

A Review on Green Human Resource Management in Hospitals: Paving the Way for Sustainable Development Goals



ISBN 978-1-943295-24-1

Shanmuga sundari. M
J. Senthil Velmurugan
M. Surya kumar
Periyar University
(sun_ram12@yahoo.co.in)
(jsenthilv@rediffmail.com)
(suryakumarmprimis@periyaruniversity.ac.in)

This paper aims to elucidate the role of green human resource management in achieving various sustainable development goals. By synthesizing insights from a review sourced from Scopus and Web of Science, it identifies a notable gap in current research: the limited exploration of green HRM practices within the service sector, particularly in hospitals faces unique challenges and opportunities due to their complex operational and regulatory environment. This study not only highlights the absence of focused research but also explores how Green HRM can drive significant improvement in environmental sustainability, operation efficiency, and employee engagement in healthcare settings but also improve employee engagement and organizational efficiency, contributing significantly to the achievement of SDGs using triple bottom line theory. The analysis reveals that the potential contributions to sustainable development remain unexplored in hospitals. This oversight is critical in a hospital. By addressing this gap, the paper aims to provide actionable insights for hospital administrators, and researchers advocating for the adaptation of green HRM strategies that align with broader sustainable objectives in sustainable development goals. The findings will guide future research directions and offer practical recommendations for stakeholders committed to integrating green practices into their HRM frameworks.

Keywords: Environmental Sustainability, Green Human Resource Management, Hospital Administration, Sustainable Development Goal

1. Introduction

In the recent years, the integration of sustainability into business practices has gained significant traction, reflecting a growing recognition of the need to balance financial performance with environmental and social responsibilities. This shift is prominently illustrated in frameworks like the balanced scorecard, which incorporates both financial and non-financial indicator to measure an organization's performance against the Triple Bottom Line (TBL) –economic, environmental, and social outcomes (Kaplan & Norton, 1992). However, the development of effective metrics and decision-support framework to measure an organization's performance against TBL-economic, environmental, and social outcomes (Kaplan & Norton, 1992). However, the development of effective metrics and decision-support frameworks for TBL remains a complex challenge (Chadha, 2022). Within this context, Green Human Resource Management (GHRM) has emerged as a crucial element, aligning human resource policies with sustainability objectives. Green HRM encompasses environmentally friendly HR practices and the preservation of knowledge capital, significantly contributing to corporate social responsibility (Deshwal, 2015; Mandip, 2012).

Recent research underscores Green HRM's pivotal role in enhancing sustainability across various sectors. For instance, organizations like PT Semen Tonasa have successfully integrated Green HRM practices to promote energy efficiency, reduce CO₂ emissions, and support community development, demonstrating a holistic approach to sustainability (Citta, 2020). Such initiatives highlights how Green HRM can lead to substantial improvements in economic performance, environmental practices, and social initiatives. Moreover, the integration of Green HRM with Industry 4.0 technologies presents both opportunities and challenges, as these technologies can potentially undermine some sustainability benefits while enhancing others (Zafar, 2024). The interplay between Green HRM and Environmental Management Systems (EMS) has been shown to positively influence organizational sustainability, with EMS fostering organizational Citizenship Behavior for the Environment (OCBE) and supporting Green HRM initiatives aimed at improving TBL performance (Yue, 2023).

In the healthcare sector, the significance of Green HRM is particularly pronounced. Studies have highlighted the positive impacts of Green HRM practices on organizational sustainability and efficiency, with a focus on public sector hospitals. For example, research by Khan (2024) illustrates that Green HRM positively affects sustainable performance, mediated by Green employee empowerment. This is further supported by finding Pinzone (2016), which emphasize the role of organizational citizenship behaviors toward the environment in driving effective environmental management performance. The concept of "Green hospitals" is gaining traction, integrating environmentally friendly practices to enhance healthcare delivery (Aini, 2023). By fostering sustainable behavior among healthcare professionals, Green HRM not only improves service quality but also contributes to achieving the Sustainable Development Goals (SDGs), particularly in the context of maternal, neonatal, and health services (Er-rays, 2024).

As healthcare organizations strive to meet global sustainability standards, the integration of Green HRM into strategic human resource management (SHRM) frameworks becomes imperative. This alignment enhances overall competitiveness while addressing the pressing need for effective resource allocation and management in healthcare delivery. However, the transition to a green economy is not without challenges, including potential job displacement and skill gaps (Olateju, 2020). Therefore, proactive measures in employment and training are essential to support this shift.

The integration of Green HRM with sustainability efforts underscores the importance of aligning human resource practices with environmental and social objectives. Ongoing research and adaptation are necessary to address the evolving challenges and opportunities in achieving a balanced and sustainable future. By prioritizing Green HRM, organizations can enhance their contributions to sustainability, ultimately leading to improved performance across the triple bottom line and a positive impact on society and the environment.

1.1 Literature Review

• Theoretical Foundation of the Study

The integration of sustainability into business practices has become increasingly prominent, driven by the need to balance financial performance with environmental and social responsibilities. This shift is reflected in frameworks such as the balanced scorecard, which in frameworks such as the balanced scorecard, which incorporates both financial and non-financial indicators to measure triple bottom line (TBL) performance, encompassing economic, environmental, and social outcomes (Kaplan & Norton 1992). However, developing effective matrices and decision support framework for TBL remains methodologically challenging (Chadha, 2022). The role of Green Human Resource Management (GHRM) has emerged as a crucial element in this context, aligning human resource policies with sustainability goals. GHRM encompasses environmentally-friendly HR practices and the preservation of knowledge capital, contributing to corporate social responsibility (Deshwal, 2015) (Mandip, 2012). Recent research highlights the significant impact of GHRM on enhancing sustainability across the TBL dimensions. For example, PT Semen Tonasa integrates GHRM practices to promote energy efficiency, reduce CO2 emissions, and support community development, demonstrating a holistic approach to sustainability (Citta, 2020). Similarly, studies have shown that GHRM can substantially increase sustainable outcomes, with notable improvements in economic performance, environmental practices, and social initiatives. The role of GHRM is further reinforced by its integration with Industry 4.0 technologies, although these technologies can also present challenges by potentially undermining some of the sustainability benefits (Zafar, *Harmonizing Growth: The Nexus of Green HRM and Triple Bottom Line Perspective of Sustainable Development in Industry 4.0 Era.*, 2024). The interaction between GHRM and Environmental Management Systems (EMS) has been found to positively influence organizational sustainability, with EMS enhancing Organizational Citizenship Behaviour for the Environment (OCBE) and supporting GHRM practices in improving TBL performance (Yue, 2023). In developing economies, industries like tanneries, which are traditionally high-polluting, are increasingly adopting GHRM to balance economic growth with environmental sustainability (Asri, 2021). This adoption is crucial for maintaining corporate social performance while addressing global sustainability standards. Furthermore, the integration of GHRM into strategic human resource management (SHRM) frameworks has been proposed as a means to align HR strategies with broader corporate sustainability goals, thus enhancing overall competitiveness and sustainability (Lopez-Cabrales, 2020) (Westerman, 2020). The shift towards green practices within HRM is evident, with organizations focusing on practices such as telecommuting, recycling, and green training to reduce carbon footprints and enhance environmental responsibility (Rani, 2014) (Trivedi, 2015)). However, the transition towards a green economy also necessitates addressing potential job displacement and skill gaps, as highlighted by the need for proactive measures in employment and training (Olateju, 2020). This comprehensive approach to integrating GHRM with sustainability efforts underscores the importance of aligning human resource practices with environmental and social objectives. For the significant progress it is necessary to incorporate GHRM and sustainability into organizational frameworks, ongoing research and adaptation are essential to address the evolving challenges and opportunities in achieving a balanced and sustainable future.

• Green HRM in Hospitals

Recent studies underscore the growing significance of Green Human Resource management (GHRM) in enhancing organizational sustainability across various sectors. Pinzone (2016) highlights the pivotal role of organizational citizenship behaviors towards the environment (OCBEs) and specific GHRM practices, such as competence building and performance management, in driving environmental management performance. Khan (2024) extends this by demonstrating that GHRM practices positively impact sustainable performance in public sector hospitals in Pakistan, mediated by green employee empowerment. Shanti (2023) discusses how GHRM can enhance healthcare efficiency in Chennai though it may conflict with core local values. Aini (2023) explores the adoption of “Green hospitals” and its integration of environmentally friendly practices while Memet (2020) connects GHRM to improved service quality in Indonesian hospitals improved service quality in Indonesian hospitals through fostering sustainable behavior, a critical factor for healthcare settings. Pizone (2019) shows how green training can enhance environmental engagement and job satisfaction. Correia (2024) and Mousa (2020) emphasize that GHRM positively affects sustainable performance, with risk management playing a moderating role in Pakistan, and tailored frameworks needed for effective implementation, particularly in developing countries.

• SDG's and Healthcare

The Sustainable Development Goals, adopted by the United Nations in 2015, have emerged as a comprehensive framework

for addressing global challenges, including those faced by the healthcare sector. The SDGs encompass a wide range of objectives, from reducing poverty and inequality to promoting sustainable consumption and production practices. (Hoosain et al., 2020) Within this framework, the role of hospitals in advancing sustainable development has gained increasing attention. Hospitals are not only integral to the healthcare system but also have a significant impact on the environment and local communities. As the healthcare sector contributes to environmental degradation and social inequities, hospitals have a responsibility to address these issues and align their practices with the principles of sustainable development. The green hospital model has emerged as a promising approach to integrating sustainable development goals into hospital operations. This model emphasizes the need for hospitals to adopt environmentally-friendly practices, such as energy-efficient design, waste management, and the use of renewable energy sources. By doing so, hospitals can reduce their carbon footprint, conserve natural resources, and promote the overall well-being of the communities they serve. Researchers have highlighted the importance of incorporating sustainable development goals into hospital management and operations. For instance, a study on the implementation of sustainable development goals in Vietnam's healthcare system found that the green hospital model can be an effective strategy for achieving these goals. (Hien, 2021) Similarly, a review of sustainability assessment methods in the healthcare sector underscored the need for hospitals to adopt a holistic approach that addresses environmental, social, and economic sustainability. (Savoldelli et al., 2023) As the healthcare sector continues to evolve, the integration of sustainable development goals into hospital practices will become increasingly crucial. Hospitals that embrace the green hospital model and align their operations with the SDGs will not only contribute to environmental and social well-being but also enhance the quality of care they provide to their patients. (Kumar & Rahman, 2014) This shift towards sustainable healthcare will require a concerted effort from hospital leaders, policymakers, and the broader community to drive meaningful change and ensure a more resilient and equitable healthcare system. Sustainable development in healthcare goes beyond just environmental considerations. It encompasses a holistic approach that addresses the social, economic, and ethical aspects of healthcare delivery. By aligning their practices with the SDGs, hospitals can play a vital role in promoting social equity, improving patient outcomes, and fostering a more sustainable future for all.

(Er-Rays, 2024) A robust body of literature underscores the significance of efficient resource allocation and management in maternal, neonatal, and child health (MNCH) services. Studies using Data Envelopment Analysis (DEA) highlight variations in technical efficiency across healthcare settings, with a focus on optimizing inputs like staffing and infrastructure. Research frequently identifies challenges such as high mortality rates and inefficient service delivery as barriers to achieving Sustainable Development Goals. Notably, DEA analyses reveal discrepancies in performance depending on orientation methods, suggesting the need for tailored strategies to enhance healthcare delivery. The Tobit model further emphasizes the importance of specific factors, such as staffing levels and bed capacity, in improving efficiency. (Varghese, 2022) in his research paper emphasizes the critical role of primary healthcare (PHC) in achieving Universal Health Coverage (UHC) and addressing non-communicable diseases (NCDs). Fisher et al. highlighted that Australia's mixed insurance system, while achieving high coverage, falls short on equity and episodic care. The WHO's Right to Health and UHC goals underscore the need for comprehensive, equitable healthcare systems. The COVID-19 pandemic exposed weakness in high-income systems and intensified the need for robust NCD management. Effective PHC models include community-based care, integrated services, and strategic levers such as governance and digital health. Successful NCD management requires multidisciplinary approaches and scalable, protocol-based programs.

Hospitals can contribute to the achievement of the SDGs in various ways, such as:

- Implementing energy-efficient and environmentally-friendly practices to reduce their carbon footprint and resource consumption. (Danilov et al., 2020)
- Promoting the use of renewable energy sources and adopting waste management strategies that prioritize recycling and minimization of waste. (Kumar & Rahman, 2014)
- Investing in green infrastructure and sustainable procurement policies to support local communities and minimize their environmental impact. (Savoldelli et al., 2023)
- Addressing social determinants of health, such as access to quality healthcare, education, and economic opportunities, to improve the overall well-being of the communities they serve. (Hien, 2021)
- Collaborating with other healthcare providers, policymakers, and community organizations to develop and implement comprehensive strategies for sustainable healthcare delivery. (Punnakitikashem & Hallinger, 2019)

By embracing the principles of sustainable development, hospitals can not only contribute to the achievement of the SDGs but also enhance their own resilience and long-term viability.

2. Methodology

This review aimed to evaluate the current state of research on the impact of urbanization on biodiversity loss. The following steps were taken to identify, select, and analyze relevant studies.

Literature Search

A comprehensive literature search was conducted using PubMed, Scopus, and Web of Science databases. The search included articles published between 2010 and 2023. The following keywords were used: 'urbanization,' 'biodiversity loss,' 'urban ecosystems,' and 'impact of cities on wildlife.' No language restrictions were applied, but only peer-reviewed journal articles were included.

1. Inclusion and Exclusion Criteria

Studies were included if they were original research articles that focused on the effects of urbanization on biodiversity in terrestrial ecosystems. Review articles, opinion pieces, and studies that did not focus specifically on urbanization were excluded. Additionally, studies conducted before 2010 were excluded to ensure relevance to current urban trends.

2. Study Selection Process

The initial search yielded 850 articles. After screening titles and abstracts, 120 articles were selected for full-text review. Of these, 35 studies met the inclusion criteria and were included in the final analysis.

3. Data Extraction and Synthesis

Data were extracted from each study regarding the study design, sample size, urbanization measures, and findings on biodiversity impact. A thematic analysis was conducted to categorize studies based on the type of urbanization (e.g., industrial, residential, transportation-related) and the species or ecosystem affected.

4. Critical Appraisal

Each study was appraised for methodological rigor using the Critical Appraisal Skills Programme (CASP) checklist. Studies with clear methodological limitations, such as small sample sizes or lack of control groups, were noted in the discussion of findings.

5. Data Presentation

The results of the review are presented in a series of tables that summarize key characteristics of the included studies and their findings. A flowchart illustrating the study selection process is also included for transparency.

3. Data Specification

Green HR practices and its impact on SDGs

1. People (Social Sustainability)

- Training & Development and its impact on SDG4: Offering training on sustainability, environmental awareness, and green practices to build employee competencies in hospitals contributes to continuous learning and development.
- Diversity & inclusion initiatives and its impact on SDG 8: Promoting a diverse workforce that respects and includes various demographic groups, fostering an inclusive culture will Create a positive work environment enhance job satisfaction and productivity.

2. Planet (Environmental Sustainability)

- Sustainable workforce management and its impact on SDG 13: Sustainable workforce management leads to Optimizing workforce scheduling to reduce energy consumption like flexible work hours and telecommuting.
- Green Recruitment and SDG 12: Attracting and hiring candidates with strong environmental values and a commitment to sustainability leads to promoting sustainable consumption and waste reduction within the hospital.
- Eco-friendly Workplace Policies and SDG 7: Implementing policies such as recycling programs, reducing paper usage, and encouraging energy-saving practices helps in encouraging energy-efficient behaviors among staff.

3. Profit (Economic Sustainability)

- **Cost-effective Green Initiatives and SDG 8:** By Implementing energy-efficient technologies and reducing waste to cut operational costs there will a Improved economic performance through efficient use of resources and a motivated workforce.
- **Sustainable Talent Management and SDG 9 :** Attracting and retaining top talent who are motivated by the hospital's commitment to sustainability, leading to reduced turnover and recruitment costs that lead to long-term economic benefits and in investing in green technologies and innovation.
- **Corporate Social Responsibility (CSR) Programs and SDG 17:** Aligning GHRM with CSR activities that enhance the hospital's reputation and attract more patients and investors with other organizations and stakeholders to enhance sustainability efforts.

4. Theoretical Framework

The Triple Bottom Line (TBL) theory provides a comprehensive framework that evaluates organizational performance based on three pillars: People (Social Sustainability), Planet (Environmental Sustainability), and Profit (Economic Sustainability). Applying this theory to Green Human Resource Management (GHRM) in hospitals offers a structured approach to understanding how sustainable HR practices can contribute to the achievement of Sustainable Development Goals (SDGs)

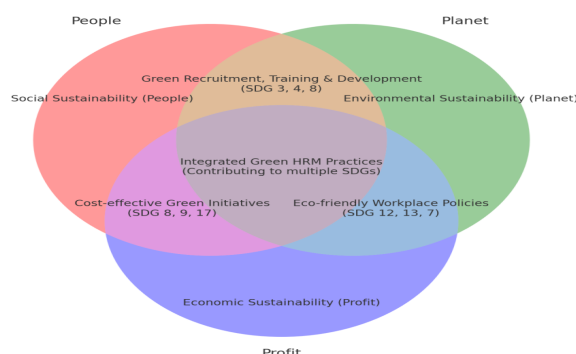
Green HRM in hospitals, when aligned with the TBL framework, can simultaneously enhance social equity, environmental stewardship, and economic viability, thus contributing to multiple Sustainable Development Goals.

This theoretical framework provides a structured approach to analyze and implement Green Human Resource Management in hospitals, ensuring that the institution contributes meaningfully to sustainable development while maintaining its operational effectiveness.

- **People (Social Sustainability):** Focuses on practices like employee well-being, diversity, and training, contributing to SDGs like good health, quality education, and decent work.

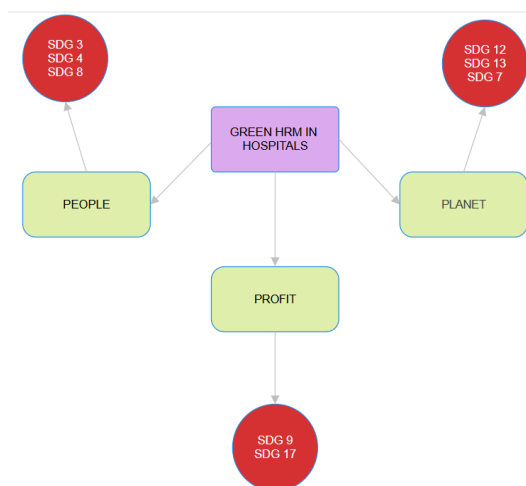
- Planet (Environmental Sustainability): Encompasses eco-friendly policies, green recruitment, and sustainable workforce management, contributing to SDGs related to climate action, responsible consumption, and clean energy.
- Profit (Economic Sustainability): Highlights cost-effective green initiatives, sustainable talent management, and CSR programs, contributing to economic growth, innovation, and partnerships for the goals.

Theoretical Framework: Green Human Resource Management in Hospitals Using Triple Bottom Line (TBL) Theory



Conceptual Framework: Green Human Resource Management In Hospitals using Triple Bottom Line (Tbl)Theory

A conceptual framework using the Triple Bottom Line (TBL) theory can be designed to illustrate the relationships between the core elements (People, Planet, and Profit) and their impact on the Sustainable Development Goals (SDGs). This framework visually represents how Green HRM practices in hospitals can drive sustainability across social, environmental, and economic dimensions.



5. Findings and Results

The integration of Green Human Resource Management (GHRM) practices in hospitals, guided by the **Triple Bottom Line (TBL)** theory, not only contributes to the operational success of healthcare institutions but also aligns with achieving various **Sustainable Development Goals (SDGs)**. The findings below highlight the impacts of specific Green HR practices on social, environmental, and economic sustainability in hospitals.

1. People (Social Sustainability)

Training & Development and its Impact on SDG 4: Quality Education

- **Key Practice:** Offering training programs focused on sustainability, environmental awareness, and green practices is a critical Green HRM initiative in hospitals. These programs aim to enhance employee competencies and promote continuous learning.
- **Impact on SDG 4:** By embedding sustainability into training, hospitals foster a culture of lifelong learning, thereby contributing to **SDG 4: Quality Education**. Staffs are equipped with the skills and knowledge necessary to make informed, sustainable decisions, benefiting both the institution and the broader community.

Diversity & Inclusion and its Impact on SDG 8: Decent Work and Economic Growth

- **Key Practice:** Implementing diversity and inclusion initiatives to promote a diverse workforce, with a focus on creating an inclusive work culture. This includes respecting and valuing differences based on gender, ethnicity, and socioeconomic status.

- **Impact on SDG 8:** A diverse and inclusive work environment leads to higher employee satisfaction, job retention, and productivity, directly contributing to **SDG 8: Decent Work and Economic Growth**. The positive work environment enhances hospital performance, improving both employee well-being and economic outcomes.

2. Planet (Environmental Sustainability)

Sustainable Workforce Management and its Impact on SDG 13: Climate Action

- **Key Practice:** Optimizing workforce scheduling to reduce energy consumption, such as through **flexible work hours** or **telecommuting**, and minimizing the need for physical office space.
- **Impact on SDG 13:** Sustainable workforce management directly impacts **SDG 13: Climate Action** by reducing the hospital's carbon footprint. Energy-efficient scheduling reduces commuting-related emissions, contributes to lower overall energy use, and supports green practices within the hospital.

Green Recruitment and its Impact on SDG 12: Responsible Consumption and Production

- **Key Practice:** Green recruitment involves attracting and hiring candidates who are committed to sustainability and have strong environmental values, which can lead to the adoption of eco-friendly practices within the hospital.
- **Impact on SDG 12:** **SDG 12: Responsible Consumption and Production** is directly supported by green recruitment, as environmentally-conscious employees are more likely to drive sustainable consumption and waste reduction practices. These individuals can help the hospital reduce its ecological footprint through their actions.

Eco-Friendly Workplace Policies and their Impact on SDG 7: Affordable and Clean Energy

- **Key Practice:** Implementing eco-friendly policies such as **recycling programs**, reducing paper usage, and promoting energy-saving practices, such as turning off lights or using energy-efficient equipment.
- **Impact on SDG 7:** These green workplace policies contribute to **SDG 7: Affordable and Clean Energy** by fostering energy-saving behavior among employees and promoting the use of renewable energy within the hospital environment.

3. Profit (Economic Sustainability)

Cost-Effective Green Initiatives and their Impact on SDG 8: Decent Work and Economic Growth

- **Key Practice:** Implementing energy-efficient technologies (e.g., LED lighting, smart HVAC systems) and reducing waste, which leads to reduced operational costs over time.
- **Impact on SDG 8:** Green initiatives lead to **SDG 8: Decent Work and Economic Growth** by reducing the cost of operations, which contributes to long-term financial stability and sustainable economic growth for the hospital. This, in turn, benefits employees by ensuring job security and the availability of resources.

Sustainable Talent Management and its Impact on SDG 9: Industry, Innovation, and Infrastructure

- **Key Practice:** Attracting and retaining talent who are motivated by the hospital's commitment to sustainability, ensuring that employees are aligned with the institution's values of environmental stewardship.
- **Impact on SDG 9:** Through **SDG 9: Industry, Innovation, and Infrastructure**, hospitals can invest in green technologies and innovative approaches to healthcare, resulting in improved infrastructure and an innovative approach to healthcare service delivery. Sustainable talent management drives the adoption of cutting-edge solutions for better patient care and operational efficiency.

Corporate Social Responsibility (CSR) Programs and their Impact on SDG 17: Partnerships for the Goals

- **Key Practice:** Aligning GHRM with CSR programs that contribute to the hospital's reputation as a leader in sustainability, helping to attract more patients, investors, and partners.
- **Impact on SDG 17:** Hospitals can foster **SDG 17: Partnerships for the Goals** by collaborating with other organizations and stakeholders, sharing best practices, and enhancing collective sustainability efforts. CSR initiatives support the hospital's financial growth while also benefiting the wider community through partnerships that address health and environmental challenges.

Analysis

1. People (Social Sustainability)

Key Practices:

- **Training & Development:** This practice focuses on enhancing employees' competencies regarding sustainability, environmental awareness, and green practices. By offering such training, hospitals foster continuous learning and equip staff with the skills to make sustainable decisions in their daily roles.
- **Diversity & Inclusion:** Green HRM in hospitals promotes diversity and inclusion, ensuring an equitable environment that values gender, ethnicity, and socioeconomic differences. This leads to a more positive work culture, better job satisfaction, and ultimately, improved performance.

SDG Impact:

- **SDG 4: Quality Education:** Through sustainability training, hospitals contribute to lifelong learning by equipping staff with essential skills that can benefit both the organization and the broader community.
- **SDG 8: Decent Work and Economic Growth:** A diverse and inclusive work culture results in higher employee retention and productivity, contributing to the economic growth of hospitals and supporting a well-functioning workforce.

Analysis: The People dimension of GHRM in hospitals emphasizes the **social aspect** of sustainability, showing how investing in employee development and diversity creates a stronger workforce. These practices not only improve organizational culture but also contribute to social equity in alignment with SDGs.

2. Planet (Environmental Sustainability)**Key Practices:**

- **Sustainable Workforce Management:** This involves optimizing workforce scheduling (e.g., flexible hours, telecommuting) to reduce energy consumption and minimize the carbon footprint of hospital operations.
- **Green Recruitment:** Attracting individuals with strong environmental values ensures that employees are more likely to advocate for and implement green practices within the hospital.
- **Eco-Friendly Workplace Policies:** Hospitals implement practices such as recycling programs, reducing paper usage, and promoting energy-saving behaviors among staff.

SDG Impact:

- **SDG 13: Climate Action:** Sustainable workforce management helps reduce carbon emissions, contributing directly to climate action by minimizing energy consumption.
- **SDG 12: Responsible Consumption and Production:** Green recruitment contributes to responsible consumption practices within the hospital, such as reduced waste and more eco-conscious decisions.
- **SDG 7: Affordable and Clean Energy:** Eco-friendly policies, such as reducing energy usage and promoting energy-efficient equipment, help hospitals reduce their overall energy consumption and support clean energy initiatives.

Analysis: The Planet component emphasizes the hospital's role in environmental stewardship. By focusing on **energy efficiency, reduced waste, and eco-friendly policies**, GHRM practices contribute to the hospital's long-term sustainability while reducing its environmental impact, all while aligning with SDGs related to climate action, responsible consumption, and clean energy.

3. Profit (Economic Sustainability)**Key Practices:**

- **Cost-Effective Green Initiatives:** Hospitals implement technologies like energy-efficient lighting and equipment, which reduce operational costs over time. Reducing waste also lowers the cost of resources.
- **Sustainable Talent Management:** By hiring and retaining employees motivated by sustainability, hospitals ensure long-term growth and operational stability. These employees are more likely to stay with the hospital, reducing turnover costs.
- **Corporate Social Responsibility (CSR) Programs:** Aligning GHRM with CSR initiatives helps enhance the hospital's reputation and attract patients, investors, and partners, resulting in financial growth.

SDG Impact:

- **SDG 8: Decent Work and Economic Growth:** Cost-saving green initiatives contribute to economic sustainability, ensuring job security and promoting growth within the hospital.
- **SDG 9: Industry, Innovation, and Infrastructure:** Sustainable talent management encourages hospitals to invest in green technologies and innovations, improving infrastructure and delivering high-quality healthcare services.
- **SDG 17: Partnerships for the Goals:** CSR programs help establish partnerships with external organizations, fostering collective efforts towards health and environmental goals.

Analysis: The Profit component focuses on the **economic dimension** of sustainability, demonstrating how GHRM practices can reduce operational costs, improve hospital performance, and foster long-term growth. Moreover, CSR initiatives allow hospitals to enhance their public image and establish valuable partnerships, which are essential for financial sustainability.

Overall Flow and Contribution to SDGs

- **People (Social Sustainability):** By investing in employee development and fostering diversity, hospitals create a motivated workforce, which results in improved performance and higher job satisfaction. These practices align with SDG 4 (Quality Education) and SDG 8 (Decent Work and Economic Growth).
- **Planet (Environmental Sustainability):** Green HRM practices such as energy-efficient workforce management and eco-friendly policies reduce the hospital's carbon footprint and contribute directly to SDGs related to climate action (SDG 13), responsible consumption (SDG 12), and affordable energy (SDG 7).

- **Profit** (Economic Sustainability): Cost-effective green initiatives and sustainable talent management improve the financial stability of hospitals. Additionally, CSR initiatives contribute to SDG 8 (Economic Growth), SDG 9 (Innovation), and SDG 17 (Partnerships for the Goals).

6. Conclusions

Green Human Resource Management represents a critical component in the pursuit of sustainability within hospitals. By integrating environmental considerations into HR practices, hospitals can contribute to the achievement of Sustainable Development Goals, enhance operational efficiency, and improve employee satisfaction. Despite challenges, the benefits of GHRM practices for hospitals are substantial, offering opportunities for environmental, social, and economic improvements. Continued research and practical applications of GHRM in healthcare settings are essential for advancing sustainable development and promoting a healthier planet.

Challenges

Implementing GHRM in hospitals presents several challenges, including:

- **Resistance to Change:** Employees and management may resist changes in established practices and procedures.
- **Lack of Resources:** Financial and human resources may be limited, making it difficult to invest in green technologies and training programs.
- **Regulatory Barriers:** Compliance with environmental regulations can be complex and may require additional resources and expertise (Rao & Holt, 2005).

Opportunities

Despite these challenges, there are significant opportunities for hospitals to advance GHRM practices:

- **Technological Advancements:** Emerging technologies, such as energy-efficient systems and waste management solutions, can facilitate the adoption of green practices.
- **Government Incentives:** Governments and regulatory bodies may offer incentives for hospitals to implement sustainable practices, such as tax credits or grants (Jackson et al., 2011).
- **Stakeholder Pressure:** Increased pressure from patients, staff, and the community for sustainable practices can drive hospitals to adopt GHRM strategies.

Recommendations

To effectively implement GHRM in hospitals, the following recommendations are proposed:

- **Develop a Green HRM Strategy:** Hospitals should create a comprehensive strategy that outlines their environmental goals and integrates GHRM practices across all HR functions.
- **Invest in Training and Development:** Providing employees with the necessary skills and knowledge to support green initiatives is crucial for successful implementation.
- **Foster a Culture of Sustainability:** Encouraging employee involvement and recognizing their contributions to sustainability can enhance engagement and support for green practices. **Monitor and Evaluate:** Regularly assessing the impact of GHRM practices and making necessary adjustments can help hospitals achieve their sustainability goals effectively.

7. References

1. Aini, F., Irianto, A., & Amar, S. (2023). Green Building, Green Innovation and Green HRM: Determinants of Green Hospital Implementation at West Pasaman Regional General Hospital. *International Journal of Sustainable Development & Planning*, 18(9).
2. Pinzone, M., Guerci, M., Lettieri, E., & Redman, T. (2016). Progressing in the change journey towards sustainability in healthcare: the role of 'Green'HRM. *Journal of Cleaner Production*, 122, 201-211.
3. Khan, M. H., & Muktar, S. N. (2024). Green employee empowerment: The missing linchpin between green HRM and sustainable organizational performance. *Journal of Cleaner Production*, 434, 139812.
4. Shanthi, P., Prakash, K. C., Arun, R., Nirmala, C., Kousalya, M., & Sivaperumal, K. (2023). Green HRM Practices and the Factors Forcing it: A Study on Health Care Entities in Chennai. *International Journal of Professional Business Review: Int. J. Prof. Bus. Rev.*, 8(9), 25.
5. Memet, A. S., Sutawidjaya, A. H., Sugiyono, S., & Aima, H. (2020). The Model of Green HRM in Improving Service Quality With OCBE and Organizational Commitment as Mediation In the Hospital of State-Owned Enterprises (Conceptual Framework). *Business and Entrepreneurial Review*, 20(2), 171-198.
6. Mensah, L. E., Shukla, S., & Iqbal, H. F. (2023). Green human resource management practices and employee innovative behaviour: reflection from Ghana. *IIMBG Journal of Sustainable Business and Innovation*, 1(1), 58-74.
7. Er-Rays, Y., & M'dioud, M. (2024). Evaluating the Effectiveness of Maternal, Neonatal, and Child Healthcare in Moroccan Hospitals and SDG 3: Using Two-Stage Data Envelopment Analysis and Tobit Regression. *Evaluation Review*, 0193841X241264863.

8. Varghese, C., Nongkynrih, B., & Mikkelsen, B. (2022). Learning by Doing: Accelerate Towards the NCD Target in SDG Through Primary Healthcare Comment on" Universal Health Coverage for Non-communicable Diseases and Health Equity: Lessons From Australian Primary Healthcare". *International Journal of Health Policy and Management*, 11(5), 708.
9. Correia, A. B., Farrukh Shahzad, M., Moleiro Martins, J., & Baheer, R. (2024). Impact of green human resource management towards sustainable performance in the healthcare sector: role of green innovation and risk management. *Cogent Business & Management*, 11(1), 2374625.
10. Lopez-Cabrales, A., & Valle-Cabrera, R. (2020). Sustainable HRM strategies and employment relationships as drivers of the triple bottom line. *Human resource management review*, 30(3), 100689.
11. Westerman, J. W., Rao, M. B., Vanka, S., & Gupta, M. (2020). Sustainable human resource management and the triple bottom line: Multi-stakeholder strategies, concepts, and engagement. *Human Resource Management Review*, 30(3), 100742.
12. Citta, A. B., & Fattah, H. (2020, October). Implementation of green human resource management based on triple bottom line theory to support sustainability development (study at PT. Semen Tonasa, South Sulawesi). In *IOP Conference Series: Earth and Environmental Science* (Vol. 575, No. 1, p. 012183). IOP Publishing.
13. Deshwal, P. (2015). Green HRM: An organizational strategy of greening people. *International Journal of applied research*, 1(13), 176-181.
14. Zafar, A., & Khan, A. A. (2024). Harmonizing Growth: The Nexus of Green HRM and Triple Bottom Line Perspective of Sustainable Development in Industry 4.0 Era. *Journal of Excellence in Management Sciences*, 3(2), 115-129.
15. Yue, G., Wei, H., Khan, N. U., Saufi, R. A., Yaziz, M. F. A., & Bazkiaei, H. A. (2023). Does the environmental management system predict TBL performance of manufacturers? The role of green HRM practices and OCBE as serial mediators. *Sustainability*, 15(3), 2436.
16. OTHMAN, N. Z., & MOHD-YUSOFF, Y. U. S. L. I. Z. A. (2015). INTRODUCING ALTERNATIVE DIMENSIONS OF GREEN HRM PRACTICES: BRIDGING THE GAP BETWEEN TRIPLE BOTTOM LINE (TBL) THEORY AND CURRENT PRACTICES OF GREEN HRM. *CGHRM*, 155.
17. Zafar, A., & Khan, A. A. (2024). Elucidating the Synergy Between Green Human Resource Management and the Triple Bottom Line Perspective of Sustainable Development: An Examination of the Mediating Role of Industry 4.0 Technological Advancements. *Remittances Review*, 9(2), 5271-5294.
18. Longoni, A. (2014). Sustainable operations strategies: the impact of human resource management and organisational practices on the triple bottom line. Springer.
19. Hadjri, M. I., Perizade, B., & Farla, W. (2019, October). Green human resource management, green organizational culture, and environmental performance: An empirical study. In *2019 International Conference on Organizational Innovation (ICOI 2019)* (pp. 138-143). Atlantis Press.
20. Asri, C. P. (2021). Green Human Resource Management: A Literature Review. *Social Science Studies*, 1(2), 78-91.
21. Mehta, K., & Chugan, P. K. (2015). Green HRM in pursuit of environmentally sustainable business. *Pursuit of Environmentally Sustainable Business* (June 1, 2015). *Universal Journal of Industrial and Business Management*, 3(3), 74-81.
22. Olateju, A. O., Aminu, A. W., & Danmola, R. A. (2020). Green human resources management (green hrm) and sustainable development: Prospects and challenges. *International Journal of Social Sciences and Humanities Review*, 10(3).
23. Trivedi, A. P. O. O. R. V. A. (2015). Green Hrm: Traditions and Designed Effortin the Organizations. *BEST Int. J. Manag. Inf. Technol. Eng.(BEST IJMITE)*, 3(12), 29-36.
24. Rani, S., & Mishra, K. (2014). Green HRM: Practices and strategic implementation in the organizations. *International Journal on Recent and Innovation Trends in Computing and Communication*, 2(11), 3633-3639.
25. Naseer, S., Song, H., Adu-Gyamfi, G., Abbass, K., & Naseer, S. (2023). Impact of green supply chain management and green human resource management practices on the sustainable performance of manufacturing firms in Pakistan. *Environmental Science and Pollution Research*, 30(16), 48021-48035.
26. Jiang, Y., Zaman, S. I., Jamil, S., Khan, S. A., & Kun, L. (2024). A triple theory approach to link corporate social performance and green human resource management. *Environment, development and sustainability*, 26(6), 15733-15776.
27. Jum'a, L., Zimon, D., Ikram, M., & Madzik, P. (2022). Towards a sustainability paradigm; the nexus between lean green practices, sustainability-oriented innovation and Triple Bottom Line. *International Journal of Production Economics*, 245, 108393.
28. Mandip, G. (2012). Green HRM: People management commitment to environmental sustainability. *Research Journal of Recent Sciences*, ISSN, 2277, 2502.
29. Chadha, R., & Mehta, A. (2022, December). HRM and role of artificial intelligence: triple bottom line sustainability. In *2022 International Conference on Computational Modelling, Simulation and Optimization (ICCMO)* (pp. 23-27). IEEE.
30. Danilov, A., Benuzh, A., Yeye, O., Compaoré, S. M. C., & Rud, N. (2020). Design of healthcare structures by green standards. In A. Danilov, A. Benuzh, O. Yeye, S. M. C. Compaoré, & N. Rud, *E3S Web of Conferences* (Vol. 164, p. 5002). EDP Sciences. <https://doi.org/10.1051/e3sconf/202016405002>

31. Hien, P. T. T. (2021). Building Green Hospital Model in Implementing Sustainable Development Goals in Vietnam. In P. T. T. Hien, *VNU Journal of Science Policy and Management Studies* (Vol. 37, Issue 1). <https://doi.org/10.25073/2588-1116/vnupam.4282>
32. Hoosain, M. S., Paul, B. S., & Ramakrishna, S. (2020). The Impact of 4IR Digital Technologies and Circular Thinking on the United Nations Sustainable Development Goals. In M. S. Hoosain, B. S. Paul, & S. Ramakrishna, *Sustainability* (Vol. 12, Issue 23, p. 10143). Multidisciplinary Digital Publishing Institute. <https://doi.org/10.3390/su122310143>
33. Kumar, A., & Rahman, S. (2014). RFID-enabled process reengineering of closed-loop supply chains in the healthcare industry of Singapore. In A. Kumar & S. Rahman, *Journal of Cleaner Production* (Vol. 85, p. 382). Elsevier BV. <https://doi.org/10.1016/j.jclepro.2014.04.037>
34. Punnakitikashem, P., & Hallinger, P. (2019). Bibliometric Review of the Knowledge Base on Healthcare Management for Sustainability, 1994–2018. In P. Punnakitikashem & P. Hallinger, *Sustainability* (Vol. 12, Issue 1, p. 205). Multidisciplinary Digital Publishing Institute. <https://doi.org/10.3390/su12010205>
35. Savoldelli, A., Landi, D., & Rizzi, C. (2023). Sustainability in Healthcare: Methods and Tools for the Assessment [Review of Sustainability in Healthcare: Methods and Tools for the Assessment]. *Studies in Health Technology and Informatics*. IOS Press. <https://doi.org/10.3233/shti230037>.