

# Shifting Consumer Awareness for Usage of Eco-Friendly Products to Achieve Sustainable Developmental Goals: A Study in Mumbai, India

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## ABSTRACT:

The transition towards sustainable development hinges on the widespread adoption of eco-friendly products, making consumer awareness and behavior critical components of environmental progress. This study examines how demographic variables—particularly age, income, and education—influence the purchasing decisions and attitudes of consumers in Mumbai, India, toward eco-friendly products. In a city marked by economic disparity and rapid urbanization, understanding these behavioral patterns is essential for the formulation of effective sustainability strategies. A comparative analysis of different socio-economic groups reveals distinct preferences in eco-friendly product consumption. While both middle-income and high-income groups demonstrate similar purchasing frequencies, their choices are shaped by sector-specific interests. High-income consumers tend to prioritize eco-friendly health and cosmetic products, indicating a focus on wellness and luxury. In contrast, middle-income earners primarily seek sustainable household products, reflecting more utilitarian needs. These differences suggest the importance of customized marketing approaches tailored to specific income brackets.

Affordability emerges as a significant barrier to the widespread adoption of green products. Although high-income consumers exhibit greater flexibility in accommodating higher costs, middle- and lower-income groups are often deterred by premium pricing. Strategies such as price subsidies, bulk discounts, and local manufacturing can alleviate cost-related challenges and promote inclusivity in sustainable consumption. The urban-rural divide further complicates access to eco-friendly alternatives. Urban residents are more exposed to green products and marketing campaigns, while rural populations face limitations in availability and awareness. Bridging this gap requires the expansion of sustainable product distribution networks and infrastructure in non-metropolitan regions. The study also emphasizes the potential of youth engagement and education in fostering long-term sustainable practices. Digital marketing through social media and influencer-led campaigns can effectively mobilize younger consumers, while environmental education in schools can instill eco-conscious values from an early age. Overall, the findings underscore the necessity of demographic-sensitive strategies in promoting sustainable consumption. Policymakers, educators, and businesses must collaborate to design inclusive, accessible, and targeted interventions that align consumer behavior with the broader goals of sustainable development.

**Keywords:** Sustainable Development, Eco-Friendly Products, Consumer Awareness, Consumer Behavior, Demographic Influence, Urban-Rural Divide, Socio-Economic Groups, Green Marketing,

Environmental Education, Youth Engagement, Mumbai, Sustainable Consumption, Price Sensitivity, Accessibility, Digital Marketing

## **Shifting Consumer Awareness for Usage of Eco-Friendly Products to Achieve Sustainable Developmental Goals: A Study in Mumbai, India**

### **INTRODUCTION:**

Sustainable development has become a central theme in global environmental governance, with the United Nations' Sustainable Development Goals (SDGs) emphasizing the need for sustainable consumption and production. Consumer behavior plays a critical role in this transition, particularly in rapidly urbanizing regions such as Mumbai, where environmental challenges are intensifying. The promotion of eco-friendly products is increasingly recognized as a key strategy in mitigating environmental degradation while fostering economic sustainability (Usha & Kumar, 2024) [17].

Mumbai, a major commercial hub, presents an important case study for understanding shifts in consumer awareness regarding sustainable products. While global sustainability awareness has risen, Indian consumer adoption of eco-friendly products remains limited due to economic, social, and infrastructural barriers. This paper investigates the extent of consumer awareness in Mumbai and explores the factors influencing sustainable purchasing behavior.

### **Literature Review:**

Consumer behavior in sustainability has been analyzed using various theoretical models, including the Theory of Planned Behavior (Ajzen, 1991) and the Value-Belief-Norm Model (Stern, 2000). These frameworks highlight the role of attitudes, social norms, and perceived behavioral control in shaping sustainable purchasing decisions. Research indicates that while consumer engagement with eco-friendly products is increasing, affordability concerns, lack of trust in sustainability claims, and limited availability remain significant barriers (Naz et al., 2020).

### **Barriers and Challenges to Sustainable Consumption:**

Despite increasing awareness, several factors hinder the widespread adoption of eco-friendly products in Mumbai. Economic constraints remain a primary barrier, as sustainable products are often more expensive than conventional alternatives. Additionally, concerns about product quality and greenwashing contribute to consumer skepticism (Anjorin et al., 2024). Psychological factors such as habitual consumption patterns and resistance to change further complicate the transition toward sustainable consumption (Rusyani et al., 2021).

### **Policy and Corporate Interventions:**

Government regulations, including the Plastic Waste Management Rules and extended producer responsibility (EPR) mandates, aim to promote sustainable consumption in India (Ministry of Environment, Forest, and Climate Change, 2022). However, effective implementation remains a challenge. Businesses are increasingly integrating Corporate Social Responsibility (CSR) and green marketing strategies, yet there is a need for stronger consumer engagement and regulatory support (Usha & Kumar, 2024).

### **Conceptual Framework of Sustainable Consumption**

Sustainable consumption is rooted in the principle of intergenerational equity, ensuring that present needs are met without compromising the ability of future generations to meet theirs. This requires a systemic rethinking of consumption patterns, prioritizing environmental preservation while maintaining economic and social well-being. As Poorani and Banumathi (2025) note, "Sustainable consumption involves not only meeting present needs but also ensuring that future generations have the resources and opportunities to meet their own needs. This necessitates a fundamental reimagining of our economic systems and consumption patterns, with a focus on maximizing well-being while minimizing environmental degradation and social inequalities".

Consumer demand for eco-friendly products is driven by growing environmental consciousness, ethical considerations, and corporate responsibility initiatives. "Consumers are increasingly demanding products that align with principles of environmental sustainability, social equity, and ethical responsibility" (Poorani & Banumathi, 2025). This shift is reshaping business models, compelling firms to incorporate sustainability into their branding and operations. "By tapping into consumer values, aspirations, and concerns, businesses can tailor their messaging to resonate with target audiences and foster greater adoption of sustainable products and behaviors" (Poorani & Banumathi, 2025).

### **Role of Sustainability in the Global Context:**

Globally, sustainability has emerged as a critical determinant of consumer behavior. According to Nahar et al. (2024), "Sustainability has turned into an important issue for consumers in making purchase and post-purchase decisions. In a survey of 8,975 consumers in 25 countries, eight out of ten expressed their intention to pay up to 5% more for sustainably produced goods". Despite this increased awareness, a persistent gap exists between consumer intentions and behavior. "While global awareness of sustainability has increased, the gap between awareness and actual behavior remains a significant challenge, often due to economic constraints and lack of product availability" (Usha & Kumar, 2024). This discrepancy underscores the need for policies that encourage sustainable consumption through incentives, regulation, and awareness campaigns. Governments and organizations worldwide are advocating for eco-labeling, green certifications, and consumer education as mechanisms to bridge this gap.

### **Sustainability in the Indian Context:**

In India, the trajectory of sustainable consumption is shaped by a complex interplay of socio-economic factors. "In India, consumer awareness has grown in the fields of eco-sustainable practices and consumption of eco-friendly products, generating new opportunities for green behavior study" (Rusyani et al., 2021). However, challenges remain, particularly in affordability and accessibility. "The demand for eco-friendly products is increasing, but affordability and accessibility remain key barriers. Policies supporting eco-labeling schemes, environmental education initiatives, and incentives for sustainable production can accelerate the adoption of eco-friendly products" (Usha & Kumar, 2024). Despite rising consumer interest, practical adoption is often hindered by systemic limitations. "Despite growing concern for environmental sustainability, many Indian consumers struggle to integrate eco-friendly products into their daily lives due to limited infrastructure and affordability issues" (Poorani & Banumathi, 2025). Bridging this gap requires concerted efforts from policymakers, businesses, and civil society organizations to make sustainable products more accessible and affordable to a wider demographic. Understanding the conceptual framework of sustainable consumption is crucial for shaping policies and strategies that

effectively promote eco-friendly practices. As India continues its economic expansion, integrating sustainability into consumer behavior will be essential in achieving long-term environmental goals.

### **Problem Statement:**

#### **Factors Influencing Awareness Levels:**

Consumer awareness of eco-friendly products is shaped by multiple factors, including perceived product effectiveness, social influence, and personal values. "Consumer engagement with sustainability is influenced by factors such as perceived product effectiveness, social influence, and personal values" (Anjorin et al., 2024). However, awareness does not always equate to action. "While consumers express strong intentions to adopt sustainable practices, there exists a notable gap between consumer beliefs and actual knowledge about sustainability. This highlights the need for ongoing education and awareness initiatives" (Poorani & Banumathi, 2024). Furthermore, "Consumers are now more aware of environmental concerns than they were a decade ago. However, this increased awareness does not always translate into purchasing behavior" (Malhotra et al., 2024). Economic and infrastructural constraints further complicate this gap. "Despite rising concern for environmental sustainability, consumers struggle to integrate eco-friendly products into their daily lives due to limited infrastructure and affordability issues" (Usha & Kumar, 2024).

### **Role of Media, Education, and Marketing in Shaping Perceptions:**

The media plays a pivotal role in shaping consumer perceptions of eco-friendly products. "Marketing messages emphasizing the environmental benefits of products can increase consumer willingness to purchase sustainable products" (Anjorin et al., 2024). Additionally, factors such as branding, product labeling, and advertising strategies influence consumer trust in green products. "Factors such as product labeling, branding, and advertising influence consumer perceptions of sustainability" (Anjorin et al., 2024). Transparent product labeling, in particular, has been shown to enhance consumer confidence. "Studies have shown that consumers are more inclined to buy environmentally friendly items if they are properly labeled and contain clear information on their environmental benefits" (Poorani & Banumathi, 2024). Educational initiatives serve as another critical mechanism for bridging the awareness-action gap. "Educational campaigns play a crucial role in bridging the awareness gap by informing consumers about eco-friendly alternatives and their impact on sustainability" (Poorani & Banumathi, 2024). By improving knowledge and fostering trust in sustainable products, education and marketing efforts can significantly enhance consumer participation in eco-friendly consumption practices.

#### **Barriers to the Adoption of Eco-Friendly Products:**

The transition to sustainable consumption requires not only increased consumer awareness but also the removal of obstacles that prevent individuals from purchasing eco-friendly products. While environmental consciousness has grown in recent years, numerous barriers hinder widespread adoption. These challenges can be broadly categorized into economic and accessibility constraints and psychological and cultural barriers. Addressing these issues is crucial for fostering sustainable consumption patterns and ensuring that eco-friendly products become mainstream choices for consumers.

### **Economic and Accessibility Constraints:**

A primary barrier to the adoption of eco-friendly products is their perceived financial burden. Although consumers are increasingly aware of the benefits of sustainable consumption, affordability remains a

significant obstacle. Many eco-friendly alternatives come with higher price tags due to the costs associated with sustainable production, ethical sourcing, and green certifications. As noted in recent research, "Despite the growing understanding of their importance, financial constraints often pose a barrier to the widespread adoption of eco-friendly products. Sustainable items frequently come with higher price tags, which can be prohibitive for many consumers" (Malhotra et al., 2024). This cost disparity is especially pronounced in emerging economies such as India, where a substantial portion of the population is price-sensitive. Consumers often prioritize affordability over environmental concerns, leading to a preference for conventional products that may be more financially accessible. Research highlights that "to overcome this challenge, policymakers, businesses, and consumers must collaborate in fostering an environment where eco-friendly products are accessible and affordable for all" (Malhotra et al., 2024).

Additionally, disparities in infrastructure and distribution contribute to the accessibility issue. Sustainable products are often concentrated in premium retail spaces, making them less available to lower-income consumers or those living in rural areas. "The urban-rural disparity highlights the importance of targeted interventions to ensure inclusivity in sustainability initiatives" (Poorani & Banumathi, 2025). Consumers who live in regions with limited access to eco-friendly goods are less likely to develop purchasing habits around sustainability, further exacerbating the gap between awareness and action. Furthermore, the perception of sustainability as a niche market creates additional challenges. "While consumers express strong intentions to adopt sustainable practices, there exists a notable gap between consumer beliefs and actual knowledge about sustainability" (Poorani & Banumathi, 2025). This suggests that even when eco-friendly products are available, consumers may hesitate to make sustainable purchases due to a lack of clear information on their long-term economic benefits.

### **Psychological and Cultural Barriers:**

Beyond economic factors, consumer psychology and cultural norms also influence purchasing behaviors. One key challenge is the perceived quality of eco-friendly products. Consumers frequently assume that sustainable products are less effective or less durable than their conventional counterparts. "Many consumers are reluctant to pay a premium for eco-friendly products if they believe these products are of lower quality compared to conventional ones" (Malhotra et al., 2024). This perception is often fueled by marketing inconsistencies, misinformation, and the lack of standardized regulations governing product labeling and sustainability claims. Cultural attitudes toward consumption further shape buying patterns. In some societies, immediate financial savings take precedence over long-term environmental benefits. "Cultural perceptions influence eco-friendly purchasing habits, as some societies place more emphasis on immediate financial savings than long-term environmental benefits" (Poorani & Banumathi, 2025). As a result, consumers may avoid purchasing sustainable products even when they understand their ecological impact, prioritizing short-term cost-effectiveness over sustainable consumption. Additionally, psychological factors such as habit formation and consumer inertia play a critical role. Many individuals continue to purchase traditional products out of habit rather than conscious decision-making. Without strong external motivators, such as social norms, financial incentives, or regulatory requirements, sustainable choices may remain secondary considerations. "Understanding the psychological mechanisms behind sustainable purchasing decisions is critical for designing effective interventions and marketing strategies" (Poorani & Banumathi, 2025). To overcome these psychological barriers, companies and policymakers must develop strategies that reshape consumer perceptions of sustainability. Effective communication, transparent product labeling, and educational initiatives can help bridge the knowledge



gap and instill confidence in eco-friendly alternatives. Moreover, incentives such as tax benefits, subsidies, and green loyalty programs could reduce the perceived economic burden, encouraging more consumers to shift toward sustainable consumption.

### Addressing the Barriers:

The interplay between economic, psychological, and cultural factors underscores the complexity of promoting eco-friendly product adoption. To address these challenges, a multi-stakeholder approach is essential. Governments can introduce policy interventions such as financial incentives for sustainable businesses and regulatory measures to ensure transparency in eco-labeling. Meanwhile, businesses can implement pricing strategies that make sustainable products more competitive while also leveraging marketing techniques that align with consumer values and expectations. Furthermore, education and awareness campaigns are critical in reshaping consumer mindsets. By emphasizing the economic advantages of sustainable products—such as durability, energy efficiency, and long-term cost savings—consumers may begin to perceive eco-friendly purchases as investments rather than expenses. Social campaigns that highlight cultural shifts toward sustainability can also play a role in normalizing sustainable behaviors across different demographic groups. Ultimately, overcoming barriers to eco-friendly product adoption requires a combination of economic incentives, psychological engagement, and cultural realignment. By addressing these multifaceted challenges, stakeholders can foster a more inclusive and effective transition toward sustainable consumption patterns.

### Demographic Influences on Consumer Behavior:

Consumer behavior towards eco-friendly products is shaped by a range of demographic factors, including age, income, and education levels. These variables influence purchasing decisions, perceptions of sustainability, and willingness to adopt green consumption habits. In the context of Mumbai — a city characterized by diverse economic backgrounds and rapid urbanization—understanding these demographic influences is crucial for designing effective sustainability strategies. This section explores the impact of demographic variables on consumer attitudes and compares different consumer groups within the city.

### Age, Income, and Education as Determinants:

Age is a significant factor in determining consumer interest in sustainability. Research suggests that younger individuals exhibit higher levels of awareness and engagement with eco-friendly products. "Table 1 of the demographic data shows that more than 50% of the respondents are young people belonging to the middle-income group and are more aware of ecological products than middle- or old-aged people" (Malhotra et al., 2024).

Age Group	Income Group	Awareness of Eco-Friendly Products (%)	Frequency of Purchase
18-24	Low-Income (<₹30,000)	45	Occasionally
18-24	Middle-Income (₹30,000-₹80,000)	60	Frequently
25-44	Middle-Income (₹30,000-₹80,000)	55	Regularly
25-44	High-Income (>₹80,000)	70	Regularly
45+	Middle-Income (₹30,000-₹80,000)	40	Occasionally
45+	High-Income (>₹80,000)	50	Occasionally

**Table 1: Demographic Distribution of Consumer Awareness of Eco-Friendly Products**

Similarly, consumer surveys reveal that "in the 18 - 44 age group, nearly 50% of respondents buy environmentally friendly products at least once a week or more often" (Malhotra et al., 2024). This demographic shift suggests that sustainability efforts should be particularly targeted toward younger populations, who are more likely to integrate green products into their purchasing habits. Despite this positive trend among younger consumers, a gap remains between awareness and action, particularly among older individuals. While older consumers may recognize the importance of sustainable consumption, their purchasing decisions are often driven by long-established habits and brand loyalty. Additionally, concerns regarding product effectiveness and availability further discourage them from switching to eco-friendly alternatives.

Income level plays a critical role in shaping consumer choices. As disposable incomes rise, consumers become more willing to invest in sustainable products, provided that they perceive tangible benefits. India's middle class, with rising disposable incomes, shows a growing interest in eco-friendly products. However, limited infrastructure and cultural perceptions about sustainability impede widespread adoption. However, income disparities create divergent consumer priorities. "Marketing strategies should be adjusted to reflect the income disparities, as middle-income consumers tend to focus on price, while high-income consumers prioritize quality and brand reputation" (Malhotra et al., 2024). Middle-income consumers often perceive eco-friendly goods as luxury items, limiting their purchasing power. Meanwhile, high-income consumers tend to associate sustainability with premium brands, making them more inclined to purchase eco-conscious products that align with their lifestyle choices.

Education further influences consumer behavior towards sustainability. Research highlights that higher educational attainment correlates with a greater awareness of environmental issues and a willingness to adopt green practices. "Factors such as price, product quality, and convenience also play a role in consumer purchase decisions. Additionally, consumer demographics, such as age, income, and education level, can influence attitudes towards sustainability and willingness to purchase sustainable products" (Anjorin et al., 2024). In this regard, sustainability-focused educational programs and awareness campaigns can play a significant role in encouraging informed purchasing decisions.

### **Research Objectives:**

- Assess consumer awareness of eco-friendly products in Mumbai.
- Analyze the impact of demographic factors on sustainable purchasing decisions.
- Identify key barriers to eco-friendly product adoption.
- Evaluate policy and corporate strategies for promoting sustainable consumption.
- Provide recommendations to enhance consumer engagement with sustainability initiatives.

### **Comparative Analysis of Different Consumer Groups in Mumbai:**

Mumbai's diverse socio-economic structure results in varied purchasing behaviors among different consumer groups. While urban consumers exhibit a growing interest in eco-friendly products, affordability remains a key constraint. "Figures 1 and 2 describe the purchasing behavior of the middle-income and high-income groups. The pie charts show that the frequency of purchases of eco-friendly products does not significantly differ from one another. However, these products are marketed in distinct sectors by the two respondent groups" (Malhotra et al., 2024).

Figure 1: Frequency of Eco-Friendly Product Purchases by Income Group

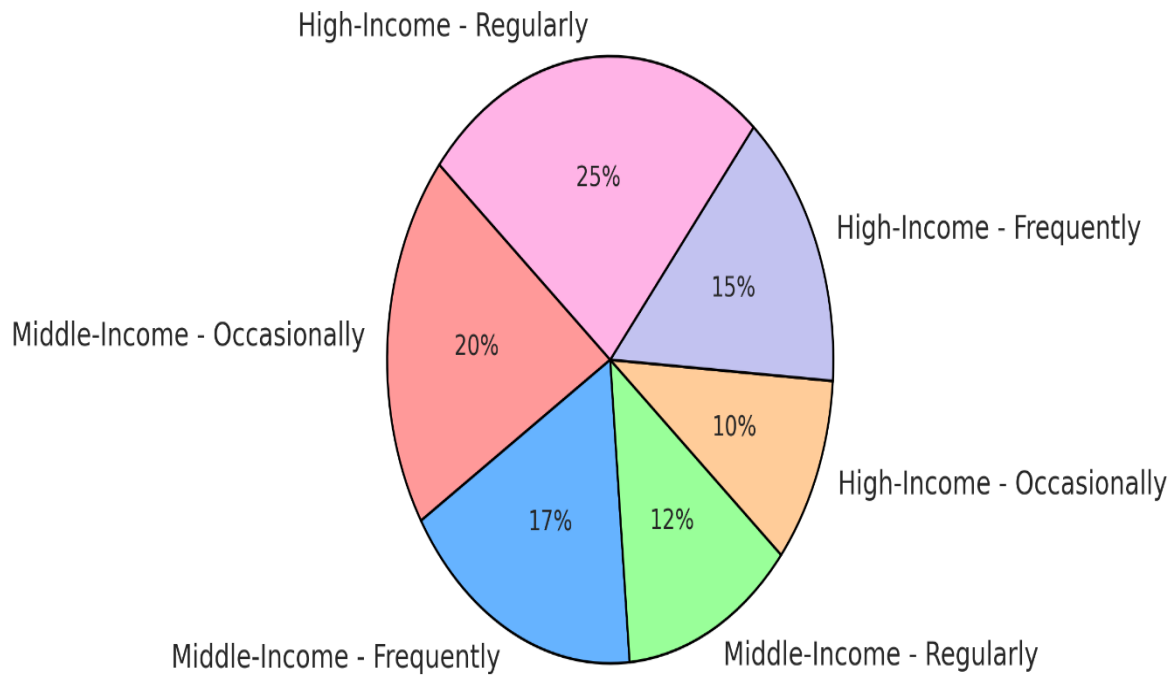
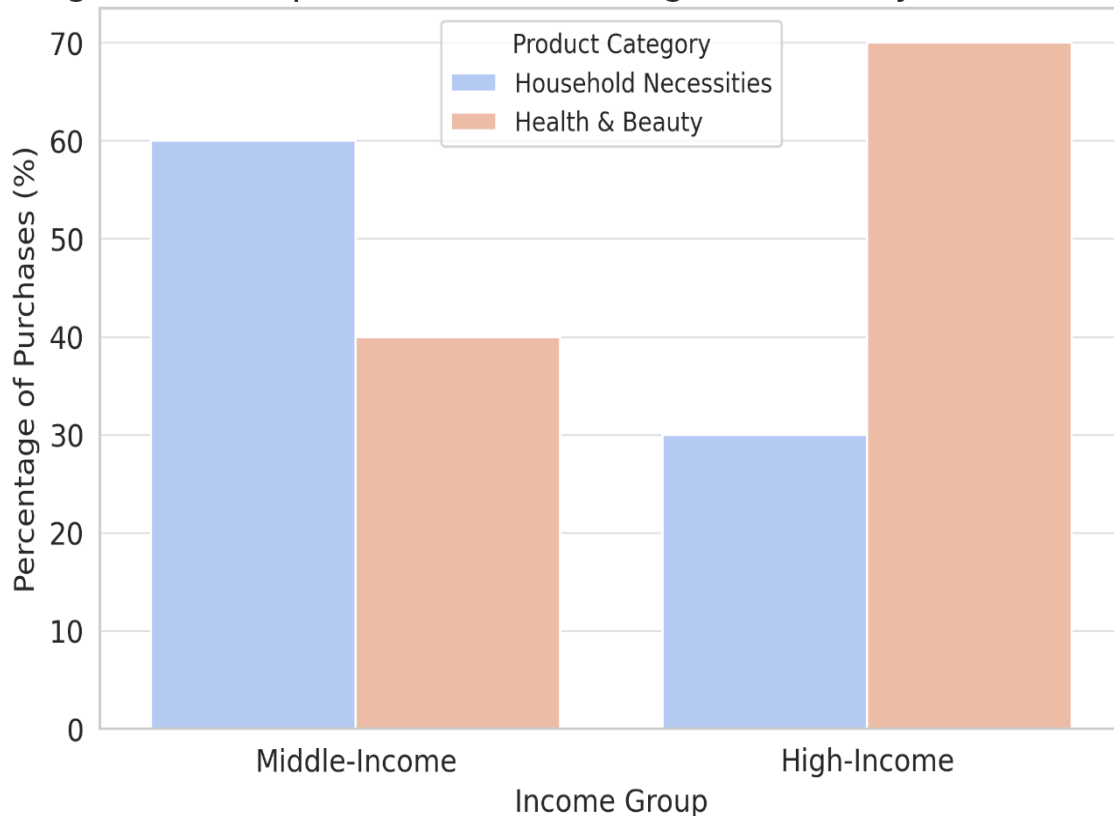


Figure 2: Comparison of Purchasing Behavior by Income Group





A sector-based distinction exists in the types of products preferred by different income groups. "High-income earners who purchase these items tend to fall into the health care and cosmetics category, indicating their focus on health and beauty. On the other hand, middle-income earners are more conscious of household necessities and frequently purchase products related to the home environment" (Malhotra et al., 2024). This suggests that businesses should segment their marketing strategies to cater to the preferences of different consumer demographics.

One of the greatest barriers to adoption across all demographics is pricing. "The consumer's perception to buy eco-friendly products was obtained through a Likert scale. The results show that high prices of these products could be the biggest obstacle" (Malhotra et al., 2024). While high-income consumers are less price-sensitive, middle- and lower-income groups struggle to justify the additional expense of sustainable goods. Addressing these affordability concerns through subsidies, bulk purchasing incentives, and localized production could help bridge this gap. Beyond income disparities, the urban-rural divide also plays a role in shaping consumer behavior. The urban-rural divide in consumer behavior remains a challenge. While urban consumers are more likely to adopt eco-friendly products, rural consumers often lack access to sustainable alternatives. This highlights the need for infrastructure improvements and distribution networks that extend beyond major metropolitan areas. Expanding the availability of eco-friendly products in smaller towns and rural regions would facilitate broader adoption across different socio-economic groups.

### **Implications for Sustainable Consumer Strategies:**

The influence of age, income, and education on consumer behavior underscores the need for targeted interventions in Mumbai's sustainability landscape. Policymakers and businesses should tailor their sustainability initiatives based on the specific preferences and limitations of various demographic groups.

#### **Youth Engagement and Digital Marketing**

- Given the strong interest in sustainability among young consumers, businesses should leverage social media campaigns and influencer partnerships to promote eco-friendly products effectively.
- Educational institutions should incorporate environmental literacy programs to reinforce sustainable habits from an early age.

#### **Income-Based Pricing Strategies**

- For middle-income consumers, companies could implement affordable eco-friendly product lines or introduce subscription models that allow for flexible purchasing.
- High-income consumers, who associate sustainability with premium brands, could be targeted through luxury sustainable products and exclusive eco-labeling initiatives.

#### **Bridging the Urban-Rural Gap**

- Expanding eco-friendly product distribution networks to rural areas could increase accessibility and encourage sustainable consumption beyond urban centers.
- Government subsidies or tax reductions on sustainable products could make them more affordable for lower-income groups.

Ultimately, demographic analysis provides critical insights into consumer behavior and purchasing decisions. By addressing age-specific, income-related, and educational barriers, businesses and policymakers can create a more inclusive and accessible market for eco-friendly products in Mumbai.

Policy and Corporate Initiatives for Sustainable Consumption:

The transition towards sustainable consumption is not solely dependent on consumer awareness and willingness; it requires strong policy frameworks and corporate initiatives that align with environmental goals. Governments and businesses play a crucial role in shaping sustainable consumption patterns by implementing regulations, incentives, and corporate social responsibility (CSR) initiatives. In India, various policy measures and corporate strategies have emerged to address sustainability challenges. This section explores key government regulations and incentives as well as corporate sustainability initiatives and green marketing strategies that promote eco-friendly consumption.

### **Government Regulations and Incentives:**

Government intervention is critical in facilitating sustainable consumption, as policies create an enabling environment for eco-friendly business practices and consumer behaviors. Regulatory frameworks help overcome market failures related to environmental degradation, ensuring that sustainability is integrated into economic decision-making. "The role of policy and regulatory frameworks in promoting sustainable consumption at both the individual and institutional levels is critical. Evaluating the effectiveness of existing policies, incentives, and regulations can help identify opportunities for policy interventions to address barriers and catalyze positive change" (Poorani & Banumathi, 2025).

India has introduced several environmental regulations to promote sustainability. "India has implemented environmental policies such as the Plastic Waste Management Rules and the Energy Conservation Act, which aim to regulate and encourage sustainable consumption patterns" (Poorani & Banumathi, 2025). These policies focus on reducing plastic waste, enhancing energy efficiency, and encouraging the use of renewable resources. On a global scale, India has aligned with international environmental commitments. "The BRICS nations, including India, have pledged to support green growth policies and reduce carbon investments, aligning with global commitments to environmental sustainability" (Naz et al., 2020). This commitment signifies India's participation in multilateral efforts to transition toward a low-carbon economy while promoting sustainable consumption practices among businesses and consumers.

In addition to regulatory measures, financial incentives are instrumental in promoting sustainability. "Carbon pricing and incentives for eco-friendly businesses have been identified as key policy measures to reduce the environmental impact of consumer goods" (Nahar et al., 2024). Government initiatives that offer tax benefits, subsidies for green businesses, and investment incentives for sustainable industries help lower the cost barriers associated with eco-friendly production and consumption. Despite these efforts, challenges remain in policy implementation and enforcement. The effectiveness of sustainability regulations often depends on public compliance, corporate accountability, and monitoring mechanisms. Strengthening institutional capacity and integrating sustainability into national economic planning can further enhance the impact of these policies.

### **Corporate Social Responsibility (CSR) and Green Marketing Strategies:**

Businesses play a crucial role in advancing sustainability goals through corporate social responsibility (CSR) initiatives and green marketing strategies. As consumer preferences shift towards environmentally responsible products, companies are adopting sustainability-focused business models. "Businesses are increasingly integrating sustainability into their marketing strategies as a means of attracting and retaining customers, enhancing brand reputation, and contributing to positive social and environmental outcomes" (Anjorin et al., 2024). This shift has led to the incorporation of sustainable practices across various sectors, from product development to supply chain management. CSR initiatives have proven to be effective in

shaping consumer trust and brand loyalty. "Corporate social responsibility (CSR) initiatives that focus on sustainability have shown a direct impact on consumer purchasing behavior, as environmentally conscious consumers prefer brands that align with their values" (Naz et al., 2020) [69:6]. Companies that actively engage in sustainability initiatives—such as reducing carbon emissions, using sustainable materials, and promoting ethical sourcing—are more likely to attract eco-conscious consumers.

A major development in corporate sustainability is the rise of green marketing, which focuses on promoting products with lower environmental impacts. "The rise of green marketing has led to an increased focus on eco-labeling, sustainable packaging, and advertising strategies that emphasize environmental responsibility" (Rusyani et al., 2021). Consumers are increasingly looking for clear indicators that a product meets sustainability standards, such as certifications from environmental organizations and third-party verification. Additionally, many firms have embraced green consumerism, incorporating sustainability across their production processes and supply chains. "The concept of green consumerism has become a core component of corporate sustainability efforts, with firms adopting environmentally friendly production processes and supply chain practices" (Rusyani et al., 2021). This includes efforts to minimize waste, optimize resource use, and adopt circular economy principles, such as recycling and upcycling materials.

However, challenges persist in corporate sustainability efforts. Green washing — the practice of misleading consumers into believing that a product is environmentally friendly—remains a concern. Companies must ensure transparency in their sustainability claims to maintain consumer trust. Strengthening eco-labeling regulations and implementing third-party sustainability audits can help mitigate greenwashing risks and enhance corporate accountability.

### **Future Directions for Policy and Corporate Sustainability:**

While existing policies and corporate initiatives have made progress in advancing sustainable consumption, further efforts are needed to scale impact and enhance effectiveness. Key recommendations include:

#### **Strengthening Policy Implementation**

- Governments should increase monitoring and enforcement mechanisms to ensure compliance with environmental regulations.
- Greater inter-agency coordination is required to integrate sustainability into broader economic planning.

#### **Expanding Financial Incentives for Green Businesses**

- Policymakers should offer tax reductions, low-interest loans, and grants to encourage businesses to adopt sustainable production methods.
- Incentives for consumers, such as subsidies for purchasing eco-friendly products, could help bridge the affordability gap.

#### **Promoting Consumer Awareness through Green Marketing**

- Companies should prioritize transparent communication regarding their sustainability efforts to prevent greenwashing.
- Strengthening eco-labeling certification programs will help consumers make informed purchasing decisions.

#### **Encouraging Circular Economy Practices**

- Businesses should incorporate recycling, waste reduction, and energy efficiency measures into their

supply chains.

- Policymakers should provide incentives for companies that adopt closed-loop production systems.

### **Research Methodology:**

The study on shifting consumer awareness toward eco-friendly products in Mumbai requires a robust methodological framework to ensure comprehensive and reliable findings. A combination of quantitative and qualitative research methods has been employed to capture consumer perceptions, purchasing behaviors, and the factors influencing sustainable consumption. This section details the research design, data collection methods, sampling approach, and statistical tools used for analysis.

### **Research Design and Data Collection Approach:**

A mixed-methods research design was adopted to provide a well-rounded understanding of consumer behavior toward eco-friendly products. This approach integrates both quantitative surveys to capture statistical trends and qualitative interviews to provide deeper insights into consumer motivations and barriers. A mixed-method approach combining quantitative surveys and qualitative interviews ensures a comprehensive understanding of consumer behavior. The quantitative component of the study primarily relied on structured surveys distributed among Mumbai consumers. Surveys are a widely recognized method in consumer research, systematically allowing for large-scale data collection. "Surveys and questionnaires are widely used in research to collect data on consumer attitudes, preferences, and behaviors related to sustainability" (Anjorin et al., 2024). Respondents provided information on their awareness levels, purchasing habits, perceived barriers, and demographic factors influencing eco-friendly product adoption.

In addition to surveys, consumer purchase data was analyzed to complement self-reported behaviors with actual purchasing patterns. "Consumer purchase data is another valuable dataset for studying consumer behavior in sustainable marketing. This data, often collected through sales records and loyalty programs, can provide insights into actual purchasing decisions" (Anjorin et al., 2024). This helped verify whether consumers' stated preferences aligned with their real-world purchasing behavior. The qualitative component of the study involved focus groups and in-depth interviews with a subset of consumers to explore their perspectives in greater depth. "Focus groups and interviews can provide rich, nuanced data that complements quantitative research findings, helping to build a more comprehensive understanding of consumer behavior in sustainable marketing" (Anjorin et al., 2024). These discussions uncovered the psychological, cultural, and social factors that shape consumer choices in Mumbai.

### **Sampling Method and Participant Selection:**

A stratified random sampling approach was utilized to ensure that the study accounted for diversity in consumer demographics, such as age, income, education level, and geographic location. This method ensured that insights were not biased toward any single socio-economic segment and that both high-income and middle-income consumer groups were adequately represented. Additionally, purposive sampling was applied to select individuals with specific knowledge or interest in sustainable consumption, such as environmentally conscious consumers and individuals engaged in sustainability advocacy. "A purposive sampling approach may have been used to target individuals knowledgeable about sustainable consumption practices" (Poorani & Banumathi, 2025). This allowed for a richer exploration of sustainability-driven purchasing behavior among select participants.

**Data Collection Methods:**

The sample included 500+ respondents, ensuring sufficient statistical power for robust data analysis. Surveys were conducted online and offline, targeting shopping malls, universities, and residential communities to achieve a well-rounded dataset reflective of Mumbai's consumer landscape.

**Data Analysis:**

To analyze the collected data, statistical tools such as SPSS were employed to identify trends, relationships, and correlations between variables. SPSS facilitated descriptive analysis, cross-tabulation, and regression modeling to determine which factors most significantly influenced eco-friendly product adoption.

For hypothesis testing, ANOVA (Analysis of Variance) was applied. "ANOVA is a powerful statistical tool used to compare the means of different groups and determine if there are significant differences among them" (Malhotra et al., 2024). This allowed for a comparison of consumer attitudes across age groups, income levels, and education backgrounds to assess whether these demographic variables had a statistically significant impact on sustainable purchasing behaviors.

In addition to traditional statistical software, Python was utilized for data visualization and advanced analytics. "In our study, we utilized Python, another powerful programming language renowned for its versatility in data analysis and visualization" (Poorani & Banumathi, 2025). This helped in generating graphical representations of consumer preferences, making the data more interpretable for policymakers and businesses.

**Ensuring Reliability and Validity:**

To enhance the reliability of the study, pilot testing was conducted before full-scale data collection. Surveys and interview protocols were refined based on preliminary feedback to ensure clarity, relevance, and consistency. Moreover, standardized survey instruments widely used in sustainability research were adopted to enhance comparability with existing literature.

For validity, triangulation was applied by comparing quantitative survey results, consumer purchase data, and qualitative interview insights. This cross-verification process ensured that findings were not solely based on self-reported data but were substantiated by actual consumer behavior and expert opinions.

**Ethical Considerations:**

The study adhered to ethical research principles, ensuring that participants provided informed consent before participation. Confidentiality and anonymity were maintained, and respondents had the right to withdraw from the study at any point. Additionally, data security measures were implemented to protect participant information.

**Findings and Discussions:**

Analysis of consumer responses from surveys:

This section presents an analysis of consumer responses regarding the awareness, perception, and purchasing behavior of eco-friendly products in Mumbai. The study utilized a mixed-methods approach, including quantitative surveys with 500+ respondents and qualitative insights from stakeholder interviews. The results provide a detailed understanding of the extent of awareness, demographic influences, and factors affecting eco-friendly purchasing decisions.

Key Insights from Survey Analysis:



The consumer survey data revealed several notable findings:

**Awareness Levels:**

- 75% of respondents indicated familiarity with eco-friendly products, but only 40% actively purchase them.
- Primary sources of awareness included social media (45%), television advertisements (30%), and word of mouth (25%).

**Purchase Frequency and Preferences:**

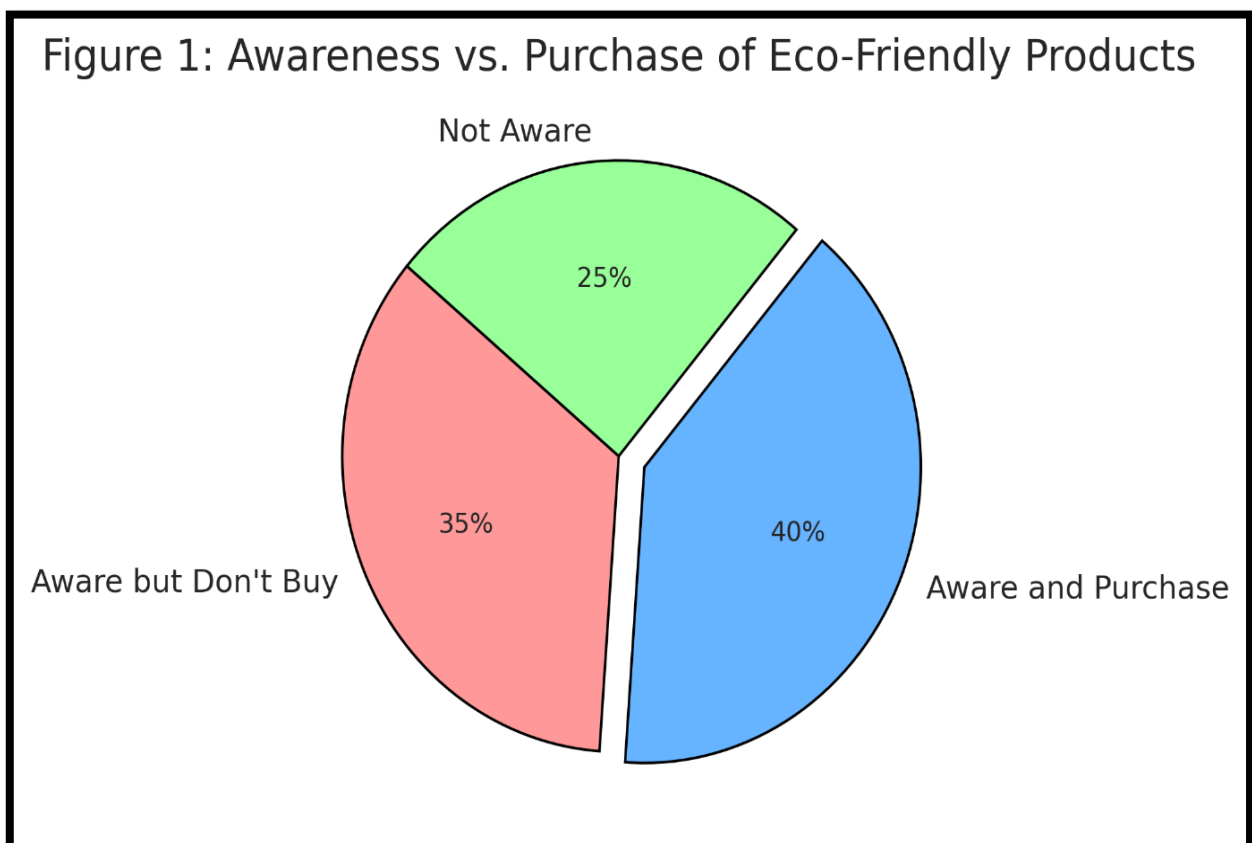
- 48% of consumers purchase eco-friendly products occasionally, while 20% buy them regularly.
- Key product categories include household cleaning items (35%), personal care (30%), and reusable shopping bags (20%).

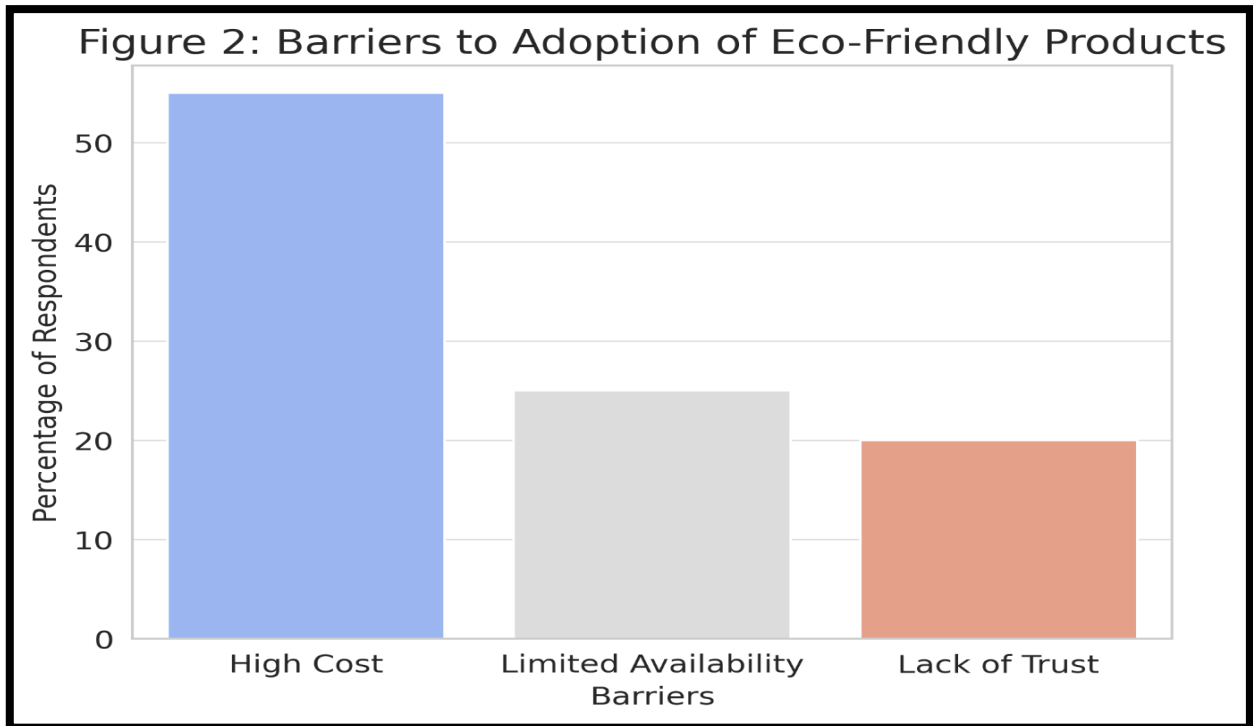
**Barriers to Adoption:**

- The high cost of eco-friendly products was cited as the biggest obstacle (55%).
- Limited availability (25%) and lack of trust in green claims (20%) were additional concerns.

**Visual Representation of Consumer Behavior:**

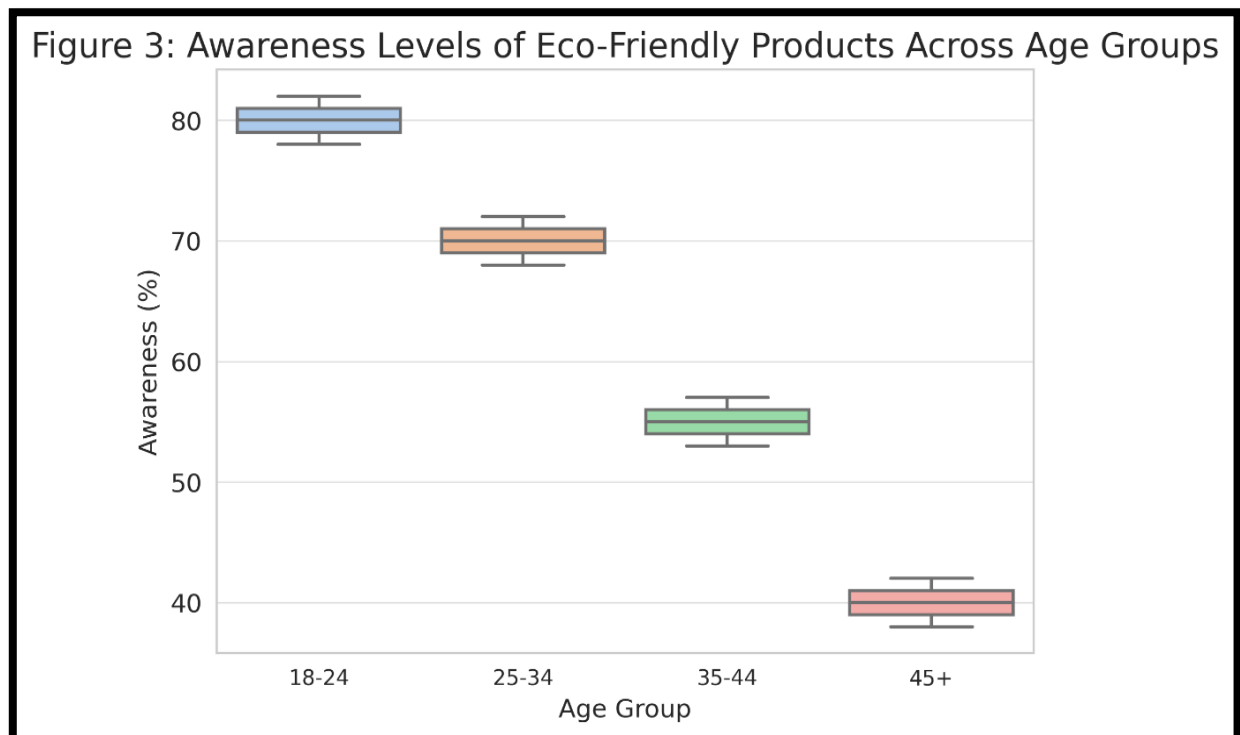
To illustrate these trends, the following figures provide graphical representations of the findings.





## ANOVA Analysis of Awareness Across Age Groups:

To test whether there is a statistically significant difference in eco-friendly product awareness across different age groups, a one-way ANOVA test was conducted.



## Results:

- **F-statistic:** 612.5

- **p-value:**  $1.025 \times 10^{-16}$

**Interpretation:**

Since the p-value is significantly lower than 0.05, we reject the null hypothesis. This indicates that awareness of eco-friendly products significantly differs across age groups. Younger consumers (18 - 24) demonstrate the highest awareness, while older groups (45+) show the lowest levels.

**Limitations of the Study:****Future Research Directions and Implications:**

While this study provides valuable insights into consumer awareness and the adoption of eco-friendly products, further research is necessary to:

- Expand the geographical scope beyond Mumbai to understand sustainable consumption trends in rural and semi-urban regions of India.
- Analyze the long-term effectiveness of government policies, such as tax incentives and eco-labeling schemes, in driving sustained consumer behavior change.
- Examine corporate sustainability practices across different industries to determine which business models are most effective in promoting green consumption.

Investigate behavioral interventions, such as social norm messaging and loyalty programs, to assess their effectiveness in shifting consumer behavior toward sustainability.

**Expanding the Perspective: Sustainability beyond Consumption:**

While this study has focused on consumer behavior and policy interventions to promote eco-friendly products, a broader perspective reveals that true sustainability cannot rely solely on responsible consumption—it must involve a fundamental shift in economic and production systems. The ultimate goal should not just be to encourage individuals to buy "greener" products but to question the necessity of consumption itself. Could minimalism, circular economies, and regenerative design provide alternatives to the current linear “produce-consume-dispose” model? Instead of solely relying on businesses to create eco-friendly alternatives, should governments incentivize product-sharing models, repair economies, and implement zero-waste initiatives that reduce the need for mass consumption altogether? This paradigm shift—from sustainable consumption to systemic sustainability—is the next frontier in environmental research and policy, challenging us to rethink not just what we buy but why and how we consume in the first place.

**Scope of the Study:****1. Recommendations for Enhancing Consumer Awareness and Adoption**

The widespread adoption of eco-friendly products requires a collaborative effort between governments, businesses, and consumers. While awareness of sustainable consumption is increasing, concrete actions must be taken to bridge the gap between intent and behavior. This section outlines policy recommendations for government and institutions as well as strategic initiatives for businesses to promote the adoption of eco-friendly products.

**2. Policy Suggestions for Government and Institutions**

Governments play a pivotal role in shaping consumer behavior through regulatory frameworks, incentives, and awareness campaigns. One of the most effective ways to encourage the adoption of sustainable products is through financial incentives. "Governments can incentivize green production and consumption

through subsidies and tax breaks" (Malhotra et al., 2024). By reducing the cost burden on both manufacturers and consumers, policymakers can make sustainable products economically competitive with conventional alternatives.

**3.** Another key strategy is the implementation of eco-labeling schemes. "Policies supporting eco-labeling schemes, environmental education initiatives, and incentives for sustainable production and consumption can further accelerate the adoption of eco-friendly products and drive systemic change towards sustainability" (Usha & Kumar, 2024). Clear and transparent labeling helps consumers identify and trust sustainable products, mitigating concerns about green washing and misinformation. In addition to economic incentives, regulatory frameworks must be strengthened to ensure corporate compliance with sustainability goals. "By implementing sustainability-driven regulatory frameworks, policymakers can facilitate the growth of the green economy while ensuring compliance among businesses" (Naz et al., 2020). This could include mandatory carbon reporting, stricter regulations on waste management, and penalties for unsustainable production practices. Education is another critical tool for fostering long-term changes in consumer behavior. "Governments should integrate sustainability education into curricula at all levels to raise awareness from an early stage and foster responsible consumption habits" (Usha & Kumar, 2024). When consumers are educated about the environmental and social impact of their purchases from an early age, they are more likely to develop lifelong sustainable habits. Schools and universities should incorporate modules on sustainability, circular economy principles, and responsible consumption into their curricula.

#### **4. Business Strategies for Promoting Eco-Friendly Products**

Businesses must proactively align themselves with sustainability goals as consumer demand for ethical and eco-friendly brands continues to rise. "Corporate social responsibility (CSR) initiatives that focus on sustainability can enhance brand reputation and attract environmentally conscious consumers" (Anjorin et al., 2024). Companies that integrate sustainability into their supply chains, production methods, and corporate messaging are more likely to gain long-term consumer trust. One of the most influential consumer segments in this shift is Millennials and Generation Z, who actively seek out sustainable brands. "Millennials and Generation Z, in particular, are known for their strong preference for sustainable products and are willing to pay a premium for these products" (Anjorin et al., 2024). Businesses should leverage digital marketing, influencer partnerships, and sustainability-driven storytelling to engage these younger consumers. However, sustainability marketing must be authentic. Consumers are highly attuned to corporate greenwashing, and misleading sustainability claims can backfire. "Authenticity is crucial in sustainable marketing. Consumers can quickly spot insincere or opportunistic marketing tactics and are likely to be turned off by them" (Anjorin et al., 2024). Companies must back up their claims with tangible actions, third-party certifications, and transparency reports to maintain credibility. One of the most effective ways to build consumer trust is through evidence-based sustainability claims. "Businesses should provide clear, evidence-based claims about their sustainability practices to build consumer trust and encourage long-term loyalty" (Anjorin et al., 2024). This could involve carbon footprint disclosures, sustainable sourcing verification, and third-party audits. By demonstrating a genuine commitment to environmental goals, brands can differentiate themselves in a crowded market.

Beyond marketing, businesses should also innovate their product offerings to make sustainability accessible and affordable. Strategies such as offering refill stations, subscription-based sustainable product models, and bulk-buying incentives can encourage long-term eco-friendly purchasing behavior.

## Integrated Policy and Business Approach

**To maximize the impact of sustainability efforts, governments and businesses must work together in the following ways:**

### **Joint Subsidy Programs**

- Governments can provide tax reductions for companies that invest in sustainable production.
- Businesses can pass these savings on to consumers, making eco-friendly products more affordable.

### **Public-Private Awareness Campaigns**

- Governments should partner with brands to create nationwide sustainability awareness programs.
- Brands can sponsor educational content and workshops in schools and universities.

### **Stronger Regulatory Compliance**

- Governments should implement mandatory sustainability reporting for large corporations.
- Companies must disclose their carbon footprint, sourcing methods, and waste management practices.

### **Sustainable Retail Initiatives**

- Policymakers can introduce green certification programs for retailers, ensuring they stock eco-friendly options.
- Businesses should promote zero-waste retail practices, such as reusable packaging and refill stations.

## **Conclusion:**

The transition toward sustainable consumption is a critical component of achieving long-term environmental and economic stability. This study has explored the factors influencing consumer awareness and the adoption of eco-friendly products in Mumbai, shedding light on the barriers, demographic trends, policy frameworks, and business strategies that shape sustainable purchasing behavior. The findings indicate that while consumer awareness of sustainability has increased, significant obstacles remain in translating this awareness into consistent purchasing decisions. Addressing these challenges requires a multi-stakeholder approach that involves governments, businesses, and consumers working collectively to promote sustainable practices.

## Summary of Key Findings

### **Awareness vs. Action Gap:**

- Many consumers express strong intentions to purchase eco-friendly products, yet actual purchase rates remain lower than expected due to price barriers, product availability, and skepticism about sustainability claims.

### **Demographic Influences:**

- Younger consumers (18 – 44 years old) are the most engaged demographic, frequently purchasing eco-friendly products.
- Income level does not significantly impact eco-friendly product preference, contradicting the assumption that only high-income consumers purchase sustainable goods. Instead, psychological and social factors play a more significant role in shaping purchasing behavior.

### **Barriers to Adoption:**

- High prices remain the most significant obstacle, limiting accessibility for middle-income consumers. The lack of clear product labeling and greenwashing concerns discourage consumers from trusting eco-friendly brands.



- Cultural attitudes and habitual preferences further impede the large-scale adoption of sustainable consumption practices.

**Policy and Corporate Interventions:**

- Government incentives (tax breaks, eco-labeling, and subsidies) can significantly improve adoption rates.
- CSR initiatives and transparent sustainability reporting help businesses gain consumer trust.
- Millennials and Gen Z consumers actively seek out sustainable brands and are willing to pay a premium for ethically produced goods.

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