"Beyond Profits to Planet: Exploring ESG, Waste, and Green Packaging Practices of MSME Food Processors – A Study of Consumer Perception"

[1]Dr. Anubhav Vishwakarma, [2]Dr. Bhavana Srivastava, [3]Utsav Mishra

[1]Department of Commerce and Business Administration, University of Allahabad.

[2]Department of Commerce and Business Administration, University of Allahabad.

[3]M. Com. Scholar Feroze Gandhi College, Rae Bareli, University of Lucknow

DOI: https://doi.org/10.51244/IJRSI.2026.1306000224

Received: 07 June 2026; Accepted: 12 June 2026; Published: 01 July 2026

ABSTRACT

Profit is the center point of each and economic activity performed by any individual, business unit or the society, but profit without responsibility can be very dangerous not only for the humanity but for whole planet. In this regard, father of nation Mahatma Gandhi has rightly said that "Mother earth provides enough to satisfy our needs, but not our greed." We the most intellect creature of the nature is continuously exploiting every available resource of the earth for our profits. With every passing day, to maximize our profits we are compromising our future we depend upon. The issue of climate change is one of the most significant outcomes of this irresponsible greed of profitability. Beyond the profits, planet is also our responsibility, this should be ideology of every business either it is a big corporate house or a MSME. MSMEs, the backbone of under-developed and developing economies, is significantly contributing in the development of the economy and generating employment. With every development every MSME must think that this development should be sustainable and responsible. The present study, aims to examine how Indian MSMEs, particularly those which are operating in food processing sector, trying to integrate with the sustainable practices and bring into line with the Sustainable Development Goals (SDGs). With the major objective, to explore consumer expectation regarding ESG practices in MSME food processing industries, to analyze the price sensitivity of consumer while supporting sustainable practices in the food sector and to find out the gap between consumer expectation and perceived adoption of sustainable practices in MSME food industry of Uttar Pradesh. The study adopts a combination of exploratory and analytical methodological frameworks, and for the purpose of analysis primary data was collected mainly through one of the non-random samplings that is snowball sampling.

Keywords: ESG, Green Packaging, and MSMEs.

INTRODUCTION

The famous idea of Charles Darwin which suggests that – "It is not the strongest of the species that survive, nor the most intelligent, but the one most responsive to change". The scope of this theory of adaptability is not only limited to biological evolution is also relevant to economic systems, industries, and societies. The world today is changing at a rapid pace and in this rapidly changing global landscape, the ability to adapt the environmental, social, and economic changes has become a one of the defining factors for sustainable growth and long-term survival.

Historically, economies across the world focused upon industrial expansion particularly during the 19th and early 20th centuries. However, over time, we can observe a shift in this approach, "Industry 5.0" as per (Verma, 2024) is one of the new approach of Industries where the focus is not only limited to resource exploitation but is towards enhancing sustainability resilience and human well - being. Worldwide this transformation gained momentum when we encountered challenges such as ozone depletion, which led to collective action through agreements like the Montreal Protocol, which till the date is recognized as one of the most successful environmental treaties.

The Brundtland report "Our Common Future", of World Commission on Environment and Development, was one of the first international reports to introduce the idea of sustainable development. The idea was to balance present needs without compromising the need of future generations. Over time, the idea of sustainability has developed into a broader framework based on three main pillars: environmental responsibility, social equity, and governance (ESG). These three pillars are focusing on that all the economic activities should carried out in a way which creates a trade-off between environmental balance and social well-being for future.

India, the fourth largest economy of the world, and the country believe in the concept of holistic development, sustainability is an integral part of the country's policy frameworks and development strategies. Some government initiative like Net Zero 2070 goal, green credit program, PM Surya Ghar Muft Bijli Yojna, reflects the country's commitment towards the sustainable development goals.

Micro Small Medium Enterprise (MSME's) is the backbone of Indian Economy as approx. 1.7 million people is dependent upon the sector for employment, the sector plays a vital role not only in terms of employment generation but also in industrial output, and regional development. Within the MSME sector, food processing industries holds a strategic importance due to their direct role with daily consumption patterns, supply chains, and agricultural linkages. The recent reports of (Ministry of MSME, 2026) suggests that in India over 70% of food processing units operate under the category of MSME which makes the sector a critical area for assessing the adoption of sustainable practices.

In the Past few years, the world is noticing a shift in the industrial ecosystem where industries and businesses are shifting from traditional profit centered approach toward modern sustainable approach where the prime focus is profitability with environmental sustainability, waste management, and green packaging practices. However, the effectiveness of these initiatives is closely linked to consumer awareness, perception, and acceptance.

The current research work is an attempt to explore how the consumer perceive the efforts of food processing industries under the MSME in regard to the sustainable development and also to explore how the affordability drives the consumer while making purchase decision for product that offer ESG compliance, further the research work compare the expectation of consumer to the adaptation of ESG practice under the food processing industry, and at last the research work aims to understand how far consumer preferences are motivating business to move beyond profit maximization towards sustainable production.

LITERATURE REVIEW

(Vacher, 2024) Business around the world work upon a common motive of profit maximization but apart from profit maximization today every type of business has a genuine commitment in corporate responsibility as highlighted by the researcher in the book core values and decision making for sustainable business the research work is based upon a hybrid approach of descriptive and qualitative methodology, where the focus of research work is to describe how strategic and ethical values of the managers can improve the CSR commitment while maintaining its balance with growth of the small scale industries, the research work is based upon a mix of secondary and primary data where data related French companies response to CSR commitment was taken from a survey of 2019 and further through an open survey of response of 10 SME manager was taken to explore the criteria that influence their CSR engagement the overall analysis reveals that the CSR actions of the firms are strongly influenced by the strategic goals and values of the management.

(Mehta & Chatterjee, 2024) The research work highlights that in the recent few years there is a growing trend of adaptation of sustainable practices within the MSME sector, and this trend can be next big factor offering positive differentiation to the Indian MSME as a addition to their low labor cost and demographic advantage, the research work points out a gap in the prevailing literature in concerning the factors that influences the adaptation of sustainable practices, the research work elaborates a conceptual where performance benefit, effort assessment, enabling condition, social pressure, were said as to be the key influencing factors that influences sustainable business practices, to test the model primary data was collected through interview method conducted with a sample size of 41 MSMEs owner representing different sector and different regions of India and to test the results correlation and regression analysis has been used the result concludes performance benefit is one of the key driver for sustainability adoption amongst the MSME, further the paper points that ease of adaptation is one of the underinvested factor.

(Baghel, 2024) The research work is an attempt to highlight the emerging trends under the SME sector in regards to sustainability for the same a bibliometric review approach has been used where a total of 3449 research work published between the period 1991 to 2023 were taken onto consideration, for the purpose of visualization VOS viewer was utilized, the research work highlight some patterns of publication on SME as during the first era the primary focus was investing in sustainability without fully understanding the requirement for sustainable development, afterwards the focus shifted to associating corporate social responsibility as a responsibility of industries, after 2000 a the focus shifted towards understanding various aspects (dimension) of sustainability. The paper highlights that though the concept of sustainable development has a long history but the discussion on ESG factors has been started recently.

(Vats, Lata, & Sharma, 2025) under the paper the researcher has used a case study approach to evaluate the role of ESG practices as a facilitator of resilient and inclusive economic growth of Indian economy, for the purpose of research work secondary data has been collected mainly by the annual reports, the research work is focused upon the major Indian policies that binds the firm to adopt CSR practices including the CSR Mandate, BRSR, Board Diversity Norms, Green Finance guidelines, for case study mainly 5 major company has been selected including Infosys, Wipro, TCS, Tech Mahindra, Reliance, the result of the research work highlights the today ESG practice is not only a ethical necessity but also a strategic value, the paper further highlights that integrating ESG practices has financial advantages in form of foreign capital flow, high employee retention, improved investor sentiment and access to green finance.

(Arindra & latief, 2025) Under the paper the researcher has used an exploratory approach that aims to explore the integration of environmental orientation in SMEs innovation strategies and its impact upon organizational innovation, the paper adopts a systematic review method of literature and sorts out 67 article at initial stage and at the final stage sorts 42 articles, the analysis reveals that the success of sustainable organizational innovation in case of MSME majorly depends upon integrating environmental issue into the core business strategies. Four major pattern identified that influence the adaptation of ESG practices in MSME operations are environmental responsiveness, learning based adaptation, navigation of resource constraints, and alignment of strategies with sustainable goals.

(Sridar, Kumar, R.S., & Patro, 2025) The Research work is based upon dual approach of bibliometric analysis & systematic literature review, the research work aims to explore the key barriers that limits sustainable innovation, how can Indian SME adopt sustainability practices to overcome barrier and align with global practices, what are some strategies that can foster sustainable innovation the result of the study frame-out a conceptual model that is proposed to guide Indian MSME in achieving sustainable performance across ESG dimensions.

(Lin, Jaiswal, & Jaiswal, 2025): The Research work is based upon systematic literature review approach in which is classified in some major themes including understanding sustainable packaging; packaging material and their impact on environment, application of bioplastic in packaging, types of biodegradable plastic, limitation of biodegradable plastic, and consumer perception upon bio plastic, the analysis reveals in case of consumer perception that various survey highlight that consumer holds a positive perception for bioplastic however their still has a lack of awareness in consumer about the bioplastic.

(Khandelwal, Kulkarni, & Sinha, 2022): under the paper the researcher has used a descriptive research approach to describe consumer perception in regards to green value on quick service restaurant and home delivery services, the study is mainly based upon primary data which was collected through structured questionnaire collected mainly from 219 respondent the, for the purpose of analysis a combination of descriptive and inferential approach has been used t test has been applied to test the accuracy of the result the overall result of the research work highlights in case of maintaining sustainability consumer expressed a strong desire but in practice this desire doesn't hold true.

Synthesized Analysis

(Vacher, 2024) in his work highlights that although businesses traditionally operate with a motive of profit maximization, but in the recent few years a commitment towards corporate social responsibility is observable, where CSR actions of firms are strongly influenced by the strategic goals and values of the management. Extending this view (Mehta & Chatterjee, 2024) point out that there is a growing trend of adaptation of sustainable practices within the MSME sector where performance benefit acts as a key driver while ease of adaptation remains an underinvested factor influencing sustainability adoption. Similarly, the study of (Yadav, Yadav, Ghosal, Yadav, & Verma, 2025) explores that sustainable management has an important role in determining sustainable financial and ESG performance, this indicates growing importance of structured governance practices. Supporting the view on evolution of sustainability discourse the study of (Baghel, 2024) highlights that today the focus of research has shifted from general sustainability to CSR and more recently towards ESG dimensions, indicating that ESG is a relatively a recent but rapidly growing area of study. Similarly, the study of, (Vats, Lata, & Sharma, 2025)emphasize that in current day scenario ESG practices are not only an ethical necessity, but it is also a strategic and financial advantage that can improve investor sentiment and can be a medium to access to green finance. Further, the study of (Arindra & latief, 2025) highlight that the successful adoption of ESG practices in MSMEs is majorly dependent upon integrating environmental concerns into core business strategies along with certain factors such as environmental responsiveness and resource management. This is further supported in the research work of (Sridar, Kumar, R.S., & Patro, 2025), who identified several key barriers and propose strategic frameworks for MSMEs to balance sustainability practices. In addition to organizational perspective the research work of (Lin, Jaiswal, & Jaiswal, 2025) focuses upon sustainable packaging and highlight that although consumers currently hold a positive perception towards bioplastics but there exists a lack of awareness amongst them. Similarly, (Khandelwal, Kulkarni, & Sinha, 2022) observe in their study that while consumers express a strong desire towards sustainability this intention does not always translate into actual behavior. Overall, the synthesis of current literature suggests that although there is an awareness both amongst the consumer and MSMEs but implementation of ESG practices still lags due to the factors like ease of implementation

Theoretical Foundation

- **Theory of Planned Behavior (TPB):** According to the theory, consumer behavior is influenced by their attitudes, their subjective norms, and their perceived behavioral control. In reference to sustainable food consumption, consumers should show positive attitudes towards ESG practices, but actual support will be depended upon apparent accessibility and affordability.

- **Stakeholder Theory:** According to this theory, business units are accountable not only to their shareholders but also to consumers, workers, society or humanity and the environment. ESG practices is nothing but includes all those efforts of organization which satisfy these stakeholder expectations.

- **Diffusion of Innovation Theory:** Diffusion of Innovations explains how new practices are gradually adopted. ESG implementation among MSMEs may therefore occur incrementally rather than immediately because of cost and resource constraints.

RESEARCH DESIGN

Research Gap:

All though the existing literature are covering various aspects of sustainability in MSME though there still exists a significant gap in understanding the consumer perception in regards to all ESG indicator under the food processing industry and comparing it with actual ESG Practices of food processing industry, the current research work is an attempt to fulfill this gap by comparing consumer expectation with actual adaptation of ESG practice

Research Objectives:

Following points in brief summarizes the research objective:

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VI June 2026

- To explore consumer expectation regarding ESG practices in MSME food processing industries.
- To analyze the price sensitivity of consumer while supporting sustainable practices in the food sector.
- To find out the gap between consumer expectation and perceived adoption of sustainable practices in MSME food industry of Uttar Pradesh.

Research Hypothesis

In context of exploratory objectives of the research work there is no specific need hypothesis however in case of the third objective of research following hypothesis has been framed up:

- H_0 (Null): There is no significant gap between the consumer expectation and perceived adaptation of ESG practices in the food sector MSMEs of Uttar Pradesh.
- H_1 (Alter): There is a significant gap between the consumer expectation and perceived adaptation of ESG practices in the food sector MSMEs of Uttar Pradesh.

Research Methodology

The current research work is based upon a combination of exploratory and analytical approach where for the purpose of analysis mainly primary data has been collected through the use of non-probability snow ball sampling.

A. Sample Design

✓ **Population of the Study**: The scope of research work is centered upon the population of Uttar- Pradesh which is approximately 24.35 crore.

✓ **Sampling Method:** For the purpose of current research work Non probability "Snowball Sampling" method has been used.

✓ **Sample Size**

Estimated Sample Size: this is based upon Cochran's formula $n_0 = Z^2 * p * \frac{(1-p)}{e^2}$ the ideal sample size for the population of 24.35 is 384.

$$n_0 = \frac{(1.96)^2 \cdot 0.5 \cdot 0.5}{(0.05)^2} \approx 384$$

✓ **Actual Sample:** The ideal size of sample is though 384 however for the purpose of current research work a 222 samples has been collected, the reason of discrepancies in idea sample size and actual sample size is under the current research work more emphasis is placed upon selecting respondent that are most relevant to the research work, the sample has been collected mainly from 4 major district of Uttar Pradesh i.e. Raebareli, Lucknow, Prayagraj, Kanpur and some other parts of Uttar Pradesh.

Method of Data Collection:

- **Framework:**

The Current research work uses structured questionnaire shared via google form to collect the respective responses. The research questionnaire was structured using a combination of dichotomous questions and Likert Scale Questions Dichotomous questions were used to clear, observation of adaptation of ESG practices under

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VI June 2026

food processing MSME, while Likert scale questions were used to capture the intensity of respondent's expectation upon ESG practices under food processing industry.

- **Instrument Development**

The structured questionnaire was developed after reviewing existing literature on ESG practices, sustainability, consumer perception, and MSME sustainability adoption. Total 20 variables were recognized and clustered under five dimensions: Environmental, Social, Governance, Waste Management, and Packaging.

- **Content Validity**

Further, the questionnaire was reviewed by subject experts economic and management disciplines to ensure lucidity, relevance, and alignment with the objectives of the study. Necessary modifications were incorporated before final administration.

Method of Data Analysis

The research work is based upon the combination of descriptive and inferential method of data analysis where at the descriptive stage moment analysis methods have been used, and at the inferential stage we have used Indexation to convert the raw responses into two testable index i.e. Consumer Expectation Index, and Perceived ESG Adaptation Index the overall Indexed are compared using paired t test, the comparison was made on 5 distinct dimension and 1 overall inclusive dimension.

Limitation of the Study:

Following points in brief summarizes the major limitation of the current research work:

- In context of Sampling more accurate result could be derived if a random sampling approach has been used instead of non-random sampling approach.
- There was a lack of resources that binds to bring a clearer picture of consumer perception.

DATA ANALYSIS

Pre Analysis Stage: (Questionnaire Analysis)

Table 4.1 in briefly summarizes the result of Corbach's Alpha score of framed questionnaires, table 4.2 reveals different level of score of Alpha values

Frequentist Scale Reliability Statistics				
			95% CI	
Coefficient	Estimate	Std. Error	Lower	Upper
Cronbach's α	0.861	0.018	0.826	0.897

Table 1: Generated Through JASP

Cronbach's Alpha (α)	**Interpretation**
> 0.90	Excellent reliability
0.80 – 0.89	Good reliability

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VI June 2026

0.70 – 0.79	Acceptable reliability
0.60 – 0.69	Questionable reliability
0.50 – 0.59	Poor reliability
< 0.50	Unacceptable reliability

Table 2: Standard of Corbach Alpha Value

Interpretation

The Alpha Score reveals that the framed questionnaire falls under the criteria of good reliability and internal consistency.

Descriptive Analysis Stage

Table 4.3 Descriptive Analysis Table

Statistical Measures	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
Mean	3.42	3.55	3.69	0.60	4.00	3.83	3.32	0.59	3.83	3.99	3.33	0.49	3.64	3.52	3.28	0.51	3.87	3.85	4.09	0.63
Standard Error	0.08	0.10	0.08	0.03	0.07	0.08	0.09	0.03	0.08	0.08	0.08	0.03	0.08	0.09	0.09	0.03	0.08	0.07	0.07	0.03
Median	3.00	4.00	4.00	1.00	4.00	4.00	4.00	1.00	4.00	4.00	3.00	0.00	4.00	4.00	3.00	1.00	4.00	4.00	4.00	1.00
Mode	3.00	5.00	5.00	1.00	5.00	5.00	4.00	1.00	5.00	5.00	4.00	0.00	4.00	5.00	4.00	1.00	5.00	4.00	5.00	1.00
Standard Deviation	1.23	1.42	1.26	0.49	1.10	1.17	1.35	0.49	1.16	1.19	1.26	0.50	1.17	1.31	1.32	0.50	1.17	1.11	1.11	0.48
Sample Variance	1.51	2.00	1.58	0.24	1.22	1.37	1.82	0.24	1.34	1.42	1.60	0.25	1.38	1.73	1.73	0.25	1.37	1.23	1.23	0.24
Kurtosis	-0.73	-0.95	-0.62	-1.85	0.42	-0.23	-1.02	-1.87	-0.07	0.44	-0.98	-2.02	-0.42	-0.86	-0.95	-2.02	-0.06	0.22	0.69	-1.74
Skewness	-0.37	-0.63	-0.67	-0.41	-1.05	-0.82	-0.38	-0.39	-0.85	-1.13	-0.27	0.05	-0.61	-0.52	-0.38	-0.05	-0.89	-0.91	-1.20	-0.52
Range	4	4	4	1	4	4	4	1	4	4	4	1	4	4	4	1	4	4	4	1.00
Minimum	1	1	1	0	1	1	1	0	1	1	1	0	1	1	1	0	1	1	1	0.00
Maximum	5	5	5	1	5	5	5	1	5	5	5	1	5	5	5	1	5	5	5	1.00
Sum	760	789	820	133	887	851	737	132	851	885	739	108	809	781	729	114	859	855	907	139.00
Count	222	222	222	222	222	222	222	222	222	222	222	222	222	222	222	222	222	222	222	222.00

Table 3: Excel Generated Descriptive Analysis

Where:

A	When you buy products from places like bakeries or flour mills, do you prefer items made using less electricity or fuel, even if the price is slightly higher?	Environmental Indicators
B	When you purchase food items, do you expect these businesses to use cleaner production methods only if prices do not increase much?	
C	While buying packaged or local food products, do you prefer environment-friendly raw materials only when the product remains affordable?	

D	Do you notice that such food businesses try to reduce electricity or fuel use in their operations?	
E	When you visit places like sweet shops or small food units, do you support those that ensure worker safety, even if prices are slightly higher?	Social Indicators
F	Do you value local food businesses that contribute to the community, only if their product prices remain reasonable?	
G	When buying from such businesses, do you think employee training is important only if it does not increase product prices?	
H	Do you observe that workers in these businesses are provided with safe and proper working conditions?	
I	While purchasing from local food businesses, do you expect them to follow rules even if it leads to slightly higher prices?	Governance Indicator
J	Do you prefer buying from honest and transparent food businesses, even if their products cost more?	
K	Do you value well-managed food businesses only when their prices are competitive compared to others?	
L	Do you feel that these food businesses generally follow rules and maintain transparency in their operations?	
M	When you observe food shops or processing units, do you expect proper waste handling even if it increases product cost slightly?	Waste Management Indicators
N	Do you support food businesses that reduce or reuse waste only if it helps keep product prices stable?	
O	Do you believe reducing food waste in such businesses is important only when it helps them save costs?	
P	Do you notice proper handling or disposal of waste in such food businesses?	
Q	When buying packaged items (like bakery or snacks), do you prefer eco-friendly packaging even if it increases the price?	Eco Friendly Packaging Indicators
R	Do you support better packaging used by such businesses mainly when it reduces costs in the long run?	
S	Based on your experience with such food businesses, do you believe they should balance sustainability practices with affordable pricing?	
T	Do you Observe Eco Friendly Packaging in food products	

Interpretation

The following points in brief summarizes the descriptive analysis:

- **High Expectation but Conditional Behavior:** The mean value of the above analysis reveals a clear moderate to high (3.3-4.0) expectation of consumer specially in context to environment and social variables, this can be inferred as consumers posses' high expectancy of sustainability practice in food sector MSMEs, however the analysis also reveals that when affordability is compared with sustainability consumer is slightly more inclined towards affordability. In essence consumer support sustainability but conditionally (reflect price sensitivity of consumer)

- **Strong Ethical Presence for Governance:** In case of governance related variables the computed mean value of responses falls under the bracket of (3.8- 4.0) this reveals that consumer value honesty and compliance, however similar to environmental and social indicators the when it comes to affordability the mean value fall slightly, this represents consumer want ethical firms but at a competitive price.

- **Gap Visibility:** The average values of dichotomous variables of the study reflect a low average value falling under the bracket of (0.49-0.63) these low to moderate value reflect a glimpse of existing gap between the consumer expectation and actual ESG Adaptation by the food processing MSMEs.

- **Waste & Packaging:** waste & packaging variables of the study reveals that the consumers are aware of food wastage and ecofriendly packaging this finding is just like to the findings of (Lin, Jaiswal, & Jaiswal, 2025), but at the same time when we compare affordability with sustainability the consumers cost benefit thinking dominates the sustainable packaging.

- **Variability and Outlier Effect:** The data set reveals in case of expectancy variables possess moderate variation ranging between (1.1-1.3) on the other hand in context of perceived dichotomous variable the data set poses low variation ranging between 0.49- 0.51, this reflect in context of expectancy there is a moderate variation in consumer perception however in case of observation there is a lower variation inside the data set, when we look for skewness inside the data set we find most of the variables shows a negative skewness this reflect responses are consent rated toward higher values (agreement) this shows a positive attitude of consumer for sustainable practices this is also observable in the findings of the research work of (Khandelwal, Kulkarni, & Sinha, 2022).

- **Overall Interpretation:** The findings of the descriptive analysis reveals that overall perception of consumers in context of sustainability under the food sector is positive but when the perception is cross examined with affordability variables this results a price sensitivity in consumer perception for use of sustainability also when we compare the sustainability expectation of consumer with existing adaptation of sustainability practice under the food processing MSMEs we can clearly find a gap.

Inferential Analysis Stage

The descriptive analysis reveals a gap between the consumer expectancy of sustainability variables and adaptation of sustainability variables by the food processing MSMEs so this part of the analysis work upon understanding the significance of the GAP through the help of following statistical tools:

- Index Analysis: Where the researcher will formulate a consumer expectancy index and a perceived adaptation index.

- Paired t test Analysis: Where the researcher will test the significance of the gap between the expectancy and adaptation.

Index Analysis

Index Construction Procedure

The construction of the Consumer Expectation Index (CEI) and Consumer Adaptation Index (CAI) involved four stages:

1. Collection of responses using Likert-scale and dichotomous questions.

2. Computation of dimension-wise mean scores.
3. Normalization of expectation scores using Min-Max normalization.
4. Aggregation of dimension scores using equal weighting to obtain overall CEI and CAI.

Equal weights were assigned because all ESG dimensions were considered equally important for evaluating sustainability perception and adaptation. **Table 4.4 in brief summarizes the formula's used in process of index** calculation.

Table 4.4 Summary of Formula used for computing Index

For Overall Consumer Expectancy Indexing of overall dimensions	$\mathrm{CEI} = \frac{\mathrm{Env} + \mathrm{Social} + \mathrm{Gov} + \mathrm{Waste} + \mathrm{Pack}}{5}$
Dimension Wise consumer Expectancy Indexing	$\mathrm{Dimension} = \frac{\text{Sum of dimension variables}}{\text{Total number of variable}}$
Consumer Indexing Normalization	$\mathrm{Normalization} = \frac{\text{Index value} - \text{Min. Value}}{\text{Max. Value} - \text{Min. Value}}$
Consumer Adaptation Indexing	$\{\mathrm{CAI}\} = \frac{\left\{\sum_{\{i=1\}}^{\{n\}\mathrm{Di}}{}_{\mathrm{i}}\right\}}{\mathrm{n}}$
Weightage used for indexing	Equal weightage has been allotted to every dimension
GAP	$\mathrm{GAP} = \mathrm{CEI(normalized)} - \mathrm{CAI}$

Table 4: Summary of Formula Used for Computation

Consumer Expectancy Index & Consumer Adaptation Index

Table 4.4 in brief summarizes the calculated values of Consumer Expectancy Index and Consumer Adaptation Index.

Table 4.5 Summary Table of CEI & CAI

Dimension	**Normalized Expectation Value**	**Adaptation Value**	**GAP**
Environment	0.6393	0.5991	0.0402
Social	0.6791	0.5946	0.0845
Governance	0.6791	0.4865	0.1926
Waste	0.6205	0.5135	0.1070
Packaging	0.7151	0.6261	0.0890
Overall	0.6400	0.5640	0.0760

Table 5: Excel Generated compiled table of index Score

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VI June 2026

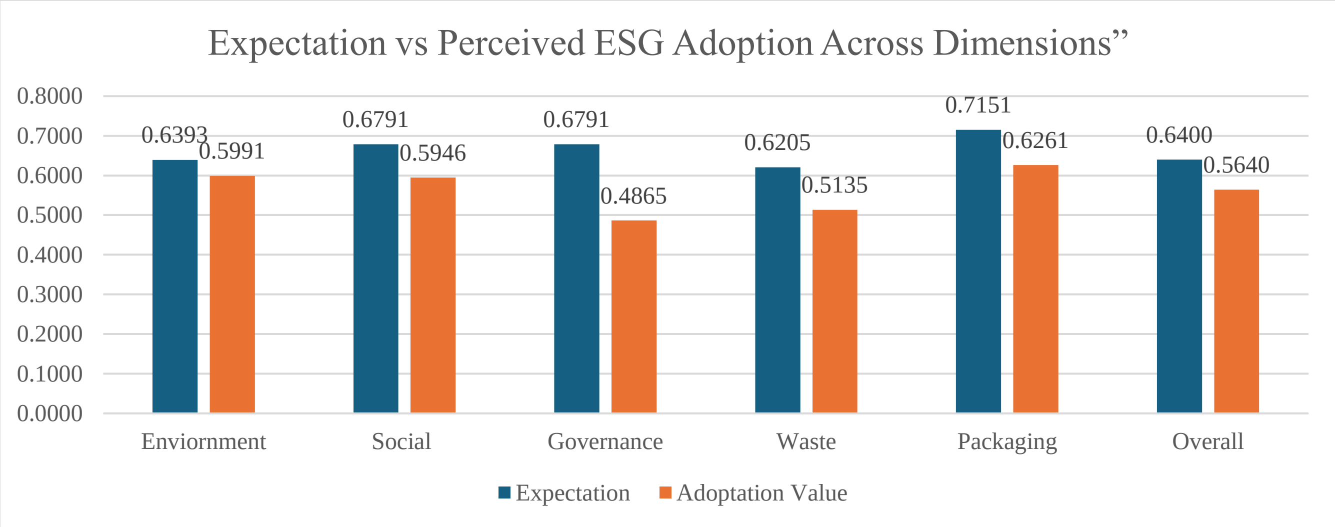

Figure 1: Expectation Vs Adaptation Gap Visualization

Interpretation

Following Points in brief summarizes the table 4.5 and figure 4.1

- **Overall Insight**: from the above data it is clear that collectively in all the sustainability dimensions consumer expectation is higher than the adaptation of sustainability practices
- **Highest Gap Area (Red Area)**: In context of governance there seems to be a highest gap between the ESG Expectation and the ESG Adaptation this clearly reflect that food processing MSME’s lacks in transparency and overall trust issue of the customers.
- **Highest Expectation Area**: In context of packaging highest expectation score is observed this clearly reflects that consumer perception in context of sustainable packaging is most dominant. In the same case if we compare it with the adaptation a gap though smaller but exists this represent that the food processing industries are well aware of consumer perception regarding sustainable packaging hence, they are working upon the issue to reduce the gap size.
- **Operational Gap Area**: In context of waste management practice, we can observe a gap of 0.1070 this reflect consumer though expect better waste handling measures from the food processing industries than they are currently adopting but gap seems to be marginal and through strategy implementation this gap can be easily covered up.
- **Social Dimension**: In case of Social Dimension, we can observe a moderate gap of 0.0845 this reflect that the overall performance is although acceptable but still is below the consumer expectation.
- **Environmental Dimension (Green Area)**: In context of environment smallest gap is being observed this reflect that in context of environment sustainability food processing industries are well aware of consumer expectation and are working to reduce the expectancy and adaptation barrier.

Paired t-test Analysis

At the last stage of analysis, paired t-test has been used to test the core hypothesis of the study:

Core Hypothesis:

- H_0 (Null): There is no significant gap between the consumer expectation and perceived adaptation of ESG practices in the food sector MSMEs of Uttar Pradesh.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VI June 2026

- H_1 (Alter): There is a significant gap between the consumer expectation and perceived adaptation of ESG practices in the food sector MSMEs of Uttar Pradesh.

Sub Hypothesis

- **H_1:** There is a significant difference in the mean value of Overall CEI and CAI.
- **H_2:** There is a significant difference in the mean value of environmental expectation index and environmental adaptation Index.
- **H_3:** There is a significant difference in the mean value of social expectation index and social adaptation Index.
- **H_4:** There is a significant difference in the mean value of governance expectation index and governance adaptation Index.
- **H_5:** There is a significant difference in the mean value of waste management expectation index and waste management adaptation Index.
- **H_6:** There is a significant difference in the mean value of packaging expectation index and packaging adaptation Index.

Table 4.6 Summary Table of Paired T Test Result

Dimension	Mean Gap	t- Value	t- Critical two tail	p- Value two tail	Result
Environment	0.0402	1.0794	1.9708	0.2816	**Not Significant**
Social	0.0845	2.4325	1.9708	0.0158	**Significant**
Governance	0.1926	5.1129	1.9708	0.0000	**Significant**
Waste Management	0.1070	2.8563	1.9708	0.0047	**Significant**
Packaging	0.0890	2.3898	1.9708	0.0177	**Significant**
overall	0.0992	3.8797	1.9708	0.0001	**Significant**

Table 6: Authors Computation on Excel

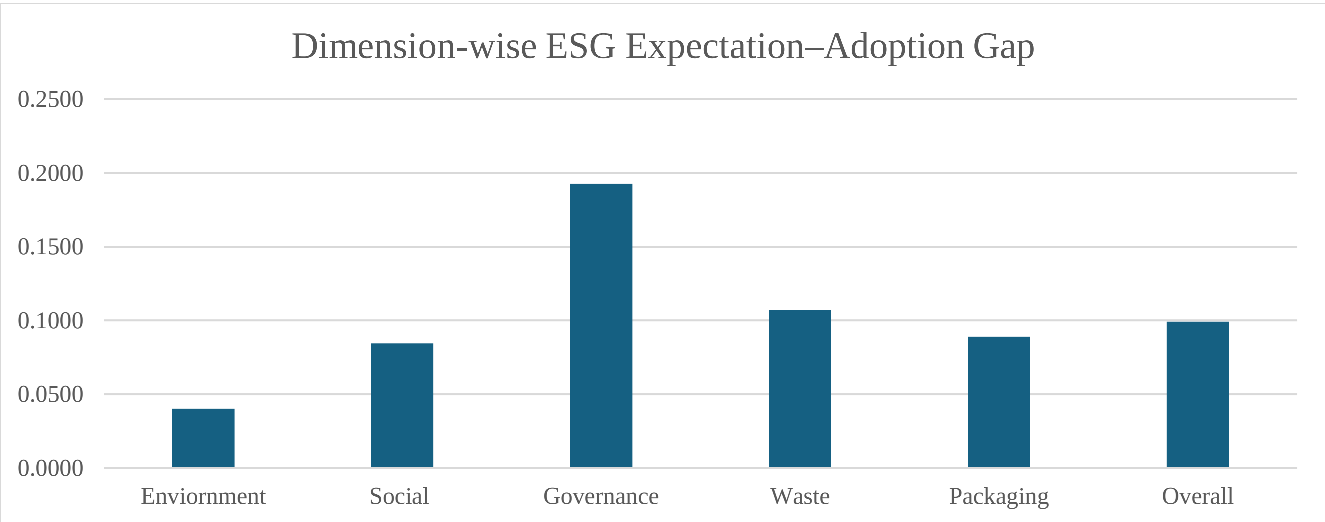

Figure 2: Clustered Mean Gap Chart of Expectation and Adaptation

Interpretation

The sample paired t test analysis reveals a clear and statistically meaning full gap in context of consumer expectation and ESG adaptation by food sector MSME's in approx. most of the dimension, thus we reject the H_0 (Null Hypothesis) at 95% confidence level that and accept the H_1 (Alternate Hypothesis) identifying a clear significant gap between consumer expectation and MSMEs adaptation related to sustainable practices in food processing sector, more precisely the analysis reveals that currently food Processing MSME of Uttar Pradesh are not meeting the expectation of consumer in regards to the ESG practices, the analysis also reveals that there is a strong awareness of ESG Factors in customers but there is a lack of perceived implementation.

Practical Implications

The identified gaps indicate that consumers are increasingly aware of sustainability issues and expect greater ESG compliance from food-processing MSMEs. The largest governance gap recommends that consumers demand stronger transparency, accountability, and disclosure practices. Therefore, ESG initiatives should not be viewed solely as compliance requirements but as a strategic tool for improving consumer trust and market competitiveness.

FINDINGS AND SUGGESTION

Key Findings

Following points in brief highlights the key findings of the current research work:

- Consumers of the said population are willing to purchase sustainable food product and their expectation under the category is high but at the same time price sensitivity is impacting the overall willingness to purchase.
- Food processing MSME's of the said population of the study are adapting those changes that are affecting consumer buying behavior.
- MSME's in context of environmental context are proactively working and are reducing the gap.
- There is a significant and large variation in governance of waste management and social dimensions.

Key Suggestions

Following points briefly highlights the key suggestions of the research work:

- Organization must assure transparency in operation in context of licensing and disclosure practices. It is no cost solution to attract the customers who are willing to consume sustainable product.
- Organizations must try to adopt a scientific waste management system and try to reuse the organic and inorganic waste of product. This will not only increase the brand value but will also impact positively to the profitability of the industry.
- In context of packaging a structural shift from normal packaging to eco-friendly packaging is required at the initial stage of implementation. It will incur cost but after a certain point it will work as a marketing move.
- Organization must maintain sustainability with affordability as the study highlights at the initial stage that consumers are price sensitive in context of sustainability.

CONCLUSION

Indian market is one of the most diversified markets of the world, there is income inequality, willingness, price sensitivity all in one frame, and in such market conditions implementing an intense shift will not be practically possible. Instead, there is a need for a structural shift. Currently, we are moving towards our sustainable future, and the Indian food industry is also trying to improvise a balance between sustainability and affordability. The core of the study reflects that today consumers are moving toward sustainable products until affordability is untapped. Although maintaining affordability with sustainability for MSMEs is strategically difficult, in the context of the environmental dimension there seems progress that is matching the gap between consumer expectation and adaptation. This shift highlights that today we are moving beyond profit towards the planet.

REFERENCES

1. Arindra, I. F., & latief, M. f. (2025, September 09). Enviornmental Sustainability in SMEs: A Study of Emerging Patterns and Sectoral Trends. Resilience of Small and Medium Business, 1(1), 28-44. doi:http://doi.org/10.70764/gdpu-rsmb.2025.1(1)-02
2. Baghel, D. D. (2024). Trends and Patterns of Sustainability in SMES: A Bibliometric Analysis of ESG (Enviornmental, Social, and Governance) Literatures. Accounting Buisness And the Public Interest, 40(11), 1-20. Retrieved March 26, 2026 , from https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=TRENDS+AND+PATTERNS+OF+SUSTAINABILITY+IN+SMES%3A+A++BIBLIOMETRIC+ANALYSIS+OF+ESG+%28ENVIRONMENTAL%2C+SOCIAL%2C++AND+GOVERNANCE%29+LITERATURE&btnG=
3. Khandelwal, N., Kulkarni, D., & Sinha, D. B. (2022, January). Consumer Perception and preference towards Sustainable Food in India. Pacific Business Review, 14(7), 23-36. Retrieved March 26, 2026 , from https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=Consumer+Perception+and+Preference+towards+Sustainable+Food+in++India&btnG=
4. Lin, J., Jaiswal, A. K., & Jaiswal, S. (2025, February 7). A Critical Review of Consumer Perception and Enviornmental Impact of Bioplastic in Sustainable Food Packaging. Sustainability, 17(1358), 1-19. doi:https://doi.org/10.3390/su17041358
5. Mehta, M., & Chatterjee, B. (2024). From Values to Practice: Evaluating the Intention of Indian MSMEs to Adopt Sustainable Business Practises. In A. H. Verkuil, U. Milow, A. Hinz, & M. Al-Kilani, Core Values and Decission Making for Sustainable Business (pp. 115-126). Cham, Switzerland: Springer Nature Switzerland AG. doi:https://doi.org/10.1007/978-3-031-78361-6
6. Ministry of MSME. (2026, March 28). MSME Connect. Retrieved from Ministry of Micro Small and Medium Entterprises: https://msme.gov.in/sites/default/files/MSME-Connect.htm?utm_
7. Sridar, S., Kumar, B. D., R.S., A., & Patro, U. S. (2025). Integrating Sustainable Practises in Indian Manufacturing Small Medium Enterprises: A BASLR Approach. Electronic Green Journal, 1(52), 1-29. doi:10.5070/G3.40099
8. United Nation. (2023, January 9). Climate and Enviornment. Retrieved from United Nation: https://news.un.org/en/story/2023/01/1132277#:~:text=The%20Earth's%20ozone%20layer%20is,policy%20and%20decision%2Dmakers.%E2%80%9D
9. Vacher, S. (2024). Sustainability in SMEs: What Core Values Are Realy Important . In A. H. Verkuli, U. Milow, A. Hinz, & M. A. Kilani, Core Value and Decission Making For Sustainable Business (pp. 13-38). Cham, Switzerland: Springer Nature Switzerland AG. doi:https://doi.org/10.1007/978-3-031-78361-6
10. Vats, I. G., Lata, K., & Sharma, H. (2025). The Role of ESG in Driving Sustainable Economic Development: The Indian Perspective. Proceedings of the International Conference on Policies (pp. 352-368). New Delhi: Advances in Economics, Business and Management Research. doi:https://doi.org/10.2991/978-94-6463-894-3_25
11. Verma, D. D. (2024). Industry 5.0: A Human- Centric and Sustainable Approach to Industrial Developement. International Journal of Social Relevance & Concern, 12(5), 17-21. doi:https://doi.org/10.26821/IJSRC.12.5.2024.120507
12. Yadav, U. S., Yadav, A. K., Ghosal, I., Yadav, S. K., & Verma, A. K. (2025, July 22). Impact of sustainable management, and ESG performance on small and comunity performance in India in the current scenario. European Journal of Sustainable Development Research, 9(4), 1-15. doi:https://doi.org/10.29333/ejosdr/16897