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May 14, 2024

# Green Human Resource Management Practices in Society 5.0: A Critical Analysis of Opportunities and Challenges

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## Abstract

This paper explores the practices of Green Human Resource Management (GHRM) in Society 5.0 and critically analyses the opportunities and challenges organisations face in their endeavours to practice GHRM. The study exposes the influence of Society 5.0 on GHRM practices. We employed a critical literature review to explore GHRM practices in Society 5.0. The paper reviewed 44 journal articles on GHRM practices and Society 5.0. Findings confirm that data, information and knowledge link GHRM practices with society 5.0. Green human resource management (GHRM) practices are central to organisational competitiveness and sustainability. It integrates human resource management functions with environment management issues. However, Society 5.0 is a human-centric society that cartels environmental issues and social aspects to ensure a comfortable social life. It influences the nature and means of GHRM practices applied in organisations. Thus, GHRM practices in recruitment and selection, training and development, rewards management, performance management and employee relations are connected directly with Society 5.0 through AI, IoT, BDA and DT. Our analysis shows that Opportunities for GHRM practices in Society 5.0 include integrating GHRM practices with the environment, facilitating human-centric solutions, developing strategic and sustainable development and keeping an organisational database. However, practices of GHRM in Society 5.0 are associated with several challenges, including cyber security issues, inadequate personnel and scarcity of resources. Society 5.0 distracts human resource management functions, which results in uncertain GHRM practices. The paper thus recommends precise and apt GHRM practices which utilize available opportunities and minimize challenges in Society 5.0.

**Keywords:** GHRM practices, Society 5.0, Challenges, Opportunities

## 1. Introduction

Information and communication technology has made notable progress and growth in the past two decades, particularly the introduction and development of cell phones and the internet [10, 41]. Rapid development has made society progress in different stages from Society 1.0 to Society 5.0 [34]. These phases include society 1.0 (hunting and gathering society), society 2.0 (agrarian society), society 3.0 (industrial society), society 4.0 (information society) and Society 5.0 (super smart society) [27-29, 34].

Society 5.0 was introduced as a social transformation and development for organisations and society [25, 27]. Through innovation, Society 5.0 incorporates human-centric, environmental and social concerns to capitalize on the efficient and effective use of artificial intelligence (AI), digital twins (DT), Big data analytics (BD), and the Internet of Things (IoT) [31, 40, 43]. It integrates virtual with physical space to influence the environment and increases environmental concerns [42]. In so doing it considers digitalization and green society as a twin concept that combines society, environment and economy to influence and promote sustainable development [7, 43]. Society 5.0 was introduced to solve social issues from new perspectives and cultivate a value of everyone at any time and place in a safe environment according to nature [28]. Organisations are adopting super intelligence such as automated air conditions, attendance bio registers, video conferencing, smart cars and car parking which influence the natural environment [41]. Simultaneously, the advanced technologies like IoT and AI used in Society 5.0 standardize energy usage and reduce the wastage of resources.

On the other hand, optimal use of organisational human resources in line with environmental management is termed as “green human resource management” (GHRM). It involves innovation that transforms the organisation from traditional human resource management practices into green human resource management practices [23, 35]. Governments and International agencies have raised concerns about incorporating Society 5.0 and environmental management to ensure a positive impact on the natural environment. These include the expansion of sustainable development goals (SDGs) into Agenda 2030 sustainable development goals [6, 27]. This increased pressure on organisations to integrate organisational activities with environmental activities. While green human resource management (GHRM) practices work towards integrating organisational activities influenced by Society 5.0 with environment management, Society 5.0 facilitates digital social innovation (DSI) for organisational transformation [30]. Through Society 5.0, organisations have introduced various projects and programs including electronic advertisement on environmental issues, minimum use of paperwork and the use of human resource management information system (HRMIS). Under such circumstances, it becomes important to support organisational transformation to enable the effective use of GHRM practices [7]. Despite the increased research on Society 5.0, there is still unknown information on the practices of GHRM in Society 5.0.

This paper thus intends to answer the following questions:

- What are Society 5.0 and GHRM practices?
- What is the link between green human resource management (GHRM) practices and Society 5.0? and
- What are the opportunities and challenges of green human resource management practices in Society 5.0?

## **2. Methodology**

This paper is based on a literature search whereby secondary sources of data were collected by using critical literature review approach [38]. The study analyzed journal articles mostly from internet research databases. These included Springer, MDPI, Emerald Insight, Wiley online library, Taylor and Francis online, Sage Publication and Elsevier. Relevant keywords were used to facilitate and maximize

the retrieval of information to construct the critical review. Keywords used included green human resource management practices, green HRM practices, GHRM, Society 5.0, IT and super smart society. The study set time limit for searching journal articles in order to capture the evolution of Society 5.0 and also GHRM practices within identified time frame. Journal articles used in this paper included those published from the year 2013 to 2024. The Inclusion criteria mostly considered the relevancy and quality of the journal. Some few journal articles were excluded after reading the titles and keywords. Others were excluded after reading abstracts while others were excluded after the article was read. In total, 44 journal articles were used in the study. The study adopted Shah et al [38] three processes: writing a critical literature paper, critical reading and note-taking, writing a summary of the reviewed literature, organizing the literature review and making a critical analysis. In making a proper critical literature review, we adopted three phases of conducting critical analysis. These are the identification and selection of titles, finding usable literature material from known datasets and reviewing the literature.

**Table 1: Critical Literature Review Process**

S/No	Particular	Details
1	Type of literature	Critical literature review
2	Period	2013-2024
3	Keywords	<i>green human resource management practices, green HRM practices, GHRM, Society 5.0, IT and super smart society</i>
4	Publishing data base	Springer, MDPI, Emerald Insight, Wiley online library, Taylor and Francis online, Sage Publication and Elsevier
5	Type of article	Journal articles
6	Criteria	Relevant and high quality journal article

### 3. Literature Review

#### 3.1 The Concept of Society 5.0

Society 5.0 was developed in Japan in 2016 in the 5<sup>th</sup> Science and Technology Basic Plan [14]. It is built on society 4.0, a highly advanced information society called a human-centered society or super smart society [12, 14]. It was introduced to ensure business, society and environmental sustainability by finding social solutions that create a comfortable life [41]. It is called a data-driven society whereby theories of traditional artificial intelligence are improved [32]. It works on data, information and knowledge to merge cyberspace with the physical space system [12, 31]. Society 5.0 is a human-centered society that equalizes an advanced economy by seeking solutions to social problems [42]. Moreover, it involves an innovation approach that comprises and inspires social and economic development and societal growth [34, 42]. Society 5.0 is also known to influence the knowledge of information for solving social, economic and environmental problems. Through Artificial Intelligence (AI), digital twins (DT), Big data analytics (BDA) and Internet of Things (IoT), social, cultural

and economic activities are simplified [25, 29]. Generally, Society 5.0 is the connection of a data-driven society centered on solving social problems by using advanced technology through innovation. For example, AI supports GHRM practices by integrating human resource management functions with environmental management issues [18, 22]. Through online recruitment and selection, applicants can be screened, interviewed and selected. This method reduces hard or physical equipment like paper, big rooms and physical congestion, thus it is in line with sound environmental management. Moreover, Society 5.0 facilitates IoT tasks that require human intelligence, like knowledge, management and solving problems to be performed in a much easier manner [25]. Moreover, IoT enables weather conditions to be detected, processing machines monitored and controlled, and attendance or employee performance monitored and evaluated appropriately [8].

Simultaneously, through Digital Twins, companies can make better decision and improve employees' performance by predicting the future demand of human resource. Employees can also work anywhere through teleworking. Society 5.0 also enables Big data which stores, processes and retrieves employees' data at any time to anywhere [22]. It reduces the use of papers, files and cabinets in keeping employee data to avoid loss of information when needed. In this regard, such processes set employee objectives that facilitate environmental management and perform assessment and evaluation [16].

### **3.2 The Concept of Green HRM Practices**

Green human resource management (GHRM) practices are organisational activities that integrate environmental management agenda with internal and decision-making activities to reduce environmental problems [13, 35]. GHRM practices entail managing employees with environmental aspects, from new staff entry to exiting the organisation [19, 36]. This concept includes all activities done by human resource management such as recruitment, training and development, performance management and rewards management [1, 5, 26]. Organisations reduce paper use by introducing online recruitment, electronic performance management and e-payment. GHRM practices are the "systematic and planned arrangement of conventional human resource management practices with the organisation's sustainability goals" [4, 45]. This means transforming traditional human resource management into modern management that integrates human resource management functions and policies with environmental management policies and practices [1, 11, 33]. GHRM practices are also known to consist of human resource management activities and functions which reduce environmental problems and ensure environmental sustainability and performance [1, 37]. Such basic HR practices are performed electronically in the era of Society 5.0.

*Green recruitment and selection (GRS)* entails generating a pool of potential applicants and identifying the best fit from them who can demonstrate and match with organisational green and sustainable goals [15, 26]. In a super smart society, the process can be carried out effectively and simplified as the organisation can capture the best talent from different places, thus creating a recruitment database [17]. Through online recruitment and selection, the organisation can aim at reducing not only environmental pollution as the process can be online but it can be achieved using less amount of time [45]. The Internet of Things (IoT) and Big Data (BD) set the

recruitment and selection criteria to encourage candidates with the desire and capabilities to fit the organisational green goals [24]. Using Society 5.0 in recruitment and selection enables the organisation to reduce the cost of paper, travelling, advertisements and interviews [21]. In line with the same, creating an online recruitment portal in which anyone with qualifications can apply, is likely to simplify the selection process online, making it more transparent causing no undue injustices to applicants [9]. Thus, through Society 5.0, the organisation acquires the quantity and quality of staff it needs at a reasonable cost. Amrutha and Geetha [3] argued that recruiting and selecting the right people, with green attitude, for the right job at the right time is vital for environmental sustainability.

**Green training and development (GTD)** is the process of on-the-job learning which enables an employee to get new skills and knowledge to continue nurturing organisational goals for a sustainable environment [9]. Training and development increase employees' capability to contribute to environmental performance [20]. GTD also stimulates individual and voluntary work behaviour and employee green knowledge that increases employees' involvement in environmental management [15, 21]. These practices influence creativity and innovation in environmental management and increase organisational competitiveness [20]. GTD enhances capability and stimulates green behaviour, involving employees in environmental management. Through GTD, employees also learn about environmental management policies and standards mandatory to ensure a sustainable ecosystem within and outside the organisation [24, 26]. In line with the above, Amrutha and Geetha [3] also argue that GTD adds aptitude to employees, enabling them to obtain green knowledge for an ecosystem which, in turn, ensures organisational competitiveness as well as sustainability.

**Green rewards and compensation management (GRCM)** refers to the process of motivating employees with regard to energy skills efforts they contribute to ensure the achievement of the organisational goals [36]. GRCM influences the voluntary involvement of employees in organisational activities that support environmental performance and sustainability [3]. In so doing, GRCM encourages and increases employees' effectiveness, efficiency, and innovation. Rewarding and compensating employees with satisfactory and equitable payment improves organisational competitiveness and environmental sustainability. Thus, GRCM involves both intrinsic and extrinsic motivation which can be monetary or non-monetary rewards [15]. These are crucial for organisational development and creating psychological voluntary and individual green behaviour in employees [15]. GRCM is also about arrangement and encouragement that build confidence in involvement in environmental management after acquiring pro-environmental behaviour [21]. As argued by Mashala [24], Green rewards and compensation management is regarded as reinforcement and incentives in cultivating employees' green attitudes and behaviour.

**Green Performance Management (GPM)** is the practice of planning, setting, evaluating and assessing employees' performance and contributions to environmental management [9]. GPM involves green auditing, evaluation and environmental policy assessment in which an employee contributes to the organisation's achievement [24]. GPM is also the process where employers and employees set agreeable objectives including environmental objectives to be attained within a specific time frame [9]. It involves assessing and evaluating objectives set against the resources available to

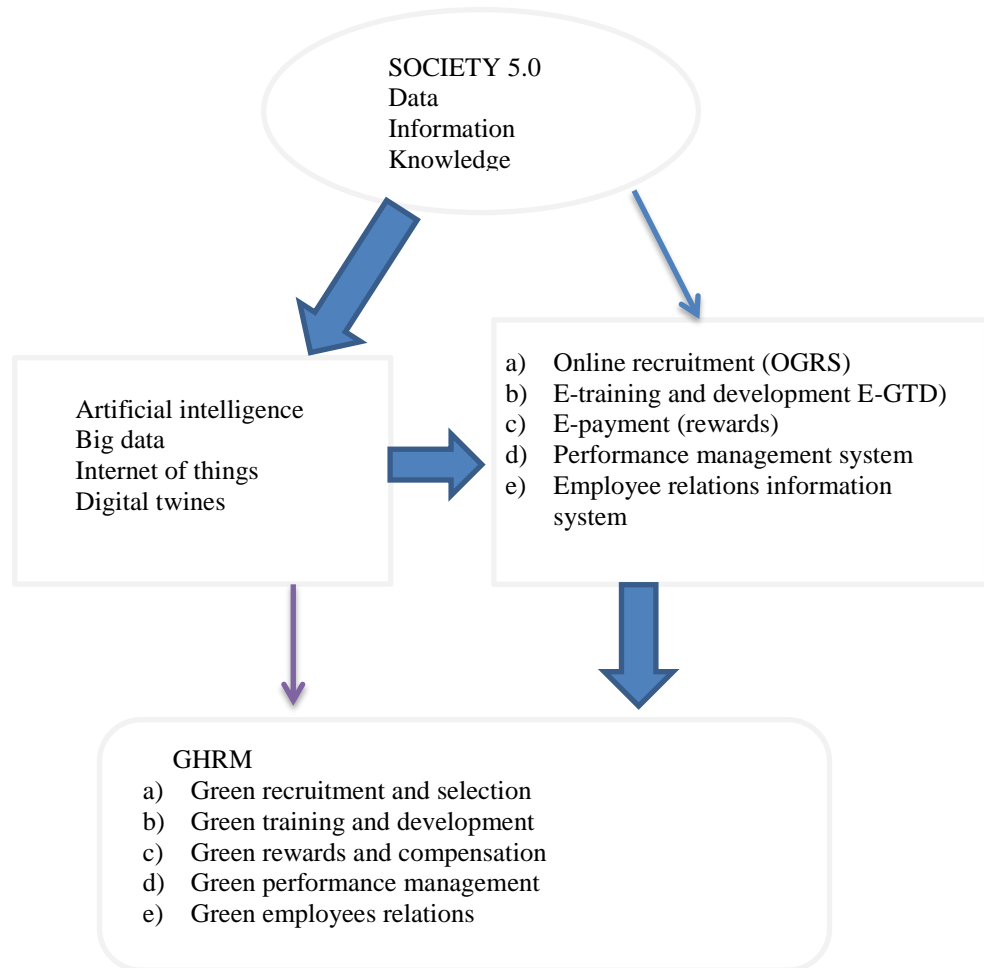
employees to ensure that suitable measures are taken as regards employees for either promotion or demotion. In so doing, GPM assesses individual contributions and communicates to the employee the performance outcomes on the environment against the target set with an employer on environmental objectives [15]. Mashala[24] explains that GPM includes setting organisational objectives relating to environmental management that allows employees to contribute to environmental management. It thus ensures commitment, effectiveness, innovation and creativity through employee feedback from top management or supervisors [3].

**Green employee relations and involvement (GERI)** is the relationship between the employer, employees and the government [9, 44]. GERI allows employees to be involved in different employment related issues in the organisation. GERI refers to participation in decision-making, organisational activities and the exchange of information between employers and employees [44], which is a crucial component of environmental management [21]. In building employees' trust and psychological green behaviour, GERI allows employees to be involved in policy-making and programs for environmental management [15, 37, 44]. GERI thus influences employee confidence and willingness to participate in environmental issues to ensure organisational competitiveness and environmental performance [3, 9]. The harmonious relationship between employer and employees in the organisation and the government (state) cement the culture of sustainability and environmental management [24].

### **3.3 Linking GHRM Practices and Society 5.0**

As portrayed above, existing research indicates that GHRM practices are rightly connected with Society 5.0 in various ways. While Society 5.0 is based on data, information and knowledge, GHRM is closely related to online and electronic human resource management (E-HRM) functions [43, 45]. Society 5.0 allows integration of system with network in Artificial intelligence, Big data, Internet of things and Digital twines with E-HRM functions. E-HRM functions like online recruitment and selection (ORS), E-training and development (E-TD), E-payment (rewards), Performance management system and Employee relations information system contribute to environmental management. E-HRM practices stimulates minimum use of paper, reduce physical gathering and effective use of resources. It encourage and motivate individual and voluntary participation through online training, online performance appraisal and employee relation system. Society 5.0 cultivates pro-environmental behavior (PEB), green psychological climate, individual voluntary green work behaviour and green employee knowledge as IoT, AI simplify work performance [11]. Society 5.0 enhances efficiency and effectiveness of GHRM practices. Online recruitment and selection, performance management can be automated done [41].

**Figure 2: The Link between GHRM and Society 5.0**



Source: Research, 2024

### 3.4 Opportunities of GHRM practices in Society 5.0

GHRM practices are linked with Society 5.0 through the application technologies and necessary behaviour regarding the organisation’s basic HR practices. Society 5.0 not only stimulates but also brings about the practical application of green human resource functions [29]. For example, organisational communication is now accessible and straightforward; storing and accessing employees' data has been simplified to ensure quick access to information. Society 5.0 also clarifies and simplifies the practice of GHRM, which allows employees to acquire green knowledge through electronic training and online advertisement [22]. Thus, Society 5.0 has the potential to cultivate pro-environmental and green psychological behaviour, which is agreed upon and rewarded through performance management systems and electronic rewards in GHRM. In this regard, Society 5.0 ensures effective



practices of GHRM through web and internet technology [40]. Through Society 5.0, organisational systems are made easier by applying AI, Big data, IoT or DT) [12]. GHRM practices are linked and connected with Society 5.0 so that environmental issues can be traced or learned using information technology like AI, BD and IoT. Thus, employees' green behaviour is enabled to enhance sustainability and competitiveness [5].

Organisations reduce the use of paper and other environmental pollutants by conducting online recruitment and selection, which allows and simplifies advertisements in which candidates can apply online; selection is conducted online or via video conference [22]. Online performance management includes setting environmental objectives among employee-given objectives. Automatic evaluation allows recommendations for appropriate measures concerning environmental management [40]. Society 5.0 enables the organisation to set online payments for all employees in different places. Automatic salary calculations and increments build employee green behaviour [2]. GHRM practices are linked with Society 5.0 because, through web and internet technology, employees get access to different information regarding environmental management and receive online training and notification on environmental knowledge. Society 5.0 has simplified the spread of information to employees on green knowledge and allows participation in environmental management. Society 5.0 is applied in all green HRM practices like recruitment and selection, training and development, performance management, rewards and compensation management as well as job design and evaluation. It allows smooth and effective integration of HRM practices with environmental management.

### **3.5 Challenges of GHRM practices in Society 5.0**

The introduction and development of Society 5.0 aims to solve social problems and bring about life comfort for everyone. However, some challenges are evident in the adoption of such practices. These include: cyber security issues, confidentiality, privacy and readily available collection, transmission and distribution of data [43]. When conducting business and executing data, organisations should ensure that the same is not being used otherwise. Organisations' and individual information must be secured, which may otherwise increase environmental problems [39]. For example, if there is information about environmental preservation or eco-friendly motivation, the information may exacerbate the situation and pose a threat instead of reducing problems. The challenge of acceptability of Society 5.0 is also being felt globally. Some employees are unwilling to supply information online thinking about their privacy and security of the systems. Issues of data security in the application of IoT, for example, the use of nodes and networks, do not guarantee trustworthiness, hence creating deficiencies in the system [26]. Issues of internet connectivity, data authenticity and bargaining power inhibit many people worldwide. Society 5.0 creates and allows distant work, reducing effectiveness, engagement and scope of socialization in GHRM practices [43]. The organisation can make work arrangements that enable everyone to work anywhere through teleworking and video conferences. This reduces motivation, socialization, and employee relations. Using the internet and flexible work allows employees to participate in environmental issues including environmental management campaigns, activities and training. Some employees may shun participation. The integration of Society 5.0 with GHRM

practices demands highly qualified personnel with both human resource and environmental knowledge.

#### **4. Conclusion**

Society 5.0, also known as the super smart society and GHRM practices, is considered to be the integration of human resource functions with environmental management. Practices of GHRM in Society 5.0 are critical to organisational competitiveness and sustainability. Green recruitment and selection, training, rewards, employee relations, and performance management transform the employees from traditional to green behaviour. Applying AI, IoT, BD, and digital twins in the organisation steers positive or negative GHRM practices. Positive impacts include cultivating pro-environmental behaviour, employee green behaviour, and individual and voluntary green work behaviour, which are, in fact, the prerequisites for GHRM. Adoption of human-centric society through Society 5.0 stimulates efficiency and effective use of technology and information in recruitment, training, performance management, and rewards. Integrating GHRM practices in Society 5.0 is essential for an organisation to ensure environmental performance.

However, the challenges should not be overlooked for more effective and cautious adoption of GHRM in Society 5.0 since the security of employee data and well-being is primordial for a sustainable organisation.

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