

A QUALITY ASSESSMENT STUDY ON THE EAST COAST ROAD OF TAMIL NADU, INDIA

Velmurugan Pasupathi

Madurai Kamaraj University
velmurugan.pasupathi@gmail.com

Dr. B. George

Madurai Kamaraj University College
baskarangeorge@gmail.com

Abstract

Global evolutions on Social and Economical aspects along with the Civilizations' are catalyzed primarily by the evolution of Roads and subsequent modes of Transport only. Effective road networks are vital to prosperity of any economy. Road and Infrastructure provide not only major means of transport for both passengers and freight but also are crucial in economic development of any country. Roads across the world and the Good physical connectivity in the urban and rural areas have been trump cards for Tourism growth, India is no exception. In fact, India's rapid growing economy has witnessed a rise in demand for transport infrastructure and services. When roads are developed they can be used as a facilitator and as an attraction too (Duval, 2007). Roads designed to meet certain standards can become an attraction for tourists in the long run and in turn to tourism development too, so as to contribute for the Gross Domestic Product of the Nation. The East Coast Road in India was originally developed by a process of interlinking and improving a series of small village roads that connected the fishing villages along the coast of Bay of Bengal with the help of ADB¹. This study aims to assess the quality of East Coast Road of Tamil Nadu, India and focus on identifying the problems and challenges faced by the users of ECR². This study provides suggestions to develop the quality of this road in this Region.

Key Words: *East Coast Road, Road Quality Index, Gap Analysis*

¹Asian Development Bank

² East Coast Road

1. INTRODUCTION

“Building roads is a sure way to reduce poverty in India”. According to Economic and Social Commission for Asia and the Pacific, every Ten Lakhs Rupees (One million Rupees) spent on developing roads in India leads to poverty reduction of over seven times, as against the same amount spent on anti-poverty programs.

Nowadays, the world’s total length of road networks has reached 64 million kilometers. India’s transport sector is large and diverse; it caters to the needs of 1.1 billion people. India has the third largest road network in the world with a total network of 4.1 million kms. (Roadtraffic-technology, 2012). As compared to other modes of transport, road transport may be described as well-accessible for a user, flexible, effective, reliable and rapid. In a majority of states, road transport plays a dominating role in the national sectors (Zak et al. 2011).

In recent years, the government of India has realized the importance of improving the road network for sustaining the economic growth of the country (Rastogi, 2006). Golden Quadrilateral Road is fifth longest road network 5486kms, in the world connecting four major Metropolitan Cities of India. This road provides a classic connection to Delhi – Kolkata – Chennai – Mumbai – Delhi that resembles a Quadrilateral and surely its Quality makes it Golden Quadrilateral. Road Network in India carries almost 90 percent of the country’s passenger traffic and 65 percent of its freight. The density of India’s highway network at 0.66 km of highway per square kilometer of land is similar to that of the United States (0.65) and much greater than China's (0.16) or Brazil's (0.20). However, most highways in India do not match the international standards and 40 percent of India’s villages do not have access to all-weather roads. The major roads in India are classified as National Highways (NH) and State Highways (SH). The development, construction, and maintenance of National Highways (NH) is the responsibility of the Government of India and NHAI³. National highways form the arterial roads in the country and are generally better maintained than the state highways. To further improve the national highways network, Government had taken up an ambitious program of upgrading about 38,000 kms at a cost of Rs. 1.58 trillion (NHAI, 2008), in that line East Coast Road is a premier road in Tamil Nadu.

³ National Highways Authority of India

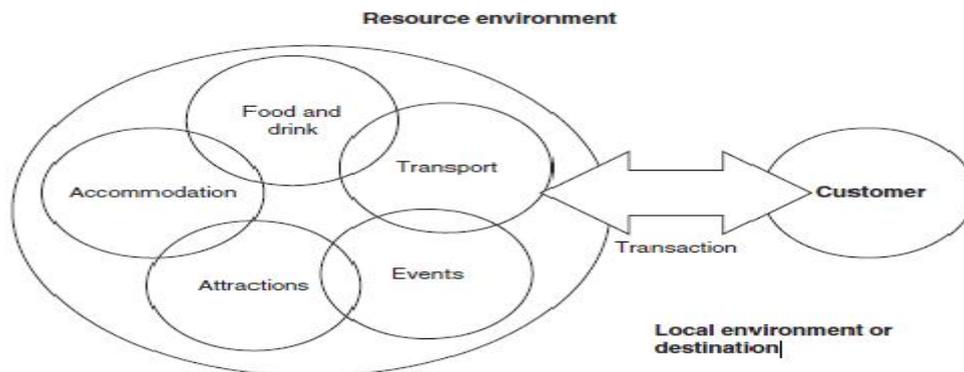
East Coast Road (State Highway 49) in Tamil Nadu runs for 765 Kms from Chennai to Kanyakumari. In Phase-I, a stretch of 166 Km from Chennai to Cuddalore was widened to two lane and strengthened at a cost of US \$158 million with loan assistance from Asian Development Bank. East Coast Road first Phase-I constructed by TNRDC⁴ in support with Infrastructure Leasing and Financial Services (IL & FS). Recently, the stretch of ECR from Puducherry to Nagapattinam has been declared as National Highways. The balance length from Nagapattinam to Kanyakumari has been taken up for widening and improvement under World Bank assisted Tamil Nadu Road Sector Project.

2. AIM AND SCOPE OF THE RESEARCH

1. To study the Profile of East Coast Road, Tamil Nadu, INDIA
2. To understand the Road User Satisfaction Index Model
3. To Study and Analyze the various Qualities of East Coast Road
4. To identify the problems and challenges faced by the ECR users
5. To provide suggestions and proposal for suggestions.

3. REVIEW OF LITERATURE

White (1981) states that the elements of tourism market consists of Accommodation, Attractions, Food and Drink, Transport, Events and the potential customers in the destination area.



Source: White (1981)

Figure-1: Elements of Tourism

⁴ Tamil Nadu Road Development Corporation

In the context of elements of tourism market defined by White, Transport becomes the fourth and vital element in the development of any tourist destination. There are many longest roads in the world helping the respective countries Tourism, Hospitality and the Economic development.

Transport is a crucial component of infrastructure. A well-developed transport network facilitates the integration and interdependence of different sectors by aiding quick and adequate movement of people and material. Road Transport plays an important part in economic growth and globalization. Beaver (2002) defining in his dictionary of Travel and Tourism Terminology, Transport or Transportation is the movement of people, animals and goods from one location to another. Modes of transport include air, rail, road, water, cable, pipeline and space.

Anne Dodge (1999), in her Research Paper, Route 66 Where are you? Submitted in Massachusetts Institute of Technology analysed the History of Route 66, the development of American Automobile Highways, Motels and Tourism in this corridor in U.S.A. In 1966, Route 66 developed in various phases wound 2400 miles south from Chicago through Saint Louis, Missouri, down through Tulsa and Oklahoma City, across the south west via Santa Fe, New Mexico and ended in downtown Los Angeles. Route 66 began as a series interconnected, local roads that were building out from the centre of countless towns.

According to Groth (2000) A Road is an identifiable route, way or path between two or more places. Roads are typically smoothed, paved, or otherwise prepared to allow easy travel; though they need not be, and historically many roads were simply recognizable routes without any formal construction or maintenance, explained in his book Sustainable Tourism and Environment.

India has an extensive road network and provides amenity to millions of people every day, thus road transport is one of the important ingredients for the social and economic development of the country. According to the World Bank, national highways in India constitute a length of close to 70,748 km, which is a mere two percent of the road network, but carry about 40 percent of the total road traffic in India. (Ministry of Corporate affairs, Road Transport Report)

It is clear from these reviews that Roads in addition to providing connectivity are the basis for both regional and national development through improvement on social, economical and tourism aspects.

4. POPULAR ROADS AROUND THE GLOBE

Globally the following are the best examples for popular roads shouldering economy and tourism in many countries.

1. Pan American Highway,
2. Highway one Australia,
3. Great Ocean Road Australia,
4. Trans-Siberian Highway Russia,
5. Trans-Canada Highway,
6. Golden Quadrilateral Road India and
7. National Express ways Japan

5. PROFILE OF EAST COAST ROAD OF TAMIL NADU

5.1 Evolution of ECR

East Coast Road (State Highway 49) is one of the beautiful two lane highway road in which one can enjoy driving the length of 765 kms. This ECR is located on the coast of the Bay of Bengal which began its operation by connecting Chennai city and Cuddalore via Pondicherry in the Phase-I. The Tamil Nadu government has taken several developing works in East Coast road and now this road is extended up to Kanyakumari. East Coast Road connects Chidambaram, Karaikal, Nagore, Nagapattinam, Thiruthuraiipoondi, Muthupet, Adirampattinam, Meemisal, Thondi, Ramnad, and Kanyakumari.

5.2 Tolls and Developers

The ECR, Phase-I was constructed and developed by Government of Tamil Nadu. ADB supported with a loan of US \$24.47 million during 1993-1998. The project was implemented by TNRDC, an organization set up in 1998 for developing the state roads under the PPP⁵ framework. TNRDC is a 50:50 joint venture between TIDCO⁶ and Infrastructure Leasing & Financial Services (IL&FS), a well-known infrastructure development and financial services company. This project developed as a key means of improving coastal connectivity and as a route that leads to several tourist destinations, it was felt that an improved road corridor

⁵ Public Private Partnership

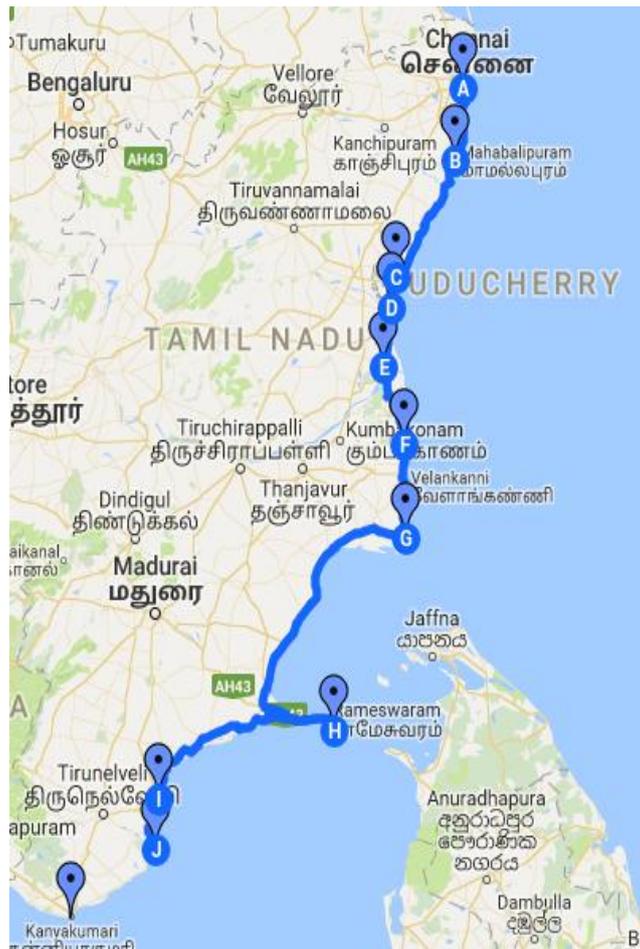
⁶ Tamil Nadu Industrial Development Corporation

would also lead to significant reduction in travel time and vehicle operating costs, resulting in significant economic benefits (Thillai et al. 2009)

5.3 Network and Connectivity

The highway is a state highway, maintained by the Government of Tamil Nadu under the Department of Highways and Minor Ports. The Central Government expressed plans to convert the highway to a national highway and upgrade it to four lanes from the existing two lanes.

Figure – 2: East Coast Road Connectivity Map

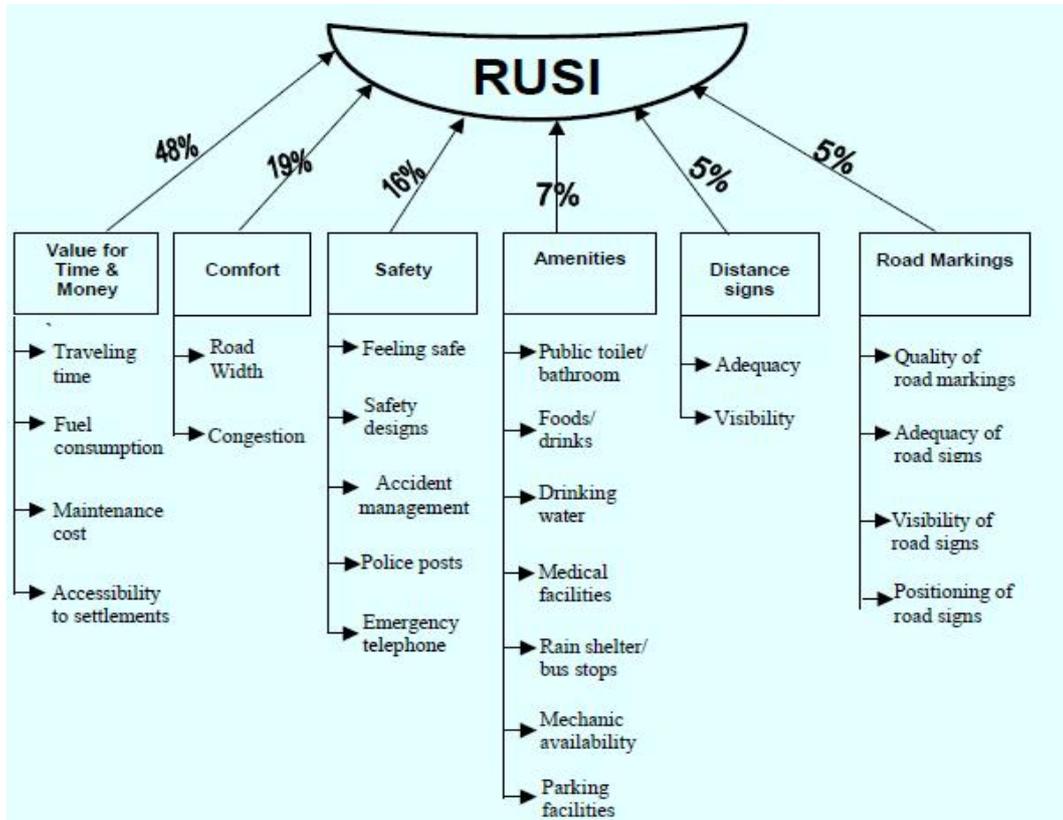


(East Coast Road Project, 2007)

6. ROAD USER SATISFACTION INDEX

6.1 Road User Satisfaction Index Model

Figure – 3: RUSI Model



(HPRIDC⁷, 2007)

Mathematical Model - Road Users' Satisfaction Index (RUSI)

$$\text{Overall Satisfaction} = (0.686) F1 + (0.262) F2 + (0.231) F3 + (0.097) F4 + (0.074) F5 + (0.069) F6$$

Where

F1 = Value for time and money ; F2 = Comfort
 F3 = Safety ; F4 = Amenities
 F5 = Distance signs ; F6 = Road markings

⁷ Himachal Pradesh Road Infrastructure Development Corporation

7. ROAD QUALITY INDEX

7.1 Road Quality Index of various Countries

Table-1: Quality of Roads

[1 = Extremely Underdeveloped; 7 = Extensive and Efficient by International Standards] [2011-12]

Rank	Country Name / Economy	Value
1	France	6.5
2	United Arab Emirates	6.5
3	Singapore	6.5
4	Portugal	6.4
5	Oman	6.4
6	Switzerland	6.4
7	Austria	6.3
8	Hong Kong SAR	6.3
9	Finland	6.1
10	Germany	6.1
85	India	3.5

Source: The World Bank, World Development Indicators (September 2012 edition)

8. QUALITY STUDY

8.1 Vermont Local Road Fact Sheet

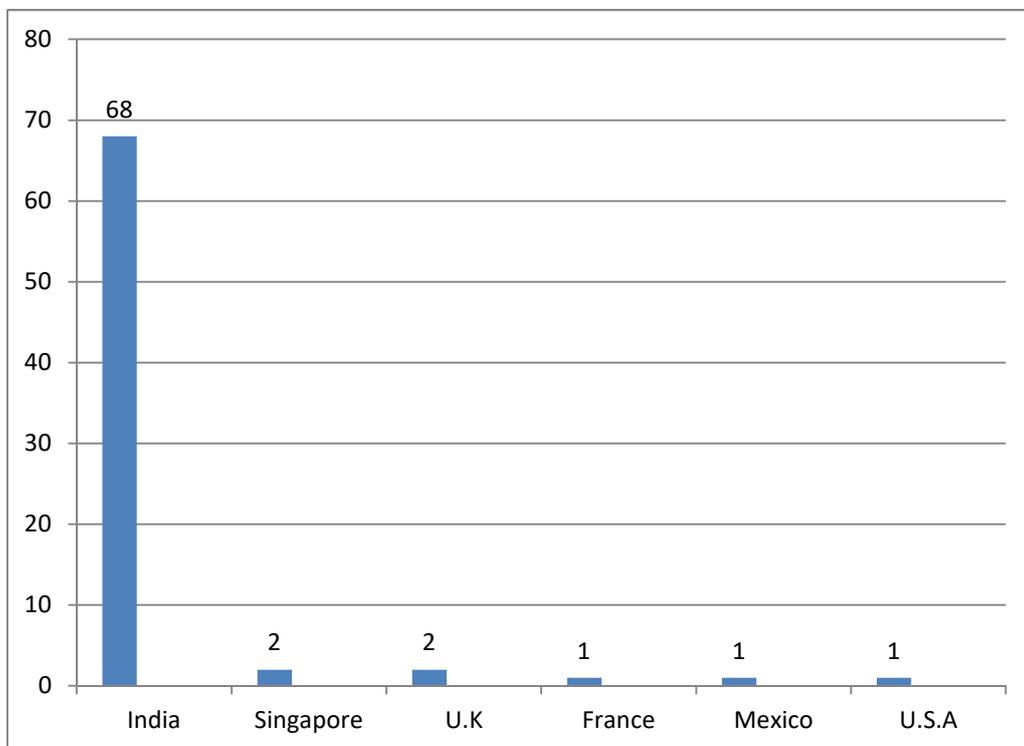
According to Vermont local Road fact sheets (1984) these are the Ten Commandments for Good Roads

1. Get Water away from the Road
2. Build on a Firm Foundation
3. Use the Best Soils Available
4. Compact Soils Well
5. Design for Winter and Summer Maintenance
6. Design for Traffic Loads and Volumes
7. Pave only those Roads that are Real
8. Build From the Bottom Up
9. Protect your Investment
10. Keep good records

8.2 Sample size and Questionnaire

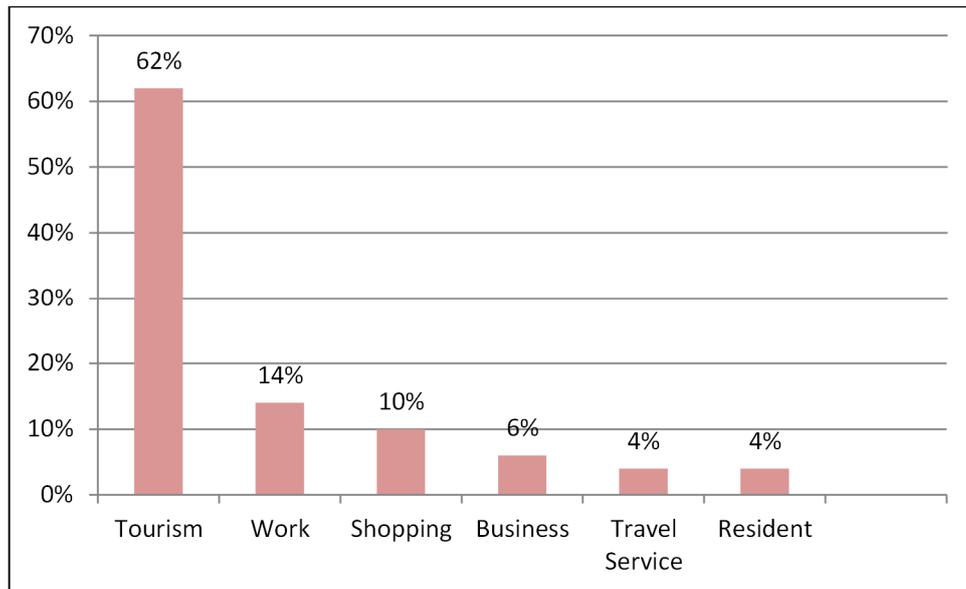
This Research aimed to assess the quality of East Coast Road in Tamil Nadu, INDIA. Questionnaire Survey method has been adopted to achieve the objectives of the research. The questionnaire has been framed with 12 questions. The questionnaire has been given to various categories of respondents as per their purpose of travel with back ground of Business, Tourism, Travel Service Provider, Work Area, Resident, Shopping, Govt Official. The response collected randomly from 75 respondents from the various spots of the East Coast Road between Tiruvanmiyur to Mahabalipuram stretch. The spots are VGP Golden Beach Theme Park, On Road, Kovalam Beach Village in ECR and Mahabalipuram World Heritage site. The Questionnaire consists of Respondent's Profile and Main Questions. The Questionnaire has equal weight age of Qualitative and Quantitative aspects of questions.

Chart-1: ECR Respondent's from various Countries



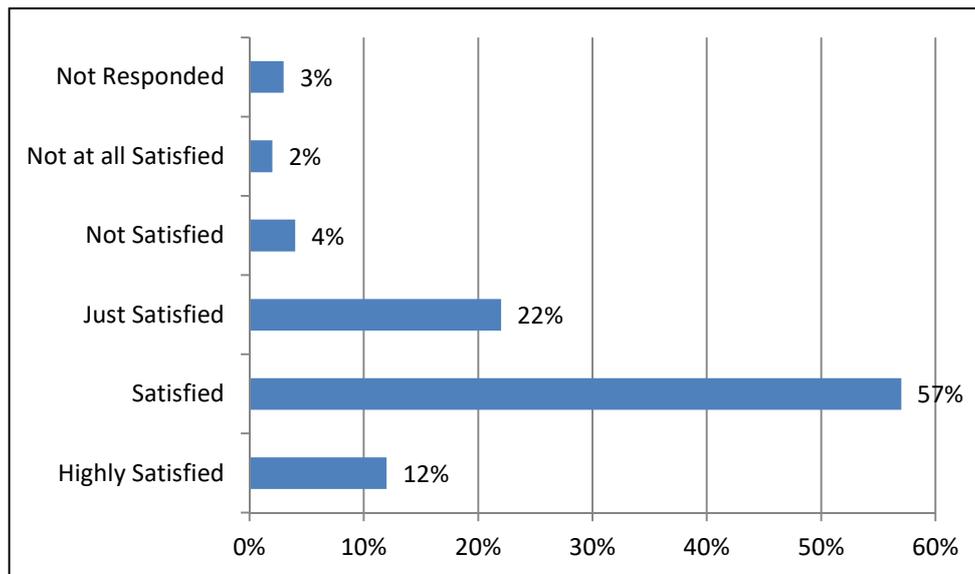
Source: Primary Data

Chart-2: Purpose of Travel to East Coast Road



Source: Primary Data

Chart-3: Overall Satisfaction



Source: Primary Data

As per the response from the East Coast Road User Survey 62% of the ECR Users are travelling to ECR for tourism. The Work and Shopping contribute less than 15 %. Almost six percentages of Business people are travelling in ECR. The study also indicates that Travel Service Provider and Resident people are contributing 4% each. The study reveals that 57% of ECR Users are “Satisfied” and 12% are highly satisfied. The trend has been understood that 22% of users are just satisfied and remaining came under other categories.

It is identified that more than 90% of travelers travelling through East Coast Road are satisfied in some way. It is seen that “not satisfied” category accounted to a total 6% of respondents and “not responded” users come to 3%

9. MAJOR PROBLEMS FACED BY EAST COAST ROAD USERS

1. Public Restroom facilities & Drinking Water facilities
2. Lack of on road Hospital Services
3. Heavy accidents during week ends
4. Quality of the road is not up to the mark from Pondicherry to Kanyakumari
5. Lack of proper Lighting facility
6. Width of the Road is limited
7. Low level of Tourism information facility
8. Speed preachers may cause accidents
9. Safety of two wheeler user is big question mark
10. No separate lane for Heavy Vehicles and Light motor vehicles
11. No Pedestrians Facility throughout the road
12. Lack of Network and Connectivity to the town in Chennai District
13. Lack of food outlets between Pondicherry to Kanyakumari Stretch
14. Limited Emergency Care Services from Pondicherry to Kanyakumari
15. Limited Motels with garaging facility
16. Water Logging during the Rainy Season
17. No separate line for Ambulance Service
18. Lack of Roadside Shelters for Public
19. Lack of Truck drivers rest hours on the East Coast Road
20. High level of waiting time in the Toll

9. GAP ANALYSIS

Gap Analysis is a central part of the teleological approach to change where dissatisfaction with the current state is expressed as differences between the present.

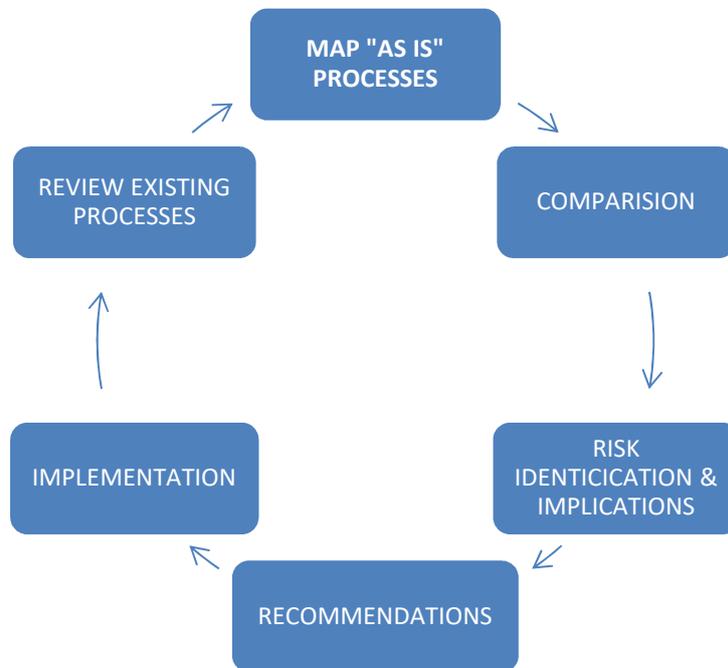


Figure-4: Process of Gap Analysis

10. SUGGESTIONS

In continuation to the analysis from the responses provided by the users the following suggestions are proposed

1. Introduce Eco friendly Bio Degradable Toilets at half-an-hour drive points.
2. Develop Quality Hospitals at reachable distances say on every 10th km.
3. Introduce Safety Driving Skills Development Centers
4. Monitor Road speed violation strictly.

5. Introduce Solar lighting facility through the East Coast Road
6. Research on improving Two lane roads to additional lanes.
7. Identify Vantage Points of Accidents and rectify the road structure.
8. Develop Specific Speed limits for various segments of roads
9. Introduce Grievance redressal mechanism
10. Enhance Public support to improve Road Quality through Road shows.
11. Conduct Proper and periodic maintenance of roads
12. Introduce Emergency Information Sign boards
13. Introduce a position say Road Quality Coordinator who can coordinate among the various departments concerned for ensuring better quality.
14. Make the pedestrian pavement area Stronger and more visible.
15. Provide better pedestrian crossings and better area for Bi-Cycle riders
16. Introduce Battery Cars at the tourism destinations to reduce pollution
17. Tourism has to be highlighted throughout the East Coast Road Stretch
18. Introduce Environment friendly road management System.
19. Introduce Online Information Management System for Road Awareness for ECR
20. Ban On Road alcoholic beverage outlets.
21. Install On Road reflector throughout ECR
22. Introduce Speed Management System Schools, Hospitals, Religious Places
23. Waste Management System to be implemented in the all the sectors in ECR

11. CONCLUSION

East Coast Road (ECR), a premier road in the state of Tamil Nadu, India, has provided wonderful connectivity, economic and social development from its inception. The present study has provided an insight into the quality standards of the ECR. The level of satisfaction is found to be 57 percentages which on the standards of management is good, yet there is room for development so as to enhance it towards excellence. In that respect the quality assessment study has thrown light on the areas such as Provision of Sanitary Facilities, Health Care Facilities, Solar Lighting Facility and Road Quality Coordination facility and so on. It is sincerely hoped that these suggestions will provide better directions for the administrators of East Coast Road to make it Excellent East Coast Road of the World.

BIBLIOGRAPHY

Anne. D (2006), **Route 66 Where are you?** Massachusetts Institute of Technology

Asian Development Bank (2002). **Project performance appraisal report on road improvement project (Loan 918-IND) in India.** March 2002.

Asian Development Bank (2001). **Developing best practices for promoting private sector Investment in Infrastructure: Roads.** http://www.adb.org/Documents/Books/Developing_Best_Practices/Roads/ Accessed on 25th Aug 2017

Beniusienė, I.; Petukienė, E. 2012. **The indicators of service quality measurement of logistics services,** *Socialiniai tyrimai* 2(27): 62–70.

Beaver A (2002). **A Dictionary of Travel and Tourism Terminology.** Wallingford: CAB International.p. 313.

Boicov, V. 2012. **Global position system technology to monitoring auto transport in Latvia,** *Applied Technologies & Innovations* 8(3): 38–44.

Dickman, S. (1997) **Tourism: An Introductory Text.** Holder Education, Rydalmere, New South Wales, Australia

Duval, David (2007) **Tourism and Transport: Modes, Networks and Flows,** Channel view publications.

Groth A (2000) **Sustainable tourism and the environment,** *Connect*, 25(1):1-2.

HPRIDC (2007) **Road User Satisfaction Survey in the State of Himachal Pradesh,** [http://admis.hp.nic.in/himachal/Baseline_Report_RUSS\(MDRA\).pdf](http://admis.hp.nic.in/himachal/Baseline_Report_RUSS(MDRA).pdf)

IL&FS (2005). **East coast road project: Innovation report.** <http://www.ilfsindia.com/> Accessed on 28th Aug 2017

NHAI (National Highways Authority of India) (2008). www.nhai.org. Accessed on 28th Aug 2017.

Thillai, R; Siddharth, R; Mukund, SP. 2009. **PPP's in road renovation and maintenance – A case study of the East Coast Road Project.** Vol.2. 27th Aug 2017.

Zak, J.; Redmer, A.; Sawicki, P. 2008. **Multiple objective optimization of the fleet sizing problem for road freight transportation,** *Journal of advanced transportation* 42(4): 379–427.

Zinovjevaitė, R.; Lazauskas J. 2012. **Theoretical aspects of evaluation of road freight transport enterprise's competitiveness environment,** Proceedings of the 15th conference of young scientists "Science – Future of Lithuania" 379–381.