-0.57	-1.53	0.19

Source : Annual Administrative Reports.

KMPL (HSD)

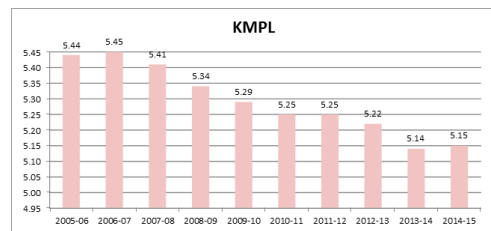


Table 4 reveals declining trend of the KMPL from 2005-06 to 2014-15. In 2005-06 KMPL was 5.44 and in 2006-07 KMPL was 5.45. In 2007-08 KMPL declined to 5.41 and from here onwards the KMPL is showing declining figure. During the financial year 2008-09 and 2009-10 the KMPL was 5.34 and 5.29 respectively. Further it is decreased to 5.25 in 2010-11 and 2011-12. And in 2012-13 it comes down to 5.22. Further KMPL over a period of 10 years shows the lowest figure in the year 2013-14 with 5.14 KMPL. During the financial year 2014-15 the KMPL figure stand with 5.15.

(V) Vehicle Utilisation.

Vehicle utilization is the kilometers covered by vehicle per day. Average kms of the vehicle for a period of one year is considered for performance analysis in NEKRTC. Highest vehicle utilization distribute the fixed cost of the corporation. No doubt the highest vehicle utilization increases the gross KMs of the corporation which definitely increases the Gross revenue by covering more KMs. Further vehicle utilization is depended on the types of the services operated by the corporation, such as city services, express services, ordinary services, premium services etc. Operating city services always reduces the vehicle utilization, because daily KMs of the city route is between 150 to 180 KMs per day. On the other hand premium services are operated every day with a minimum KMs of 500 to 600 KMs. Therefore the corporation should have a balanced services, to manage both city services and premium services, because both type of services have to be provided by the corporation like NEKRTC as a public sector transportation.

Table 5. VEHICLE UTILISATION

YEAR	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Vehicle utilization effective KMs/day	317	333	336	343	348	342	343	339	330	328
Changes in %	-	5.05	0.90	2.08	1.46	-1.72	0.29	-1.17	-2.65	-0.61

Vehicle utilization	323	339	343	351	345	352	357	354	348	343
Gross KMs/day										
Changes in %	-	4.95	1.18	2.33	-1.71	2.03	1.42	-0.84	-1.69	-1.44

Source : Annual Administrative Reports.

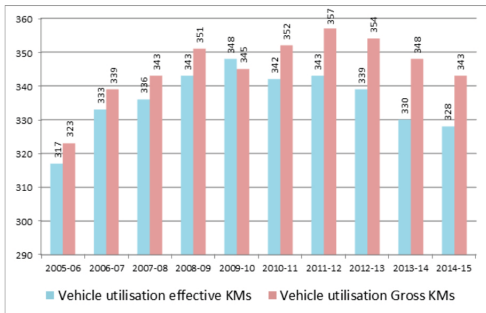


Table No.5 reveals vehicle utilization KMs per day effective and Gross KMs. In 2005-06 vehicle utilization KMs is 317 with effective KMs and 323 with Gross KMs. In 2006-07 vehicle utilization with effective KMs is 333 and with Gross KMs is 339. The growth rate of vehicle utilization on its previous year is +5%. In 2007-08 the growth rate of vehicle utilization is nearly +1% both with effective and gross KMs. During 2008-09 vehicle utilization effective KMs is 343 and gross vehicle utilization is 351. The growth rate of vehicle utilization is +2%. During the financial year 2009-10 the growth rate of effective vehicle utilization KMs is +1.46% compared to its previous year, whereas the gross vehicle utilization is showing a negative figure -1.71%. During 2010-11 effective vehicle utilization KMs growth rate is decreased by -1.72% and gross vehicle utilization KMs increased by +2.03%. During the financial year 2011-12 the growth rate of effective vehicle utilization KMs is +0.29% compared to its previous year, whereas the gross vehicle utilization is showing a growth rate of +1.42%. In the financial year 2012-13 the growth rate of effective vehicle utilization KMs is negative with -1.17% compared to its previous year, whereas the gross vehicle utilization is showing a negative growth rate of -0.84%. In the financial year 2013-14 and 2014-15 the growth rate of vehicle utilization of both effective and gross are negative figures with -2.65 and -0.69 in 2013-14 and -0.61 and -1.44 in 2014-15 respectively.

VII. SUMMARY OF FINDINGS, SUGGESTIONS AND CONCLUSIONS:

FINDINGS

The above study depends wholly on the secondary data; the following inferences can be drawn on the basis of above data

- Load factor is showing a positive trend during the study period.
- Load factor plays a very important role for generating of revenue than the fare hikes, because load factors directly connected to the number of passengers travelled in particular route for a specific period.
- The rate of vehicle breakdowns is showing a positive sign by decreasing from 0.22 in 2005-06 to 0.09 in 2014-15. It indicates improvements in the quality of services by improving mechanical parameters and driving skills.
- Overall tyre life of the corporation is increased during the study period. New tyre life increased by 72 % over a period of 10 years. Retreaded tyre life increased by 5 % and total tyre life decreased by 1.7% over a period of 10 years.
- Vehicle utilization KMs with respect to effective KMs is increased from 317 to 328 KMs and Gross Vehicle utilization KMs increased from 323 to 343 KMs
- KMPL of the corporation is decreased from 5.44 to 5.15. Diesel cost is the major cost contribution in total cost, but the KMPL is showing a negative trend.

SUGGESTIONS

As already discussed above the North East Karnataka Road Transportation corporation is independent unit among the various Karnataka state public sectors. Public Transport Undertakings in Karnataka are financially independent and have to manage all its expenditures by way of traffic revenue. Therefore for the longer survival and continuity of the corporation is completely depended on its management decision to increase the revenue to meet breakeven point. From the above analysis and findings the following are some of the major suggestions offered for betterment of the corporation.

- Cost cut down policy has to implemented strictly , for those factors which contributes major part of CPKM, such as staff cost controlling by avoiding unnecessary overtime schedules, operating complete schedule without cancellation, rationalization of schedules, cost control technique in HSD management, Fuel Management and Tyres management etc to be implemented by the management.
- Identifying the potential market of the passengers and operating the schedules in a single goal to carry each needy passenger from one place to another place, avoiding overlapping of timings from bus stands are the key factors to be given more importance for further improving load factor.
- The corporation needs to improve load factor for generating more and more revenue.
- Optimum utilization of vehicles makes the corporation to accumulate traffic revenue.
- KMPL is the major factor to be highlighted by the corporation to control cost by maintaining vehicles in a good condition and good driving habits.
- Rate of breakdowns may be showing a lesser in numbers, but image of the corporation is hampered while every vehicle breakdowns. It is necessary to deal with zero breakdown policy by the NEKRTC.

CONCLUSION:

From the above data the study, it can be concluded with the remarks that Quality of service by NEKRTC is judged by each passenger, Therefore improvements in financial parameters does not give the actual status of public sector specially corporation like NEKRTC. The parameters such as vehicle breakdowns, cancellation of schedules, punctuality in arrivals and departures are depended on the efficiency of the management. Further tyre mileage and KMPL is depended on the driver habit and road conditions with good mechanical condition of the vehicle. Non financial performance factors play a vital role in each public sector like NEKRTC for the analysis of strength and weakness of the organization. Here the factor may be non-financial but the corporation is bearing indirect cost/loss for each operational performance. Therefore for the long term survival of the corporation, Non financial factors are also be given importance to reduce the cost/loss arising from such factors.