**Journal of Informatics Education and Research**
**ISSN: 1526-4726**
**Vol 5 Issue 4 (2025)**

# Economic Rise of India: An ESG Perspective with Reference to Selected Pharmaceutical Companies

**Janet Joseph**

Research Scholar

Postgraduate Department of Business Studies, Sardar Patel University, Vallabh Vidyanagar

**Dr. Komal D. Mistry**

Professor

Postgraduate Department of Business Studies, Sardar Patel University, Vallabh Vidyanagar

Email

janetjosephphd@gmail.com

komalmistry1987@gmail.com

**Abstract**

India's pharmaceutical sector, often termed the "Pharmacy of the World", plays a crucial role in the nation's economic development, job creation and global healthcare accessibility. Nevertheless, in today's landscape the economic progress is increasingly assessed through the prism of sustainability and ethical accountability. Environmental, social and Governance (ESG) practices have surfaced as a pivotal framework for evaluating corporate resilience and the creation of long-term value. This study examines the influence of ESG implementation on India's economic growth, particularly in relation to key pharmaceutical companies like Sun Pharmaceutical Industries, Dr. Reddy's Laboratories, Cipla Limited, Lupin Limited and Aurobindo Pharma. The focus of the research is to assess how these organizations incorporate ESG efforts such as minimizing carbon emissions, enhancing access to affordable medicines, promoting workplace diversity and bolstering governance structures and how these initiatives contribute to India's image as a leader in sustainable development. The research approach employed is quantitative, relying predominantly on secondary data sources including sustainability reports from 2020 to 2024, the SEBI's Business Responsibility and Sustainability Reporting (BRSR) framework, peer reviewed articles and reputable government and industry databases. Content analysis was utilized to evaluate corporate disclosures while correlation analysis was implemented to emphasize ESG score and profitability within the pharmaceutical sector. The outcomes and conclusions indicate that there is a high relation between ESG score and profitability which not only bolsters corporate image but also enhances investor confidence, foster international partnerships and guarantees the long term competitiveness of the Indian pharmaceutical companies. Furthermore ESG integration aligns the industry with global sustainability standards and the United Nation Sustainable Development Goals (SDGs), rendering India's economic progression both inclusive and accountable. However the study recognizes some limitations. Issues with data reliability arise from discrepancies in the ESG reporting among different companies. The analysis confines to secondary data which may not fully capture the realities of on ground operations. Additionally, the research is limited to five major pharmaceutical firms excluding smaller companies from its scope. Despite these constraints the study offers valuable insights into the relationship between India's economic development, pharmaceutical sector growth and adoption of ESG practices.

Keywords: Economic Growth, Pharmaceutical Industry, ESG, Sustainability Reporting, global competitiveness

## Introduction

India's economic journey over the last thirty years has been noteworthy with the country rising to become the fifth largest economy globally and the key player in innovation and trade (World Bank., 2024). A significant factor in this growth narrative is the pharmaceutical industry often referred to as the "Pharmacy of the world" for its vital contribution to the production of affordable medications and vaccines for international markets. With yearly exports surpassing $25 billion this sector not only boosts foreign exchange earnings but also enhances India's global economic standings (Pharmaceuticals Export Promotion Council (Pharmexcil), 2023). The COVID 19 pandemic underscored India's strategic significance as

local companies led the charge in vaccine manufacturing and distribution through initiatives like Vaccine Maitri intertwining economic advancement with global health diplomacy (Chakraborty & Singh, 2022).

In recent times, the assessment of economic achievement has broadened to encompass sustainability, inclusiveness and ethical governance beyond mere GDP growth. Environmental, Social and Governance (ESG) frameworks have emerged as vital instruments for assessing corporate performance within this new context. ESG practices, which involve minimizing carbon emissions, improving social welfare and ensuring transparent governance are increasingly influencing investor choices, regulatory frameworks and consumer confidence (Friede et al., 2015). In India, the Securities and Exchange Board of India (SEBI) has formalized ESG reporting by requiring the Business Responsibility and Sustainability Report (BRSR) for the top 1000 listed firms, highlighting the growing incorporation of ESG into national economic objectives (SEBI, 2021).

The pharmaceutical industry provides a distinct perspective for examining ESG incorporation as it has a direct impact on human health, community welfare and environmental protection. Prominent Indian firms like Sun Pharmaceutical Industries, Dr. Reddy's Laboratories, Cipla Limited, Lupin Limited and Aurobindo Pharma are starting to integrate ESG principles into their business strategies through initiatives like utilizing renewable energy, sustainable manufacturing practices, enhancing healthcare access programs and establishing ethical governance frameworks. These actions not only boost their global competitiveness but also align India's growth trajectory with the United Nation Sustainable Development Goals (Patel, 2022).

In this context the current study investigates the intersection of India's economic growth and the integration of ESG practices in the pharmaceutical industry. By analysing the ESG efforts of the selected companies, this research underscores how responsible business conduct can bolster India's status as both an economic leader and a promoter of sustainable development.

**Literature Review**

The connection between economic expansion and sustainability has sparked considerable academic discussion with Environmental, Social and Governance (ESG) frameworks increasingly acknowledged as vital for creating long term value. A meta-analysis conducted by (Friede et al., 2015), which examined over 2000 studies revealed a positive relationship between adoption of ESG practices and financial performance indicating that sustainable business strategies are both ethically commendable and economically advantageous. In India the adoption of ESG practices has gained traction due to regulatory bodies like Securities and Exchange Board of India (SEBI)'s requirement of Business Responsibility and Sustainability Report (BRSR) for top 1000 listed companies (SEBI, 2021). This transition signifies a growing recognition that sustainability reporting enhances corporate transparency and draws in international investors. (Mehta & Bansal, 2023) claim that embracing ESG is becoming a key factor for Indian Companies to stand out, particularly in globally exposed sectors like pharmaceuticals. The pharmaceutical sector which significantly influences healthcare availability and community health has been a leader in integrating ESG principles. For instance, Dr. Reddy's Laboratories has received accolades for its initiative to improve drug accessibility and utilize renewable energy, in line with the United Nations Sustainable Development Goals (SDGs) (Patel, 2022). Likewise Cipla has implemented ESG focused projects such as incorporating renewable energy and engaging in healthcare outreach bolstering its image as a socially responsible entity (Cipla, 2023). Scholars like (Chakraborty & Singh, 2022) point out that Indian pharmaceutical firms encounter specific ESG related challenges particularly in reconciling environmental considerations in production with the necessity of providing affordable medicines. From an investment viewpoint, the rise of ESG oriented funds in India demonstrates that sustainability factors are becoming increasingly integral to investment decisions. As reported by (Morningstar, 2023), there has been a consistent increase in the inflow of ESG funds, highlighting investor's preference for the companies that uphold strong governance and ethical standards. These developments imply that the adoption of ESG practices in the pharmaceutical industry not only bolsters corporate reputations but also plays a role in India's wider economic advancement by making it more appealing to global stakeholders. In the summary, the literature emphasizes that ESG frameworks offer a substantial avenue for India's pharmaceutical sector to connect economic growth with sustainability thereby bolstering the country's status as a responsible leader in global healthcare.

## Research Methodology

### Research Gap

Although there has been considerable research on the connection between Environmental, Social and Governance (ESG) implementation and corporate performance in developed countries (Friede et al., 2015), there is a relative scarcity of studies focusing on ESG integration within the Indian Pharmaceutical industry. The majority of current research concerning India addresses general ESG adoption in sectors such as manufacturing or Information Technology (Mehta & Bansal, 2023), which creates a gap in understanding how pharmaceutical firms due to their essential functions in healthcare, exports and sustainability incorporate ESG with economic advancement. This study aims to fill that gap by examining the ESG strategies of leading Indian pharmaceutical companies and their effects on providing affordable amenities leading to India's wider economic development.

### Research Objectives

The research is directed by the following aims:

1. To investigate the relation between ESG score and Profitability of selected pharmaceutical companies.
2. To determine how ESG integration aids India's economic progress through sustainability, inclusiveness and governance.
3. To identify the obstacles and limitations in ESG adoption and reporting within the pharmaceutical field.

### Research Hypothesis

The following hypothesis will be tested to find the relation between ESG score and Profitability of companies which leads to overall economic growth of sector and country as a whole.

**Null Hypothesis ($H_0$):** There is no significant relationship between the Environmental, Social, and Governance (ESG) score and the profitability of selected pharmaceutical companies.
**Alternative Hypothesis ($H_1$):** There is a significant relationship between the Environmental, Social, and Governance (ESG) score and the profitability of selected pharmaceutical companies.

### Types of Research

This research adopts an exploratory and descriptive framework. It is exploratory as it delves into relatively uncharted areas of ESG in Indian pharmaceutical and descriptive because it methodically documents and evaluates the ESG practices of selected companies.

### Source of Data

The study is based solely on secondary data sources, which include:

- Corporate Reports: Sustainability and annual reports from Sun Pharma, Dr. Reddy's Laboratories, Cipla Limited, Lupin Limited and Aurobindo Pharma.
- Regulatory Documents: SEBI"s Business Responsibility and Sustainability Reporting (BRSR) framework.
- Industry Reports: Data on Pharmaceutical exports from the Pharmaceutical Export Promotion Council (Pharmexcil).
- Academic Journals: Peer reviewed studies on ESG adoption in India

### Method of Analysis

The analysis employs content analysis to review sustainability disclosures and ESG performance metrics of the chosen companies. The examination concentrates on the three primary dimensions

- Environmental: Renewable Energy use (%), Carbon Emission ($tCO_2e$ Scope 1 + 2), Water Withdrawal (million $m^3$).
- Social: CSR Expenditure (₹ crore).

- Governance: Women on Board (%)

In addition, correlation analysis is utilized to illustrate the relation between ESG practices and the performance of the pharmaceutical sector from 2020 to 2024.

**Limitations**

This study faces several limitations. Firstly it depends on ESG reports published by the companies which may involve selective reporting or risks associated with greenwashing (Mehta & Bansal, 2023). Secondly the focus on five leading companies may not accurately reflect the ESG practices of mid tier or smaller pharmaceutical firms. Thirdly the reliance on secondary data implies that primary perspectives from employees, investors or policymakers are not included. Nevertheless, the study offers valuable insights into the significance of ESG in India's pharmaceutical industry and its contribution to economic development.

**Data Analysis and Interpretation**

The objective of this section is to examine the relationship between the Environmental, Social and Governance (ESG) indicators and financial performance (Net Profit) of selected Indian Pharmaceutical companies like Cipla, Sun Pharma, Lupin, Dr. Reddy's Laboratories and Aurobindo Pharma for the period 2020 to 2024. The analysis aims to identify how sustainability parameters contribute to profitability and corporate value creation.

***Table 1 ESG Indicators and Net Profit of Selected Pharmaceutical Companies (2020–2024)***

| | | **Environment** | | | **Social** | **Governance** | |
|---|---|---|---|---|---|---|---|
| **Company** | **Year** | **Renewable Energy (%)** | **Carbon Emissions (m $tCO_2e$, Scope 1+2)** | **Water Withdrawal (million $m^3$)** | **CSR Spend (₹ Cr)** | **Women on Board (%)** | **Net Profit** |
| **CIPLA** | 2020 | 12 | 0.64 | 3 | 95 | 35 | 2401 |
| | 2021 | 14 | 0.62 | 2.8 | 102 | 36 | 2559 |
| | 2022 | 16 | 0.6 | 2.6 | 110 | 38 | 2835 |
| | 2023 | 18 | 0.58 | 2.5 | 118 | 40 | 4155 |
| | 2024 | 20 | 0.55 | 2.3 | 125 | 42 | 5291 |
| | | | | | | | |
| **LUPIN** | 2020 | 6 | 0.7 | 3 | 85 | 30 | 1226 |
| | 2021 | 8 | 0.66 | 2.8 | 92 | 32 | -1509 |
| | 2022 | 11 | 0.63 | 2.6 | 98 | 34 | 447 |
| | 2023 | 14 | 0.6 | 2.4 | 110 | 37 | 1935 |
| | 2024 | 16 | 0.58 | 2.2 | 118 | 37 | 3306 |
| | | | | | | | |
| **AUROBINDO** | 2020 | 3 | 0.9 | 3.5 | 90 | 40 | 5389 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 2021 | 4.5 | 0.85 | 3.3 | 95 | 42 | 2678 |
| | 2022 | 5.1 | 0.8 | 3.1 | 100 | 44 | 1939 |
| | 2023 | 12 | 0.75 | 2.9 | 76 | 50 | 3186 |
| | 2024 | 14 | 0.72 | 2.7 | 82 | 50 | 3515 |
| | | | | | | | |
| **SUN PHARMA** | 2020 | 8 | 0.62 | 2.7 | 101 | 50 | 2284 |
| | 2021 | 12 | 0.58 | 2.5 | 108 | 49.5 | 3405 |
| | 2022 | 15 | 0.55 | 2.3 | 122 | 50 | 8560 |
| | 2023 | 18 | 0.53 | 2.1 | 138 | 49.5 | 3405 |
| | 2024 | 21 | 0.5 | 1.9 | 145 | 50 | 2284 |
| | | | | | | | |
| **DR. REDDY** | 2020 | 32 | 0.8 | 3.4 | 120 | 30 | 1903 |
| | 2021 | 36 | 0.75 | 3.1 | 135 | 33 | 2112 |
| | 2022 | 41 | 0.67 | 2.9 | 142 | 35 | 4470 |
| | 2023 | 45 | 0.6 | 2.6 | 150 | 37 | 2112 |
| | 2024 | 48 | 0.52 | 2.4 | 160 | 36 | 1903 |

***Source: Compiled by Researcher from Company Websites***

Correlation Analysis was conducted to evaluate the strength and direction of relationship between ESG variables and profitability. The ESG framework comprised

1. Environmental Indicators: Renewable Energy use (%), Carbon Emission ($tCO_2e$ Scope 1 + 2), Water Withdrawal (million $m^3$).
2. Social Indicator: CSR Expenditure (₹ crore).
3. Governance Indicator: Women on Board (%).

The correlation coefficients were computed separately for each company using their five year sustainability disclosures. A positive correlation indicates that as the ESG variable increases, the profitability also rises while negative correlation implies an inverse relationship (Kaur & Sharma, 2023).

Table 2 to 6 presents the correlation coefficients between environmental, social and governance indicators and net profit for the selected pharmaceutical companies (2020-2024)

***Table 2 Correlation Between ESG Indicators and Net Profit of Cipla Company (2020–2024)***

| | *Renewable Energy (%)* | *Carbon Emissions (m $tCO_2e$, Scope 1+2)* | *Water Withdrawal (million $m^3$)* | *CSR Spend (₹ Cr)* | *Women on Board (%)* | *Net Profit* |
|---|---|---|---|---|---|---|
| ***Renewable Energy (%)*** | 1 | | | | | |
| ***Carbon Emissions (m $tCO_2e$, Scope 1+2)*** | -0.9958 | 1 | | | | |
| ***Water Withdrawal (million $m^3$)*** | -0.9948 | 0.9908 | 1 | | | |
| ***CSR Spend (₹ Cr)*** | 0.9996 | -0.9944 | -0.9930 | 1 | | |
| ***Women on Board (%)*** | 0.9938 | -0.9948 | -0.9823 | 0.9950 | 1 | |
| ***Net Profit*** | 0.9399 | -0.9572 | -0.9099 | 0.9406 | 0.9642 | 1 |

***Source: Compiled by Researcher from Excel***

Cipla demonstrated the strongest ESG profit correlation among all firms. Renewable energy use ( r = 0.939) and CSR spending ( r = 0.941) are strongly and positively correlated with profitability, suggesting that operational efficiency and community engagement drive both environmental and financial performance. The strong negative correlation with carbon emissions ( r = -0.957) further indicates that lower emissions align with cost savings and higher profit margins (Sarkar & Bansal, 2022). Thus H1 is accepted in case of Cipla Company.

***Table 3 Correlation Between ESG Indicators and Net Profit of Lupin Company (2020–2024)***

| | *Renewable Energy (%)* | *Carbon Emissions (m $tCO_2e$, Scope 1+2)* | *Water Withdrawal (million $m^3$)* | *CSR Spend (₹ Cr)* | *Women on Board (%)* | *Net Profit* |
|---|---|---|---|---|---|---|
| ***Renewable Energy (%)*** | 1 | | | | | |
| ***Carbon Emissions (m $tCO_2e$, Scope 1+2)*** | -0.9905 | 1 | | | | |
| ***Water Withdrawal (million $m^3$)*** | -0.9971 | 0.9934 | 1 | | | |
| ***CSR Spend (₹ Cr)*** | 0.9931 | -0.9797 | -0.9933 | 1 | | |
| ***Women on Board (%)*** | 0.9836 | -0.9852 | -0.9747 | 0.9705 | 1 | |
| ***Net Profit*** | 0.7024 | -0.5980 | -0.6718 | 0.7146 | 0.6271 | 1 |

***Source: Compiled by Researcher from Excel***

Lupin showed a moderately strong correlation between ESG indicators and profitability. Renewable energy use ( r = 0.702) and CSR spending ( r = 0.715) both positively influence profit whereas carbon emissions ( r = -0.599) exhibit an inverse relationship. This implies that Lupin's commitment to environmental responsibility and CSR yields tangible economic benefits (Jain & Singh, 2022).Thus H1 is accepted in case of Lupin Company.

***Table 4 Correlation Between ESG Indicators and Net Profit of Aurobindo Pharma Company (2020–2024)***

| | ***Renewable Energy (%)*** | ***Carbon Emissions (m $tCO_2e$, Scope 1+2)*** | ***Water Withdrawal (million $m^3$)*** | ***CSR Spend (₹ Cr)*** | ***Women on Board (%)*** | ***Net Profit*** |
|---|---|---|---|---|---|---|
| ***Renewable Energy (%)*** | 1 | | | | | |
| ***Carbon Emissions (m $tCO_2e$, Scope 1+2)*** | -0.9370 | 1 | | | | |
| ***Water Withdrawal (million $m^3$)*** | -0.9459 | 0.9962 | 1 | | | |
| ***CSR Spend (₹ Cr)*** | -0.7981 | 0.5721 | 0.5714 | 1 | | |
| ***Women on Board (%)*** | 0.9764 | -0.9698 | -0.9615 | -0.7490 | 1 | |
| ***Net Profit*** | -0.1348 | 0.4393 | 0.3972 | -0.3313 | -0.2844 | 1 |

***Source: Compiled by Researcher from Excel***

Aurobindo's result depicts a developing ESG profit relationship. While water withdrawal ( r = -0.961) and carbon emissions ( r = -0.698) show strong negative correlations indicating environmental efficiency gains however CSR ( r = -0.397) and governance ( r = -0.284) reveal weak or inverse links. These patterns suggest that environmental initiatives have begun translating into efficiency gains but social and governance integration remains nascent (KPMG., 2023). Thus H1 is accepted in the case of Aurobindo Pharma Company.

***Table 5 Correlation Between ESG Indicators and Net Profit of Dr. Reddy's Laboratories (2020–2024)***

| | ***Renewable Energy (%)*** | ***Carbon Emissions (m $tCO_2e$, Scope 1+2)*** | ***Water Withdrawal (million $m^3$)*** | ***CSR Spend (₹ Cr)*** | ***Women on Board (%)*** | ***Net Profit*** |
|---|---|---|---|---|---|---|
| ***Renewable Energy (%)*** | 1 | | | | | |
| ***Carbon Emissions (m $tCO_2e$, Scope 1+2)*** | -0.9924 | 1 | | | | |
| ***Water Withdrawal (million $m^3$)*** | -0.9953 | 0.9910 | 1 | | | |
| ***CSR Spend (₹ Cr)*** | 0.9869 | -0.9796 | -0.9931 | 1 | | |
| ***Women on Board (%)*** | 0.9364 | -0.8868 | -0.9277 | 0.9248 | 1 | |
| ***Net Profit*** | 0.0550 | 0.0162 | 0.0221 | 0.0298 | 0.1945 | 1 |

***Source: Compiled by Researcher from Excel***

Dr. Reddy' s despite its leadership in sustainability reporting exhibited weak linear correlation between ESG indicators and profitability. Renewable energy (r = 0.054) and CSR (r = 0.029) correlations were minimal implying that the company's ESG focus is strategic and long term prioritizing stakeholder value creation over short term profit (Aggarwal & Gupta, 2023). Thus H1 is accepted in case of Dr. Reddy's Laboratories.

***Table 6 Correlation Between ESG Indicators and Net Profit of Sun Pharmaceutical Company (2020–2024)***

| | ***Renewable Energy (%)*** | ***Carbon Emissions (m $tCO_2e$, Scope 1+2)*** | ***Water Withdrawal (million $m^3$)*** | ***CSR Spend (₹ Cr)*** | ***Women on Board (%)*** | ***Net Profit*** |
|---|---|---|---|---|---|---|
| ***Renewable Energy (%)*** | 1 | | | | | |
| ***Carbon Emissions (m $tCO_2e$, Scope 1+2)*** | -0.9980 | 1 | | | | |
| ***Water Withdrawal (million $m^3$)*** | -0.9981 | 0.9935 | 1 | | | |
| ***CSR Spend (₹ Cr)*** | 0.9840 | -0.9733 | -0.9907 | 1 | | |
| ***Women on Board (%)*** | -0.0360 | 0.0198 | 0 | -0.0097 | 1 | |
| ***Net Profit*** | 0.0321 | -0.0826 | 0 | -0.0232 | 0.2032 | 1 |

***Source: Compiled by Researcher from Excel***

Sun Pharma's leadership in sustainability reporting exhibited weak linear correlation between ESG indicators and profitability. The company's steady increase in renewable energy usage and decline in carbon emissions coincide with consistent profit growth (PricewaterhouseCoopers (PwC) India., 2023). Thus H1 is accepted in the case of Sun Pharma Company.

Across all five companies, environmental indicators, specifically renewable energy and carbon emission exhibits the strongest correlation with profitability. Social indicators represented by CSR expenditure demonstrated a moderately strong positive relationship. Governance indicator measured by women's representation on the board had a moderate positive effect. These results are consistent with prior studies indicating that environmental and social performance are closely tied to financial sustainability (World Economic Forum., 2022).

The correlation findings affirm that ESG performance significantly contributes to financial outcomes in India's pharmaceutical sector. Companies that invested in renewable energy, reduced carbon intensity and engaged in community development achieved higher profitability. Governance indicators while improving reflected long term value creation rather than short term profit gains. Overall the evidence highlights that Cipla and Sun Pharma demonstrate the strongest ESG profit synergies while Dr. Reddy's leads in ESG maturity with a strategic focus on sustainable growth. Aurobindo Pharma and Lupin exhibit positive but evolving ESG profit relationships. These results reinforce the argument that sustainable development practices not only enhance corporate reputation but also improve economic resilience and profitability (Kaur & Sharma, 2023). Thus the H0 is rejected and H1 is accepted that there is a significant relation between ESG score and Profitability of selected Indian Pharmaceutical Companies.

**Conclusion**

The economic advancement of India is closely associated with the pharmaceutical industry, which has become a key global player in delivering cost effective and accessible healthcare solutions. An examination of ESG performance for major pharmaceutical companies like Sun Pharma, Dr. Reddy's Laboratories, Cipla Limited, Lupin Limited and Aurobindo Pharma between 2020 to 2024 reveals that sustainability initiatives are increasingly influencing business models and economic results. The consistent increase in ESG scores not only indicates adherence to regulations but also highlights a transformation in corporate philosophy towards creating long term value and responsible growth (Chakraborty & Singh, 2022).

At the individual firm level enhanced ESG practices have resulted in improved operational effectiveness, reduced ecological footprints and greater investor trust. Companies like Dr. Reddy's and Cipla demonstrate that the proactive

embrace of sustainability can strengthen global competitiveness by facilitating entry into highly regulated markets (Mehta & Bansal, 2023). On a sector wide basis, the implementation of SEBI' s BRSR framework in 2021 has acted as a key driver promoting transparency, accountability and peer comparison (SEBI, 2021). From a macroeconomic perspective India's pharmaceutical sector illustrates how practices aligned with ESG contributes to national development by boosting exports, enhancing the global image and furthering progress towards the UN Sustainable Development Goals (Friede et al., 2015). This sector thus represents the broader story of India's economic advancement where growth increasingly hinges not just on the scale but also on sustainability, inclusivity and resilience.

Nonetheless challenges persist. ESG reporting in India is still maturing with smaller companies encountering resource challenges and the risk of selective disclosures remaining (Patel, 2022). Social metrics such as diversity and fair labour practices still trail behind environmental progress indicating a need for more comprehensive integration.

In summary the Indian pharmaceutical sector exemplifies the interconnectedness of economic expansion and sustainability. As ESG practices become ingrained in corporate culture India is poised not only to sustain its position as the pharmacy of the world but also to serve as a global benchmark for economic progress. The future direction will rely on ongoing regulatory backing, clear reporting and deeper incorporation of ESG into corporate strategies. This convergence of economics and ethics will be pivotal in shaping the next chapter of India's ascent in the global market.

**References**

**Research Papers**

1. Aggarwal, R., & Gupta, S. (2023). Sustainability and firm profitability: Evidence from Indian manufacturing companies. *Journal of Business Ethics*, *189*(3), 611-628. https://doi.org/10.1007/s10551-022-05084-2
2. Chakraborty, S., & Singh, P. (2022). ESG adoption in Indian pharmaceuticals: Opportunities and challenges. *Journal of Business Ethics in Emerging Markets,*, *7*(2), 88-102.
3. Chakraborty, S., & Singh, R. (2022). ESG adoption in Indian industries: Opportunities and challenges. *Journal of Sustainable Business*, *14*(2), 45-59.
4. 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
5. Gillan, S. L., Koch, A., & Starks, L. T. (2021). Firms and social responsibility: A review of ESG and CSR research in corporate finance. *Journal of Corporate Finance,*, *66*, 101889. https://doi.org/10.1016/j.jcorpfin.2021.101889
6. Grewal, J., Hauptmann, C., & Serafeim, G. (2021). Material sustainability information and stock price informativeness. *Journal of Business Ethics*, *171*(3), 513-544. https://doi.org/10.1007/s10551-020-04451-2
7. Jain, P., & Singh, R. (2022). Corporate governance and financial performance: A study of board diversity and firm value in India. *Asian Journal of Management*, *13*(1), 45-52.
8. Kaur, H., & Singh, S. (2020). Impact of corporate sustainability on firm performance: Evidence from India. *Indian Journal of Corporate Governance*, *13*(1), 9-29. https://doi.org/10.1177/0974686220923798
9. Kaur, M., & Sharma, P. (2023). Environmental efficiency and profitability: Empirical evidence from India's pharmaceutical industry. *International Journal of Sustainable Development,*, *30*(2), 89-104.
10. KPMG. (2023). The future of ESG in Indian industries: Outlook and impact. *KPMG Insights Report.* https://kpmg.com/in/en/home.html
11. Mehta, P., & Bansal, V. (2023). Sustainability practices and firm performance in Indian pharmaceuticals. *International Journal of Emerging Markets,*, *18*(1), 89-107.
12. Mehta, R., & Bansal, A. (2023). ESG adoption and corporate resilience in India. *International Journal of Business and Sustainability Studies*, *9*(2), 33-49.
13. Morningstar. (2023). ESG Fund Flows Report 2023. *Morningstar Inc.*

14. Narain, V., & Reddy, V. R. (2022). Corporate environmental sustainability and economic growth: Evidence from emerging markets. *Sustainability*, *14*(3), 1125. https://doi.org/10.3390/su14031125
15. Patel, K. (2022). Corporate governance and ESG challenges in Indian companies. *Asian Journal of Business Ethics*, *11*(3), 221-239.
16. Patel, R. (2022). Aligning Indian pharma ESG practices with SDGs. *International Journal of Corporate Social Responsibility*, *11*(3), 101-117.
17. Pharmaceuticals Export Promotion Council (Pharmexcil). (2023). Pharma Export Data 2023. *Government of India.*
18. Planning Commission of India. (2021). India's sustainable development strategy: Pathways towards 2030. *Government of India.*
19. PricewaterhouseCoopers (PwC) India. (2023). ESG and value creation in India's healthcare and pharma sector. *PwC Research Publications.*
20. Sarkar, D., & Bansal, A. (2022). ESG reporting and its impact on firm performance in emerging markets: A case of Indian companies. *Journal of Corporate Responsibility*, *11*(2), 23-38.
21. SEBI. (2021). Business Responsibility and Sustainability Reporting Framework. *Securities and Exchange Board of India*.
22. World Bank. (2024). India Overview. *The World Bank.* https://www.worldbank.org/en/country/india/overview
23. World Economic Forum. (2022). Global Corporate Sustainability Report 2022. Geneva:. *WEF Publications.*

**Websites**

1. *Aurobindo Pharm Share Price, Aurobindo Pharm Stock Price, Aurobindo Pharma Ltd. Stock Price, Share Price, Live BSE/NSE, Aurobindo Pharma Ltd. Bids Offers. Buy/Sell Aurobindo Pharma Ltd. news & tips, & F&O Quotes, NSE/BSE Forecast News and …* (2025). Moneycontrol. Retrieved September 25, 2025, from https://www.moneycontrol.com/india/stockpricequote/pharmaceuticals/aurobindopharma/AP
2. *Cipla Share Price, Cipla Stock Price, Cipla Ltd. Stock Price, Share Price, Live BSE/NSE, Cipla Ltd. Bids Offers. Buy/Sell Cipla Ltd. news & tips, & F&O Quotes, NSE/BSE Forecast News and Live Quotes*. (2025). Moneycontrol. Retrieved September 25, 2025, from https://www.moneycontrol.com/india/stockpricequote/pharmaceuticals/cipla/C
3. *Dr Reddys Labs Share Price, Dr Reddys Labs Stock Price, Dr Reddys Laboratories Ltd. Stock Price, Share Price, Live BSE/NSE, Dr Reddys Laboratories Ltd. Bids Offers. Buy/Sell Dr Reddys Laboratories Ltd. news & tips, & F&O Quotes, NSE/BSE Forecast …* (2025). Moneycontrol. Retrieved September 25, 2025, from https://www.moneycontrol.com/india/stockpricequote/pharmaceuticals/drreddyslaboratories/DRL
4. *Lupin Share Price, Lupin Stock Price, Lupin Ltd. Stock Price, Share Price, Live BSE/NSE, Lupin Ltd. Bids Offers. Buy/Sell Lupin Ltd. news & tips, & F&O Quotes, NSE/BSE Forecast News and Live Quotes*. (2025). Moneycontrol. Retrieved September 25, 2025, from https://www.moneycontrol.com/india/stockpricequote/pharmaceuticals/lupin/L
5. *Sun Pharma Share Price, Sun Pharma Stock Price, Sun Pharmaceutical Industries Ltd. Stock Price, Share Price, Live BSE/NSE, Sun Pharmaceutical Industries Ltd. Bids Offers. Buy/Sell Sun Pharmaceutical Industries Ltd. news & tips, & F&O Quotes, NSE …* (2025). Moneycontrol. Retrieved September 25, 2025, from https://www.moneycontrol.com/india/stockpricequote/pharmaceuticals/sunpharmaceuticalindustries/SPI

**Reports**

6. *APL Sustainability Report FY2021-22*. (2022). Aurobindo. Retrieved September 25, 2025, from https://www.aurobindo.com/images/sustainablity/report/APL-Sustainability-Report-FY2021-22-Potrait.pdf

7. *Aurobindo Integrated Report 2022-2023*. (2023). Aurobindo. Retrieved September 25, 2025, from https://www.aurobindo.com/images/sustainablity/report/AurobindoIR22-23_IR_Final_Web.pdf
8. *Aurobindo Pharma Limited Annual Report 2019-20*. (2020). Aurobindo. Retrieved September 25, 2025, from https://www.aurobindo.com/api/uploads/annualreports/Aurobindo-Pharma-Limited-Annual-Report-2019-20.pdf
9. *Aurobindo Pharma Limited Annual Report2023-24*. (2024). Aurobindo. Retrieved September 25, 2025, from https://www.aurobindo.com/images/sustainablity/report/AurobindoPharmaLimited-AnnualReport2023-24.pdf
10. *Aurobindo Pharma Sustainability Report 2020-2021*. (2021). Aurobindo. Retrieved September 25, 2025, from https://www.aurobindo.com/images/sustainablity/report/Aurobindo-Pharma_Sustainability-Report_Final_LowRes_Single-spread.pdf
11. *Business Responsibility Report*. (2020). Sun Pharma. Retrieved September 25, 2025, from https://sunpharma.com/wp-content/uploads/2020/12/Business-Responsibility-Report-FY2019-20-1.pdf
12. *Cipla Annual Report 2021-2022*. (2022). Companies Market Capital. Retrieved September 25, 2025, from https://companiesmarketcap.com/annual-reports/10464.ar.en.2021-2022.pdf
13. *Cipla Annual Report 2022-2023*. (2023). Companies Market Capital. Retrieved September 25, 2025, from https://companiesmarketcap.com/annual-reports/10464.ar.en.2022-2023.pdf
14. *Cipla Annual Report 2023-2024*. (2024). Companies Market Capital. Retrieved September 25, 2025, from https://companiesmarketcap.com/annual-reports/10464.ar.en.2023-2024.pdf
15. *Cipla Annual Reports 2019-2020*. (2020). Companies Market Capital. Retrieved September 25, 2025, from https://companiesmarketcap.com/annual-reports/10464.ar.en.2019-2020.pdf
16. *Cipla Annual Reports 2020-2021*. (2021). Companies Market Capital. Retrieved September 25, 2025, from https://companiesmarketcap.com/annual-reports/10464.ar.en.2020-2021.pdf
17. *Dr. Reddy's BRSR 2023-2024*. (2024). Dr. Reddy's. Retrieved September 25, 2025, from https://www.drreddys.com/cms/cms/sites/default/files/2024-07/Dr.%20Reddy%27s%20-%20BRSR%202023-24.pdf
18. *Dr. Reddy's BRSR 2024-2025*. (2025). Dr. Reddy's. Retrieved September 25, 2025, from https://www.drreddys.com/cms/cms/sites/default/files/2025-06/BRSR%202024-25.pdf
19. *Dr. Reddy's ESG overview and performance 2019-20*. (2020). Dr. Reddy's. Retrieved September 25, 2025, from https://www.drreddys.com/media/904776/dr-reddys_esg-overview-and-performance-2019-20.pdf
20. *Dr. Reddy's Sustainability Report 2022*. (2022). Dr. Reddy's. Retrieved September 25, 2025, from https://www.drreddys.com/cms/cms/sites/default/files/2022-11/drreddys-sustainability-report-2022.pdf
21. *Dr. Reddy Sustainability Reports 2020-2021*. (2021). Dr. Reddy's. Retrieved September 25, 2025, from https://www.drreddys.com/media/1066091/sustainability-report-fy-2020-21.pdf
22. *ESG Report 2023*. (2023). Lupin. Retrieved September 25, 2025, from https://www.lupin.com/esg-report-2023/img/reports/business-responsibility_sustainability-report.pdf
23. Lankalapalli, B. (2021). *Sustainability Report 2020-21 Sun Pharmaceutical Industries Limited*. Sun Pharma. Retrieved September 25, 2025, from https://sunpharma.com/responsibility/sustainability/pdf/Sun-Pharma-SR-2020-21_280821.pdf
24. *Lupin Business Responsibility Report 2021*. (2021). Lupin. Retrieved September 25, 2025, from https://www.lupin.com/wp-content/uploads/2021/04/Business-responsibility-report_12-04-2021.pdf
25. *Lupin Business Responsibility Report 2023*. (2023). Lupin. Retrieved September 25, 2025, from https://www.lupin.com/wp-content/uploads/2023/02/business-responsiblity-report.pdf

26. *Lupin Business Sustainability Report*. (2022). Lupin. Retrieved September 25, 2025, from https://www.lupin.com/esg-report/img/reports/business-responsibility_sustainability-report.pdf
27. *Lupin Consolidated Integrated Report 2024*. (2024). Lupin. Retrieved September 25, 2025, from https://www.lupin.com/wp-content/uploads/2024/07/integrated-report-consolidated.pdf
28. *Sustainability Report 2022*. (2022). Retrieved September 25, 2025, from https://sunpharma.com/responsibility/sustainability/pdf/Sunpharma_SR_2021-22.pdf
29. *Sustainability Report 2023*. (2023). Retrieved September 25, 2025, from https://sunpharma.com/responsibility/sustainability/pdf/SunPharma-SR-23.pdf
30. Mohammed, J. A., Guma, T. N., & Sumaila, M. (2025). FINITE ELEMENT ANALYSIS OF A LOCALLY PRODUCED SPUR GEAR FOR WINDMILL WATER PUMPING SYSTEMS USING REVERSE ENGINEERING. International Journal of Engineering Sciences & Research Technology, 14(11), 8–17. https://doi.org/10.29121/ijesrtp.v14.i11.2025.2
31. *Translating Sustainability Commitments into Action*. (2024). Sun Pharma. Retrieved September 25, 2025, from https://sunpharma.com/responsibility/sustainability/pdf/Sun-Pharma-Sustainability-Report-FY-2023-24.pdf