

TREND OF ECONOMIC CARE AND ENVIRONMENT DEVELOPMENT TOWARDS SELECTIVE AUTOMOBILE INDUSTRY IN CHENNAI DISTRICT, TAMILNADU

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ABSTRACT

The demand for vehicles is increasing all over the world. Commercial vehicles, two-wheelers, three-wheelers, bicycles and tires are the products of automobile companies and the demand for their spare parts is also increasing. Due to the increase in population, the demand for vehicles is also increasing. These cause environmental pollution. So the automobile industry needs to be environmentally friendly while manufacturing the products. After Covid, the economic problem of automobile companies is more visible. A study is conducted on selected companies Ashok Leyland, TVS Motors, MRF Tire & Rane Madras focusing on Chennai for economic maintenance and environmental improvement of automobile industry. A study is also done on the trends in the production, sales and exports of the mobile industry. Although the economic problem of the automobile industry is more visible, environmental pollution can be controlled through them. So how can Auto Mission Plant 2016-26 of the automobile industry selected with Chennai as its hub can be seen through the report?

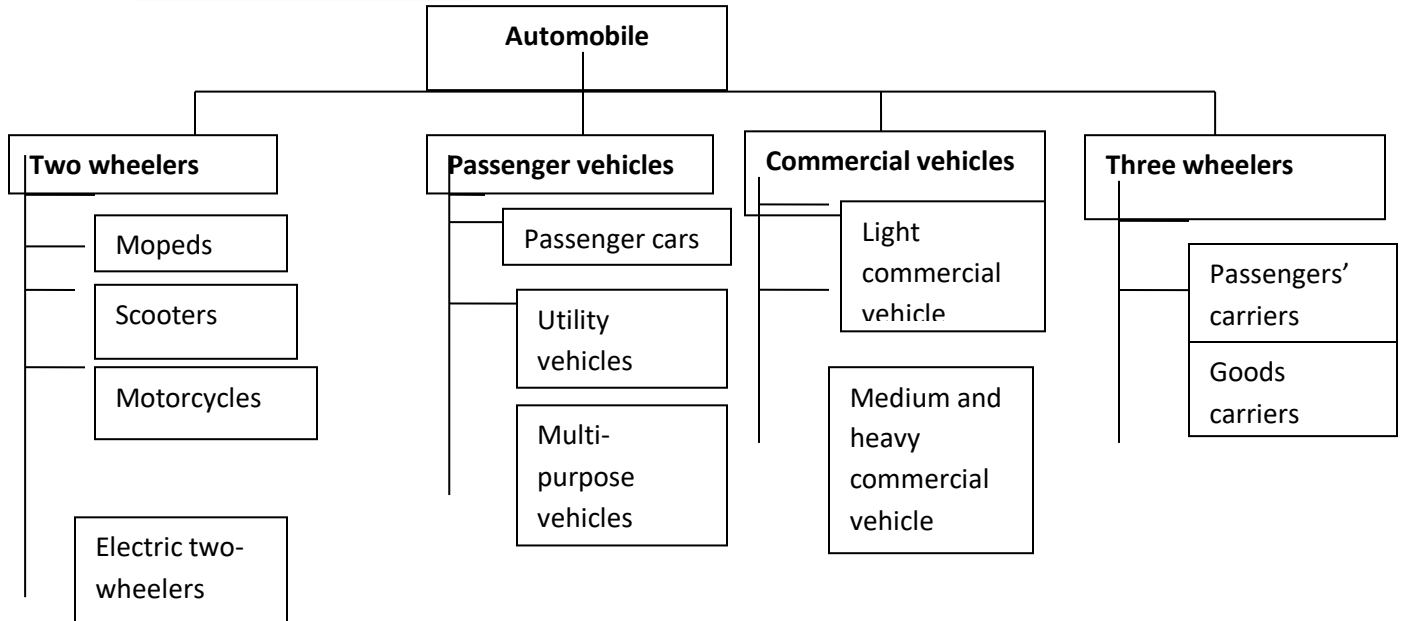
Keywords: *Trend, economic care, environment development.*

I. INTRODUCTION

The state government gave more importance to automobile production as the demand for vehicle increased after independence. In the 1960s, the government put in significant effort to improve technical education, building technical institutes to train technicians and mechanics. The state government also involved the private sector in worker training. As a result, today, Tamil Nadu produces the largest number of technical graduates. In the 1990s, the state government played an active role in attracting FDI and created government agencies to attract the automobile industry. Tamil Nadu is the most southern state in India and its capital city is Chennai.

The state population is 72 million, representing 5.96% of total population in India. The Gross State Domestic Product (GSDP) in 2011 was \$97.7 billion, which ranks 3rd among all Indian states. The state has one of the highest levels of urbanization, with 49% of residents living in urban areas and accounting for 9.6% of the total Indian urban population.² Tamil Nadu has a high literacy rate (80%) as well as an established healthcare system with 323 hospitals. GSDP per capita in Tamil Nadu has grown at a CAGR of 14.1%, consistently higher than the Indian average. (Tamil Nadu 2009) GSDP has grown at a 14.9% CAGR, with the percentage concentrated in the service sector increasing from 57% in 2005 to 61% in 2010. FDI inflow in 2011 was \$7.3 billion, among the highest of all states, though most of the investments went into the power sector.⁴ According to the Department of Economics and Statistics of Tamil Nadu, exports from the states' ports and airports reached \$19.7 billion in 2009.

CHART NO: 1
AUTOMOBILE INDUSTRY



II. RESEARCH OBJECTIVES

- To enumerate the Trend of Automobile Industry in Tamilnadu
- Propel Automobile Industry in Chennai to propose with Environmental Care and Economic Development

III. RESEARCH METHODOLOGY

Research Methodology is a way to systematically solve the research problem. The research design utilized in this study is descriptive and analytical. The nature of the study relates to analyzing the financial performance.

3.1 SCOPE OF THE STUDY

The current study evaluates Chennai based on the financial details of the selected auto companies. This study recommends some steps to maintain and improve the automobile industry. This survey is being conducted focusing only on companies in Chennai and many other companies around it to improve their performance and improvement in the future in order to improve their profitability position.

3.2 Sources of Data

Secondary data are collected from the published annual reports of the selected automotive companies in Chennai, text books, journals, magazines and from websites.

IV. REVIEW OF LITERATURE

Aya Okada and N. S. Siddharthan (2008) in their research article “Automobile Clusters in India: Evidence from Chennai and the National Capital Region” The introduction part deals the study on the Employee Engagement was conducted at Range Engine Valve Limited Plant I, Chennai and it was found that 76% of employees were engaged more than 70%, there was a positive relationship between engagement variables and discretionary effort and there was an association between employee engagement and discretionary. It was suggested that the organization should thus recognize employees as their most valuable asset, more than any other variable, as powerful contributors to a company's competitive position.

Jimmy Corton Gaddam (2013) evaluated the “Production and Sales Trend of Automobile Industry in India” This Study was to analyze the trend of automobile industry in terms of production and sales trend of the automobile industry. It

shows that the growth of the automobile industry and their contribution towards the GDP and economic development of the country is explained in the introductory part. The observed that Asian market has become the vital destination for the Indian two wheelers which will enable the companies to attract investment and market employment in the industry was the concluding remarks of the study. Hence segmentation wise study is useful to have a close view over the industry.

Paramasivan. C Ganeshkumar. V (2013) Financial inclusion is the recent concept which helps achieve the sustainable development of the country, through available financial services to the unreached people with the help of financial institutions. Financial inclusion can be defined as easy access to formal financial services or systems and their usage by all members of the economy.

Dr.C.Gopalakrishnan (2014) in their research article titled, "Recent Trends in Indian Automobile Sector" This study analyzed India represents one of the world's largest automobile industries. Easy availability of finance and rising income levels are encouraging the middle class population to upgrade their two wheelers to a car. This research investigated the Production, Domestic Sales and Export trends of the Indian automobile. This study concluded that Indian automobile industry has been able to achieve high scores on the various components and this has positive impact.

B.Jeeva Rekha (2014) written an article entitled A Study on Customer Attitude towards the Sales and Service Performance of Hyundai Motors, Salem. Automobiles are today counted to be one of the common necessities of an individual who wants to keep in step with the fast paced life of this generation. The customers are handled by companies through their dealers. In this study researcher used descriptive research design. The study is conducted with 100 respondents of Hyundai motors. The respondents are taken from the service department who came for their service. Our results reveal that most of the owners of the Hyundai car, express their satisfaction regarding the sales performance of the company when compared to service. The researcher experienced during the personal interview of the Hyundai car owners, more than 70% of the customers expressed their satisfaction of sales performance

Henrik Hammer (2015) carried out a working paper titled "Political Economy obstacles to Fuel Taxation" The study has used the Many studies have shown that fuel demand is quite elastic and that the best way to reduce fuel use (to tackle climate issues) is by taxing fuel. The study revealed that the believe one of the reasons for the difficulties are that political pressure influences the political decisions regarding taxation of gasoline consumption. The research paper concluded on the note that the Not only do low taxes and thus low prices encourage high consumption, but high levels of consumption also lead to considerable pressure against raising the taxes. Our findings also point to the significance of other factors such as government debt (a higher debt leads to a higher gasoline tax rate).

Three Wheeler 2006-2016: The Automotive Mission Plan 2006-2016 (AMP 2016) is the first to see significant growth in the Indian automotive industry. That means basic development of three wheelers has caused a decline in drivers and vehicle segments. The three wheeler recorded a 4.6% decline in growth and sales. Domestic three wheeler goods segment declined primarily because of shift to the sub- one tonne payload category in the Light commercial vehicles goods segment. Domestic demand has increased due to the increase in passengers of three wheeler. However growth in this segment has been driven by exports which registered a CAGR of 21% from FY2006 to FY2016.

Passenger Vehicle 2006-2016: Average passenger vehicle fuel efficiency increased by 1.5 % per year fuel consumption total overall storage of 8.6 million liters. Efforts on policy stability for small passenger vehicle to development of products like compact sedans and compact utility vehicles, which match customer aspirations and price. Despite the increase in vehicle demand and inflation, the industry has significantly reduced prices. the main purpose of this auto mission plan is to sell vehicles at affordable prices as everyone wants to buy them. Introducing passenger vehicle types like air bags, side impact bars, ABS, ESP etc, helps to protect vehicle and prevent accidents.

V.STATEMENT OF THE PROBLEM

In many parts of the world, the automobile company has made great strides in the automotive industry. The automotive sector contributes a lot in making India a prime destination. The automotive industry attracts about 5 per cent of total FDI. In this sector, the FDI flows from Japan, Italy, U.S.A, and Mauritius and Netherlands. Tamil Nadu is the top second state attracting FDI approvals for automotive Industry. The city of Chennai accounts for 60 per cent of India's vehicle exports Known as the Detroit of Asia, it has about 30 per cent market share in automobiles in India. The Chennai accounts for 35 per cent of the industry and its auto parts manufacturing. With Chennai as the leading automaker in India, the focus is on increasing vehicle production and upgrading its quality. Chennai is the largest producer of automobiles in the state but it has very low production capacity and due to high financial stress it is losing production capacity and capacity to develop them. Post-Covid-19, auto manufacturing has been lagging behind due to economic woes. As the automobile company is in a position to protect the environment in order to improve production, it needs the necessary equipment. The thesis is that the environment can be protected only by solving the economic problem. Therefore, Tamil

Nadu government should take measures to solve these shortages. Thus the report explains to us the need of funds for the development of automobile industry and economic maintenance for their implementation

VI DATA ANALYSIS, FINDINGS AND INTERPRETATION

Trends in Production

Production trends of various types of vehicles are the best guide to performance in the automobile industry. The industry produced a total of 29.07 million vehicles, including passenger vehicles, in FY 2018, Commercial Vehicles Three Wheelers, Two Wheelers; Cycles recorded a financial year growth of over 25 million in 2017. The automotive sector witnessed high volume production in the passenger car and utility segment in FY 2018. Production volume of three-wheelers increased by 30 percent. It has produced more than one million unit 0.78 million units in 2016 - 2017. Manufacture of two-wheelers FY 2016 Increased by 12 percent. Despite the increase to 19.9 million units, two-wheeler scooter production is at 7 million and motorcycle production is over 15 million. India has become a major manufacturing hub for automobiles, resulting in increased FDI.

Table No: 1.1

Automobile Production Trends		(Number of Vehicles)			
Category	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
Passenger Vehicles	30,87,973	32,21,419	34,65,045	38,01,670	40,10,373
Commercial Vehicles	6,99,035	6,98,298	7,86,692	8,10,253	8,94,551
Two Wheelers	8,30,108	9,49,019	9,34,104	7,83,721	1,02,19,11
Three Wheelers	1,68,83,049	1,84,89,311	1,88,30,227	1,99,33,739	2,31,47,057
Grand Total	2,15,00,165	2,33,58,047	2,40,16,068	2,53,29,383	2,90,73,892

Source: SIAM

Trends in Sales

The chart below shows that car manufacturing is one of the largest markets in the world in terms of automobile sales and has increased its production in FY 2017-18. Domestic sales of passenger vehicles increased by 7.89 percent, which is an increase of 3.28 million in vehicle production in FY 2017-18. It has increased its sales by 9.23 percent in 2016-2017. The commercial vehicle segment recorded a growth of 20% in sales in 2017-2018 and 4 percent growth in 2016-17. Three-wheeler sales stood at 0.63 million. This has resulted in a higher sales growth rate than last year. Two-wheeler sales in 2016-17 stood at 20. It has reached a new milestone by selling 19 million units. Its growth has increased by seven percent compared to last year.

Table No: 1.2

Automobile sales trends		(Number of Vehicles)			
Category	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
Passenger Vehicles	25,03,509	26,01,236	27,89,208	30,47,582	32,87,965
Commercial Vehicles	6,32,851	6,14,948	6,85,704	7,14,082	8,56,453
Two Wheelers	4,80,085	5,32,626	5,38,208	5,11,879	6,35,698
Three Wheelers	1,48,06,778	1,59,75,561	1,64,55,851	1,75,89,738	2,01,92,672
Grand Total	1,84,23,223	1,97,24,371	2,04,68,971	2,18,62,128	2,49,72,788

Source: SIAM

Trends in Exports

Overall exports of automobiles grew by 16.12 percent in 2018. Its two-wheeler segment recorded its exports with a growth of 20.29%. Scooters and motorcycles accounted for the highest exports at 0.31 million and 2.4 million respectively. Three wheelers exported 0.38 million units. This is a significant increase in exports over 2017-18. The table given below shows us that the export of passenger vehicles and commercial aircraft decreased by - 1.15 percent and - 10.50 percent respectively in financial year 2018.

Table No: 1.3

Automobile Exports Trends		(Number of Vehicles)			
Category	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
Passenger Vehicles	5,96,142	6,21,341	6,53,053	7,58,727	7,47,287
Commercial Vehicles	77,050	86,939	1,03,124	1,08,271	96,867

Two Wheelers	3,53,392	4,07,600	4,04,441	2,71,894	3,81,002
Three Wheelers	20,84,000	24,57,466	24,82,876	23,40,277	28,15,016
Grand Total	31,10,584	35,73,346	36,43,494	34,79,169	40,40,172

Source: SIAM

https://www.sesei.eu/wp-content/uploads/2018/12/Automotive-Sector-Report_-Final.pdf

Specific Activities in the Tamil Nadu Cluster

Traditionally, Tamil Nadu is known for automobile manufacturing. Since 1953, when Simpsons pioneered India's automobile industry in Chennai with the manufacture of motor cars, diesel engines and steam passenger buses, the industry has grown steadily. A number of automobile and auto components manufacturing plants have been established since then earning Chennai the sobriquet the "Detroit of India". During the 1990s and early 2000s, Tamil Nadu witnessed the second wave of the "automobile boom" Chennai is now emerging as one of the Top 10 Global Automobile Manufacturing Centers. Tamil Nadu has the largest auto components industry base and accounts for 35% of India's auto components production (US\$ 6.2 billion). The industry, over the years, developed the capability of manufacturing all the components required for manufacturing vehicles, which is evident from the high levels of indigenization achieved in the vehicle industry as well as the components developed for the completely Indian made vehicles. Three Chennai based industrial groups make more than 22% of India's auto components production. With an existing tyre manufacturing facility and commissioning of production by 3 larger tyre manufacturing projects, Tamil Nadu, and Chennai in particular, has become one of the largest hubs in the world for tyre manufacturing.

A wide range of products are made in the Tamil Nadu auto cluster, which likes to call itself the "Detroit of India" because it manufactures a disproportionate share of the automotive market. Automotive Industry producing over 40 % of the India's vehicle and components. Domestically, the firm is lead by firms like Ashok Leyland, TVS Group, and ,MRFTrye, Rane Madras. Below gives a description of the various types of manufacturing taking place in the cluster.

TABLENo: 1.4
Tamil Nadu Local Market Segmentation

Particulars	Commercial Vehicles and Agricultural Equipment	Cars and Two Wheeler	Auto Parts and Components
Market Share in Tamilnadu	33%	27%	35%
Domestic Leaders	Ashok Leyland	TVS Group	No Clear Leader
Other Firms	Tafe India Volvo Same Deutz Fahr Hindustan Motors Daimler-Benz Caterpillar	Ford Hyundai Mitsubishi Hindustan Motors Nissan BMW Royal Enfield	Rane Group Wheels (TVS-Dunlop) Lucas-TVS Brakes India Sundaram Clayton Ltd

Source: MOC

TABLE No: 1.5
SEGMENTATION WISE GROWTH RATES OF PRODUCTION AND SALES IN CAGR

Category of Vehicles	Production of Growth Rate	Sales Growth Rate
Passenger Vehicles	12.90%	3.6%
Commercial Vehicles	04.00%	3.0%
Two Wheelers	80.80%	6.4%
Three Wheelers	02.30%	3.8%

Source:SIAM

1.2 ENVIRONMENTAL CARE AND ECONOMICAL DEVELOPMENT

Environmental protection works towards environmental protection and sustainability to increase awareness of efficient use of natural resources by supporting tree plantations water conservation use of recycled materials alternative energy resources and eco-friendly products.

A green vehicle or environmentally friendly vehicle is a vehicle that uses gasoline or diesel that runs on some alternative fuel.The environmental protection provided by vehicles is very limited, so efforts are being made in some countries to produce vehicles that are less harmful to the environment.Although environmental protection is practiced in all countries, environmental protection is particularly high in European and California countries, which have zero carbon and fuel quality standards.Environmental protection is currently known as green vehicles, which are used to conserve natural resources, electric vehicles and natural gas vehicles, clean diesel vehicles, etc., which help in many efforts to protect the

environment. Although various efforts have been made to protect the environment through vehicles, there are many problems in them, so this review explains to us that various projects are being implemented to achieve the goal of automotive mission Plan by 2016-2026.

1.3 Fuel Energy Efficiency

Fuel efficiency refers to the following measures to make cars with similar fuel efficiency and reduce their costs. It is very important to use alternative propulsion which is petroleum i.e. petroleum electric hybrid vehicle which is a liquid engine which reduces consumption in the vehicle and uses renewable energy sources throughout its operations. It helps in proper maintenance of vehicles such as using bio-fuel products instead of petroleum products and regular engine oil changes and maintaining proper tire pressure. Eliminating unnecessary materials to make gas-powered vehicles helps reduce weight and improve fuel economy. The table below explains to us that the design of various eco-friendly cars is a comparison of their basic characteristics i.e. current production vehicle values and overall.

Table No:1.3

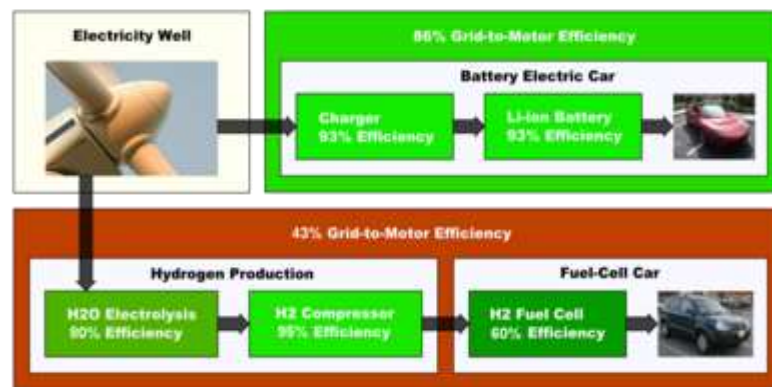
Comparison of Several Types of Environmental Green Car (Values Are overall For Vehicle In Current Production And May Differ Between Types)

Types of vehicle / power train	Fuel economy (mpg equivalent)	Range	Production cost for given range	Reduction in CO ₂ compared to conventional	Payback period
Conventional (ICE)	10-78	Long (400-600m)	Low	0%	-
Biodiesel	18-71	Long (360-540m)	Low	varies depending on biodiesel source	-
All electric	54-118	Shorter (73-150 mi) Luxury models	High & Very High	varies depending on energy source	-
Hydrogen fuel cell	80	-	Astronomical	-	-
Hybrid electric	30-60	380m	Medium	-	5 years

Source: wikipedia.org

Chart No:1.1

Energy efficiency between battery and Hydrogen fuel –cell cars



1.4 Implementation Support by Automotive Manufacturing Companies towards Mission Plan 2016-2026 Auto Fuels and Emission Norms:

AMP 2026 suggests the need for a scientific and transparent study of the causes of air pollution in Indian cities. This is one of the most important policies that the automation plan has given to many stakeholders in the automotive sector. Its main objective is to create world-class pollution control and to implement it in a transparent and organized manner with all stakeholders. Automotive mission plan 2026 the fuel usage of automobiles in India and their terms and conditions are as follows

- Bharat stage V (BS V) 2019 has brought emission regulations for passenger vehicles
- That is improvement to vehicle in India as of 2023 and interventions related to pollution control through the judiciary.(BS V&GOI)
- Its main purpose is to introduce(BS VI) regulations directly into 2020
- The main objective of this initiative is to create problems for vehicles' and the challenges they face, and to make significant investments in the industry to increase domestic productivity.
- Auto fuel emission norms between global regulations and mandatory regulation in India should be reduced by 7-8years by 2026

❖ **Safety Regulations:**

Vehicle related safety involves two dimensions i.e. vehicle safety and road safety handling the first dimension. The safety of vehicles and the occupants of the vehicle at the same time deals with the second dimension of road safety contracts. AMP2026 will increase the demand for vehicles. That is in 10years, it will be on a global scale to create a clear road map of Indian vehicles and to protect vehicle spare parts. Road safety is an important part. This requires active control and monitoring. The number of road accidents has increased in India. So the main objective of the automotive mission plan 2026 is to carry out road safety work in India to carry out these activities.

❖ **Trade Policy:**

Government trade policy has a major impact on growth it aims to develop 2026 .which in many ways takes into account the welfare and large socio-economy of the Indian automotive sector.

❖ **Duty structure in the automotive value chain:**

This policy should encourage the domestic i.e. .crate a screen of imported goods which contributes in a large proportion. i.e. imports of electronic components and systems such as high quality plastic .which in the future will increase drastically in terms of the value of a large vehicle .so the automotive mission plan 2026 should increase the amount to promote local efficiency.

❖ **Free Trade Agreements (FTAs):**

Large scale design by global trade FTAs and RTAs, for countries and trade modules. India is no expectation .so India is global attraction for auto makers and consumers' .India is a making huge impact in the automotive and auto parts industry in favor of many small and large emerging economies like India.

❖ **Foreign Trade Policy:**

The current foreign trade policy is to revise the five year interim curriculum. This approach was also adopted in FTP. This is the automotive mission plan 2026, which covers the remaining period. It is subject to grate competition to plan and produce industry investments.

❖ **Fiscal & Taxation Measures:**

Higher taxation in the automotive industry had a greater impact, i.e. higher taxation in the production and sale of product has greater impact on the industry. Auto is making a huge impact on automobile industry. India and very few countries are finding it more difficult to buy manufactured goods and make manufactured goods to be taxed more. That means the industry is being hit hard by hid taxes in cars ranging from 53% to78%.so this needs to be addressed urgently.

So the government of India has developed a make in India program to reduce this tax burden which means that it helps the industry to increase industrial production before promoting India productivity .so it is a great help to achieve India business growth through the automotive machine scheme.

❖ **Skill Development:**

One of the various programs of the government of India will be the industrial organization vehicle development council for skill development. The council for the development of the automotive sector is an excellent body to increase productivity in the Indian automotive sector and take it globally.

VI.SUGGESTION OF THE STUDY

Financial information collected for the present study is entirely secondary in nature. In such a case, the study carries all the limitations inherent with the secondary data. The study is restricted to select companies. The automobile industry is in high demand in a highly competitive environment. This report explains to us that even though the demand for vehicles is increasing across the country, production and sales are increasing, more attention is needed to make vehicles environmentally friendly. The automobile industry has taken a heavy toll on the economy after the covid . However, a large amount of environmental pollution is caused by vehicles. Environment is protected in various countries but Tamil Nadu government is making various efforts to prevent the pollution of vehicles due to high level of pollution i.e. smoke produced by diesel petrol. Through this thesis, it is suggested that environmental damage can be prevented by producing electric vehicles and pure diesel petrol in the current situation.

VII.CONCLUSION

The present study explains to us how the environment is polluted by automobiles in Tamil Nadu performance is helped by Automotive Mission Plan 2016-2026. The automobile industry is a major part of the Tamil Nadu manufacturing and sales of vehicles centered on Chennai. It has been found in the study that vehicles are affecting the environment to a great extent through automobiles. The government is faced with economic problems and debt problems to prevent environmental pollution. Therefore, if the automobile company prevents the environment from being affected by the smoke produced by the vehicles, it can be seen that the people and other living things will be affected more, so the Tamil Nadu government should further control these.

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