



# Emerging Green Finance Instruments And ESG Integration: Driving Sustainable Investment In The Post-Pandemic Era

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## ABSTRACT

This paper discusses the evolving geography of green finance and ESG (Environmental, Social and Governance) integration in the post-pandemic fiscal system. Drawing from primary data collected from 100 Indian investors and secondary perceptivity from global ESG marks and regulatory bodies, the study aims to assess mindfulness, perceptions, relinquishment situations and walls to sustainable investing. Findings reveal that while investor mindfulness is adding, factual participation in ESG finances and green bonds remains limited due to information asymmetry, lack of fiscal knowledge and enterprises about returns. Young investors are more inclined toward sustainable instruments and institutional support from SEBI, RBI and the Government of India has started to shape policy. The study concludes with practicable recommendations for controllers and investors to strengthen ESG integration and green fiscal development.

**Key Words:** Green Finance, ESG Investing, Sustainable Development, Post-Pandemic Economy, Green Bonds.

## 1. INTRODUCTION

### 1.1 Background and Context

The world has witnessed more environmental, economic and social change in recent years than ever before — the COVID-19 pandemic has only further heightened this. The demand for investors, governments and corporations to consider the impact of their decisions on the environment and society over the long term has never been greater. Green finance is now seen as a means of directing capital into ESG (Environmental, Social and Governance) compliant projects and frameworks to assess the sustainability and ethics of investments.

“Green finance” refers to financial investments that contribute to a more sustainable economy. It includes green bonds, green mutual funds, investments in renewable energy and ESG screened equities. This is very important to combat climate change, cutting greenhouse gas emissions and moving toward a low-carbon economy. According to the OECD (2022) global green bond issuance was over USD 500 billion in 2021 and ESG products are even emerging in emerging markets like India.

## 1.2 ESG in the Indian Financial Landscape

Green finance is still a nascent theme in India, but it is building momentum with the increased focus on climate risks, heightened regulatory push and scrutiny from global investors. ESG exposures have been made obligatory for top-listed companies by controllers similar as Securities and Exchange Board of India (SEBI) through the Business Responsibility and Sustainability Reporting (BRSR) frame, and policy reviews by the Reserve Bank of India (RBI) have accentuated the fiscal pitfalls due to climate change.

India's continued interest in clean power, including its attempt to reach a target of 500 giga watts of renewable capacity by 2030, makes the country a high seeker for green finance to thrive then. Similarly, the green finance has started to become a part of the Indian public sector organisations as well including Indian Renewable Energy Development Agency (IREDA) and private financial institution within a country.

## 1.3 Post-Pandemic Shift in Investor Behaviour

The COVID-19 epidemic marked a major turning point in global fiscal knowledge. Investors decreasingly sought out “flexible” means – those that could ride profitable downturns while contributing appreciatively to society and the terrain. This gave rise to what many call “conscious capitalism” and accelerated interest in ESG investing.

## 1.4 Research Problem

- Awareness and understanding of green finance among retail investors.
- Actual investment behavior toward ESG instruments.
- Barriers preventing mainstream adoption of sustainable investments.
- The perceived financial and ethical returns on ESG investments.

This study addresses these gaps by conducting primary data collection through a structured questionnaire from 100 individual investors and analyzing their responses along with key secondary sources to paint a comprehensive picture of the current state of green finance adoption in India.

## 1.5 Objectives of the Study

1. To examine the awareness level and perception of green finance and ESG among individual investors.
2. To analyze the influence of demographic variables on ESG investment behavior.
3. To explore the challenges and limitations perceived by investors in adopting green finance.
4. To provide policy and managerial suggestions for better ESG integration in India's financial ecosystem.

## 2. LITERATURE REVIEW

The conception of green finance has evolved significantly over the once two decades, aligning fiscal objects with sustainable environmental pretensions. According to the OECD( 2020), green finance involves marshaling private and public finances toward systems that promote environmental sustainability, similar as renewable energy, climate change mitigation, and conservation sweats. ESG investing, on the other hand, encompasses a broader compass that includes ethical and social responsibility confines, not just environmental.

Clark, Feiner & Viehs (2015) concluded from a meta-study that enterprises with strong ESG performance tend to have lower cost of capital, advanced functional performance, and better stock price performance. This has been substantiated by the UN Principles for Responsible Investment (UN PRI, 2022), which reported that global institutional investors decreasingly favor companies with robust ESG exposures. In the

Indian environment, ESG investing is in a incipient stage, but the growth line is promising. The preface of SEBI's Business Responsibility and Sustainability Report (BRSR) in 2021 for the top 1000 listed realities marks a nonsupervisory shift toward ESG responsibility.

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KPMG (2022) reported that Indian investors are getting more ESG-conscious, driven by transnational investment trends and the growing presence of ESG standing agencies similar as MSCI, Sustainalytics and CRISIL ESG Conditions. still, the same report notes that awareness among retail investors remains low compared to institutional actors.

A study by NSE and CFA Institute( 2020) named “ ESG Investing in India Appetite and Awareness ” set up that only 36 of Indian retail investors were apprehensive of ESG investing, but 78 expressed amenability to explore it after being informed. The gap between mindfulness and action was attributed to Lack of financial literacy, Absence of clear ESG definitions and Skepticism about long-term returns.

In a policy paper, RBI (2022) stressed the need for green finance mechanisms to integrate into traditional banking systems, especially given India's vulnerability to climate shocks and commitments under the Paris Agreement.

#### 2.1 Gaps in the Literature:

- Limited academic research using primary investor data from Tier-2 and Tier-3 cities in India.
- Lack of longitudinal studies to assess ESG fund performance over 5–10 years.
- Minimal focus on investor psychology and behavioral finance aspects of ESG decision-making.
- Absence of micro-level analysis (gender, age, education) in ESG awareness studies.

This study fills the gap by using primary data from 100 individual investors in Andhra Pradesh, assaying their mindfulness situations, investment habits, and ESG perception criteria .The literature supports the premise that ESG integration not only offers reputational and ethical benefits but also translates into palpable fiscal earnings. still, walls similar as inconsistent reporting norms, green washing pitfalls, and investor dubitation continue to decelerate mainstream relinquishment in India. This exploration contributes to the evolving body of knowledge by offering empirical data and contextual perceptivity into how individual Indian investors perceive and borrow ESG and green finance options.

### 3. RESEARCH METHODOLOGY AND SAMPLING TOOLS

#### 3.1 Research Design:

This study uses a descriptive and analytical research design to understand investor awareness, preferences, and behavior regarding green finance and ESG investing in India, with special reference to Andhra Pradesh. The study is non-experimental in nature and conducted in a natural environment (field-based responses) making it suitable for capturing real-world investor sentiments.

#### 3.2 Objectives of the Methodology:

- To gather reliable data on investor awareness and perception regarding green finance and ESG.
- To statistically interpret responses in relation to age, gender, education, and profession.
- To analyze the actual adoption of ESG investments among different demographic groups.

### 3.3 Research Instrument:

A well-structured questionnaire was developed with both closed-ended and Likert scale items. It consisted of four major sections:

- Demographic Information (age, gender, qualification, income, occupation)
- Awareness of green finance instruments
- Investment preferences and ESG perception
- Barriers and suggestions

The tool was validated through expert review and pre-tested with a sample of 10 investors before full-scale distribution.

### 3.4 Sampling Method and Size:

The population included individuals with access to basic financial instruments like mutual funds, stocks, and savings schemes. The data is demographically diverse, Stratified Random Sampling was employed. The total sample size of 100 respondents was divided into meaningful strata to maintain proportional representation.

### 3.5 Data Collection:

#### A) Primary Data Collection:

Primary data was gathered through a structured questionnaire distributed to 100 individual investors across urban and semi-urban areas in West Godavari and Eluru districts of Andhra Pradesh.

- Tool: A structured questionnaire (20 items), comprising multiple-choice, Yes/No, and 5-point Likert scale questions.
- Mode: Both online (Google Forms) and offline (in- person interviews in Jangareddigudem and Eluru).
- Participants: 100 individuals with access to basic financial tools (bank accounts, mutual funds, demat accounts).

#### Sample Questions from Questionnaire:

1. Are you aware of the term “Green Finance”?
2. Have you invested in any ESG or green financial instruments?
3. How would you rate your knowledge of ESG investing? (1: Low – 5: Very High)
4. What factors discourage you from investing in ESG?
5. Would you prefer a 1–2% lower return for investing in a sustainable company?

#### B) Secondary Data Collection:

To support the primary findings and provide global context, secondary data was sourced from:

- Climate Risk and Finance in RBI Bulletins (2022–2024)
- SEBI ESG Circulars and BRSR Mandates
- Morningstar India reports on ESG mutual funds
- OECD and UN PRI white papers
- NSE and BSE disclosures on ESG adoption

#### C) Data Analysis Tools and Techniques:

Microsoft Excel and SPSS was used for data analysis.

- For Descriptive statistics mean, percentage, standard deviation is used
- Correlation analysis was used to examine the relationship between investor education and ESG investment adoption.
- Charts and graphs (bar charts, pie charts, stacked columns)
- Likert scale interpretation for perception-based items



### 3.6 Limitations of the Methodology:

- The sample is limited to West Godavari and Eluru districts of Andhra Pradesh.
- Responses are self-reported, and subject to bias or overstatement.
- Institutional investors and rural populations were not included.
- Time and resource constraints limited longitudinal tracking of ESG fund performance.

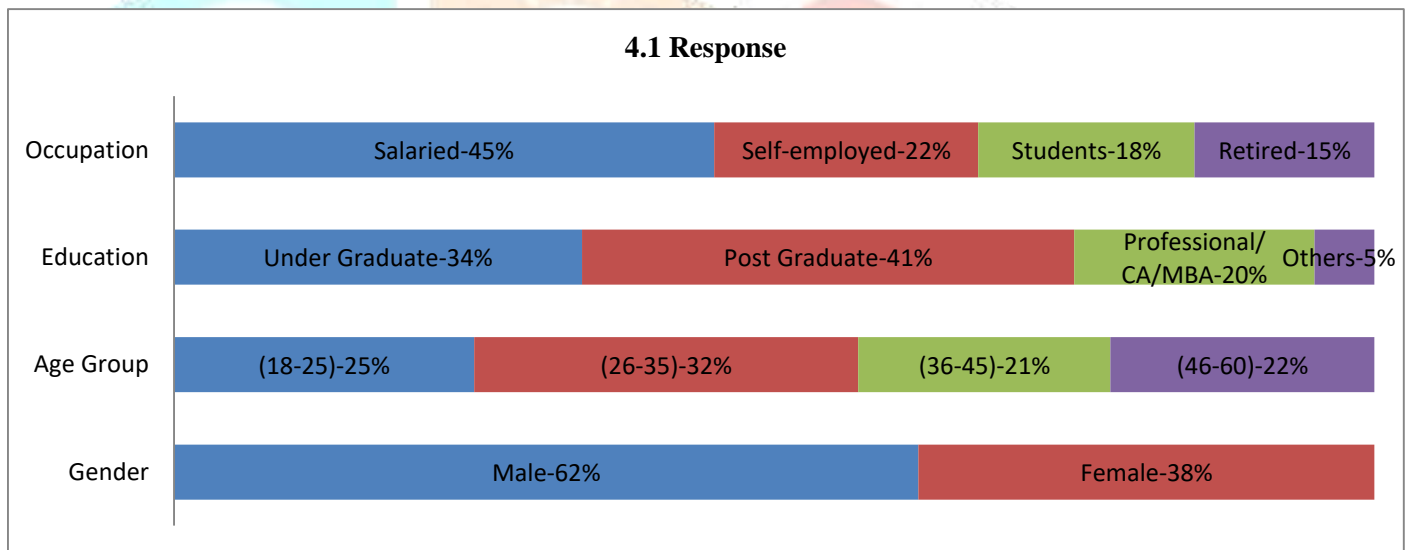
### 3.7 Ethics Followed:

- The purpose of the study is informed to all the respondents.
- Participation was voluntary, and no personal or financial identification details were collected.
- Data was analyzed anonymously, and no individual identities are referenced in the report.
- The research adheres to academic integrity and ethical standards as per UGC research norms.

## 4. DATA ANALYSIS AND INTERPRETATION

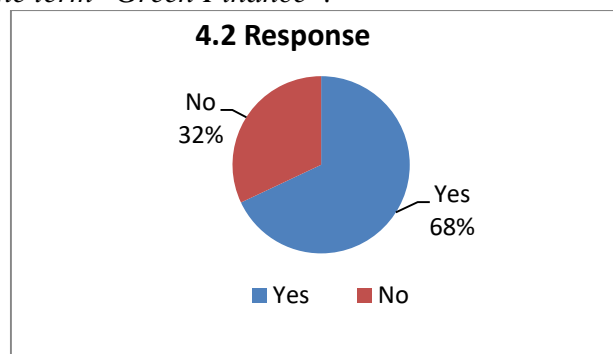
The primary data collected from 100 individual investors across West Godavari and Eluru sections of Andhra Pradesh and their responses were anatomized grounded on demographic features and ESG-related mindfulness.

### 4.1 Demographic Overview of Respondents:



### 4.2 Awareness of Green Finance:

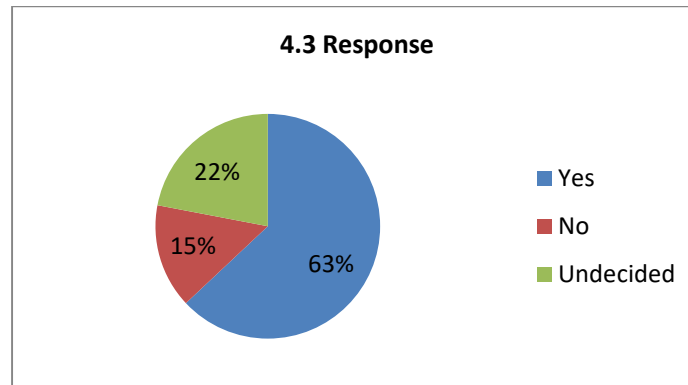
**Question:** Are you aware of the term "Green Finance"?



**Interpretation:** Interpretation maturity of the repliers were familiar with the term Green Finance, over 30 demanded mindfulness indicating a significant need for mindfulness juggernauts.

#### 4.3 Willingness to Invest in ESG Instruments:

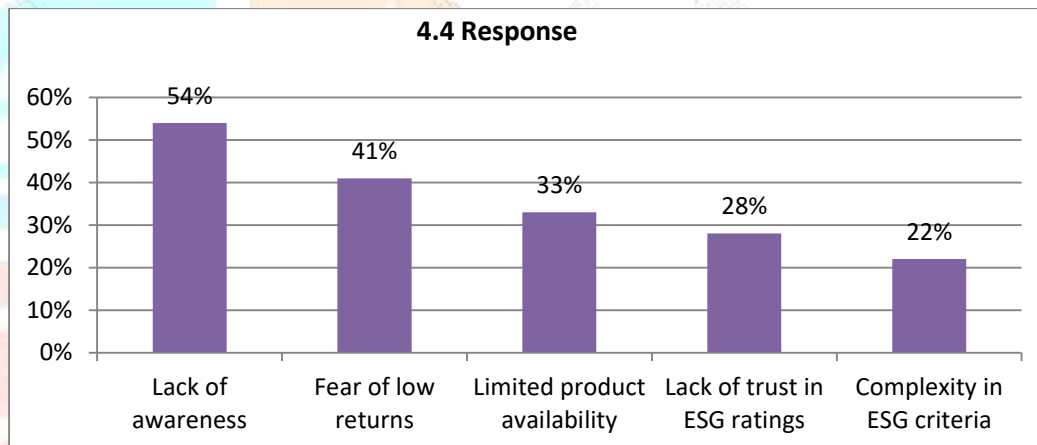
**Question:** *Would you prefer investing in ESG funds over regular funds?*



**Insight:** More than 60% of respondents expressed interest, showing growing openness toward sustainability-linked investments.

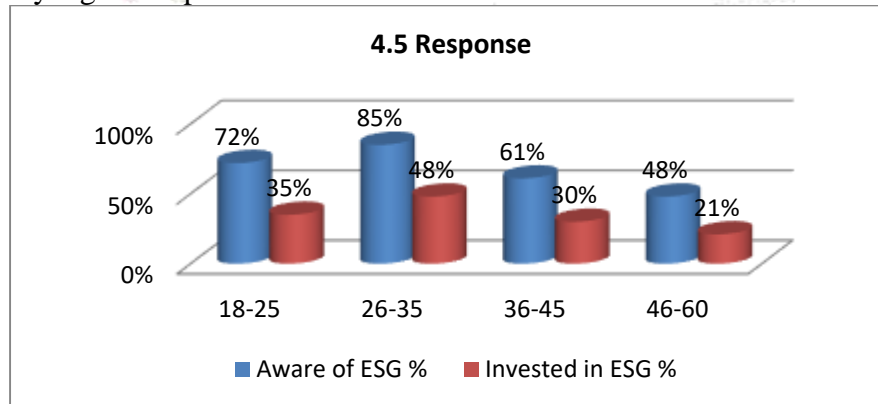
#### 4.4 Hindrances to ESG Investment:

**Question:** *What factors discourage you from investing in ESG products? (Multiple choices allowed)*



**Interpretation:** Interpretation mindfulness and return- related fears are the biggest challenges. These findings align with public- position perceptivity from SEBI and NSE checks.

#### 4.5 ESG Preference by Age Group:



#### 4.6 Correlation Analysis: Education Vs ESG Awareness:

We used Pearson's correlation coefficient and found a moderate positive correlation ( $r = 0.59$ ) between education level and ESG awareness, indicating that better-educated investors are more likely to explore green finance options.

#### Summary of Key Data Insights:

- **63%** of respondents are willing to invest in ESG products.
- **Lack of awareness (54%)** and **fear of low returns (41%)** are top deterrents.
- Investors aged **26–35** are the most ESG-inclined group.
- Education has a measurable impact on ESG adoption.
- Women constitute only **38%** of the sample but are less likely to invest due to perceived risk aversion.

### 5. MAJOR FINDINGS

#### 5.1 Mindfulness and Understanding

68% of repliers were familiar with the term “green finance” or “ESG investing” indicating that mindfulness is gradationally adding, particularly among youngish investors and civic professionals. Still, 32% were fully ignorant, pointing to an critical need for fiscal education and public engagement juggernauts.

#### 5.2 ESG Investment Preference:

- 63% of repliers expressed a amenability to invest in ESG or sustainability linked instruments if accessible and profitable.
- 22% remained undecided, indicating a idle request member that could be tapped through better investor outreach and product education.
- Specially, only 37% had actually made ESG-related investments, revealing a gap between intention and action.

#### 5.3 Generational Investment Gap:

- Investors aged 26 – 35 times showed the loftiest ESG relinquishment rate (48), followed by those in the 18 – 25 times group (35).
- Aged investors (46) were further threat- antipathetic and less willing to engage in ESG finances, with only 21 reporting any investment in similar products.
- Recrimination unborn marketing and education juggernauts should primarily target youngish investors, as they're further values-driven andtech- expertise.

#### 5.4 Gender Dynamics:

- 62% of repliers were manly, and among these, 43% had some exposure to ESG investments.
- Womanish repliers, though smaller (38), had lower participation in ESG products, with only 21 having invested.
- This indicates both a gender gap in sustainable investing and the need to empower women through targeted fiscal education.

### 5.5 Crucial walls to Relinquishment:

Repliers linked several obstacles to ESG investing

- Lack of mindfulness – 54 felt they did n't understand ESG generalities easily.
- Fear of low returns – 41 believed ESG finances might underperform compared to traditional bones.
- Limited vacuity – 33 were ignorant of how or where to pierce ESG products.
- Greenwashing enterprises – 28 distrusted ESG conditions and exposures by companies.
- These results align with global findings by Morningstar and the CFA Institutethat punctuate the need for standardization and translucency in ESG evaluation.

### 5.6 Education and ESG Knowledge Correlation

A significant positive correlation ( $r = 0.59$ ) was observed between education level and ESG awareness.

Investors holding postgraduate or professional degrees showed:

- Greater understanding of ESG criteria
- Higher willingness to compromise on returns in favor of sustainability
- Better ability to identify genuine ESG opportunities.

### 5.7 Investor SentimentPost-COVID-19:

- 44% of repliers reported that the epidemic changed their investment outlook, making them more conscious of environmental and social impacts. A maturity now perceive long- term value in companies that are socially and environmentally responsible.

### 5.8 Preferred ESG Sectors:

When asked which sectors they would most likely invest in:

- Renewable Energy – **66%**
- Green Technology/EVs – **52%**
- Sustainable Agriculture – **36%**
- Social Impact (education, health) – **33%**
- Green REITs and Infrastructure – **21%**

**Implication:** There's strong support for climate-centric industries, especially solar, wind, and electric vehicles. These investors showed an increased preference for ESG-biddable collective finances, green bonds, and clean energy stocks.

Finding Category	Summary Result
Awareness	68% aware, but 32% unaware
Willingness to Invest	63% open to ESG investing
Actual Investment	Only 37% have done it
Demographic Impact	Younger, more educated investors dominate
Gender Gap	Female ESG adoption significantly lower
Key Barriers	Awareness, fear of returns, product access
COVID Impact	44% shifted mindset toward sustainable finance
Sector Preference	Clean energy, EV's, and agriculture lead



## 6. SUGGESTIONS AND MANAGERIAL IMPLICATIONS

### 6.1 Suggestions to Regulatory Bodies:

There's a need for livery, government- regulated ESG standing criteria to exclude green washing and insure authenticity.

- A centralized ESG scoring model developed by SEBI, RBI, and credit standing agencies could ameliorate translucency.
- Calling ESG reporting for collective finances and portfolio directors will insure better decision-making by investors.
- Give duty deductions for investments made in approved ESG finances or green bonds ( analogous to Section 80C).
- Introduce lower capital earnings duty rates for long- term green investments to encourage retail participation.

### 6.2 Suggestions for Financial Institutions and Mutual Fund Houses:

#### a) Simplify ESG Product Access:

- Launch stoner-friendly ESG collective finances and ETFs targeted at first- time investors.
- Insure that fiscal platforms easily label ESG- biddable instruments with easy- to- understand exposures.

#### b) Offer ESG- concentrated Advisory Services:

- Partner with fintech and robo-premonitory platforms to offer custom ESG portfolios for threat- antipathetic investors.
- Train relationship directors and distributors to educate guests on ESG benefits and product types.

### 6.3 Suggestions for Investor Education

- SEBI and AMFI (Association of Mutual finances in India) can unite with Doordarshan, FM radio, YouTube, and indigenous media to promote ESG mindfulness using real stories and short vids.
- Target college and university students, especially commerce and management streams, with ESG investment literacy programs.
- UGC and AICTE can integrate sustainable finance and ESG modules in B.Com, MBA, and CA/ CMA/ CS programs.
- Workshops and simulation labs on ESG portfolio building can be introduced at the undergraduate level.

### 6.4 Suggestions to Investors

- Start small Explore ESG collective finances or green FDs to understand performance and threat appetite.
- Corroborate conditions relate to estimable ESG indicators( e.g., NSE Nifty100 ESG indicator, MSCI ESG scores).
- Be long- term focused ESG investing pays off over time; avoid awaiting short- term nascence.
- Estimate social and governance criteria, not just environmental scores.

### 6.5 Managerial Implications

- Companies must prioritize investor preferences which are shifting towards responsible business practices.
- Implementing ESG compliance can improve brand loyalty, risk reduction and easy access to capital.
- With rising ESG demand, fund managers must adopt ESG screening and active engagement with investee companies.

- Portfolios that ignore ESG factors may face reputational and financial risks.
- ESG investing is not just a financial reform—it is a climate and development policy lever.
- India's ambitious carbon neutrality goals require mobilizing both domestic and international ESG capital flows.

## CONCLUSION

### Summary of the Study

This paper discussed the relevance, awareness and adoption of green finance and ESG (Environmental, Social, and Governance) investments in the Indian context, especially focused on 100 retail investors from Andhra Pradesh. Through data collection, review and analysis it has become evident that sustainable investing is gaining traction among Indian investors, particularly the younger and more educated demographic.

The finding shows a significant knowledge gap, commitment to invest in long term and having a strong demand for transparent ESG products. Investors are becoming conscious day by day for the long-term impacts of their financial choices and shifting towards to climate-friendly sectors like renewable energy, EV's and sustainable agriculture.

### Addressing the Research Objectives

Objective	Outcome Summary
Assess awareness and perception of ESG	68% aware, 63% willing to invest, but only 37% acted
Study demographic influence on ESG investments	Younger, better-educated investors more ESG-active
Explore challenges in ESG adoption	Awareness gaps, return anxiety, product access issues
Provide suggestions to enhance ESG adoption	Recommendations given for SEBI, RBI, investors, educators

Green finance is no longer a niche - it is the future of investing. While India has made commendable progress with regulations like BRSR and ESG fund offerings, real transformation lies in bridging the awareness-to-adoption gap among investors.

The results of this study show promise. Indian retail investors are increasingly open to the idea of aligning profit with purpose, provided they are equipped with credible information, incentivized through policy, and supported by transparent financial infrastructure.

As finance increasingly becomes a tool for development, ESG and green finance are no longer optional—they are essential instruments for India's sustainable future.

## SCOPE FOR FURTHER RESEARCH

This study focused exclusively on individual (retail) investors. Specific sectors like Renewable energy, Infrastructure and urban development, Manufacturing and FMCG have a space to do further research.

Further research may be done in Time-based performance, Long-term returns of ESG funds Vs traditional instruments, Institutional behavior ESG investment strategy among large capital investors, Green finance adoption in key Indian industries.State-wise comparisons of ESG product access, financial literacy, and investor behavior.The effectiveness of regional language ESG campaigns in Tier-2 and Tier-3 towns.

Future research could also explore the integration of ESG frameworks into digital fintech platforms, such as Robo-advisors offering ESG options, Mobile apps with ESG-based financial nudges, AI-powered ESG score calculators for users which contributes designing tech-enabled ESG investment ecosystems, especially

for younger demographics. Post-Regulatory Impact Studies like tracking whether disclosure mandates translate into real sustainability improvements with the support of SEBI and RBI.

## REFERENCES

1. Clark, G. L., Feiner, A., & Viehs, M. (2015). From the Stockholder to the Stakeholder: How Sustainability Can Drive Financial Outperformance. University of Oxford and Arabesque Partners. [https://arabesque.com/research/From\\_the\\_stockholder\\_to\\_the\\_stakeholder\\_web.pdf](https://arabesque.com/research/From_the_stockholder_to_the_stakeholder_web.pdf)
2. Friede, G., Busch, T., & Bassen, A. (2015). ESG and financial performance: Aggregated evidence from more than 2000 empirical studies. *Journal of Sustainable Finance & Investment*, 5(4), 210–233. <https://doi.org/10.1080/20430795.2015.1118917>
3. Morningstar India. (2021). ESG Landscape in India: Investment Trends and Challenges. Morningstar Research. <https://www.morningstar.in/posts/62460/esg-investing-in-india.aspx>
4. NSE & CFA Institute. (2020). ESG Investing in India: Appetite and Awareness. <https://www.cfainstitute.org/-/media/documents/survey/esg-investing-india.pdf>
5. KPMG India. (2022). ESG and Sustainability in India: Pathways to Transformation. <https://home.kpmg/in/en/home/insights/2022/05/esg-sustainability-in-india.html>
6. Reserve Bank of India. (2022). Discussion Paper on Climate Risk and Sustainable Finance. [https://www.rbi.org.in/Scripts/BS\\_PressReleaseDisplay.aspx?prid=53709](https://www.rbi.org.in/Scripts/BS_PressReleaseDisplay.aspx?prid=53709)
7. Organisation for Economic Co-operation and Development (OECD). (2020). Developing Sustainable Finance Definitions and Taxonomies. <https://www.oecd.org/finance/sustainable-finance-definitions-taxonomies.pdf>
8. United Nations Principles for Responsible Investment (UN PRI). (2022). Annual Report: Investing for a Sustainable Future. <https://www.unpri.org/annual-report-2022>
9. Securities and Exchange Board of India (SEBI). (2021). Business Responsibility and Sustainability Reporting (BRSR) Framework. [https://www.sebi.gov.in/legal/circulars/jul-2021/business-responsibility-and-sustainability-reporting-by-listed-entities\\_50978.html](https://www.sebi.gov.in/legal/circulars/jul-2021/business-responsibility-and-sustainability-reporting-by-listed-entities_50978.html)
10. CFA Institute. (2021). Future of Sustainability in Investment Management: From Ideas to Reality. <https://www.cfainstitute.org/-/media/documents/survey/future-of-sustainability-investment-management.pdf>
11. CRISIL. (2023). CRISIL ESG Ratings – India's Growing Market. <https://www.crisil.com/en/home/our-businesses/ratings/esg.html>
12. Bansal, P., & DesJardine, M. R. (2014). Business sustainability: It is about time. *Strategic Organization*, 12(1), 70–78. <https://doi.org/10.1177/1476127013520265>
13. World Economic Forum. (2023). Financing the Transition to Net-Zero in Emerging Markets. <https://www.weforum.org/reports/net-zero-financing>
14. Ministry of Finance, Govt. of India. (2023). Economic Survey 2022–23: Climate Finance and Green Infrastructure. <https://www.indiabudget.gov.in/economicsurvey/>
15. S&P Dow Jones Indices. (2022). S&P BSE 100 ESG Index Methodology. <https://www.spglobal.com/spdji/en/indices/esg/sp-bse-100-esg-index/>