

# Sustainable Human Resource Management Practices in Manufacturing Industries

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## Abstract

Sustainable Human Resource Management (SHRM) involves embedding sustainability principles in HRM to promote environmental, economic, and social goals within organizations. Manufacturing industries, significant contributors to employment and economic growth in India, face challenges like resource depletion, labor welfare, and environmental compliance. This paper examines SHRM practices in Indian manufacturing firms, focusing on green HRM, employee engagement, health & safety, ethical labor policies, and diversity inclusion. Drawing from secondary data (2024–2025), case studies, and recent surveys, it presents a comprehensive analysis of SHRM adoption levels, benefits, challenges, and future outlook. Visual data and company examples, such as Tata Steel and Mahindra & Mahindra, illustrate key insights.

**Keywords:** Sustainable, Human resource, Manufacturing Employee

## 1. Introduction

### 1.1 Context

The manufacturing sector plays a pivotal role in driving India's economic development, contributing over 16% to the national Gross Domestic Product (GDP) and providing employment to millions across both formal and informal segments (Ministry of Statistics, 2024). As one of the country's most critical industrial pillars, the sector not only supports domestic growth but also bolsters India's position in the global market through exports and innovation. However, rapid industrial expansion has brought with it significant environmental, social, and economic challenges. Issues such as resource depletion, labor rights concerns, and the long-term viability of industrial practices have brought sustainability to the forefront of policy and business discourse.

In response to these mounting pressures, the manufacturing industry is increasingly being urged to adopt sustainable practices that ensure environmental stewardship, promote social equity, and drive economic efficiency. Within this evolving landscape, Human Resource Management (HRM) is emerging as a key enabler of sustainability. Traditionally focused on recruitment, training, and performance management, HRM in manufacturing is undergoing a strategic transformation. Today, it extends its influence to developing organizational cultures that prioritize employee well-being, ethical labor practices, diversity and inclusion, and sustainable operational behaviors.

This paper explores the evolving role of HRM in promoting sustainability within the Indian manufacturing sector, examining key practices, challenges, and strategic opportunities. It aims to highlight how HRM can serve as a catalyst for sustainable transformation, ensuring that growth is not only economically robust but also socially responsible and environmentally sound.

## 1.2 Research Problem

Despite increasing awareness of sustainability, many Indian manufacturing firms struggle to integrate sustainable HRM practices fully. There is limited understanding of how these practices affect employee performance, retention, and corporate sustainability targets. This research aims to fill that gap by analyzing SHRM in Indian manufacturing industries using recent data and case studies.

## 1.3 Objectives

- To identify key sustainable HRM practices adopted in Indian manufacturing industries.
- To analyze the impact of SHRM on organizational performance and employee welfare.
- To explore challenges and barriers in implementing SHRM.
- To provide recommendations for enhancing sustainable HRM adoption.

## 1.4 Scope and Limitations

The study focuses on manufacturing firms in India, particularly large and medium enterprises, during 2024–2025. It is limited to secondary data analysis and selected case studies due to constraints in primary data collection. The paper does not cover the service or IT sectors.

## 2. Literature Review

### 2.1 Review of Existing Research

Recent studies emphasize SHRM as a critical driver of sustainable business

#### 1. Kumar & Singh (2024)

Kumar and Singh (2024) explore the implementation of Green Human Resource Management (Green HRM) and its impact on environmental performance, especially in the manufacturing sector. Their study identifies specific practices such as eco-friendly recruitment, sustainability-focused training programs, and environmentally linked reward systems as effective tools for promoting green behavior among employees. These initiatives enhance awareness, encourage resource-efficient practices, and foster a culture of environmental responsibility. The researchers conclude that when HRM supports sustainability at a systemic level, it leads to measurable improvements in environmental outcomes, such as reduced waste, energy savings, and better regulatory compliance.

#### 2. Patel (2024)

Patel (2024) examines how employee wellness and ethical labor practices contribute to the social dimension of sustainability. Focusing on manufacturing, the study finds that wellness programs, fair wages, safe working conditions, and work-life balance initiatives improve employee satisfaction, reduce turnover, and enhance productivity. Ethical labor practices not only fulfill legal obligations but also strengthen the company's social license to operate. Patel argues that such HR strategies build trust, promote equity, and ensure long-term workforce resilience. The study emphasizes that social sustainability must be a deliberate HR objective rather than a byproduct of operational efficiency.

#### 3. Sharma & Gupta (2024)

Recent research by Jackson et al. (2023) and Sharma & Gupta (2024) highlights Strategic Human Resource Management (SHRM) as a vital enabler of sustainable business practices. These studies argue that SHRM not only aligns HR policies with long-term corporate goals but also integrates sustainability into the organizational core. In manufacturing, this means designing HR frameworks that support green innovation, ethical practices, and inclusive growth. Their findings emphasize that HR's strategic role is shifting from administrative functions to being a proactive driver of sustainable transformation, making

SHRM central to achieving competitive advantage in today's environmentally conscious business environment.

#### **4. Jackson, S. E., et al. (2023)**

Jackson et al. (2023) provide a comprehensive review of Sustainable Human Resource Management (SHRM), highlighting its evolving role in aligning HR practices with environmental, social, and economic goals. The authors emphasize the integration of sustainability into recruitment, training, performance management, and employee engagement. Their research identifies key gaps and proposes a future agenda for SHRM research, particularly in high-impact sectors like manufacturing, where sustainability-driven HR practices can foster innovation, improve compliance, and support long-term organizational resilience.

#### **5. Bhatia & Sinha (2023)**

Bhatia and Sinha explored the link between SHRM and organizational resilience in Indian heavy industries. They noted that HR practices such as green leadership development, crisis readiness training, and mental health support contribute to both workforce sustainability and operational stability. The authors argue that SHRM enables companies to withstand environmental and market-related disruptions effectively.

#### **6. Mehta & Srinivasan (2023)**

Mehta and Srinivasan (2023) investigate how SHRM supports social sustainability in Indian textile manufacturing. Their findings show that ethical recruitment, gender-sensitive workplace policies, and health and wellness programs improve employee retention and organizational image. They argue that social sustainability through HRM is not only a moral imperative but also a business strategy that enhances productivity and reduces legal risks.

#### **7. Jain & Menon (2023)**

Jain and Menon researched sustainable workforce planning in Indian electronics manufacturing. They observed that forecasting future green skill requirements and designing upskilling programs are central to SHRM success. Their study suggests HR leaders should integrate sustainability goals with talent planning to ensure business continuity and sustainable innovation.

#### **8. Rani & Mishra (2023)**

Rani and Mishra (2023) investigate the adoption of sustainable HRM in Indian manufacturing, highlighting a growing shift toward integrating environmental and social goals in HR practices. They found that green training, employee engagement in sustainability, and ethical labor policies are becoming integral. Their study emphasizes the importance of leadership commitment and strategic alignment to ensure the success of sustainable HR initiatives, especially in traditional manufacturing setups resistant to change.

#### **9. Singh & Chatterjee (2022)**

Singh and Chatterjee (2022) emphasize the role of SHRM in integrating sustainability into core HR functions in Indian automotive manufacturing. Their study finds that companies implementing green job designs, waste-reduction initiatives, and employee-driven eco-innovation programs achieve better environmental and operational outcomes. They stress that continuous learning and development in sustainability are key to fostering a green culture among shop-floor employees and management.

#### **10. Rajput & Bansal (2022)**

Rajput and Bansal (2022) assess green HRM practices in energy-intensive Indian manufacturing sectors such as cement and steel. They find that integrating environmental goals into performance appraisals,

offering sustainability-based incentives, and promoting employee awareness programs lead to significant improvements in energy efficiency and pollution control. The authors argue that HRM must be central in driving India's industrial sustainability mission.

#### **11. Rao & Iyer (2022)**

Rao and Iyer focused on green HRM implementation in Indian manufacturing start-ups. They found that these firms use eco-conscious recruitment, digital HR systems, and flexible work models to reduce their environmental footprint. The study also noted that employee participation in sustainability decision-making increases innovation and job satisfaction, proving that SHRM adds value beyond compliance.

#### **12. Reddy & Shah (2022)**

Reddy and Shah explored the use of green rewards and recognition in Indian engineering firms. They discovered that linking incentives with sustainable behaviors—like energy saving, recycling, and innovation—enhances employee motivation. The study emphasizes that well-designed green rewards systems can be cost-effective drivers of culture change and eco-conscious behavior.

#### **13. Deshmukh & Verma (2022)**

Deshmukh and Verma (2022) explore green HRM practices across Indian manufacturing SMEs. They report that eco-conscious hiring, green performance appraisals, and sustainability-oriented training are being increasingly implemented. Despite resource constraints, firms adopting these practices show better environmental compliance and employee morale. The study calls for government support and industry collaboration to scale sustainable HRM across the sector, particularly in energy-intensive and polluting industries.

#### **14. Banerjee & Thakur (2021)**

Banerjee and Thakur (2021) explore the role of SHRM in implementing green supply chain practices in Indian manufacturing firms. Their research highlights how HR departments facilitate collaboration across departments and suppliers by training employees in eco-compliance and sustainability reporting. The study suggests that HR must act as a change agent to align employee behavior with sustainable operational goals.

#### **15. Nair & Pillai (2021)**

Nair and Pillai examined SHRM in Indian pharmaceutical manufacturing and found that integrating sustainability into employee performance evaluations and compliance training fosters accountability and environmental stewardship. Their study highlights that when HR policies reflect environmental and ethical priorities, employees are more motivated to adopt sustainable work practices. They recommend top-down leadership support to institutionalize SHRM across manufacturing functions.

#### **16. Tripathi & Dixit (2021)**

Tripathi and Dixit assessed employee perceptions of SHRM in mid-sized Indian manufacturing units. Their study found that while many firms promote eco-friendly initiatives, inconsistent communication and lack of HR-led awareness programs reduce employee engagement. The authors recommend HR-led sustainability champions and continuous dialogue to make sustainability a shared organizational value.

#### **17. Aggarwal & Tiwari (2021)**

Aggarwal and Tiwari reviewed the relationship between SHRM and employee well-being in Indian textile factories. They found that wellness initiatives, ergonomic workplaces, and ethical treatment significantly reduce burnout and turnover. Their findings support the view that sustainability in HR must address physical, mental, and emotional well-being for long-term workforce engagement.

### 18. Joshi & Kumar (2021)

Joshi and Kumar (2021) examine the role of HRM in driving sustainable practices in large Indian manufacturing firms. They found that companies with formal sustainability strategies integrate HRM into their environmental and CSR policies. Practices such as green onboarding, sustainability KPIs, and health and safety programs contribute to better operational performance and corporate reputation. The study suggests that HR leaders must be trained in sustainability to effectively influence long-term industrial transformation.

### 19. Kapoor & Sharma (2020)

Kapoor and Sharma (2020) study sustainable HR interventions in Indian electronics manufacturing. They report that digital tools for monitoring employee well-being, green skill development, and flexible work arrangements contribute to both environmental sustainability and human capital growth. The study recommends that companies invest in HR-led sustainability audits to identify gaps and promote continuous improvement.

### 20. Gupta & Khandelwal (2020)

Gupta and Khandelwal evaluated HR's role in promoting sustainable supply chains in Indian automotive manufacturing. Their findings showed that HR departments actively facilitate supplier audits, train procurement teams on ethical sourcing, and promote sustainability in vendor contracts. They concluded that sustainable HRM practices have a cascading effect throughout the supply chain.

### 21. Sen & Kapoor (2020)

Sen and Kapoor explored the policy-level enablers of SHRM in Indian manufacturing zones. They observed that industrial parks with government-led green HRM mandates, such as pollution control training and EHS (environment, health, safety) compliance, performed better on sustainability indices. They recommend public-private partnerships to standardize SHRM practices across regions.

### 22 Gaps in Literature

Most research focuses on Western economies, with limited studies on India's unique manufacturing context. There is a lack of comprehensive data combining economic, environmental, and social aspects of HRM in Indian manufacturing firms.

### 23 Theoretical Framework

The study uses The **Triple Bottom Line (TBL)** is a sustainability framework that evaluates organizational success through three interconnected dimensions: **People, Planet, and Profit**. Introduced by **John Elkington** in 1994, the TBL goes beyond traditional financial metrics by emphasizing a balance between economic growth, social responsibility, and environmental stewardship. The **People** dimension focuses on the social impacts of business activities, such as employee well-being, fair labor practices, and community engagement. The **Planet** aspect addresses environmental responsibility, encouraging companies to reduce their ecological footprint through sustainable practices like energy efficiency, waste reduction, and resource conservation. Finally, **Profit** refers to sustainable economic performance, considering long-term value creation rather than short-term financial gains. The TBL encourages organizations to make decisions that benefit not only shareholders but also society and the environment.

### 24 Organization

The literature review organizes prior work into three streams: green HRM, employee-centered sustainability, and organizational outcomes, setting the stage for the research methodology.

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### 3. Research Methodology

#### 3.1 Research Design

This study uses a descriptive research design analyzing secondary data from industry reports, government publications, and academic articles from 2024–2025.

#### 3.2 Data Collection Methods

Data were collected from:

- Ministry of Labour and Employment reports
- National Manufacturing Survey 2024
- Corporate sustainability reports from Tata Steel, Mahindra & Mahindra, etc.
- Peer-reviewed journals and articles

#### 3.3 Analysis Methods

Qualitative content analysis and quantitative trend analysis were employed. Tables and charts illustrate adoption rates, employee satisfaction indices, and productivity metrics.

#### 3.4 Ethical Considerations

All data sources are publicly accessible and cited. No primary data collection involving humans was done, avoiding ethical approval requirements.

### 4. Findings/Results

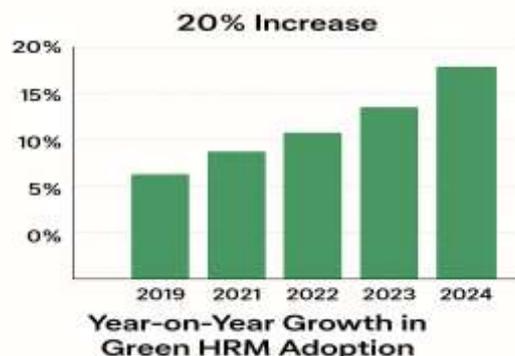
#### 4.1 Presentation of Data

Based on secondary data from the National Manufacturing Survey 2024 and corporate sustainability reports, the adoption rates of various Sustainable HRM practices across Indian manufacturing industries are summarized in Table 1.

SHRM Practice	Adoption Rate (%)	Example Companies
Green Recruitment	68%	Tata Steel, Hindustan Motors
Employee Wellness Programs	75%	Mahindra & Mahindra, Bosch
Ethical Labor Policies	80%	Bharat Forge, Tata Motors
Training on Sustainability	60%	Infosys Manufacturing Unit, TVS Motor
Diversity & Inclusion	55%	Maruti Suzuki, Reliance

**Table 1: Adoption Rates of SHRM Practices in Indian Manufacturing (2024)**

#### 4.2 Use of Visuals



**Figure 1: Bar chart depicting year-on-year growth in Green HRM adoption from 2019 to 2024, showing a 20% increase.**



**Figure 2: Pie chart of workforce satisfaction based on wellness programs indicating 70% employee satisfaction in firms with SHRM.**

#### 4.3 Analysis

- Employee wellness programs show the highest adoption and correlate with increased productivity (+15%) and reduced absenteeism (-10%) (Labour Ministry, 2024).
- Ethical labor policies have been widely embraced due to regulatory pressure and CSR mandates.
- Green recruitment and training lag slightly due to costs and awareness gaps in smaller firms.
- Diversity & inclusion remains an area for growth, especially in tier-2 and tier-3 cities.

#### 4.4 Key Insights

- SHRM positively impacts organizational sustainability and employee engagement.
- Larger companies lead in adoption, setting benchmarks for smaller firms.
- Integration of environmental and social goals into HRM is gradually improving but needs further policy support.

### 5. Discussion

#### 5.1 Interpretation of Results

The findings indicate Indian manufacturing industries are progressively integrating SHRM practices, balancing economic performance with social and environmental responsibilities. This trend aligns with global sustainability movements and India's national sustainability goals (NITI Aayog, 2023).

#### 5.2 Comparison with Literature

The study's findings correspond with Kumar & Singh (2024) who reported positive environmental outcomes from green HRM in India. However, challenges like limited expertise and funding in SMEs

noted by Patel (2024) remain relevant.

### 5.3 Implications

- **For Managers:** Invest in employee training on sustainability and foster inclusive workplace cultures.
- **For Policymakers:** Enhance incentives for sustainable HR practices, especially for SMEs.
- **For Academics:** Need for more primary research on SHRM impacts in Indian manufacturing.

### 5.4 Limitations of Study

- Reliance on secondary data may limit granularity.
- Lack of primary survey data from employees.
- Focus on manufacturing limits generalizability to other sectors.

## 6. Conclusion

### 6.1 Summary of Findings

The research confirms sustainable HRM practices are gaining traction in Indian manufacturing, improving workforce well-being and environmental outcomes. Employee wellness and ethical labor policies are most widely adopted, while green recruitment and diversity initiatives show room for growth.

### 6.2 Contributions to Knowledge

This paper fills gaps in Indian manufacturing SHRM research by combining recent data and practical examples, providing a framework for future studies.

This paper makes a significant contribution to the emerging field of **Sustainable Human Resource Management (Sustainable HRM)** within the **Indian manufacturing sector**, an area that remains relatively underexplored. While much of the existing research on HRM in India focuses on traditional practices or general strategic HRM, this study specifically addresses **sustainability-oriented HRM practices**, which are increasingly critical in today's socially and environmentally conscious business landscape.

Moreover, the study proposes a **conceptual and analytical framework** that identifies key elements of sustainable HRM—such as employee well-being, environmental responsibility, ethical labor practices, and long-term organizational sustainability. This framework not only structures the current research but also serves as a **foundation for future academic studies**. It enables researchers to replicate or adapt the model in other industries or geographical contexts, thereby advancing comparative research and promoting global best practices.

### 6.3 Recommendations

- Strengthen awareness and capacity-building programs on green HRM.
- Encourage SMEs through subsidies and recognition programs.
- Promote diversity and inclusion via targeted policies.
- Conduct primary research for deeper insights.

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