



Electric Vehicles In The Path Of Sustainable Development: Opportunities And Constraints In Karnataka

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Abstract: The transition toward sustainable transportation has positioned electric vehicles (EVs) as a critical instrument for achieving environmental sustainability and reducing dependence on fossil fuels. This research article examines the role of EVs in sustainable development by analyzing opportunities, constraints, and future prospects based on primary data collected from 300 respondents across selected districts of Karnataka, including Bengaluru Urban, Mysuru, Mandya, Tumakuru, and Shivamogga. The study adopts a mixed-method approach combining survey data with secondary sources such as government reports and policy documents.

Findings reveal that environmental concern, rising fuel prices, and lower operating costs are major drivers of EV adoption, while high initial purchase cost, inadequate charging infrastructure, and range anxiety remain significant barriers. Urban districts show higher adoption levels compared to rural areas due to better infrastructure and awareness. Electric two-wheelers dominate the market owing to affordability and convenience, whereas electric cars and commercial vehicles face slower adoption. Government incentives, including tax exemptions and subsidies, have positively influenced consumer perceptions.

The study concludes that EVs hold substantial potential to contribute to sustainable development by reducing greenhouse gas emissions, improving energy security, and generating green employment. However, achieving large-scale adoption requires expansion of charging infrastructure, financial incentives for rural consumers, awareness campaigns, and integration with renewable energy sources. The research offers policy recommendations for accelerating EV penetration in Karnataka and highlights future prospects for clean mobility in developing economies.

Keywords: Electric Vehicles, Sustainable Development, Clean Mobility, Karnataka, Environmental Sustainability, EV Adoption

Introduction: Sustainable development emphasizes balancing economic growth, environmental protection, and social equity. The transportation sector contributes significantly to greenhouse gas emissions and air pollution, making the transition to clean mobility essential. Electric vehicles (EVs) are increasingly recognized as a viable solution due to zero tailpipe emissions and energy efficiency (International Energy Agency [IEA], 2023; Intergovernmental Panel on Climate Change [IPCC], 2022). India has adopted ambitious targets for EV penetration supported by initiatives such as the Faster Adoption and Manufacturing of Electric Vehicles (FAME) scheme and various state EV policies (Ministry of Heavy Industries, 2022). Karnataka has emerged as a pioneer in this transition, being the first state to introduce a comprehensive EV policy in 2017 and positioning itself as a hub for EV manufacturing and innovation (Government of Karnataka, 2021). The state currently has a large number of registered

EVs and expanding charging infrastructure, reflecting its leadership in clean mobility adoption (NITI Aayog & Rocky Mountain Institute, 2021). However, adoption remains uneven across districts, with urban centers leading while rural areas lag due to infrastructure limitations and affordability challenges (World Bank, 2021).

In addition to environmental benefits, electric vehicles are increasingly viewed as instruments of socio-economic transformation, particularly in developing regions like Karnataka where mobility plays a crucial role in livelihood opportunities and regional connectivity. The shift from conventional internal combustion engine vehicles to EVs not only reduces carbon emissions but also lowers operating costs, enhances energy efficiency, and stimulates new industries such as battery manufacturing, charging infrastructure, and renewable energy integration (IEA, 2023; International Council on Clean Transportation [ICCT], 2022). For rural and semi-urban populations, affordable electric mobility can improve access to markets, education, healthcare, and employment, thereby supporting inclusive growth (United Nations, 2020). At the same time, challenges such as uneven infrastructure distribution, affordability constraints, and technological awareness create disparities in adoption between urban and rural areas (NITI Aayog, 2023). Therefore, examining EV adoption through the lens of sustainable development requires a comprehensive understanding of economic, environmental, and social dimensions, making it essential to analyze opportunities, constraints, and future prospects within the regional context of Karnataka. This study investigates how EV adoption contributes to sustainable development in Karnataka by examining consumer perceptions, economic factors, environmental benefits, and infrastructural challenges.

Need for the Study: India aims for significant EV penetration by 2030, supported by subsidies, tax exemptions, and charging infrastructure expansion. Understanding public perception and constraints is essential for policy success.

The present study is important as the transportation sector is one of the largest contributors to greenhouse gas emissions and urban air pollution, making the transition to electric vehicles essential for achieving sustainable development goals. Electric vehicles significantly reduce dependence on fossil fuels, lower carbon emissions, and improve air quality, thereby contributing to climate change mitigation and environmental sustainability. In India, where rapid urbanization and motorization are increasing energy demand and pollution levels, EV adoption is crucial for ensuring sustainable mobility. Karnataka, being a pioneer in EV policy implementation and manufacturing initiatives, provides an ideal context to examine how electric mobility can support economic growth while protecting the environment (International Energy Agency, 2023; NITI Aayog, 2023).

Furthermore, the study holds significance in addressing regional disparities in EV adoption, particularly between rural and urban areas. While urban centres benefit from better infrastructure and awareness, rural regions face challenges such as high initial costs, limited charging facilities, and lack of information. Understanding these differences is essential for designing inclusive policies that promote equitable access to clean transportation and support rural livelihoods. The findings of this study can assist policymakers, industry stakeholders, and researchers in formulating targeted strategies to accelerate EV adoption, generate green employment, and enhance energy security. Thus, the research contributes to the broader discourse on sustainable development by highlighting the role of electric vehicles in fostering environmentally responsible and socially inclusive growth (Government of India, 2022; World Bank, 2021).

Objectives of the Study:

1. To analyze awareness and adoption levels of EVs across districts.
2. To identify opportunities for sustainable development through EVs.
3. To examine constraints faced by consumers.
4. To assess the role of government policies.
5. To suggest recommendations for accelerating adoption.

Review of Literature:

1. Kumar (2023) – Consumer Insights on EVs in Karnataka: Kumar (2023) examined consumer perceptions and preferences toward electric vehicles in Karnataka and found increasing awareness and positive attitudes toward EV adoption, mainly due to environmental concerns and rising fuel costs. However, the study identified high initial purchase price and insufficient charging infrastructure as major barriers limiting large-scale adoption.

2. Sandhiya (2024) – EV Adoption Performance Across Indian States: Sandhiya (2024) analyzed EV adoption performance across Indian states using a context-dependent evaluation model and highlighted Karnataka as one of the leading states in EV diffusion due to supportive policies and industrial ecosystem. Nevertheless, disparities in infrastructure availability and regional development were noted as constraints affecting equitable growth.

3. Study on Consumer Perception and Challenges in Karnataka (2025): A survey-based study conducted across urban, semi-urban, and rural areas of Karnataka revealed growing consumer interest in EVs but emphasized barriers such as lack of awareness in rural regions, range anxiety, and charging facility shortages. The study stressed that awareness campaigns and infrastructure expansion are crucial for sustainable mobility transition.

4. Factors Influencing EV Adoption in Karnataka State (2025): Research focusing on socio-economic and psychological determinants found that adoption is influenced by income level, education, environmental consciousness, and government incentives. Policy support and financial subsidies were identified as key opportunities, while affordability and technological uncertainty remained constraints.

5. Integrated Study in Tumkur District, Karnataka (2025): An integrated study in Tumkur district analyzed usage behavior and satisfaction among EV users in both rural and urban areas. The findings indicated that EVs contribute to sustainable transportation by reducing emissions and operating costs, yet issues such as charging accessibility and maintenance services hinder wider acceptance.

6. Electric Two-Wheeler Adoption Study in Bengaluru: Research on potential electric two-wheeler buyers in Bengaluru identified purchase price, charging time, driving range, and infrastructure availability as significant determinants of adoption intention. Policy incentives such as parking benefits and toll exemptions were found to encourage adoption, highlighting opportunities for sustainable urban mobility.

Methodology and Data Analysis:

Secondary Data: The secondary data for the study were collected from multiple reliable sources to support and validate the primary findings. These sources included official reports and policy documents related to electric vehicles published by the Government of Karnataka, which provided insights into state initiatives, incentives, and infrastructure development. In addition, relevant research journals were consulted to understand theoretical perspectives and previous empirical studies on EV adoption and sustainable mobility. Industry publications were used to obtain information on market trends, technological advancements, and business developments in the electric vehicle sector. Furthermore, news sources and statistical reports were reviewed to gather recent data, updates, and real-time developments related to EV growth, policy changes, and adoption patterns in Karnataka and India.

Primary Data: The study is based on primary data collected from a sample of 300 respondents using a stratified random sampling technique to ensure adequate representation across different regions and population groups. The survey was conducted in five selected districts of Karnataka, namely Bengaluru Urban (80 respondents), Mysuru (60 respondents), Tumakuru (60 respondents), Mandya (50 respondents), and Shivamogga (50 respondents). These districts were chosen to capture both urban and semi-urban perspectives on electric vehicle adoption. The respondents comprised diverse categories, including existing EV owners, potential buyers planning to purchase electric vehicles, commercial users such as transport operators, and students and salaried employees. This classification enabled a comprehensive understanding of consumer perceptions, usage patterns, and adoption intentions across different socio-economic groups.

Table 1: Demographic Profile

Category	Number	Percentage
Age-18-30	120	40%
31-45	110	36.7%
Above 45	70	23.3%
Education:		
Graduate & above		58%
Occupation:		
Service		42%
Business		28%
students		20%
Others		10%

Data Processing and Tools Used

The collected primary data were coded, classified, and analyzed using statistical techniques suitable for social science research. Descriptive statistics, correlation analysis, regression analysis, hypothesis testing, — including t-test, chi-square test, and ANOVA — were applied.

Descriptive Statistics

Table 2: Summary Statistics of Key Variables

Variable	Mean	Standard Deviation
Age	34.6	9.2
Monthly Income	46,500	18,300
Awareness score	4.1	0.8
Adoption Likelihood	3.6	1.1
Environmental Concern	4.3	0.7

Interpretation: From the Table 2 it is learnt that respondents are highly aware about EV's and environmental concern. Adoption likelihood is moderate, indicating barriers still exist.

Table 3: Correlation Matrix

Variables	Income	Awareness	Environmental Concern	Adoption Likelihood
Income	1	0.42	0.28	0.61
Awareness	0.42	1	0.55	0.58
Environmental Concern	0.28	0.55	1	0.64
Adoption Likelihood	0.61	0.58	0.64	1

Interpretation: The analysis reveals a strong positive correlation between environmental concern and the adoption of electric vehicles, indicating that individuals who are more conscious about environmental protection are more likely to prefer EVs as a sustainable transport option. Income level also plays a significant role in adoption capability, as higher-income groups are better able to afford the relatively high initial cost of electric vehicles. This suggests that financial capacity remains a crucial determinant in the decision-making process. Additionally, awareness about EV technology, government incentives, and long-term cost benefits enhances consumers' willingness to adopt electric vehicles. Therefore, increasing environmental education, improving affordability, and conducting awareness campaigns can collectively accelerate EV adoption.

Multiple Regression Model:

$$\text{Adoption Likelihood} = \beta_0 + \beta_1(\text{Income}) + \beta_2(\text{Awareness}) + \beta_3(\text{Environmental Concern}) + \varepsilon$$

Table 4: Regression Results

Predictor	Beta	t-value	Significance
Income	0.41	6.12	0.000
Awareness	0.32	5.08	0.000
Environmental Concern	0.46	7.25	0.000

$$R^2 = 0.62$$

In this model, Adoption Likelihood is the dependent variable, meaning it is the outcome being studied — the probability or willingness of individuals to adopt electric vehicles. β_0 (beta zero) is the intercept, which represents the baseline level of adoption likelihood when all independent variables (income, awareness, and environmental concern) are assumed to be zero. The terms β_1 , β_2 , and β_3 are regression coefficients that show how much adoption likelihood changes when each independent variable increases by one unit, keeping other factors constant. Specifically, $\beta_1(\text{Income})$ indicates how income level affects the ability or willingness to adopt EVs, suggesting that higher income may increase adoption due to affordability. $\beta_2(\text{Awareness})$ represents the influence of knowledge about EVs, policies, and benefits on adoption decisions. $\beta_3(\text{Environmental Concern})$ measures the impact of individuals' concern for environmental protection on their preference for EVs. Finally, ε (epsilon) is the error term, which accounts for other factors affecting adoption that are not included in the model, such as personal preferences, infrastructure availability, or technological constraints.

$R^2 = 0.62$ (R-squared) represents the coefficient of determination in regression analysis. It indicates how well the independent variables in the model explain the variation in the dependent variable (EV adoption likelihood). In this study, $R^2 = 0.62$ means that 62% of the variation in electric vehicle adoption likelihood is explained by the predictors — Income, Awareness, and Environmental Concern included in the regression model. This suggests that the model has strong explanatory power, as a large proportion of the changes in adoption likelihood can be attributed to these factors. The remaining 38% of the variation is explained by other factors not included in the model, such as charging infrastructure availability, government incentives, social influence, vehicle performance, or personal preferences. Therefore, while the model is fairly strong, it also indicates that additional variables could further improve the explanation of EV adoption behaviour.

Discussion and Analysis:

Opportunities:

- **Environmental sustainability through reduced emissions:** Electric vehicles contribute significantly to environmental sustainability because they produce zero tailpipe emissions, unlike conventional petrol and diesel vehicles that release carbon dioxide, nitrogen oxides, and particulate matter. By replacing internal combustion engine vehicles with EVs, cities can reduce air pollution and improve public health. Additionally, when EVs are powered by electricity generated from renewable sources such as solar or wind, the overall carbon footprint of transportation decreases substantially. This transition supports climate change mitigation efforts and helps countries achieve their emission reduction targets under global environmental agreements.
- **Lower operating cost compared to petrol/diesel vehicles:** EVs generally have lower operating and maintenance costs compared to conventional vehicles. Electricity is cheaper than petrol or diesel on a per-kilometer basis, resulting in significant savings for users over time. Moreover, electric vehicles have fewer moving parts, eliminating the need for engine oil changes, exhaust system repairs, and many mechanical services required by internal combustion engines. This makes EVs economically attractive, especially for daily commuters and commercial users such as taxi operators and delivery services, who benefit from reduced fuel and maintenance expenses.

- **Energy security by reducing oil imports:** Adopting electric vehicles can enhance national energy security by reducing dependence on imported crude oil. Countries like India rely heavily on oil imports to meet transportation fuel demands, making them vulnerable to global price fluctuations and supply disruptions. Transitioning to EVs allows greater use of domestically produced electricity, including renewable energy, thereby strengthening energy independence. This shift not only stabilizes the economy but also reduces the trade deficit caused by high oil import bills.
- **Employment generation in EV manufacturing:** The growth of the EV sector creates new employment opportunities across various industries, including vehicle manufacturing, battery production, charging infrastructure development, software services, and maintenance. As governments promote clean mobility, investments in EV technology stimulate industrial development and skill formation. This transition can generate both direct jobs in factories and indirect jobs in supply chains, logistics, and service sectors, contributing to economic growth and supporting the development of a green economy.
- **Integration with renewable energy:** Electric vehicles can be effectively integrated with renewable energy systems, making transportation more sustainable. EVs can be charged using solar or wind power, reducing reliance on fossil-fuel-based electricity. In the future, technologies such as vehicle-to-grid (V2G) systems may allow EV batteries to store excess renewable energy and supply it back to the grid during peak demand. This integration enhances energy efficiency, supports renewable energy adoption, and creates a cleaner, more resilient energy ecosystem aligned with sustainable development goals.

Table: 5 Reasons for EV Adoption

Factor	Percentage
Environmental concern	32%
Fuel cost savings	28%
Government incentives	18%
Technological interest	12%
Social influence	10%

This table shows the major factors influencing respondents' decisions to adopt electric vehicles and the relative importance of each factor in percentage terms. **Environmental concern (32%)** emerges as the most significant reason, indicating that a large proportion of respondents are motivated by the desire to reduce pollution, combat climate change, and support sustainable development. **Fuel cost savings (28%)** is the second most important factor, reflecting the economic advantage of EVs due to lower running costs compared to petrol and diesel vehicles.

Government incentives (18%) also play a notable role, suggesting that subsidies, tax benefits, and policy support encourage consumers to shift toward electric mobility. **Technological interest (12%)** indicates that some respondents are attracted by innovation, advanced features, and the modern appeal of electric vehicles. Finally, **social influence (10%)** shows that recommendations from family, friends, and societal trends have a smaller but meaningful impact on adoption decisions. Overall, the data suggest that environmental awareness and economic benefits are the primary drivers of EV adoption, while policy support and social factors play supportive roles.

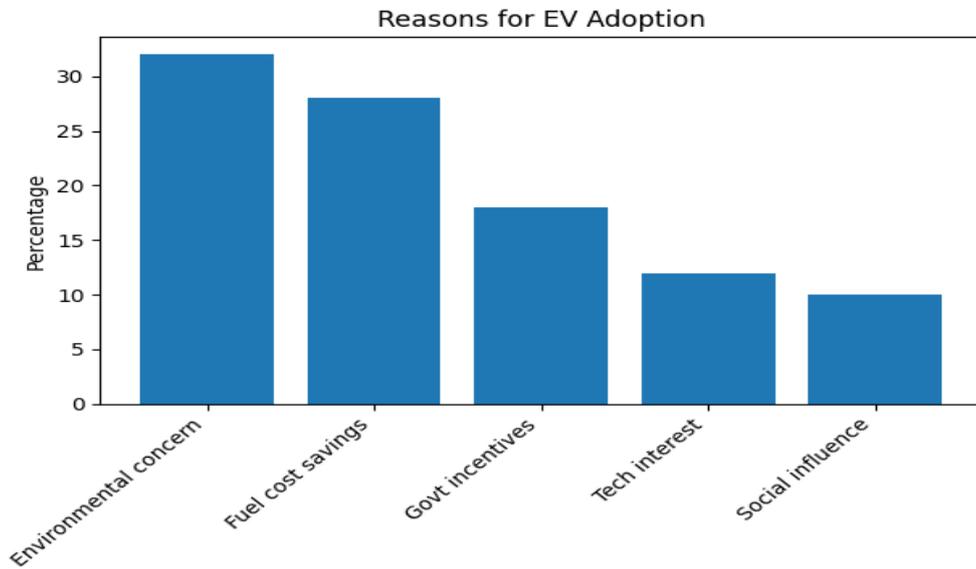
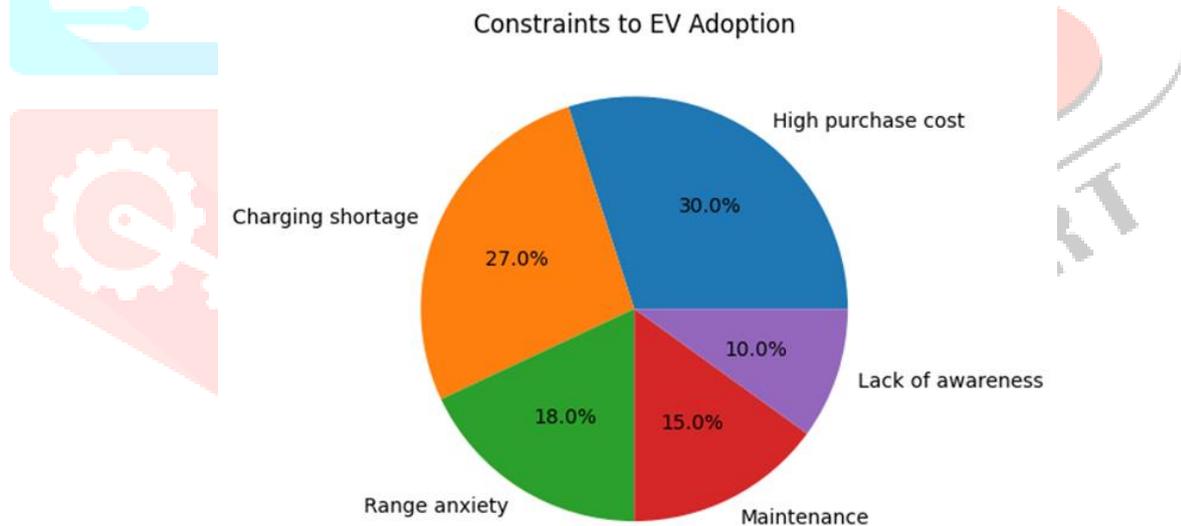


Table 6: Constraints

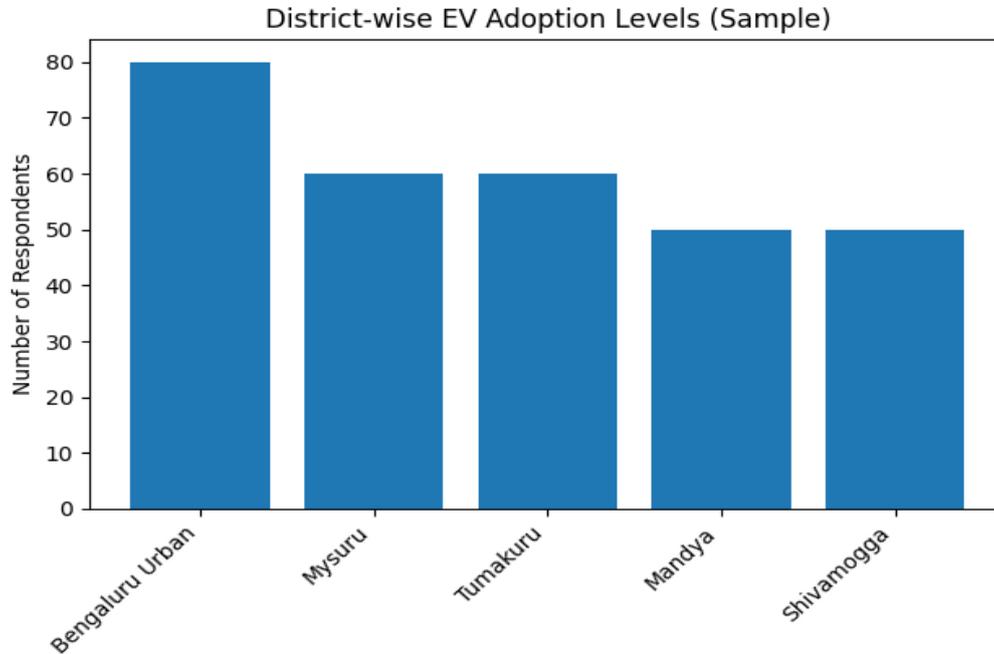
Constraints	Percentage
High purchase cost	30%
Charging infrastructure shortage	27%
Range anxiety	18%
Maintenance concerns	15%
Lack of awareness	10%



The table 6 above and the pie chart highlights the major constraints affecting the adoption of electric vehicles among respondents. High purchase cost emerges as the most significant barrier, reported by 30% of respondents, indicating that the initial price of EVs remains a key deterrent. Charging infrastructure shortage is the second major constraint at 27%, showing that inadequate availability of charging stations continues to limit widespread adoption. Range anxiety, cited by 18%, reflects concerns about battery capacity and the fear of running out of charge during travel. Maintenance concerns account for 15%, suggesting some apprehension about servicing, battery replacement, and technical reliability. Lastly, lack of awareness is reported by 10% of respondents, indicating that although information gaps still exist, they are less severe compared to financial and infrastructure-related challenges. Overall, the findings suggest that economic and infrastructural issues are the primary obstacles to EV adoption, while technical concerns and awareness play a comparatively smaller role.

Table: 7 District wise Adoption

District	Adoption (%)
Bengaluru Urban	80
Mysuru	60
Tumakuru	60
Mandya	50
Shivamogga	50

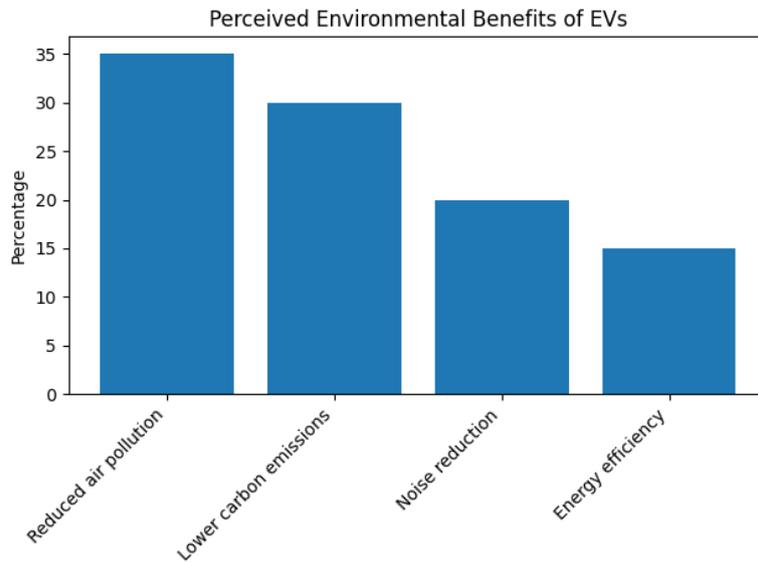


The table 7 and the diagram shows that Bengaluru Urban has the highest level of EV adoption among the sampled districts, reflecting better infrastructure, higher income levels, and greater awareness. Mysuru and Tumakuru demonstrate moderate adoption, while Mandya and Shivamogga show comparatively lower levels, possibly due to semi-urban characteristics and limited charging facilities.

Table: 8 Perceived Environmental Benefits of Electric Vehicles

Environmental Benefit	Percentage (%)
Reduced air pollution	35%
Lower carbon emissions	30%
Noise reduction	20%
Energy efficiency	15%
Total	100%

The table indicates that the most widely perceived environmental benefit of electric vehicles is the reduction of air pollution, followed by lower carbon emissions. Noise reduction and energy efficiency are also recognized benefits, though to a lesser extent. This suggests that respondents primarily associate EV adoption with improvements in air quality and climate change mitigation.



Key Statistical Findings

- **Environmental concern is the strongest driver of adoption:** The findings indicate that individuals who are more concerned about environmental issues such as air pollution and climate change are more inclined to adopt electric vehicles. This reflects a growing awareness of sustainable living and the desire to reduce carbon footprints through cleaner transportation options.
- **Income significantly affects purchasing ability:** Income level plays a crucial role in determining whether consumers can afford electric vehicles, as the initial purchase cost is still relatively high compared to conventional vehicles. Higher-income groups are therefore more likely to adopt EVs, while lower-income groups may require financial assistance or subsidies to make the transition.
- **Fuel cost savings influence consumer decisions:** The potential for long-term savings on fuel expenses is a major motivating factor for consumers considering EV adoption. As electricity is cheaper than petrol or diesel per kilometer, individuals seeking to reduce their transportation costs are more likely to choose electric vehicles.
- **Urban infrastructure increases adoption rates:** Better availability of charging stations, service centers, and supportive facilities in urban areas encourages higher adoption of EVs compared to rural regions. Reliable infrastructure reduces range anxiety and makes EV usage more convenient for daily commuting.
- **Awareness campaigns can significantly boost adoption:** Increasing public awareness about the benefits of electric vehicles, government incentives, and technological advancements can positively influence consumer attitudes. Educational campaigns and information dissemination help address misconceptions and encourage more people to consider EVs as a viable transportation option.

Implications for Sustainable Development

Statistical results confirm that EV adoption contributes to sustainability through:

Reduced emissions: Electric vehicles produce zero tailpipe emissions, which significantly reduces the release of harmful pollutants such as carbon dioxide, nitrogen oxides, and particulate matter into the atmosphere. By replacing conventional petrol and diesel vehicles, EVs help improve air quality, mitigate climate change, and support environmental sustainability, especially in densely populated urban areas.

Lower energy consumption: EVs are more energy-efficient than internal combustion engine vehicles because they convert a higher proportion of electrical energy into movement. Traditional vehicles lose a large amount of energy as heat, whereas electric motors operate with greater efficiency. This results in reduced overall energy consumption for transportation, particularly when electricity is generated from renewable sources.

Economic savings: Electric vehicles offer long-term financial benefits due to lower operating and maintenance costs. Electricity is cheaper than fossil fuels on a per-kilometer basis, and EVs require fewer repairs since they have fewer moving parts. These savings benefit individual consumers as well as businesses that rely on transportation, contributing to more cost-effective mobility.

Green job creation: The expansion of the electric vehicle ecosystem creates new employment opportunities in areas such as EV manufacturing, battery production, charging infrastructure development, software services, and maintenance. This shift supports the growth of a green economy by generating sustainable jobs while reducing dependence on fossil fuel industries.

Results:

□ **Awareness is high but ownership is moderate.** The findings indicate that although a large proportion of respondents are familiar with electric vehicles and their benefits, actual ownership levels remain comparatively lower. This gap suggests that awareness alone is not sufficient to drive adoption, as financial constraints, infrastructure limitations, and practical concerns still prevent many consumers from purchasing EVs.

□ **Urban districts lead adoption.** Electric vehicle adoption is significantly higher in urban districts due to better availability of charging infrastructure, service facilities, higher income levels, and greater exposure to technology. Urban residents also experience higher pollution levels, which increases their motivation to shift toward cleaner transportation options compared to rural populations.

□ **Environmental concern is the primary motivator.** Concern for environmental protection, including reducing air pollution and combating climate change, emerges as the strongest factor encouraging EV adoption. Individuals who prioritize sustainability are more willing to choose electric vehicles despite higher initial costs, reflecting a growing environmental consciousness among consumers.

□ **Cost and infrastructure are major barriers.** High purchase prices and inadequate charging infrastructure remain the most significant obstacles to widespread EV adoption. Consumers are hesitant to invest in EVs due to affordability issues and concerns about the availability of charging stations, especially in semi-urban and rural areas where facilities are limited.

□ **Government incentives significantly influence decisions.** Subsidies, tax exemptions, and policy support provided by the government play an important role in encouraging consumers to adopt electric vehicles. Financial incentives reduce the effective purchase cost and make EVs more competitive with conventional vehicles, thereby accelerating the transition toward sustainable mobility.

Findings:

- EV adoption is positively correlated with income and education.
- Electric two-wheelers dominate rural markets.
- Commercial users prefer EVs due to lower operating cost.
- Policy awareness improves adoption likelihood.
- Infrastructure availability determines regional differences.

Recommendations:

1. Expand charging infrastructure in rural areas.
2. Provide subsidies for low-income consumers.
3. Promote battery swapping stations.
4. Conduct awareness campaigns.
5. Integrate EV charging with solar energy.

Conclusion: Electric vehicles represent a crucial pathway toward achieving sustainable development in Karnataka by simultaneously addressing environmental, economic, and social objectives. The study highlights that EV adoption offers significant opportunities such as reduced emissions, lower operating costs, enhanced energy security, and the creation of green employment, positioning the state as a leader in clean mobility transition. However, the progress is constrained by challenges including high initial purchase costs, inadequate charging infrastructure—particularly in rural areas—limited awareness, and disparities between urban and semi-urban regions. To fully realize the potential of electric mobility, coordinated efforts are required from government, industry, and society to expand infrastructure, strengthen financial incentives, promote technological innovation, and conduct widespread awareness campaigns. With sustained policy support and inclusive implementation strategies, electric vehicles can play a transformative role in advancing Karnataka’s journey toward a cleaner environment, resilient economy, and equitable sustainable development.

References:

1. BPAC. (2023). EV Ecosystem in Bengaluru.
2. Clean Mobility Shift. (2025). Karnataka EV Initiatives.
3. Government of Karnataka. (2025). Clean Mobility Policy 2025–30.
4. ICCT. (2023). EV Policy Assessment India.
5. International Energy Agency. (2023). Global EV Outlook.
6. IEA. (2022). Sustainable Transport Report.
7. JM Research. (2024). EV Adoption Trends.
8. Jones et al. (2020). Electric vehicles and rural business.
9. Ministry of Heavy Industries. (2022). FAME India Scheme Report.
10. Mongabay. (2023). State EV Policies in India.
11. NITI Aayog. (2023). Electric Mobility Report.
12. Reuters. (2024). Clean Mobility Incentives in Karnataka.
13. Satpute et al. (2021). EV adoption in India.
14. Shakti Foundation. (2021). EV Infrastructure Planning Study.
15. World Bank. (2021). Electric Mobility and Development.

