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Article

The Role of Green Human Resource Management Practices in Environmental Protection from Pollution - A Case Study of a Group of Economic Enterprises in Setif Municipal

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Abstract

This study aims to determine the role of Green Human Resource Management (GHRM) practices (green recruitment, green training, green motivation, and green performance appraisal) in environmental protection against pollution, focusing on a sample of economic institutions located in the municipal of Setif.

To achieve the objectives of the study, a structured questionnaire was developed to collect data on the subject. The questionnaires were distributed to a sample consisting of 80 enterprises operating in the municipal of Setif. The collected data were analyzed using the SPSS statistical software. The results shows that green HRM practices play a statistically significant role in protecting the environment from pollution at a 5% significance level, with a correlation coefficient of 72.8%. Furthermore, the study found that green recruitment, green training, green motivation, and green performance appraisal all have a positive impact on Protecting the environment from pollution.

The study emphasizes the need to generalize training programs related to environmental protection across all administrative levels and recommends the establishment of a system to monitor the development of employees' environmental performance after participating in such programs.

Keywords: Green Recruitment, Green Training, Green Motivation, Green Performance Appraisal, Environment, Pollution.

1. Introduction

In recent years, there has been a growing global interest in environmental issues, driven by international agreements such as the Kyoto Protocol (1997), the Bali Conference (2007), and the Copenhagen Conference (2009). The adverse effects of pollution have prompted governments and organizations to adopt policies aimed at mitigating environmental degradation (Liu, 2023). In light of this reality, institutions are increasingly expected to strike a balance between economic performance and the reduction of their environmental footprint. (Shoeb, 2023) Maintaining ecological balance has become an imperative for protecting the environment from pollution. Given the direct and indirect environmental impacts of their activities, organizations are compelled to assume responsibility for minimizing their negative environmental effects. (Delphinus, 2024)

In this context, the need arises to align Human Resource Management (HRM) practices with environmental considerations to reconcile economic objectives with environmental responsibility. (Hassan & Hend, 2023) This can be achieved by integrating sustainability into HR policies, such as green recruitment, green training, green motivation, and green performance appraisal. These practices contribute to reducing the environmental footprint.

while also enhancing corporate reputation and ensuring compliance with environmental regulations (Saremi, 2020). This approach represents a foundational step toward promoting sustainability and ensuring institutional performance efficiency. As such, human resources become a key enabler in achieving a balanced integration of economic, social, and environmental requirements. (Dewi, Retno, Hosam, Ratih, & Baligh, 2025)

1.1.Research Problem

Based on the above, the central research question of this study is formulated as follows: What is the role of green human resource management practices in protecting the environment from pollution in a group of economic institutions located in the municipal of Setif ?

1.1.1.Sub-Questions

Building upon the main research question, the following sub-questions are proposed:

- What is the role of green recruitment in protecting the environment from pollution in a group of economic institutions in the municipal of Setif?
- What is the role of green training in protecting the environment from pollution in a group of economic institutions in the municipal of Setif?
- What is the role of green motivation in protecting the environment from pollution in a group of economic institutions in the municipal of Setif?
- What is the role of green performance appraisal in protecting the environment from pollution in a group of economic institutions in the Municipal of Setif?

1.1.2.Research Hypotheses

Green Human Resource Management (GHRM) practices play a role in protecting the environment from pollution in a group of economic institutions in the Municipal of Setif.

Based on this main hypothesis, the following null sub-hypotheses are formulated:

- H_{01}: Green recruitment does not play a role in protecting the environment from pollution in a group of economic institutions in the Municipal of Setif.
- H_{02}: Green training does not play a role in protecting the environment from pollution in a group of economic institutions in the Municipal of Setif.

- H_{03}: Green motivation does not play a role in protecting the environment from pollution in a group of economic institutions in the Municipal of Setif.
- H_{04}: Green performance appraisal does not play a role in protecting the environment from pollution in a group of economic institutions in the Municipal of Setif

2.LITERRATURE REVIEW

Green Human Resource Management (GHRM) is a relatively recent topic that intersects with environmental concerns. Numerous researchers have explored this field from various perspectives, highlighting the impact of GHRM on environmental performance. The following studies have specifically examined this effect:

The study by Banerjee & Dwivedi (2025) focused on the implementation of GHRM in the Indian IT sector, analyzing its influence on managerial performance. Using Structural Equation Modeling (SEM), the results indicated that integrating environmental initiatives into HR activities enhances managerial commitment and performance. The study emphasizes the need for a comprehensive approach that considers both motivational and knowledge-based dimensions to ensure sustained engagement in green initiatives. (Banerjee, 2025)

Safwat et al. (2024) investigated the institutional motivations behind adopting GHRM practices and their role in achieving organizational sustainability. The key practices analyzed included green recruitment, green training, green incentives, and green performance management, all of which collectively contribute to fostering a culture of sustainability within organizations. By aligning employee objectives with environmental goals, the study concluded that GHRM promotes innovation and ensures long-term organizational sustainability. (Safwat, 2024)

Similarly, Delphinus & Mwita (2024) examined the impact of four fundamental GHRM practices—green recruitment, green training, green performance management, and green compensation management—on environmental performance. The study, based on a quantitative case analysis involving 198 participants, found that these practices had a significant positive effect on environmental performance. Moreover, perceived organizational support played a crucial mediating role in strengthening the relationship between GHRM practices and environmental outcomes, highlighting the importance of senior management commitment to environmental initiatives. (Delphinus, 2024)

Sharma & Kumar (2024) conducted a qualitative analysis of the theoretical foundations, importance, and potential impacts of GHRM on organizations. The study explored the challenges HR practitioners face in integrating eco-friendly practices and examined the effects of GHRM on employee attitudes, productivity, resource efficiency, waste reduction, and cost savings. The findings suggest that GHRM enhances employee retention, improves workplace conditions, and fosters a socially and environmentally responsible corporate culture. (Sharma, 2024)

Expanding the scope of research, Nugraha et al. (2024) identified six dimensions of GHRM and evaluated their impact on corporate sustainability. By analyzing data from 347 HR managers in Indonesian organizations, the study found that three of these dimensions were closely linked to organizational sustainability performance. This underscores the need for strategic alignment between HR practices and environmental policies to ensure effective implementation. (Nugraha, 2024)

Shahrulnizam et al. (2024) conducted a systematic review of 35 scholarly studies to examine the role of GHRM in enhancing sustainable organizational practices. The review highlighted key dimensions of GHRM, as well as challenges such as weak leadership commitment and resource constraints that hinder adoption. The study emphasizes the integration of GHRM into broader corporate strategies and calls for

future research on industry-specific barriers and the role of digital transformation in improving GHRM implementation. (Shahrulnizam, 2024)

The study by Saqlain et al. (2024) explored the impact of GHRM practices on environmental performance, analyzing the moderating roles of green organizational culture, employee environmental behavior, leadership style, and environmental awareness. Data was collected from five environmentally conscious organizations, and the results indicate that GHRM significantly enhances environmental performance, especially in organizations with a strong sustainability culture and transformational leadership. The study further demonstrates that integrated GHRM improves waste management, energy conservation, and carbon footprint reduction, thereby supporting both environmental and economic sustainability. (Saqlain, 2024)

On a broader theoretical level, Kandel et al. (2024) reviewed GHRM activities within corporate frameworks, developing a comprehensive analytical and theoretical framework for GHRM literature. The study examined fundamental dimensions such as green recruitment, training, performance management, compensation, employee participation, and workplace safety. The findings highlight the importance of integrating environmental management principles into HR practices to enhance organizational performance and sustainability. (Kandel, 2024)

Kumar & Kant (2024) examined the feasibility of implementing GHRM in the IT sector in Central NCR, India, analyzing factors influencing adoption based on company size. Through a survey of 422 IT employees and the application of Exploratory Factor Analysis (EFA), the study found that IT firms are more inclined to adopt GHRM practices due to their strong connection to digital technology and sustainability. The study recommends prioritizing GHRM adoption in developing countries to enhance corporate sustainability. (Kumar, 2024)

Finally, the exploratory study by Okunhon & Yemisi (2024) discussed the integration of GHRM with corporate sustainability strategies, focusing on its impact on employee engagement and competitive advantage. The study reviewed key GHRM strategies, challenges in implementation, and best practices for improving effectiveness. It also emphasized the active role of employees in supporting and reinforcing environmental practices within organizations, contributing to both long-term environmental and business benefits. (Okunhon, 2024)

The reviewed studies collectively highlight the crucial role of GHRM in promoting environmental sustainability within organizations. A strong sustainability culture, structured HRM practices, and committed leadership contribute to improved organizational performance, ensuring effective alignment between environmental and economic objectives.

3.THEORETICAL BACKGROUND

3.1.The concept of Green Human Resource Management (GHRM)

Green human resources management (GHRM) refers to the integration of environmental sustainability considerations into HRM procedures. This entails applying ecologically conscious procedures and guidelines to hiring, training, development, motivation, and performance review, among other area (Shafey, 2023)

By reducing waste and increasing organizational productivity, researchers verify that GHRM practices and measures significantly influence an organization's environmental performance. (Moshiripour, 2021)

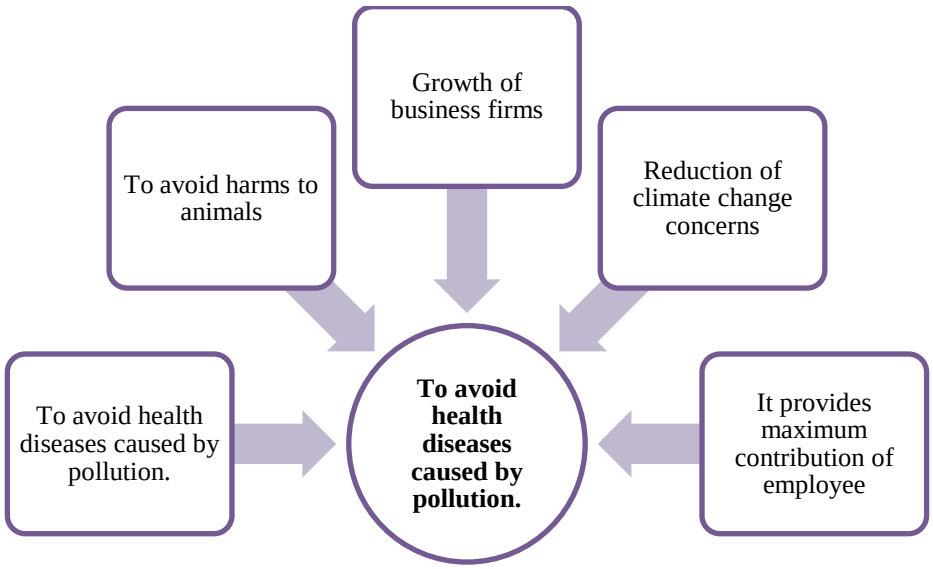
Green practices involve actions aimed at minimizing the negative impact of human activity on the environment, ensuring environmental responsibility.One method of implementing GHRM practices is green job design, which integrates environmental sustainability into job descriptions and performance reviews

while also providing employees with support and training to enhance their sustainability knowledge and skills. (Shafey, 2023)

The process of transforming employees into environmentally conscious individuals through the application of green HR policies and practices is generally referred to as "Green HRM." This is pursued for the benefit of individuals, society, the community, and the planet as a whole. (Dimitrov, 2021)

3.2.Importance of Green Human Resource Management

The importance of Green Human Resources Management (GHRM) is reflected in the following aspects:



Figure(1): Importance of Green Human Resource Management
Source: (Rana, 2020)

3.3.The dimensions ofGreen Human Resource Management

There are five dimensions of green human development, as follows :

3.3.1.Green Recruitment and Selection

refers to the notion that selecting employees who are environmentally conscious and supportive can help hospitality management reach its environmental sustainability targets. (Shafey, 2023)

incorporating eco-friendly principles into the recruitment materials. It is possible to practice and hire online to do paperless work. (Rana, 2020)

3.3.2.Green Training and development

The process of giving staff members the information, abilities, and resources they need to carry out sustainable practices is known as "green training and development."(Shafey, 2023)

educating staff members about the green concept through educational initiatives. Taking into account employee needs and role analysis. (Rana, 2020)

Reduced waste, effective and efficient use of resources, energy conservation and preservation, and a reduction in environmental degradation are all achieved through green training and development approaches. Additionally, green training and development methods can be used to boost staff members' green skills on the importance of environmental sustainability. Therefore, seminars and workshops that help employees gain the information and skills necessary to effectively manage the environment should be a

part of green training and development methods. This will allow them to demonstrate pro-environmental behaviors while also becoming eco-friendly.(Fapohunda, 2022)

3.3.3.Motivation

Providing intrinsic & extrinsic awards to employees for their green roles (Rana, 2020)

A green reward system is essential for inspiring individuals and recognizing their noteworthy contributions to environmental management. Adopting reward criteria aims to attain, sustain, and inspire individuals to perform well and recognize the significance of environmental protection. A green incentive system is one that is in line with the company's green policies and procedures. (Das & Dash, 2024)

3.3.4.Measurement of performance

Evaluating employees' task performance according to Green-related criteria. Measuring employees environmental behavior through key performance indicators (Rana, 2020)

The degree to which specific employees exhibit behavior (actions and activities) and generate outcomes in relation to greening during a given time frame is known as the Green Performance Appraisal. The Green Performance Appraisal evaluates how well employees are performing in terms of moving toward a greener workplace. (Fathia Ardiza, 2021)

3.3.5.Environmental pollution

Unwanted changes in the natural environment that negatively impact humans, animals, and plants are known as environmental pollution. A pollutant is the material that contributes to pollution. Pollutants might be gases, liquids, or solids. When a substance's concentration rises over its normal abundance, either as a result of natural events or human activity, it is considered a pollution. (Satsita Khasanova, 2023)

An undesirable byproduct of technology and destructive human activity, environmental pollution endangers the lives of living creatures and presents numerous difficulties for human existence. (Saremi, 2020)

4.DATA AND METHODOLOGY

Following a review of the relevant literature, this study adopts a descriptive research methodology, utilizing a structured questionnaire for data collection and analysis. The study population consists of a group of economic institutions operating in the Municipal of Setif. In defining the study sample, particular attention was given to institutions holding the ISO 14001 certification and demonstrating adoption of an environmental management system. This criterion was used to determine inclusion within the study population.

A purposive sampling technique was employed, targeting a group of managers and executives within each institution. To achieve the objectives of the study, 68 questionnaires were deemed valid for analysis out of a total of 80 distributed, yielding a response rate of approximately 85%.

4.1.Data Collection Instruments

Interviews were conducted to gather insights, opinions, and additional data to support the field study.

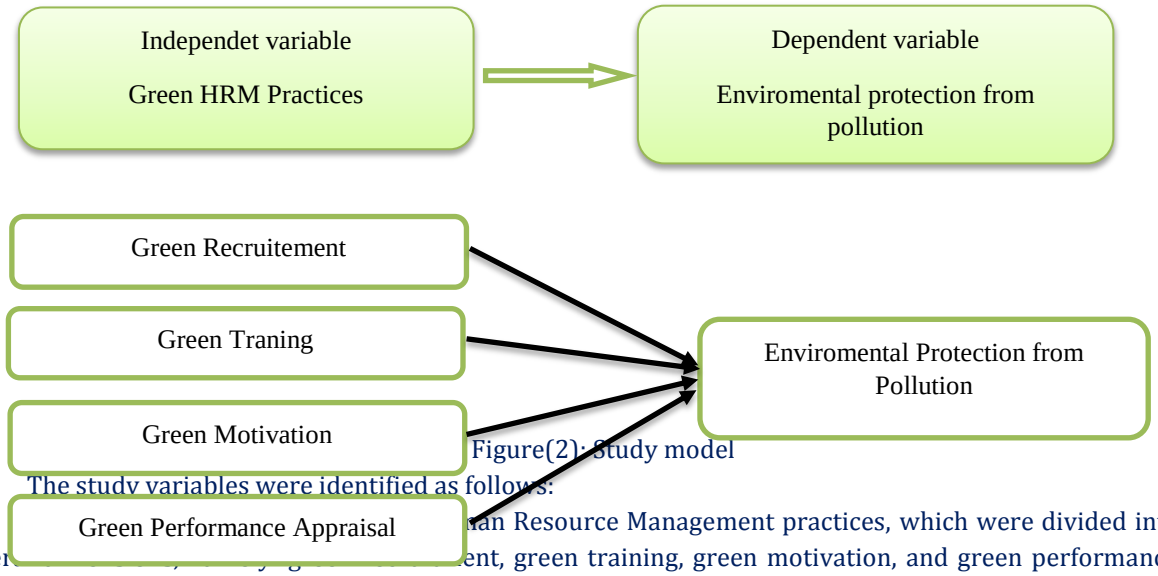
Interview-administered questionnaires were used in some cases to clarify the form's content for certain participants.

The self-administered questionnaire served as the primary data collection tool for the fieldwork. It included a total of 38 questions, divided into two main sections:

- Section I: Focused on Green Human Resource Management practices (green recruitment, green training, green motivation, and green performance appraisal), comprising 28 questions.
- Section II: Addressed environmental protection from pollution, represented by 10 questions.

4.2.Conceptual Framework of the Study

A conceptual model was created based on a thorough analysis of earlier research that was pertinent to the issue of the study, as well as the problem question, hypotheses, and objectives of the investigation. The purpose of this model is to investigate how Green Human Resource Management (GHRM) techniques contribute to pollution prevention in the environment. By highlighting how sustainable HRM practices can help reduce the environmental impact of organizational operations, the model aims to create a structured framework that connects important GHRM dimensions (green recruitment, green training, green motivation, and green performance appraisal) with environmental performance.



Figure(2): Study model

The study variables were identified as follows:

an Resource Management practices, which were divided into sever ent, green training, green motivation, and green performance appraisal.

- Dependent Variable: Environmental protection from pollution, which aims to identify the measures taken by the institutions under study to reduce environmental pollution and protect the environment

5.RESULTS AND DISCUSSION

The SPSS (Statistical Package for the Social Sciences) software was used to analyze the survey data. Cronbach's Alpha coefficient was calculated, where a value of 0.6 or higher indicates reliability and internal consistency. Additionally, the mean score was used to analyze the various responses of the sample members on different dimensions and questions of the questionnaire, while the standard deviation was calculated to determine the extent of variation in the responses for each question. The Spearman's rank correlation coefficient was also used to assess the existence of a positive relationship between Green Human Resource Management practices and environmental protection from pollution. It is worth noting that a five-point Likert scale was adopted for evaluating the responses, as shown in the following table:

Table (1): Evaluation of the Five-Point Likert Scale Categories

index	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Range of the arithmetic mean	(4.21 - 5)	(3.41 - 4.2)	(2.61 - 3.40)	(1.81 - 2.60)	(1 - 1.80)

Source: Prepared by the authors based on the SPSS software outputs.

5.1.Reliability Test of the Questionnaire

The following table presents the results of the Cronbach's Alpha reliability test for the various dimensions of the questionnaire:

Table (2): Cronbach's Alpha Reliability Coefficients for Different Dimensions of the Questionnaire

Dimension	No. Questions	Cronbach alpha	Decision
Green Recruitement	7	0,840	High
Green Traning	7	0,861	High
Green Motivation	7	0,875	High
Green Performance Appraisal	7	0,718	High
Enviromental Protection from Pollution	10	0,843	High

Source: Prepared by the authors based on the SPSS software outputs.

It is evident from the table above that the reliability coefficients for the study's dimensions all exceeded 0.7, ranging between 0.728 and 0.875, all of which are higher than the benchmark value of 0.6. This indicates that the questionnaire demonstrates a high degree of reliability.

5.2.Presentation and Analysis of Field Study Data

The following presents an analysis of the results related to Green Human Resource Management practices (green recruitment, green training, green motivation, and green performance appraisal), as well as those related to environmental protection from pollution.

5.2.1.Presentation and Analysis of Results Related to Green Recruitment

The following table presents the results related to green recruitment.

Table (3): Data Analysis Results Related to Green Recruitment

Number	Mean	Standard deviation	Trend	Signification level
01	3.868	0.731	Agree	0.000
02	3.868	0.862	Agree	0.000
03	3.912	0.663	Agree	0.000
04	3.912	0.748	Agree	0.000
05	3.794	0.890	Agree	0.000
06	3.632	0.790	Agree	0.000
07	3.515	0.922	Agree	0.000
Green Recruitement	3.786	0.575	Agree	0.000

Source: Prepared by the authors based on the SPSS software outputs.

From the table, it appears that most of the mean scores for the green recruitment questions are strong, ranging between 3.515 and 3.912, with statistically significant standard deviations at a 0.05 error level.

Question 03 refers to the institutions under study identifying their staffing needs while considering environmental sustainability. This question ranked first with a mean score of 3.912, confirming that the institutions under study include environmental concerns related to environmental protection when determining their staffing needs.

Question 04 refers to targeting the recruitment of individuals with environmental orientations. It ranked second with a mean score of 3.912, indicating that the institutions under study focus on attracting individuals with environmental orientations and specializations.

Question 01 refers to identifying the green competencies and skills required for the job position, ranking third with a mean score of 3.868. This reflects the institutions' focus on ensuring the availability of competencies and skills related to environmental protection in the job candidates.

Question 02 refers to accurately describing the tasks and activities related to environmental protection, ranking fourth with a mean score of 3.868, meaning that the institutions under study place significant importance on tasks and activities related to the environment.

Question 05 refers to focusing on the environmental awareness of the candidate during the interview, ranked fifth with a mean score of 3.794, indicating that the institutions under study prioritize environmental culture in the job applicants.

Question 06 refers to the decision to hire a candidate being based on environmental protection criteria, ranked fourth with a mean score of 3.632, reflecting that the institutions under study incorporate environmental considerations in the interview questions.

Question 07 refers to experience in the environmental field being a criterion for accepting the candidate for the job, ranked fifth with a mean score of 3.515, suggesting that the institutions under study prioritize experience in the environmental field as a key criterion for protecting the environment from pollution.

In general, the table above indicates that the overall mean score for all questions related to green recruitment is 3.786, with a standard deviation of 0.575, which suggests a tendency toward agreement. This indicates that the sample members confirm the institutions' focus on environmental orientations when recruiting individuals.

5.2.2.Presentation and Analysis of Results Related to Green Training

The following table presents the results related to green training.

Table (4): Data Analysis Results Related to Green Training

Number	Mean	Standard deviation	Trend	Signification level
08	3.529	1.000	Agree	0.000
09	3.529	0.969	Agree	0.000
10	3.485	0.970	Agree	0.000
11	3.397	0.995	Neutral	0.002
12	3.279	1.195	Neutral	0.058
13	3.368	1.145	Neutral	0.010
14	3.368	1.078	Neutral	0.006
Green Traning	3.422	0.778	Agree	0.000

Source: Prepared by the authors based on the SPSS software outputs.

Question 08 refers to the institutions under study integrating environmental orientations into their annual training plans, which ranked first with a mean score of 3.529. This indicates that the sample members agree and confirm that the institutions under study take environmental considerations into account when preparing their annual training plans.

Question 09 refers to the institutions under study identifying their training needs related to environmental protection, which ranked second with a mean score of 3.529. This means that the sample

members confirm that the institutions regularly identify necessary green training programs related to the environment.

Question 10 refers to the institutions under study targeting the development of green competencies and skills for their employees, which ranked third with a mean score of 3.485. This suggests that the institutions under study place significant importance on equipping their employees with the competencies and skills that enhance their environmental performance.

Question 11 refers to the institutions under study considering the clauses and the ISO 14001 Environmental Management System when preparing their training plans, which ranked fourth with a mean score of 3.397. This indicates that the institutions under study meet the minimum requirements for respecting the clauses of the ISO 14001 system when formulating their training plans.

Question 13 refers to the institutions under study being concerned with the feedback from implementing green training programs, which ranked fifth with a mean score of 3.368. This means that the institutions under study are not particularly focused on tracking the feedback related to the implementation of these training programs.

Question 14 refers to the institutions under study monitoring the development of employees' environmental performance after training, which ranked sixth with a mean score of 3.368. This suggests that the institutions under study do not give sufficient attention to following up on employees' environmental performance after they benefit from various training programs.

Question 12 refers to all administrative levels benefiting from environmental protection training programs, which ranked seventh with a mean score of 3.279 and is not statistically significant. This implies that the institutions under study do not offer these training programs to all administrative levels, but rather apply them selectively to those directly concerned, particularly at the first administrative level.

In general, the table above shows that the overall mean score for all questions related to green training is 3.422, with a standard deviation of 0.778, which indicates a tendency toward agreement. This suggests that the respondents confirm the institutions' focus on incorporating environmental orientations into various training programs.

5.2.3.Presentation and Analysis of Results Related to Green Motivation

The following table presents the results related to green motivation.

Table (5): Data Analysis Results Related to Green Motivation

Number	Mean	Standard deviation	Trend	Signification level
15	3.074	1.285	Neutral	0.639
16	3.412	1.054	Agree	0.002
17	3.382	1.159	Neutral	0.008
18	3.529	1.058	Agree	0.000
19	3.897	0.900	Agree	0.000
20	3.074	1.124	Neutral	0.591
21	3.206	1.229	Neutral	0.172
Green Motivation	3.368	0.848	Neutral	0.001

Source: Prepared by the researchers based on the output of the SPSS program

Question 19 refers to the involvement of the institutions under study in engaging employees in defining their environmental orientations, which ranked first with a mean of 3.897. This indicates that the

respondents confirm that the institutions under study actively involve various individuals in determining their policies and plans related to environmental protection.

Question 18 refers to the allocation of financial rewards related to green innovation, which ranked second with a mean of 3.529. This suggests that the institutions under study incentivize and encourage individuals in all matters related to environmental protection from pollution.

Question 16 refers to the promotion opportunities being based on the environmental orientations of employees, which ranked third with a mean of 3.412. This means that the institutions under study incorporate environmental culture and awareness as criteria for promotion.

Question 17 refers to the provision of certificates of excellence by the institutions under study for employees with outstanding environmental performance, which ranked fourth with a mean of 3.382. This suggests that the institutions under study do not place significant importance on this type of moral incentive for employees who excel in their environmental performance.

Question 21 refers to linking the provision of incentives to achieving environmental goals, which ranked fifth with a mean of 3.206. This result is not significant, indicating that the institutions under study do not link incentives solely to achieving environmental goals; rather, there are other criteria and foundations through which incentives are provided.

Question 15 refers to using the environmental performance of employees as a criterion for granting incentives, which ranked sixth with a mean of 3.074. This result is not significant, suggesting that the institutions under study do not solely rely on employees' environmental performance as a basis for granting incentives, but rather employ a variety of criteria in this regard.

Question 20 refers to the imposition of deterrent penalties on employees who violate environmental protection standards, which ranked seventh with a mean of 3.074. This result is not significant, meaning that the institutions under study do not give significant attention to deterrent measures concerning adherence to environmental protection standards.

In general, the table above shows that the overall mean of all questions related to the "Green Motivation" axis is 3.368 with a standard deviation of 0.848, which indicates a neutral trend. This means that the respondents confirm that the institutions under study do not give sufficient and necessary attention to incentives in the field of environmental protection.

5.2.4.Presentation and Analysis of Results Related to Green Performance Evaluation

The following table presents the results related to the green performance evaluation.

Table (6): Results of Data Analysis Related to Green Performance Evaluation

Number	Mean	Standard deviation	Trend	Signification level
22	3.456	1.057	Agree	0.001
23	3.294	1.147	Neutral	0.038
24	4.206	0.659	Strongly Agree	0.000
25	3.426	1.137	Agree	0.003
26	3.794	0.890	Agree	0.000
27	4.118	0.681	Agree	0.000
28	3.779	0.861	Agree	0.000
Green Performance Appraisal	3.725	0.572	Agree	0.000

Source: Prepared by the authors based on the SPSS software outputs.

Question 24 refers to the contribution of the environmental performance evaluation system in improving employees' environmental performance, which ranked first with a mean score of 4.206. This indicates that the respondents confirm that the institutions in the study consider the environmental performance evaluation system as a key source for designing training programs aimed at improving employees' environmental performance.

Question 27 refers to the attention given to the results of employees' environmental performance evaluation, which ranked second with a mean score of 4.118. This suggests that the respondents confirm that the institutions in the study pay considerable attention to the feedback provided from the environmental performance evaluation of employees.

Question 26 refers to the involvement of employees in setting the criteria for evaluating environmental performance, which ranked third with a mean score of 3.794. This means that the institutions in the study consider employees as partners in establishing the criteria for assessing their environmental performance.

Question 28 refers to the aim of the employee performance evaluation process to identify weaknesses in their environmental performance, which ranked fourth with a mean score of 3.779. This implies that the institutions in the study aim to identify areas of weakness in employees' environmental performance through the evaluation process and work on addressing these gaps.

Question 22 refers to the evaluation of employees' performance being based on environmental criteria, which ranked fifth with a mean score of 3.456. This indicates that the institutions in the study incorporate environmental protection-related criteria when evaluating employees' performance.

Question 25 refers to the environmental performance evaluation system making employees feel more responsible for environmental protection, which ranked sixth with a mean score of 3.426. This suggests that the respondents believe the environmental performance evaluation system adopted by the institutions in the study motivates employees to take more responsibility for environmental protection.

Question 23 refers to the reliance of the employee performance evaluation system on environmental trends, which ranked seventh with a mean score of 3.294, and was found to be statistically insignificant. This means that the employee performance evaluation system does not solely depend on the environmental trends of the institutions in the study but incorporates other criteria as well.

Overall, the table above shows that the average score for all questions in the green performance evaluation axis is 3.725, with a standard deviation of 0.572, indicating a tendency towards agreement. This suggests that the institutions in the study integrate environmental trends related to environmental protection into their employee performance evaluation system.

5.2.5.Presentation and Analysis of Results Related to Environmental Protection from Pollution

Regarding the environmental protection axis, the results were as follows:

The table (7): the results of the analysis related to environmental protection from pollution.

Number	Mean	Standard deviation	Trend	Signification level
29	3.794	0.821	Agree	0.000
30	3.603	1.053	Agree	0.000
31	3.897	0.650	Agree	0.000
32	3.779	0.730	Agree	0.000
33	3.647	0.860	Agree	0.000
34	3.971	0.668	Agree	0.000

35	4.029	0.712	Agree	0.000
36	3.647	0.927	Agree	0.000
37	3.779	0.878	Agree	0.000
38	3.515	0.970	Agree	0.000
Enviromental Protection from Pollution	3.766	0.538	Agree	0.000

Source: Prepared by the researchers based on the outputs of the SPSS program.

The table above shows that the mean scores for the "Environmental Protection from Pollution" section range between 4.029 and 3.515, with significant standard deviations at a 0.05 error level.

Question 35 refers to the constant efforts of the studied institutions to develop environmentally friendly green technologies, which ranked first with a mean score of 4.029. This indicates the institutions' strong commitment to developing green technologies to protect the environment from pollution.

Question 34 refers to the continuous focus on offering environmentally friendly products, which ranked second with a mean score of 3.971. This implies that the studied institutions prioritize ensuring that their products are not harmful to the environment.

Question 31 refers to the commitment to sorting and treating solid waste to reduce its environmental impact, which ranked third with a mean score of 3.897. This suggests that the studied institutions actively engage in sorting and treating their solid waste using various available technologies to prevent it from becoming harmful to the environment.

Question 29 refers to the regular measurement by the studied institutions of the emissions generated by their activities, which ranked fourth with a mean score of 3.794. This reflects their efforts to ensure that the emissions produced do not exceed the legally permissible limits.

Question 32 refers to the focus on renewable energy as one of the environmental trends emphasized by the studied institutions in their activities, which ranked fifth with a mean score of 3.779. This indicates that the institutions prioritize the transition to clean and renewable energy sources.

Question 37 refers to the reliance on an environmental monitoring system to predict environmental events, which ranked sixth with a mean score of 3.779. This demonstrates the studied institutions' focus on predicting environmental incidents in order to make proactive decisions for environmental protection.

Question 33 refers to considering external stakeholders as partners in protecting the environment from pollution, which ranked seventh with a mean score of 3.647. This implies that the studied institutions value the opinions, advice, and guidance of external stakeholders regarding environmental protection.

Question 36 refers to the reliance on multiple mechanisms to recycle various types of waste, which ranked eighth with a mean score of 3.647. This suggests that the studied institutions utilize techniques to recycle the waste generated by their activities, minimizing waste and reducing its negative impact on the environment.

Question 30 refers to the treatment of used water before its discharge, which ranked ninth with a mean score of 3.603. This indicates that the studied institutions treat the wastewater generated by their activities before releasing it into the environment, in order to reduce its negative environmental effects.

Question 38 refers to compliance with all regulations related to environmental protection from pollution, which ranked tenth with a mean score of 3.515. This means that the studied institutions fulfill their legal responsibility in the area of environmental protection.

In general, the table above shows that the mean score for all the questions in the "Environmental Protection from Pollution" section is 3.766, with a standard deviation of 0.538. This suggests that the

studied institutions make significant efforts across all areas in the pursuit of a green, clean, pollution-free environment.

5.3.Testing of Study Hypotheses

The following table presents the results related to the Spearman correlation coefficient between the green HRM practices (as independent variables: green recruitment, green training, green motivation, and green performance evaluation) and the environmental protection from pollution (as the dependent variable).

Table(8): Result of Spearman's correlation coefficient

Independet variable	Spearman's correlation coefficient	The level of significance	Relationship
Green Recruitement	0.610	0.000	positive correlation
Green Traning	0.613	0.000	positive correlation
Green Motivation	0.594	0.000	positive correlation
Green Performance Appraisal	0.659	0.000	positive correlation
Green HRM Practices	0.728	0.000	positive correlation

Source: Prepared by the researchers based on the outputs of the SPSS program.

- The statistical results presented in the table above show a strong positive correlation between green recruitment and environmental protection from pollution, with a Spearman correlation coefficient of 0.610. This indicates that the correlation is statistically significant, which refutes the null hypothesis and supports the alternative hypothesis, which asserts that green recruitment plays a role in environmental protection from pollution in the studied institutions.
- The statistical results in the table above also indicate a strong positive correlation between green training and environmental protection from pollution, with a Spearman correlation coefficient of 0.613. This means that the correlation is statistically significant, refuting the second null hypothesis and supporting the alternative hypothesis, which posits that green training plays a role in environmental protection from pollution in the studied institutions.
- The statistical results presented in the table above further show a strong positive correlation between green motivation and environmental protection from pollution, with a Spearman correlation coefficient of 0.594. This suggests that the correlation is statistically significant, thereby refuting the third null hypothesis and supporting the alternative hypothesis, which claims that green motivation plays a role in environmental protection from pollution in the studied institutions.
- Sub-hypothesis four municipals that green performance evaluation plays a role in environmental protection from pollution in the studied institutions. The statistical results presented in the table above indicate a strong positive correlation between green performance evaluation and environmental protection from pollution, with a Spearman correlation coefficient of 0.659. This means that the correlation is statistically significant, refuting the fourth null hypothesis and supporting the alternative

hypothesis, which asserts that green performance evaluation plays a role in environmental protection from pollution in the studied institutions.

- The main hypothesis municipals that green human resource management practices play a role in environmental protection from pollution in the studied institutions. The statistical results presented in the table above indicate a strong positive correlation between green human resource management practices and environmental protection from pollution, with a Spearman correlation coefficient of 0.728. This suggests that the correlation is statistically significant, thereby confirming the main hypothesis.

5.4.Discussion of Results

After presenting and analyzing the various study data and discussing them in light of the hypotheses, several results were obtained regarding the role of green human resource management practices in protecting the environment from pollution, as follows:

- The studied institutions ensure the inclusion of environmental trends when determining the training needs of employees, reflecting their commitment to environmental sustainability and protection from pollution.
- The studied institutions aim to provide an attractive work environment that attracts talents interested in environmental sustainability.
- The studied institutions are keen on accurately identifying the green competencies and skills required in candidates applying for positions.
- The studied institutions pay attention to the results of their environmental performance evaluations in order to identify areas of weakness and design appropriate training programs to address these gaps and improve employees' environmental performance.
- The studied institutions rely on an open-door policy to listen to the views and advice of external stakeholders regarding environmental protection from pollution, considering them as partners in this field.
- One of the priorities of the studied institutions is to develop clean green technologies that are environmentally friendly, by introducing modern techniques and machines into their activities, resulting in environmentally friendly green products, which help reduce environmental pollution levels.
- The studied institutions employ several mechanisms and techniques to recycle solid waste and treat liquid waste before discharging it into the environment, minimizing the negative environmental impact of these wastes.
- The studied institutions should generalize the benefit from training programs related to environmental protection from pollution across all management levels without exception.
- Environmental management system requirements (ISO 14001) should be considered when designing and implementing various training programs.
- There is a need to rely on feedback from the implementation of green training programs as a means of continuous improvement, in order to design better future programs by addressing the shortcomings of previous ones.
- A system should be established to monitor the progress of employees' environmental performance after benefiting from the various training programs.
- A deterrence system should be introduced by imposing penalties on employees who do not adhere to the environmental policies of the institution, aiming to protect the environment from pollution and achieve environmental sustainability.
- Rewards and incentives linked to the achievement of the institution's environmental goals should be introduced to encourage employees to put in more effort towards protecting the environment from pollution.

6.Conclusion

Through this study, we have concluded that economic institutions are increasingly giving significant attention to the natural environment in which they operate. They have begun to modify their environmental behaviors and assume responsibility towards the surrounding environment, contributing to the reduction of the negative effects of their activities and protecting the environment from pollution. In this regard, green human resource management practices play a crucial role in supporting the environmental orientations of economic institutions and enhancing their environmental sustainability through various green practices (green recruitment, green training, green motivation, green performance evaluation). The adoption of these green practices has become essential to maintain a good environmental reputation, improve environmental performance, and actively contribute to preserving a healthy, green, pollution-free environment.

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