International Journal of Human Capital in Urban Management
(IJHCUM)

Homepage: http://www.ijhcum.net/

ORIGINAL RESEARCH PAPER

Prioritizing factors affecting green human resources management, using fuzzy network analysis in the organization

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ARTICLE INFO

ABSTRACT

BACKGROUND AND OBJECTIVES: As of present, Green Human Resource Management holds a paramount standing as a crucial business strategy among noteworthy organizations and enterprises, in which Human Resource Department play a vital role. Taking an affirmative role in adopting sustainable practices within the workplace is paramount towards promoting an eco-friendly Environment. As the most prominent entities within societies, organizations possess the capacity to diminish environmental degradation through their undertakings, thereby constituting one of the avenues towards effecting environmentally conscious human resource management within organizational settings. To enact green human resources management within an enterprise, it is essential to identify and establish the key necessities for realizing such a program in the organization. Aligned with the social obligation that rests with organizational executives, they ought to proffer their aspirations, objectives and obligations towards cultivating an environmentally conscious entity. Such stewardship can ameliorate the potential constraints on future demands for ecological resources. In Iran, the field of green human resource management has received limited attention in the extant literature. Thus, the present investigation aimed to identify and rank the critical prerequisites for effectively implementing green human resources management within an organization. Green human resource management involves the utilization of human resource management principles and practices to facilitate more sustainable and eco-friendly use of organizational resources, as well as the promotion and encouragement of environmentally responsible initiatives. The aim of this study is to enhance the environmental quality through the enhancement of the ecological practices of organizations. This can be achieved by identifying and incorporating environmentally sustainable human resource management strategies in organizational operations. The study has successfully identified and prioritized determinants of effective green human resource management within organizational contexts, through utilization of the Fuzzy Network Analysis Process method.

METHODS: The study method is mixed exploratory. The statistical population of this study included 30 experts in the Municipality of Tehran. In this study, the targeted sampling method was used. In this study, based on the research background and expert opinions from the two categories of organizational culture and skills, the influencing factors of green personnel management based on sustainable development were identified and a total of 11 sub-criteria for the main categories were defined. The data collection tool was a questionnaire designed based on the Delphi technique and finally analyzed using the fuzzy method.

FINDINGS: The results showed that organizational culture is the main factor in creating green human resources management with an average of 4.58, followed by skills with an average of 4.49.

CONCLUSION: Green human resource management refers to activities that involve the development, implementation and ongoing maintenance of a system that leads to the greening of the company's employees. In this context, regular employees should become green employees; So that they can reach the organization's environmental donation and ultimately make a significant contribution to environmental sustainability. By promoting the organizational culture and identified skills, employee participation, aligning environmental programs with the organization's environmental goals, supporting senior management and providing sufficient budgets and resources, it is possible to improve green human resource management in Tehran municipal organization.

NUMBER OF REFERENCES
48

NUMBER OF FIGURES
0

NUMBER OF TABLES
9

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Note: Discussion period for this manuscript open until January 1, 2024 on IJHCUM website at the "Show Article.

INTRODUCTION

Human Resource Management (HRM) is the process of working with people to enable those people and their organizations to reach their full potential, even when changes require the acquisition of new skills, new responsibilities and a new form of relationships. In fact, HRM is the use of human resources for the goals of the organization and includes activities such as recruitment, training, salaries, and organizational relationships (Aibaghi Esfehani *et al.*, 2017). In other words, HRM is a function in the organization that maximizes employee performance by fulfilling the employer's strategic goals. HRM tries to find out how people can be managed in organizations, with a focus on policies and systems. HRM units and departments are specifically responsible for some activities, including hiring, training and development, performance appraisal, and reward and punishment (e.g., administering the payroll and benefits system) (Babajanzadeh and Navaei, 2014) In recent decades, due to the changes and developments in environmental conditions in the field of increasing and unreliable competition, large organizations pay more attention to issues such as creativity and innovation at the organizational level (Tajpour *et al.,* 2018; Vasudevan and Iqbal, 2018). Environmental conditions in green organizations, one of the most important roles in creating green thinking among the employees of the organizations is the role of managers and human resource professionals to transform employees into people who care about the environment. In order to achieve environmental goals, environmental issues must be defined and implemented in various Human Resource (HR) management policies, such as recruitment, training, performance evaluation, and reward (Farrokhi, 2019). Green Recruitment and Selection (RS) is an important part of environmentally friendly HRM practices. Organizations attract and select people who are committed to environmental issues (Ercantan and Eyupoglu, 2022). Increasing environmental concerns and the consequent emergence of international environmental standards have compelled organizations to adopt green strategies and continue to apply green management in all organizational matters and concerns (Aggarwal and Sharma, 2015). HRM, by focusing on greening of human resources, contributes to the organization's strategic goals towards greening of the organization. One of the most important tasks of Green Human Resources Management (GHRM) is to help the organization to create and implement green thinking among the employees (Opatha and Arulrajah, 2014). Green management is required to become a green organization (Loknath and Azeem, 2017). In this respect, green management includes the effective and efficient use of all human and material resources to guide and monitor organizations in the achievement of environmental goals with the aim of creating social acceptance and preserving the environment (Lee, 2009; Arredondo-Trapero *et al.,* 2023). In the area of green management, Human resource management measures have been developed under the title of Green Human Resource Management (GHRM). Greening the functional dimensions of HRM such as job description, recruitment, selection, training, performance evaluation and rewards has been defined as green human resource management (Sudin, 2011). In the era of increasing awareness in the field of environmental management and sustainable development of resources, green human resources management focuses on the environmental management practices of companies, in which HRM acts as a platform for connecting human resource management activities with the company's environmental management activities; therefore, Green Human Resources Management (GHRM) is an important area of corporate management (Jabbour and De Sousa Jabbour, 2016). The term green human resource management refers to all activities related to the development, implementation and maintenance of a system with the aim of forming employees of a green organization. This role of human resources management is done through the transformation of regular employees into green employees and relates to the policies, practices and systems that guide the employees of the green organization to work for the benefit of the individual, society, the natural environment and the company (Behnejad, 2018). Considering the importance of the category and the theme of GHRM, organizations are also moving towards greening their devices (Kim *et al.*, 2019). For example, greening the organization creates new jobs and employment opportunities, provides opportunities for innovation, and ultimately leads to increased comfort and well-being (Aibaghi Esfehani *et al.*, 2017). In general, organizations that have adopted GHRM, have benefited from its implementation and their employees have improved morale. The sustainability

of the organization is the ability to maintain or develop performance over the long term and therefore the satisfaction of the organization's stakeholders over time (Mishra, 2017). Broadly, approaches to GHRM can be grouped into four perspectives: cross-functional (delegated and cross-functional), business (based on instrumental thinking), strategic and operational (mission and function). Realizing the values of peaceful coexistence between the organization and the environment is the goal of the trans-role perspective. In studies of green human resource management, the strategic view places the concept of green in a strategic position in the organization's strategies and human resource management. The commercial view is based on justifying the organization's missions by adopting a concrete green approach in addition tries to reflect green concepts in the roles, responsibilities, and functions of human resources (Tavakoli *et al*., 2017). Developing an employee's environmental competency involves embedding a positive environmental attitude in the organization through human resource activities such as recruitment, selection, training, and leadership development (Awazkhah, 2019). Generally speaking, green employee behavior can be increased to voluntarily enhance a company's performance through green human resource management practices in the areas of organizational culture and organizational skills. Achieving sustainability in all activities that use resources, as well as their quick and seamless replacement, is the goal of sustainable development. Pervasive global problems such as loss of natural resources (Peñaranda Barba *et al*., 2022), environmental degradation (Samimi and Shahriari Moghadam, 2018), recurring financial crises, and ultimately natural resource proliferation are leading to a shift in development paradigm from consumption towards sustainable development and the recognition of green economic growth (Zaid *et al*., 2018; Brotosusilo *et al*., 2022; Salvaraji *et al*., 2023). According to the World Commission on Environment and Development, sustainable development meets the needs of the present generation without compromising the ability future generations to meet their own needs. Such development is smart, Eco-friendly and based on effective use of resources, knowledge and innovation (Kramer, 2014; Samimi and Shahriari Moghadam, 2020; Candrianto *et al*., 2023). The green management approach is based on the concern for sustainability and, therefore, the sustainability of the organization,

as well as social approaches and economic incentives, organizational culture, organizational capacity, health and safety of the company, employees and publishing to the desired audience image of the organization over a long period of time (Mansour, 2023; Sivakumar *et al*, 2022; Gryshchenko *et al*, 2022; Barforoush *et al*, 2020). For this reason, organizations must incorporate many considerations into their environmental performance and management in order to fulfill the public belief in green ideologies and green values (Haddock *et al*, 2016). In this regard, the results of research by Sabbet and Azizi (2019) showed that among the dimensions of human resource strategies, the reward strategy has the largest impact and the performance management strategy has the least impact on green human resource management. Municipalities are one of the organizations that deal with environmental management issues on a large scale. A municipality is a local organization established on the principle of administrative decentralization and for the purpose of managing local affairs such as construction and settlement, city health and the well-being of city dwellers. The municipality is a non-governmental public body with separate legal personality, which on the basis of the system of local decentralization carries out the tasks and tasks assigned by the legislature within the city limits and within the approved budget and program in accordance with the relevant laws and regulations. Municipalities in Iran provide some city services and manage some local city affairs under the supervision of the city's Islamic Council and with the coordination of the Ministry of Interior (Shirzadi Kandi and Bayat, 2018). In a study, Sheikh (2010) confirms that green human resources play an essential role in the organization to support environmental concerns, leading to higher efficiency, lower costs and employee participation and retention. Green HR management depends on identifiable and unique patterns of green decision-making and human resource manager behavior (Jackson *et al*., 2011). In a study, Sinagh *et al*. (2020) showed that green human resource management policies have a positive and significant effect on green innovation and then on the environmental performance of organizations by influencing green transformation leadership. Lee (2020) also concluded that paying attention to green human resources management practices increases employees' organizational engagement, pro-environmental behavior, and sustainable performance.

On the other hand, Musa and Osman (2020) acknowledged that the components of green employment, green development and education, and green innovation have an impact on managing sustainable performance in all economic, social, cultural, and environmental dimensions of organizational sustainability. Asadolahi Dehkordi, *et al.* (2019) found that green resource management has a positive and significant effect on the sustainable performance of downstream petrochemical industries, both directly and through mediation of the organization's environmental actions. In another study, Pejman *et al.* (2019) identified 51 basic terms and 16 core topics, including structural framework conditions (software, hardware), attitude towards health, health-oriented politics, social responsibility, culture of togetherness, to be the most important. The limitations of this research were the lack of standard measurement tools to measure the dependent variable, little research in the field of green human resource management, the lack of goals and serious determination towards green human resource management by the studied organization and the respondent's lack of interest in completing the questionnaire. Considering the novelty of the subject, conducting this research can be effective in the direction of green human resource management in organizations, including Tehran Municipality. Finally, according to the content indicated, it is clear that the presentation of the green human resources management model as a tool for sustainable development in the municipalities and the creation of new employment opportunities, the generation of income and the creation of cooperation between municipal employees; Because the greening of the environment creates new jobs and leads to the emergence of innovations and creates a basis for sustainable organizational development. Also, one of the fundamental steps to reduce crises and solve environmental problems is to pay special attention to organizations and human resources and to manage them properly. Green human resources management is a new term that leads organizations to improve their environmental performance by aligning their actions with environmental management objectives. Therefore, the main concern and purpose of this research is to present the factors that influence the green management of human resources in line with sustainable development and the tries to find out what factors influence the green management of human

resources in line with the sustainable development. The current study has been carried out in Tehran in 2023.

MATERIALS AND METHODS

Due to the mixed exploratory nature of the research method, both quantitative and qualitative methods have been used in its execution. In the qualitative part, the statistical population of the study includes the experts from the Municipality of Tehran (N=30) who were selected as intentional sample and continued until theoretical saturation (N=11) using the snowball interview method. These experts met requirements like having a doctorate degree in management and urban planning with published scientific articles, at least 15 years of managerial experience in Tehran Municipality's human resources and planning departments. A semi-structured interview with experts (professors and experts with knowledge of management and development) were organized. The interviews with the experts were conducted with two objectives: in order to define all the components of green human resource management and organizational sustainability, all the extracted components from library research, were provided to the experts. Also, other elements, not covered through library research, were identified and finalized by conducting an expert survey using the Delphi method. A special questionnaire with open and closed questions was used to interview the experts. Then the designed model was tested in the target population for validation and applicability of the model in the statistical population. In the two aforementioned stages, a list of factors affecting green human resource management based on sustainable development standards was made, and at the end of this step, a conceptual model of green human resource management was created. In the third stage, a Delphi questionnaire was designed and carried out among experts. After the refinement of the Delphi results, the conceptual model was checked again. Then a random sample of employees was selected for the experimental test of the measurement model and the necessary data was collected. In the third stage, a Delphi questionnaire was designed and implemented among experts (Table 1). After the refinement of the Delphi results, the conceptual model was checked again. Then, a random sample of employees was selected for the experimental test of the measurement model and the necessary data was collected.

To summarize the methodology, it can be said that in this study, the conceptual model of the study was prepared and compiled with the help of experts for the analysis of the qualitative data using the consensus method (fuzzy) in the Delphi group panels (Oliver Paul Nayagam and Prasanna, 2023). After this phase, to confirm the developed model with quantitative research methods, a questionnaire based on the data from the qualitative phase was developed on the basis of the conceptual model of research and evaluated in the municipal organization.

RESULTS AND DISCUSSION

Based on expert opinion, the fuzzy mean of each component was calculated. In addition, the fuzzy numbers obtained were converted into unambiguous numbers (De-fuzzified average) by Minkowski's formula the results of which can be seen in Table 2.

In the next step, the average expert opinion was sent to experts again together with the first questionnaire one (second round). Based on this approach, each of the experts can compare their opinions with the average opinions and change their previous opinions if they wish. Table 3 shows the results of the first questionnaire (second round).

In the third step, the level of the expert opinion (difference between the fuzzy mean value of the first and second round) was calculated. If the calculated difference is less than 0.2, the fuzzy Delphi process stops, otherwise the process continues. Table 4 shows the average difference in expert opinions

Considering that the average difference of all components is less than 0.2, it can be concluded that

there is a good consensus among experts and a re-reading of the questionnaire is not necessary. Finally, to extract the components, a limit to accept or not to accept, must be considered. In this study, according to the 80-20 rule (Porvazan *et al.*, 2018), the acceptable limit of the components is about 0.8. According to experts, if the phase-shifted value of the triangle fuzzy number is close to 0.8 or higher, then it is accepted as a component, otherwise it is not accepted. In this way, all the cases have been confirmed by experts as effective factors for green human resource management. Table 5 shows the fuzzy matrix of the direct relationship of factors affecting green human resource management.

After creating the fuzzy matrix of the direct relationship of factors affecting green human resources management, this matrix is transformed into the normalized matrix of the direct relationship. Table 6 shows the normal matrix of direct relationship of factors affecting green human resources management.

According to the results in Table 7, the collective relationship matrix of organizational culture factors and Skills affecting green human resource management is as follows.

Using the mass correlation matrix of factors affecting green human resource management, the values of $\tilde{R}_i, \tilde{D}_i$ were calculated equal to the sum of the rows and columns of the mass correlation of the factors. Considering that the value of each factor was positive, the factor belongs to the group of causes and is definitely an influencing element (Table 8):

The binary comparison of the four factors was performed based on the scale of 9 quantities (Saaty 1990) according to the fuzzy hierarchical analysis

Table 1: Criteria and sub-criteria identified through interviews with experts

Main criteria	Sub- criteria
Organizational Culture	Creating a reward system with an emphasis on creativity and innovation Supporting working groups within the company to improve team morale Lack of focus on decision making and increasing employee participation Delivering training to empower employees Revision of corporate governance models (mission/mission of the organization) based on the principles of sustainable development
Skills	Establishment of educational centers for continuous education Documentation of changes in the company to learn and change future behavior in the company Development of skills of local employees and use of capacities of local groups Foundation of market research groups to collect information Delegation and acceleration of value chain flow Use of available technologies and creation of dedicated channels

Table 2: Average of expert opinions (first round)

Row	Main criteria	Sub-criteria	Average	Fuzzy average	De-fuzzified average
1		Creating a reward system with an emphasis on creativity and innovation	4.42	(0.60, 0.85, 0.96)	0.818
2		Supporting working groups within the company to improve team morale	4.50	(0.63, 0.88, 0.98)	0.839
3	Organizational Culture	Lack of focus on decision making and increasing employee participation	4.33	(0.58, 0.88, 0.98)	0.807
4		Delivering training to empower employees	4.42	(0.60, 0.85, 1.00)	0.828
5		Revision of corporate governance models (mission/mission of the organization) based on the principles of sustainable development	4.42	(0.60, 0.85, 1.00)	0.828
6		Establishment of educational centers for continuous education	4.42	(0.60, 0.85, 1.00)	0.828
7		Documentation of changes in the company to learn and change future behavior in the company	4.42	(0.60, 0.85, 1.00)	0.828
8	Skills	Development of skills of local employees and use of capacities of local groups	4.58	(0.6, 0.90, 1.00)	0.859
9		Foundation of market research groups to collect information	4.42	(0.60, 0.85, 1.00)	0.828
10		Delegation and acceleration of value chain flow	4.42	(0.60, 0.85, 1.00)	0.828
11		Use of available technologies and creation of dedicated channels	4.50	(0.60, 0.85, 1.00)	0.855

Table 3: Average of expert opinions (2nd round)

Row	Main criteria	Sub-criteria	Total average	Average	Fuzzy average	De-fuzzified average
1		Creating a reward system with an emphasis on creativity and innovation		4.58	(0.65, 0.90, 1.00)	0.859
2		Supporting working groups within the company to improve team morale		4.50	(0.63, 0.88, 1.00)	0.8844
3	Organizational Culture	Lack of focus on decision making and increasing employee participation	4.58	4.58	(0.65, 0.90, 1.00)	0.859
4		Delivering training to empower employees		4.67	(0.67, 0.92, 1.00)	0.875
5		Revision of corporate governance models (mission/mission of the organization) based on the principles of sustainable development		4.58	(0.60, 0.85, 1.00)	0.859
6		Establishment of educational centers for continuous education		4.75	(0.65, 0.90, 1.00)	0.891
7		Documentation of changes in the company to learn and change future behavior in the company		4.58	(0.69, 0.94, 1.00)	0.859
8	Skills	Development of skills of local employees and use of capacities of local groups	4.49	4.58	(0.65, 0.90, 1.00)	0.859
9		Foundation of market research groups to collect information		4.67	(0.67, 0.92, 1.00)	0.875
10		Delegation and acceleration of value chain flow		4.58	(0.65, 0.90, 1.00)	0.859
11		Use of available technologies and creation of dedicated channels		4.50	(0.63, 0.88, 1.00)	0.844

Table 4: The difference in the average expert opinions in the first questionnaire

Row	Main criteria	Sub-criteria	De-fuzzified mean (1)	De-fuzzified mean (2)	Disagreement
1		Creating a reward system with an emphasis on creativity and innovation	0.818	0.859	0.042
2		Supporting working groups within the company to improve team morale	0.839	0.844	0.005
3	Organizational Culture	Lack of focus on decision making and increasing employee participation	0.807	0.859	0.052
4		Delivering training to empower employees	0.859	0.891	0.031
5		Revision of corporate governance models (mission/mission of the organization) based on the principles of sustainable development	0.828	0.859	0.031
6		Establishment of educational centers for continuous education	0.828	0.875	0.047
7		Documentation of changes in the company to learn and change future behavior in the company	0.828	(0.859	0.031
8	Skills	Development of skills of local employees and use of capacities of local groups	0.828	0.875	0.047
9		Foundation of market research groups to collect information	0.859	0.891	0.031
10		Delegation and acceleration of value chain flow	0.875	0.859	0.016
11		Use of available technologies and creation of dedicated channels	0.828	0.87559	0.031

Table 5: Fuzzy matrix of the direct relationship of factors influencing GHRM

DM	Main criteria	C1	C2	C3
C1	Organizational Culture	0.00, 0.00, 0.25	(0.23, 0.48, 0.73)	0.25, 0.50, 0.75)
C2	Skills	0.00, 0.21, 0.48)	(0.00, 0.00, 0.25)	0.10, 0.35. 0.60)

Table 6: Normal matrix of direct relationship of factors affecting GHRM

DM	Main criteria	C1	C2	C3
C1	Organizational Culture	0.00, 0.00, 0.10	(0.09, 0.19, 0.29)	0.10, 0.20, 0.30)
C2	Skills	0.00, 0.09, 0.19)	(0.00, 0.00, 0.10)	0.04, 0.14. 0.24)

Table 7: Collective relationship matrix of factors influencing green human resource management

DM	Main Criteria	C1	C2	C3	Ri
C1	Organizational Culture	(0.00, 0.00, 0.10)	(0.09, 0.19, 0.29)	(0.10, 0.20, 0.30)	(0.12, 0.21, 0.31)
C2	Skills	(0.00, 0.09, 0.19)	(0.000, 0.00, 0.10)	(0.04, 0.14, 0.24)	(0.12, 0.21, 0.31)
	Di	(0.06, 0.16, 0.26)	(0.06, 0.16, 0.26)	(0.06, 0.16, 0.26)	(0.06, 0.16, 0.26)

method. The result of the prioritization (fuzzy and definite weight) of the factors, the inconsistency rate according to the method of Gogus and Boucher (1998) (less than 0.1) and the resulting weighted vector, which is W21 (weight), are shown in Table 9. As can be seen, organizational culture (weight 0.289) was more important than other factors. The second priority is skills (weight 0.273).

The current study was conducted with the aim of identifying and prioritizing the effective factors on green human resources management using the Analytical Network Process (ANP) method in Tehran Municipality. After reviewing the texts and the research background, criteria and sub-criteria in the form of organizational culture and skills were calculated. By analyzing the criteria identified by the ANP method, it was found that among the criteria, the highest priority is given to the organizational culture dimension. The results also showed that the average of all indicators of the organizational culture factor exceeded the grade 3 (average). In general, the overall average of all indicators is 4.58 on the border of 4, indicating that experts recognize the organizational culture factor as an important factor for the green human resource management model as a tool for the sustainable development of communities. In this context, according to the results of this research, it can be stated that things like creating a reward system with an emphasis on creativity and innovation, supporting working groups within the company to improve team morale, not focusing on decision-making and increasing employee participation, implementation of courses on empowerment of employees and revision of corporate governance models (the mission/ mission of the organization) based on the principles of sustainable development, design and implementation of special events on environmental and cultural

occasions, training of communication skills for targeted managers interactive culture and creating a think tank and supporting new ideas can be beneficial in the area of implementing a corporate culture to influence green human resource management. This finding is consistent with the research results of Pejman *et al*. (2019) and Musa and Osman (2020). On the other hand, the research results of Yu *et al.* (2020) showed that green human resources management is significantly and positively associated with environmental collaborations with customers and suppliers, and these relationships are moderated by internal green supply chain management. In addition, Darvishi *et al.* (2019) state that social aspects and public beliefs influence sustainable urban development. Skills as another identified factor comes second, so it is clear that things like setting up training centers to provide continuous training, documenting changes to learn and change future behavior in the organization, developing the skills of local employees and leveraging employees' capacities and skills, setting up market research groups to gather information, delegating authority and accelerating the flow of the value chain, as well as using available technologies and creating dedicated channels can all have an impact on green human resource management. The finding is consistent with research by Sabbet and Azizi (2019) and Musa and Osman (2020). The ever-growing governmental pressure necessitates the implementation of green

Table 8: Mass correlation matrix values

Components	Organizational Culture	Skills
$\tilde{R}$	(0.35, 2.12, 8.71)	(0.15, 0.70, 6.09)
$\tilde{D}$	(0.15, 1.82, 7.63)	(0.32, 1.05, 7.78)
$\tilde{R} + \tilde{D}$	(0.50, 3.94, 16.34)	(0/47 ،1/75 ،13/88)
$\tilde{R} - \tilde{D}$	(0.00, 0.09, 0.19)	(0.47, 1.75, 0.26)
$(\tilde{R} + \tilde{D})^{def}$	6.93	5.37
$(\tilde{R} + \tilde{D})^{def}$	0.53	-0.74

Table 9: Prioritization (weighting) of factors, compatibility coefficient and weighted vector (W21)

Factors affecting green human resource management		Fuzzy weight	Definitive weight	Inconsistency rate
C1	Organizational Culture	0.158, 0.265, 0.444	0.289	CR^m=0.05
C2	Skills	0.148, 0.250, 0.420	0.273	

human resource management practices which can strategically support organizations in their pursuit of sustainable approaches and facilitate designing of an effective human resources framework. This framework must empower and motivate the workforce, and establish a culture that aligns with desired behavioral outcomes, as suggested by Bahuguna and colleagues (2023). In the context of digital startups, particularly in Iran where sanctions and economic difficulties present notable obstacles, managerial emphasis is needed on entrepreneurship to cultivate innovative and creative thinking among employees through the suggestion system. As employees gain confidence in the ethical conduct of their leaders, they generate novel ideas to enhance the competitiveness of digital service and urban tech startups on the global stage, while offering prompt feedback to colleagues for improvement and enabling leaders to address crucial organizational issues and challenges (Tajpour and Razavi, 2023). In order to foster the development of green entrepreneurship processes, it is crucial to establish an appropriate platform. Additionally, it is recommended to define career trajectories based upon a green merit system and cultivate an ethos of participation and teamwork amongst personnel. Furthermore, it is advisable to incorporate educational materials in written form, using successful organizations as models, as a means to promote the adoption of sustainable business practices. Implementing these approaches may prove beneficial in advancing environmentally-friendly commercial initiatives. Measures aimed at promoting sustainable practices within municipal organizations may involve the establishment of green enterprises, fostering positive attitudes towards environmentally conscious behavior among employees, procurement of services that align with sustainable operations, inclusive engagement of employees in the pursuit of sustainable development goals, provision of incentives and opportunities for competitive empowerment towards conventional work tasks. The dimension of Green Empowerment assumes responsibility for leadership platforms aimed at empowering employees throughout the process of driving environmental improvement within the organization. These platforms encompass various aspects, such as developing green skills, fostering environmentally responsible behaviors, enhancing personal growth towards sustainable practices, promoting knowledge acquisition regarding sustainable concepts, and stimulating cognitive development in the context of sustainable practices.

CONCLUSON

Increasing concerns about the environment and the consequent emergence of international environmental standards have forced organizations to adopt green strategies and continue to apply green management in all organizational matters and concerns, and in this regard human resources management with a focus on greening human resources. The organization's strategic goals help in the greening of the organization, and municipalities are one of the most important organizations that need to take on the role of green HR management to create and implement green thinking among employees. The purpose of this research was to identify and prioritize factors affecting green human resources management using fuzzy network analysis process method in Tehran city government conducted with mixed exploratory method. In this study, the effective factors for green human resources management based on sustainable development were identified based on the research background and expert opinion from the two categories of organizational culture and skills analyzed by fuzzy Delphi method. The results of the research showed that organizational culture is the main factor in creating green human resources management, and skills are second. The results also indicate that leadership strategies (constructive dealing with the environment and teamwork) currently play the most important role in the results of the Green Human Resource Management (GHRM) model as a tool for the sustainable development of communities. Based on the results obtained, the development of green competencies in oneself and the promotion of behaviors that show green creativity and innovation in the organization should be considered, as well as a management that relies on transformative leadership strategies can be the reason for be a change in attitudes and thoughts among them the human resources and the organization. On the other hand, create opportunities to receive feedback from colleagues, customers and other key stakeholders on the organization's performance so that better and more innovative services can be provided based on the process of generating creative ideas and implementing ideas when possible. Finally, the use of external consultants and the outsourcing of some non-specialized services to create the necessary time

and space for expansion, expansion and attention to the dimensions of green entrepreneurship among employees. Influencing factors in the current study in the dimension of organizational agreements are the monitoring of the set of measures that align the actions of the senior elements of the organization towards green human resource management based on social responsibility. In general, the measures include a series of developments such as the development of guidelines, green HR policies, legislation related to the company's social capital, organizational controllers and the development of a vision in the area of implementing the green approach. The dimension of culture formation and discourse formation relates to the development of the human resources approach in relation to the green approach and participation in its implementation; including the guidance and leadership of green human resources, the institutionalization of the green approach and rationale. The management factors dimension is leadership style in administering and supporting green principles; these include managers' approach to green principles, managers' green support, and managers' commitment to green principles. The design dimension of green processes oversees the design of the main processes in the implementation of environmentally friendly human resources management based on social capital; Of course, due to the novelty of the topic, future researchers have plenty of room to create new foundations in this field, such as studying the impact of technical and managerial skills of employees on the implementation of green human resources management and studying the impact of information sharing in the organization at the implementation of resource management. Green Human Resources will examine the impact of collaboration between different departments of the organization in the implementation of green human resources management, examine solutions and methods for executives' understanding of environmental programs, and expand the topics and their practical application.

AUTHOR CONTRIBUTION

ACKNOWLEDGMENT

CONFLICT OF INTEREST

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PUBLISHER'S NOTE

IJHCUM Publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations

ABBREVIAION

ANP	Analytical network process
C	Composition
DM	Diphase matrix
$\tilde{D}$	Line
GHRM	Green human resource management

HR	Human resource
$\tilde{R}$	Column
R	Random index
W	Weight

REFERENCES

Aggarwal, S.; Sharma, B., (2015). Green HRM: Need of the hour. Int. J. Manage. Soc. Sci. Res. Rev., 1(8): 63-70 (**8 pages**).

Arredondo-Trapero, F.G.; Guerra-Leal, E.M.; Kim, J., (2023). Effectiveness of the voluntary disclosure of corporate information and its commitment to climate change. Global J. Environ. Sci. Manage., 9(4): 1033-1048 (**16 pages**).

Awazkhah, R.A., (2019). Review of the literature on green human resource management in organizations. The International Conference on Interdisciplinary Studies in Management and Engineering (**19 pages**). (In Persian)

Asadolahi Dehkordi, E.; Ghorbanpour, A.; Ahmadi, H., (2019). The impact of green human resource management and environmental practices on sustainable performance in downstream petrochemical industries. J. Sustain. Hum. Res. Manage., 2(3): 139-**156 (18 pages).** (In Persian)

Aibaghi Esfehani, S.; Hasani, A.A.; Hosseini Nia, S.R., (2018). Effect of green HRM on firm sustainability at general administration of youth and sport in north Khorasan province. 5(2): 309-328 (**30 pages**). (In Persian)

Aggarwal, S.; Sharma, B., (2015). Green HRM: Need of the hour. Int. J. Manage. Soc. Sci. Res. Rev., 1(8): 63-70 (**8 pages**).

Babajanzadeh, A.; Navaei, H., (2014). Development of human resource management from a global and historical perspective. The first scientific research conference on the new findings of management, entrepreneurship and education sciences in Iran. (**12 pages**). (In Persian)

Bahuguna, P.C.; Srivastava, R.; Tiwari, S., (2023). Two-decade journey of green human resource management research: a bibliometric analysis. Benchmarking: Int. J., 30(2): 585-602 (**18 pages**).

Barforoush, N.; Etebarian, A.; Naghsh, A.R.; Shahin, A., (2020). A dynamic modeling for green business development in oil refining industry. Global J. Environ. Sci. Manage., 6(2): 233-244 (**12 pages**).

Brotosusilo, A.; Utari, D.; Negoro, H.A.; Firdaus, A.; Velentina, R.A., (2022). Community empowerment of waste management in the urban environment: More attention on waste issues through formal and informal educations. Global J. Environ. Sci. Manage., 8(2): 209-224 (**16 pages**).

Behnejad, A., (2018). Green human resources in line with sustainable development. The first national conference on management, ethics and business. (**7 pages**). (In Persian)

Candrianto, C.; Aimon, H.; Sentosa, S.U., (2023). The role of knowledge, awareness and environmental attitudes in green product management. Global J. Environ. Sci.Manage., 9(1): 101-112 (**12 pages**).

Darvishi, M.R.; Ghaedi, M.R.; Keshishian Sirki,G.; Tohidi Fam, M., (2019). Sustainable Urban Development Based on Social Capital and Public Trust Indicators, Case Study: District 2, Tehran. 11(40): 201-216 (**16 pages**). (In Persian)

Ercantan, O.; Eyupoglu, S., (2022). How do green human resource management practices encourage employees to engage in green behavior? Perceptions of university students as prospective employees. Sustainability, 14(3): **P. 1718**.

Gogus, O.; Boucher, T.O., (1998). Strong transitivity, rationality and weak monotonicity in fuzzy pairwise comparisons. Fuzzy Sets Syst., 94(1): 133-144 (**12 pages**).

Gryshchenko, O.; Babenko, V.; Bilovodska, O.; Voronkova, T.; Ponomarenko, I.; Shatskaya, Z., (2022). Green tourism business as marketing perspective in environmental management. Global J. Environ. Sci. Manage., 8(1): 117-132 (**16 pages**).

Haddock-Millar, J.; Sanyal, C.; Müller-Camen, M., (2016). Green human resource management: a comparative qualitative case study of a United States multinational corporation. Int. J. Hum. Resour. Manage., 27(2): 192-211 (**13 pages**).

Jabbour, C.J.C.; De Sousa Jabbour, A.B.L., (2016). Green human resource management and green supply chain management: Linking two emerging agendas. J. Clean. Prod., 112: 1824-1833 (**10 pages**).

Jackson, S.E.; Renwick, D.W.; Jabbour, C.J.; Muller-Camen, M., (2011). State-of-the-art and future directions for green human resource management: Introduction to the special issue. German J. Hum. Resour. Manage., 25(2): 99-116 (**18 pages**).

Kim, Y.J.; Kim, W.G.; Choi, H.M.; Phetvaroon, K., (2019). The effect of green human resource management on hotel employees' eco-friendly behavior and environmental performance. Int. J. Hosp. Manage., 76: 83-93 (**11 pages**).

Kramar, R., (2014). Beyond strategic human resource management: is sustainable human resource management the next approach? Int. J. Hum. Resou. Manage., 25(8): 1069-1089 (**21 pages**).

Lee, H., (2020). The role of environmental uncertainty, green HRM and green SCM in influencing organization's energy efficacy and environmental performance. Int. J. Energy Econ., N.10 332-339.

Lee, K.H., (2009). Why and how to adopt green management into business organizations? The case study of Korean SMEs in manufacturing industry. Manage. Decis., 47(7): 1101-1121 (**21 pages**).

Loknath, Y.; Azeem, B.A., (2017). Green management–concept and strategies. In National Conference on Marketing and Sustainable Development. 13(14): 688-702 (**15 pages**).

Mansour, M., (2023). The influences of environmental awareness on green performance. Global J. Environ. Sci. Manage., 9(4): 899-914 (**16 pages**).

Mishra, P. (2017). Green human resource management: A framework for sustainable organizational development in an emerging economy, Int. J. Organ. Anal., 25(5), 762-788 (**27 pages**).

Mousa, S.K.; Othman, M., (2020). The impact of green human resource management practices on sustainable performance in healthcare organizations: A conceptual framework. J. Clean. Prod., 243: 118595.

Oliver Paul Nayagam, J.; Prasanna, K., (2023). Response surface methodology and adaptive neuro-fuzzy inference system for adsorption of reactive orange 16 by hydrochar. Global J. Environ. Sci. Manage., 9(3): 373-388 (**16 pages**).

Opatha, H.H.P.; Arulrajah, A.A. (2014). Green human resource management: Simplified general reflections. Int. Bus. Res., 7(8): 101- 112 (**12 pages**).

Pejman, K.; Hadi Picani, M.; Pourmiri, M., (2019). Providing a green human resource management model in the health sector: providing a basic theory. 23(1): 112-122 (**11 pages**). (In Persian)

Peñaranda Barba, M.A.; Alarcón Martínez, V.; Gómez Lucas, I.; Navarro Pedreño, J., (2021). Mitigation of environmental impacts in ornamental rock and limestone aggregate quarries in arid and semi-arid areas. Global J. Environ. Sci. Manage., 7(4): 565-586 (**22 pages**).

Porvazan, I.; Korke Abadi, Z.; Arghan, A., (2018). Measurement of sustainable development indicators for neghborhood sustainable development in Mahabad township. 1(1): 27-40 (**14 pages**). (In Persian)

Sabbet, A.; Azizi, M., (2019). Evaluating the impact of human resource strategies on the creation and development of green human resource management. Int. J. Bus. Manage. Entrep., 4(13): 67-85 (**19 pages**). (In Persian)

Samimi, M.; Shahriari Moghadam, M., (2018). Optimal conditions for biological removal of ammonia from wastewater of a petrochemical plant using the response surface methodology. Global J. Environ. Sci. Manage., 4(3): 315-324 (**10 pages**).

Samimi, M.; Shahriari Moghadam, M., (2020). Phenol biodegradation by bacterial strain O-CH1 isolated from seashore. Global J. Environ. Sci. Manage., 6(1): 109-118 (**10 pages**).

Sudin, S., (2011). Strategic green HRM: A proposed model that supports corporate environmental citizenship. In International Conference on Sociality and Economics Development, IPEDR 10: 79-83 (**6 pages**).

Shaikh, M., (2010). Green HRM: a requirement of 21st century. J. Res. Commerce Manage., 1: 122-127 (**6 pages**).

Singh, S.K.; Del Giudice, M.; Chierici, R.; Graziano, D., (2020). Green innovation and environmental performance: The role of green transformational leadership and green human resource management. Technolo. Forecast. Soc. Change, 150: 119762.

Sivakumar, D.; Srikanth, P.; Ramteke, P.W.; Nouri, J., (2022). Agricultural waste management generated by agro-based industries using biotechnology tools. Global J. Environ. Sci. Manage., 8(2): 281-296 (**16 pages**).

Shirzadi Kandi, M., Bayat, A.H., (2018). The role of municipalities in sustainable urban development. First National Conference on Geography and Urban and Rural Planning (**8 pages**). (In Persian)

Saaty, T.L., (1990). How to make a decision: the analytic hierarchy process. Eu. J. Oper. Res., 48(1): 9-26 (**18 pages**).

Salvaraji, L.; Avoi, R.; Jeffree, M.S.; Saupin, S.; Toha, H.R.; Shamsudin, S.B., (2023). Effects of ambient air pollutants on cardiovascular disease hospitalization admission. Global J. Environ. Sci. Manage., 9(1): 157-172 (**16 pages**).

Tang, G.; Chen, Y.; Jiang, Y. Paillé, P.; Jia, J., (2018). Green human resource management practices: scale development and validity. Asia pacific J. Hum. Resour. 56(1): 31-55 (**25 pages**).

Tajpour, M.; ; Razavi, S.M., (2023). The effect of team performance on the internationalization of Digital Startups: The mediating role of entrepreneurship. *Int. J. Hum. Cap. Urban Manage.*, 8(1): 17-30 **(14 peges).**

Tajpour, M.; Moradi, F.; Jalali, S.E., (2018). Studying the influence of emotional intelligence on the organizational innovation. Int. J. Hum. Capital Urban Manage., 3(1): 45-52 (**8 pages**).

Tavakoli, A.; Hashemi, A.R.; Sabbet, A.; Razaghi, S., (2018). Proposing a green human resource management model on the basis of human resource management. 10(1): 77-104 (**28 pages**). (In Persian)

Vasudevan, L.; Iqbal, A., (2018). Relationship between organizational climate and citizenship behavior of the non-supervisory staff in Bank Simpanan National, Malaysia. Int. J. Hum. Capital Urban Manage., 3(4): 287-302 (**16 pages**).

Yu, W.; Chavez, R.; Feng, M., Wong, C.Y.; Fynes, B., (2020). Green human resource management and environmental cooperation: An ability-motivation-opportunity and contingency perspective. Int. J. Prod. Econ., 219: 224-235 (**12 pages**).

Zaid, A.A.; Jaaron, A.A.M.; Talib Bon, A., (2018). The impact of green human resource management and green supply chain management practices on sustainable performance: An empirical study. J. Clean. Prod..204: 965-979 (**15 pages**).