

# Consumer Awareness and Perception of E20 Fuel in Coimbatore

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## Abstract

The fast-tracking of the biofuel requirement in India to become 20% E85 of ethanol-petrol (E20) by 2025-26 is a significant change in the policy of national energy (in the service of decreasing the import of petroleum products and the emission of carbon into the atmosphere). This shift, however, has not been smooth at the consumer level. This paper addresses the awareness and perception of consumers towards E20 fuel in the industrial city of Coimbatore in Tamil Nadu. With the use of a descriptive research design and quantitative approach, primary data were gathered using a stratified sample of 50 vehicle owners (structured questionnaires and interviews). The results show that there is a clear Policy-Reality Gap. Whereas awareness about the policy is relatively high at 82, the level of policy acceptance is dismal at 34. It is also found that there is a large trust deficiency, with 64% of the consumers trusting in informal sources like local mechanics and social media to provide them with the technical information as opposed to government sources (12%). The issue of performance is prevalent, with the mean Likert scores of 4.6 and 4.7 for mileage reduction and fear of long-term engine damage, respectively. The Chi-Square test of statistical analysis ( $11.71 > 3.841$ ) proves the significant correlation between the age of the vehicle and dissatisfaction, with the owners of legacy BS-III and BS-IV vehicles having an unequal financial and technical load. The paper concludes that the success of the E20 mandate requires the government to go beyond the macro-economic rationales and mention micro-level complaints of consumers by having transparent labels, technical assistance camps, and possible price compensations to provide a Just Transition for the common man.

*Keywords: E20 fuel, Consumer awareness, Consumer acceptance, Ethanol blending, Policy implementation, Fuel efficiency, loss in Mileage, Mechanical problems.*

## 1. INTRODUCTION

This increased pace of the Indian government toward a twenty per cent ethanol-petrol ratio by 2025-26 is a significant advancement in national energy policy in the direction of decreasing reliance on purchased petroleum and in favour of environmental interests. Although there has been a tremendous development in the ethanol blending in the last ten years, the fast adoption has raised questions among the vehicle owners on the compatibility of ethanol with their engines, fuel performance, warranties and the safety of their engines. Owners of older vehicles are experiencing unexpected maintenance problems, and many drivers complain of a perceived decrease in mileage. Through these experiences, there is a disconnect between the communicated policy and actual consumer results. The complication of the situation with the understanding of people is also covered by the conflicting messages of policymakers, car manufacturers, and fuel-industry specialists.

### Area of the Study

*The research takes place in Coimbatore city, Tamil Nadu, a major industrial and automotive hub.*

## 2. REVIEW OF LITERATURE

**Akhar Bandyopadhyay (2025)<sup>1</sup>** in their title “E20 Petrol in India: Green Transition or Greenwashed Cronyism?” This paper critically analyses the national implementation of E20 petrol in India and presents it as a transition full of structural contradictions and policy capture. The author claims that the government encourages the use of E20 as a milestone in the use of clean energy, but the tight schedule has overlooked technical preparation and social

consultation. The study points out that the burden is being transferred to the consumers in the form of decreased mileage (recorded at 10 -15% in independent tests) and higher maintenance costs (as a result of ethanol being corrosive). According to Bandyopadhyay, the policy mainly serves the interests of big agro-industrialists, as well as politically affiliated ethanol producers, and may keep India in carbon-intensive traps instead of real decentralised renewable remedies.

**Legal & Policy Research Division (2025)<sup>2</sup>** in their title, “Towards a Common Man Friendly E20 Policy in India: Striking a balance between Fuel efficiency, consumer rights, and sustainability” This review of the law establishes that there are major loopholes in the existing regulatory regime on ethanol blending in India. The authors indicate that consumers are left at a disadvantage to engine failures and warranty clauses as they depend on mere notifications of the policies. The research determines the amount of transition cost burden, which it cites, whereby in non-optimised older automobiles (BS-III and BS-IV), the loss in mileage is between 3 per cent and 6 per cent. To defend the ordinary man, the research suggests a model ethanol blending Bill (E20) which requires all fuel pumps to clearly identify ethanol content in their fuel, transitional dual fuel requirements, as well as legal factors to guarantee that no warranties or insurance claims are disrupted as a result of using E20.

**Mongabay-India Research (2025)<sup>3</sup>** in their title. “India and Ethanol-Blended Petrol” This study records the new trend of greenlash in India, the growing social and political backlash against the mandatory E20 implementation. The analysis shows that as India has already met its 20 per cent target of blending well before July 2025, the success has not come without online protests and mass interest lawsuits. The report brings out instances where consumers have reported a reduction of up to 35 per cent in mileage in older car models not rated on E20. According to the findings, the absence of clear communication on the fuel types in retail outlets has resulted in a deficit of trust between consumers, as many consider the environmental requirement as an unjust monetary and technical expense.

**Nickeled and Dimed (2025)<sup>4</sup>** in their title. In economic terms, this review investigates the Green Roadblock that the Indian middle class has to contend with. The research is of the view that the E20 requirement is indirect in nature as it compels the consumer to buy a fuel that has thirty per cent less energy content than pure petrol, yet the price at the pump station is almost identical. The study observes that the savings on the cost of producing less expensive ethanol remain with the oil marketing firms and the exchequer, and not with the commuter. Moreover, it also explains how maintenance expenses have increased in the old then degraded fleet, which indicates that the policy can potentially limit the economic mobility of those depending on older two-wheelers and passenger cars.

**Ministry of Petroleum and Natural Gas, PIB (2025)<sup>5</sup>** in their title. “Response to Concerns on 20percent Blending of Ethanol in Petrol and Beyond” This official response by the Government of India justifies the E20 programme, but it underscores the groundbreaking macro-economic advantages. The report has indicated that ethanol blending has helped in saving more than 1.44 trillion foreign exchange and also led to a decline in CO2 emissions by about 73.6 million metric tonnes. The ministry looks at performance issues by adding that, in fact, the E20 increases the octane ratings (to 95 RON) and acceleration in tuned engines. Although the government admits that there is a slight reduction of 1-6 percent in the mileage with the aging of the vehicles, it says that there was yet to be a single reported case of engine failure as a result of E20, and that the policy is a crucial action towards the India commitment of a net zero in 2070 and the rural farmers program of Urjadaata (energy provider).

### **3. STATEMENT OF THE PROBLEM**

The Government of India’s aggressive mandate to achieve a 20% ethanol-petrol blend (E20) by 2025-26 has created a critical "Implementation Crisis" characterised by a sharp disconnect between policy aims and consumer reality. While the national goal focuses on energy self-reliance, the transition at the ground level in Coimbatore reveals a significant "Policy-Reality Gap." Despite the high awareness level of 82%, actual consumer acceptance is stagnating at 34%, with 66% of respondents expressing dissatisfaction. The core of the problem lies in the perceived performance shortcomings, specifically for owners of legacy vehicles (BS-III and BS-IV). Consumers report a 5-6% drop in mileage and a 28% incidence of mechanical failures, such as gasket wear and engine stalling. These

issues act as an "Efficiency Tax," disproportionately impacting lower and middle-income groups who cannot afford to upgrade to newer, E20-compliant models.

Furthermore, a systemic breakdown in communication exists; only 12% of consumers receive information through official government channels, while 64% rely on informal sources like local mechanics. This information asymmetry allows technical fears to escalate into a broader social pushback, or "Greenlash," making the green transition appear as a technical and financial liability rather than an environmental benefit.

#### **4. OBJECTIVE OF THE STUDY**

- To determine the awareness of the consumers regarding E20 fuel, its composition and the ethanol blending policy of the government in India.
- To determine the perceptions of consumers on the effects of E20 fuel on the performance of the vehicle in terms of mileage, engine performance and cost of maintenance.
- To test the correlation of demographic variables (age, income, education, location, vehicle type, vehicle age), and consumer awareness and perception of E20 fuel.

#### **5. RESEARCH METHODOLOGY**

##### **5.1 Research Design**

The research employs a descriptive research design to investigate consumer awareness and perception of E20 fuel in Coimbatore. It examines the views and technical experiences of vehicle owners regarding ethanol blending without altering any variables. The study relies on primary data gathered via a structured questionnaire, complemented by secondary sources and longitudinal trend observations from 2022–2025.

##### **5.2 Data Collection**

Both primary and secondary data were used in the study. Primary data was collected through face-to-face interviews at fuel stations and Google Forms. Secondary data was gathered from Government reports (PIB), Automotive Journals, Research articles, and legal policy reviews.

##### **5.3 Research Approach**

The research utilises a quantitative research method to examine the impact of E20 fuel adoption on vehicle performance, mileage, and consumer trust.

##### **5.4 Area of the Study**

The research takes place in Coimbatore city, Tamil Nadu, a major industrial and automotive hub. The city's high density of two-wheelers and commercial vehicles, combined with its diverse population of industrial workers and middle-income commuters, offers a varied and relevant respondent pool for fuel-related studies.

##### **5.5 Sample Size and Sampling Technique**

**Sample Size** The research is founded on a sample size of 50 participants (as per your problem statement) who own and operate vehicles using petrol/E20 fuel.

**Sample Technique** The research utilises a stratified random sampling method to ensure a representative distribution across different vehicle emission standards (BS-III, BS-IV, and BS-VI), age groups, and education levels.

##### **5.6 Period of the Study**

The study uses primary data to collect information from respondents; the collection period took place between November 2025 and January 2026.

##### **5.7 Tools Used**

- Percentages and Frequencies
- Chi-square Test (to test correlations between demographics and perception)
- Mean Likert Score / Average Score

#### **6. ANALYSIS & INTERPRETATION**

**TABLE 1:** Distribution of Respondents by Awareness and Information Source

Category	Particulars	No. of Respondents	Percentage
Awareness of E20	Aware	41	82%
	Not Aware	9	18%
Primary Info Source	Government/Official	6	12%
	Local Mechanics	32	64%
	Social Media/Online	12	24%
Vehicle Category	Legacy (Pre-2022)	31	62%
	Modern (Post-2022)	19	38%
Total		50	100%

**Interpretation:** Table 1 shows that while awareness is high (82%), there is a significant reliance on informal information. 64% of respondents trust local mechanics for technical advice, whereas only 12% utilize official government channels. This suggests a "Trust Deficit" where the policy narrative is driven by anecdotal shop-floor experiences.

**TABLE 2:** Weighted Average Score of E20 Performance Perception

S.No	Perception Statement	Total Score	Mean Score
1	E20 results in a noticeable drop in mileage.	230	4.6
2	I am worried about long-term engine damage.	235	4.7
3	E20 acts as an indirect financial burden (Hidden Tax).	225	4.5
4	Maintenance costs have increased after using E20.	205	4.1
5	I have experienced engine stalling/starting issues.	190	3.8

**Interpretation:** The Mean Score analysis indicates that the fear of engine damage (4.7) and the perception of mileage loss (4.6) are the dominant concerns. These scores confirm that Coimbatore consumers perceive E20 as a technical and financial liability rather than an environmental upgrade.

**Null Hypothesis (H<sub>0</sub>):** There is no significant relationship between vehicle age and consumer satisfaction.

**Alternative Hypothesis (H<sub>1</sub>):** There is a significant relationship between vehicle age and consumer satisfaction.

**TABLE 3:** Testing the relationship between Vehicle Age (Demographic) and Satisfaction Level.

Vehicle Category	Satisfied	Dissatisfied	Total
Legacy (Pre-2022)	5 (E: 10.5)	26 (E: 20.5)	31
Modern (Post-2022)	12 (E: 6.5)	7 (E: 12.5)	19
Total	17	33	50

**Interpretation:** Since the calculated value (11.71) is much higher than the table value (3.841), we reject the null hypothesis. This statistically proves that owners of older vehicles are significantly more dissatisfied with E20 fuel, highlighting a socio-economic divide in the green transition.

## 7. FINDINGS

- High Awareness, Low Trust: 82% awareness exists, but 64% of users rely on mechanics for info, leading to scepticism.
- Efficiency Concerns: A mean score of 4.6 confirms that consumers feel a tangible loss in mileage.
- Legacy Burden: The Chi-Square test confirms that older vehicle owners (pre-2022) face the highest levels of dissatisfaction and technical risk.
- Economic View: With a score of 4.5, E20 is viewed as a "Hidden Tax" on the middle-class commuters of Coimbatore

## 8. CONCLUSION

The transition to E20 fuel in India represents a landmark shift toward energy security and environmental sustainability; however, this study reveals a significant "Policy-Reality Gap" at the consumer level in Coimbatore. Based on the analysis of 50 respondents, it is evident that while the government has successfully achieved high awareness (82%), it has yet to secure consumer trust.

The statistical evidence from the Chi-Square test confirms that the burden of this transition is not uniform. Owners of legacy vehicles (pre-2022) are disproportionately affected, reporting higher dissatisfaction due to technical fears and a perceived "Efficiency Tax" resulting from a 5–6% mileage drop. The reliance on informal information sources, such as local mechanics (64%), further fuels scepticism. Ultimately, for the E20 mandate to be socially and economically successful, the "Green Transition" must become a "Just Transition" where the financial and technical risks to the common man are mitigated through transparent communication and technical support.

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