The Effect of Green Training and Development on Sustainable Performance: An Analytical Research in the Ministry of Environment

Walaa Tariq Jasim
Department of Public Administration
College of Economics and Administration
University of Baghdad
Baghdad, Iraq
walaaTariq93@gmail.com

Ali Hasson Altaee
Department of Public Administration
College of Economics and Administration
University of Baghdad
Baghdad, Iraq
Ali.altaee @ codec. Uobaghdad.edu.iq

Abstract:

The current study aims to test the impact of green training and development on sustainable performance and explore its effects within and outside the Iraqi Ministry of Environment. The main research problem revolves around the question of the extent of implementing green training and development and sustainable performance in the ministry (What is the nature of the relationship between green training and development and sustainable performance in the ministry?). To clarify the relationship between the research variables, two main hypotheses were formulated along with sub-hypotheses. The study also aims to assess the level of the ministry's interest in the research variables and provide key recommendations to enhance sustainable performance through the adoption of green training and development. The descriptive-analytical method was employed in this study, where data was collected from a random sample of 250 individuals, but 150 questionnaires were collected. The researchers used a range of statistical methods using software such as Excel, SPSS V28, and Amos V25. The most significant results of the study indicate that sustainable environmental performance can be enhanced through a focus on training and the development of green environmental practices in general. Furthermore, a noticeable impact was observed for both variables (environmental training and development and sustainable performance), with prioritization and preference given to sustainable performance in practical implementation over training and environmental development. Based on the results, it is recommended to improve sustainable performance through the implementation of environmental training and development programs within the Ministry of Environment, while also focusing on research variables associated with sustainable performance.

Paper type: Research paper.

Keywords: Green Training and Development, Sustainable Performance, Environmental Performance.

1. Introduction

Green training and development lead to a crucial role due to the growing emphasis on environmental issues, including green environmental concerns. Achieving this involves increasing the awareness of employees towards protecting the organization's environment through ongoing green training. Green training and development focus on enhancing employees' skills, as sustainability has become essential to preserve various natural resources. On the other side, many authors and researchers focus on exploring sustainable performance due to its close connection to environmental changes. Communities, institutions, and workers can develop new and advanced ideas to deal with these changes, and it should be acknowledged that human resources are a main driver in this process. The current research seeks to investigate the main question: What is the nature of the relationship between green training and development and sustainable performance in the ministry? There are two sub-research questions:
- Does the Ministry of Environment have a role in participating in green initiatives and implementing them through green training and development?
- Has the Ministry of Environment adopted green training and development to improve its sustainable performance, keep up with the variables, and understand the needs of individuals in society regarding the services they require?
Therefore, the researchers relied on green training and development practices as an independent variable to assess the level of improvement in sustainable performance as a dependent variable.

1.1 Literature review

There are many studies discussed green training and development:

Alreshidi (2016) used green training towards sustainability in manufacturing: Linking the benefits of sustainable business with the development of green suppliers. The purpose of this study is to investigate the relationships between the strategic choices of the organization based on green orientation, relational orientation, environmental training, development of green resources, and sustainable business. The study selected a sample of 201 participants who were chosen from manufacturing company managers in the United States. As for the results, the study found that the green orientation of companies plays a role in achieving sustainable business.

Aragão (2017) clarified the relationship between environmental training and sustainable purchasing adoption in three public/government universities in Brazil. Regarding the outcomes of environmental training, the achievements were limited, despite participants perceiving it as a potential source for improvement. This suggests a potential co-development of sustainable purchasing, environmental training, and environmental applications.

Jamshed et al (2022) explored the role of green leadership and green training in enhancing innovation in green operations through green managerial innovation. There have been limited studies conducted in the hotel industry on this topic. Data was collected from 158 self-administered questionnaires distributed to 54 different hotels in Pakistan using appropriate sampling techniques. The study's results that the presence of effective green leadership increases the need for green training and innovation in green operations and green managerial innovation.

Nguyen et al (2023) suggested that support from senior management has a direct impact on both green training and environmental performance. The findings also provided evidence of a mediating effect of green training on the link between senior management support and environmental performance. The findings were based on a survey of 203 senior managers.

There are many studies discussed sustainable performance such as the following:

Asadi et al (2020) clarified the impact of green innovation on sustainable performance by assessing and appreciating the quality of the brand in achieving sustainable performance. The study involved a population of 183 employees in Malaysian hotels. The key findings highlight the significant role of green innovation in enhancing sustainable performance in the hotel industry.

Mousa and Othman (2020) explained a significant interest in green human resource management, with limited research on green practices. The objective was to assess the level of implementation of green human resource management practices in Palestinian healthcare institutions and their impact on sustainable performance. The results indicated that the most impactful practices were "green training and participation" and "green recruitment." Green human resource management practices have proven to have a positive impact on sustainable performance.

Rehman and Bhatti (2021) suggested that the environmental strategies and organizational capabilities of companies have a significant impact on environmental sustainability and performance. Overall, the results indicate that environmental management control systems play a crucial role in enhancing environmental sustainability and sustainable performance in construction companies. The company management should prioritize the implementation of effective environmental strategies and enhance their organizational capabilities to achieve environmental sustainability goals and improve overall environmental performance.

Al-Musawi (2021) clarified the sustainable performance evaluation of economic units based on the Sustainable Balanced Scorecard (SBSC) meets stakeholders' requirements, the most significant outcome is reporting on strategic sustainable performance in a comprehensive package that includes both financial and non-financial reports. This is highly beneficial for stakeholders.

The problem of this research focuses on a lack of awareness among employees of the Ministry of Environment regarding the importance of environmental training and development in enhancing sustainable performance within the ministry. This lack of awareness manifests in employees not understanding the benefits that environmental training and development can provide in promoting sustainable performance for the ministry. To better understand the situation, specific questions have been posed, including:
1. What is the level of knowledge regarding environmental training and development and sustainable performance from a scientific perspective?
2. What is the level of implementation of environmental training and development and sustainable performance within the Ministry of Environment in practical terms? What are the areas where it is being applied to a greater extent?
3. What is the nature and strength of the relationship between environmental training and development and sustainable performance in the Ministry of Environment?

The objectives of this research are as follows:
1. to discuss a set of proposals to understand the concept of green training and development and, sustainable performance, from a cognitive perspective.
2. to understand the extent of the relationship between green training and sustainable performance.
3. to understand how green training and sustainable performance are provided.
4. to reach some conclusions regarding the variables under study.

2. Material and Methods

After identifying the research problem and objectives, a descriptive-analytical approach was adopted in this study using a questionnaire to collect the required data. Based on this, scientific results were obtained that the researchers can rely on to study the current situation by observing and understanding its content. A precise and detailed description of these results were provided to answer the research questions.

2.1 Research Tools

The researchers relied on the questionnaire as the primary tool for collecting data and information related to the practical aspect. A five-point Likert scale was used in this research. It is one of the most commonly used scales and methods in the fields of managerial and social sciences due to its accuracy and clarity.

2.2 Data Analysis Tools

The current research utilized several statistical methods through ready-to-use software (SPSS-V28, Amos v.25, and Excel) for testing the research hypotheses and finding descriptive and inferential statistical values, Hypotheses and statistical tools such as correlation coefficient, simple linear regression, and mean were used.

2.3 The Hypothetical Study Framework.

The theoretical framework of the study aims to address the research questions and test the proposed hypothesis, involving the adoption of a set of hypotheses. This can be visualized in Figure 1.
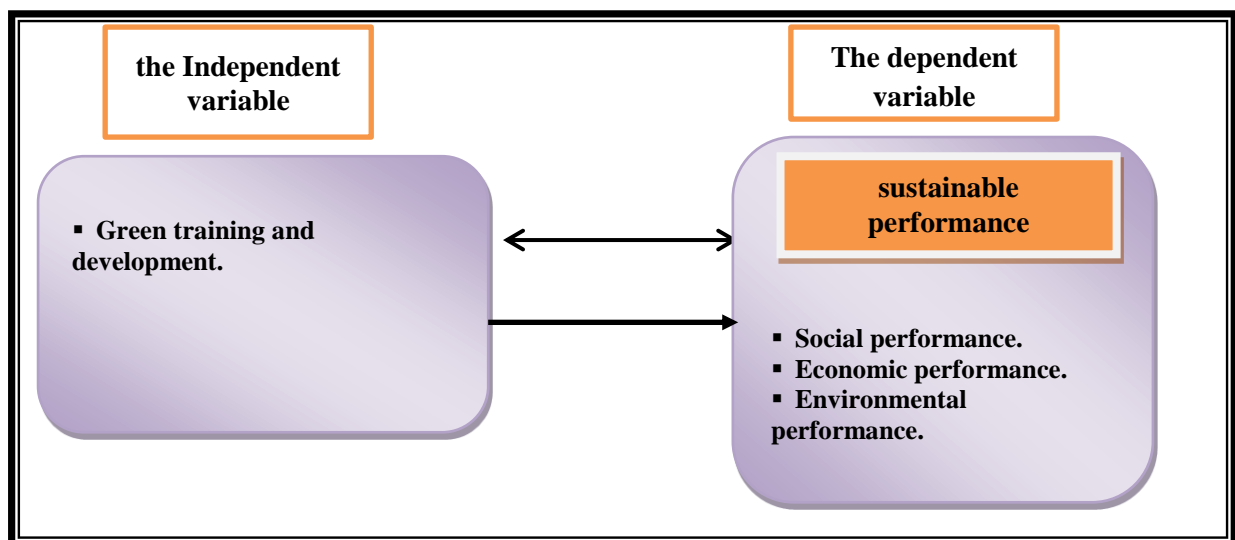

Figure 1: The research conceptual model
The source: Prepared by the researchers.

2.4 The Research Hypotheses

Continuing with the study requirements and addressing the research questions, the theoretical framework should be tested. The study depends on a set of hypotheses as follows:
1. The first hypothesis: There is a significant correlation between green training and development with sustainable performance and its dimensions.
2. The second Hypothesis: There is a statistically significant impact of green planning and development on sustainable performance and its dimensions. Sub-hypotheses stem from these main hypotheses.
▪ Green training and development have a significant impact on economic performance.
▪ Green training and development have a significant impact on environmental performance.
▪ Green training and development have a significant impact on social performance.

2.5 Green Training and Development

The term "Green Training" should be an integral part of the orientation process for new employees toward environmental practices. This requires educating all employees about environmental procedures and policies as well as encouraging relevant initiatives at the organizational level, such as reducing gas emissions and manufacturing environmentally-friendly products (Sengupta, 2015). Green training is a fundamental element in any organization as it contributes to enhancing environmental management activities. Additionally, it assists organizations to enhance employees' skills and knowledge regarding environmental issues (Mousa and Othman, 2020). A study was conducted to assess the impact of training on organizational performance in Pakistan, and the study yielded the following results: There is a preference among employees for green organizations, and employees in these organizations exhibit a high level of job satisfaction and a strong commitment. Moreover, the study highlighted that green practices require careful monitoring, and organizations cannot achieve sustainability and environmental performance without adopting green human resource practices (Kuria and Mose, 2019). These organizations provide effective guidance and programs to enhance the knowledge, skills, and required mindset of employees in the field of green environmental management. This is beneficial for implementing natural environmental management projects within the organization. It involves initiatives such as waste management and reuse led by executive managers, which contribute to activating environmental management projects. Employee training serves as a strategy to guide and encourage them to adopt flexible practices that facilitate remote work, including working from home and significantly reduce remote travel. This is highly important for mitigating environmental pollution. Meenambiga, (2022) indicates that there are key elements that contribute to the implementation of green environmental programs, including green training and development. Al-Zubaidi, (2016) mentions the existence of green training programs aimed at enhancing employees' awareness of environmental issues and incorporating environmental practices into training processes. These programs work towards achieving full cooperation among all departments of the organization (Hamza, 2019).

2.6 The Concept of Sustainable Performance

The concept of sustainable performance requires changes in organizational structures, leadership styles, and work practices in contemporary organizations (Jabbour,2013). It indicates that organizations contribute to achieving sustainable development by supporting economic growth, protecting the environment, and promoting social progress (Epstein and Buhovac 2014). Sustainable performance entails a commitment to continuous work and collective participation adopted by top management to meet customer requirements (Garza-Reyes et al, 2018). It requires adopting strategies and business activities that meet the organization's needs with considering social, environmental, and economic sustainability. This includes preserving environmentally-friendly production processes for the future (Ukko et al.2019). Sustaining sustainable performance is a means to enhance the capabilities of the economic unit and leverage its technical tools to improve the quality of products, services, and operational processes. This is done to achieve the organization's vision and ensure sustainability (Alajeli and Wahhab 2022).

2.6.1 Dimensions of Sustainable Performance
2.6.1.1 Environmental Performance

As stated by Gupta et al, (2020) organizations are encouraged to proactively adopt environmental management systems to achieve higher levels of environmental productivity. This is achieved by reducing the production of by-products and waste resulting from emissions. Furthermore, organizations can benefit from efficient production processes to enhance economic performance. As indicated by Adamu et al, (2019), the organization's ability to measure and evaluate its impact on the environment encompasses a set of important elements. These elements include monitoring and improving the consumption of natural resources, waste management,

reducing greenhouse gas emissions, preserving biodiversity, contributing to environmental protection, and promoting overall environmental sustainability. As pointed out by Iqbal et al, (2018), achieving environmental performance requires changes in organizational factors that differ from other factors such as globalization and technology. Changes in technology and globalization only affect the workers involved within their scope of work. It is evident that without the efforts of the workers, organizations cannot achieve environmental sustainability. This dimension is used for managing environmental performance and can be defined as an organized approach aimed at reducing the environmental impact of an institution and protecting its environment (Resen, 2022).

2.6.1.2 Economic Performance

As mentioned by Alsayegh et al,(2020), economic performance reflects the organization's ability to achieve specific financial goals and maintain sustainable growth. This is achieved through analysing and measuring various aspects of economic performance, such as financial returns, profitability, costs, efficiency, and productivity. As indicated by Eikelenboom and Jong (2019), strong economic performance contributes to enhancing the reputation of the organization and attracting investors and business partners, to achieve strong investment returns and long-term growth. Organizations need to be aware of the cost of capital and operating expenses, according to a low-cost production system, to achieve economic sustainability (Jitmaneeroj, 2016).

2.6.1.3 Social Performance

Social performance reflects an organization's concern for the communities it interacts with and its ability to make a positive impact on the lives of individuals within and outside the organization. It encompasses various aspects such as fair employment practices and career development, providing a healthy and safe work environment, and supporting employees in achieving work-life balance. Khan et al,(2021) believe that organizations struggle to maintain social sustainability. This can be attributed to various reasons, such as insufficient funding. Social sustainability is of paramount importance for organizations to ensure the well-being of employees and achieve sustainable development goals (Harisekar,2021). Social sustainability refers to a set of key criteria for sustainable activities, including providing a healthy and safe working environment, offering fair wages, and reasonable working hours, ensuring workers' right to join unions, combating child labour, providing appropriate working conditions, reducing discrimination, and adopting non-coercive labour policies (Chowdhury and Shumon,2020). As explained by Odeh, (2016) social performance serves increasing numbers of the poor, improves economic and social conditions, and ensures the social responsibility of workers and the community that they serve.

2.7 The Descriptive Analysis of Research Variables
2.7.1 Testing the Normal Distribution of the Data

In Table 1, the researchers resorted to relying on the normal distribution since she utilized parametric statistical methods (confirmatory and exploratory factor analysis, mean, standard deviation, Pearson correlation coefficient, and multiple linear regression). Those are necessarily required and needed to be normally distributed before doing those tests. Therefore, we employed the Kolmogorov-Smirnov test, given that the sample consisted of 150 employees who work at the Iraqi Ministry of Environment.

Table 1: Test the normal distribution of the research variables' data

Sustainable performance	Green training and development	Notes
150	150	the sample
3.85	3.71	Arithmetic mean
0.627	0.632	standard deviation
0.394	0.399	Variance
2.93	2.80	Term
0.104	0.143	Test statistic
0.070	0.059	The probability value is two-way
-0.525	-0.319	Skewness
-0.366	-0.855	Flattening
0.000	0.000	Missing values for the data
0.198	0.198	The Standard error of convolution search variables
0.394	0.394	The Standard error of flatness research variables

Source: program output (SPSS V.28).

It is evident from Table 1 that the data results of the training and green development variable and sustainable performance variable follow a normal distribution. The results indicate the following:

1. Data analysis of 150 questionnaires revealed no missing data. The probability test value for the two variables in the study (training and green development, as well as sustainable performance), was 0.143 and 0.104 respectively. However, the probability value for the tests related to green training and development was 0.059 and sustainable performance was 0.070 respectively, which were higher than the typical probability value (0.05).

2. Referring to the mentioned values, it is observed that the variance coefficient for the independent variable "Green Training and Development" was represented by the number (-0.319), while the dependent variable "Sustainable Performance" is represented by the number of 0.525. The standard error for both variables is 0.198. As for the deviation values, they were -0.855 for green training and development and -0.366 for sustainable performance. The standard error was 0.394. It was noticed that these values fall within the range of (1.96 +/-), indicating a normal distribution of the data. This confirms the natural state of the data (Haire, 2010).

3. It was found that the values of the arithmetic mean and standard deviation of the green training and development variable (3.71 and 0.632), while its value for sustainable performance was 3.85, and 0.627. It is evident from the following Figures (2 and 3) that distribution of data in a histogram that takes the shape of a bell, supports the distribution of data naturally.

Figure 2: The normal distribution of green training and development data
Source: Hair, J.F., Black, W.C., Babin, B.J., & Anderson, R.E. (2019). "Multivariate Data Analysis",7th ed., Prentice Hall, Upper Saddle.
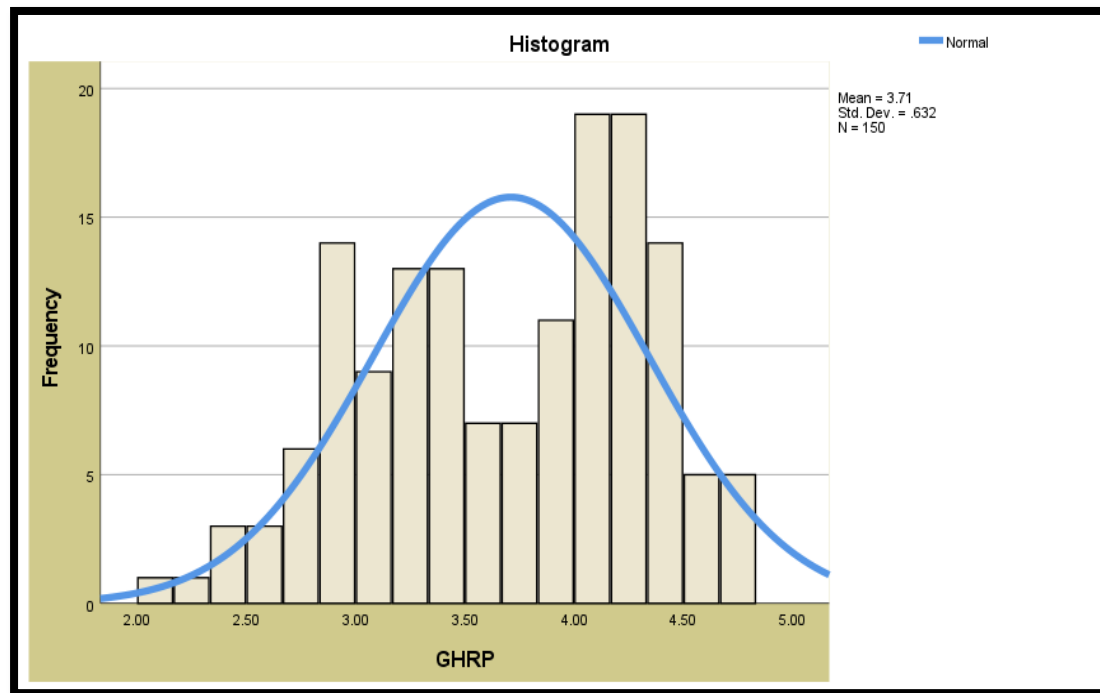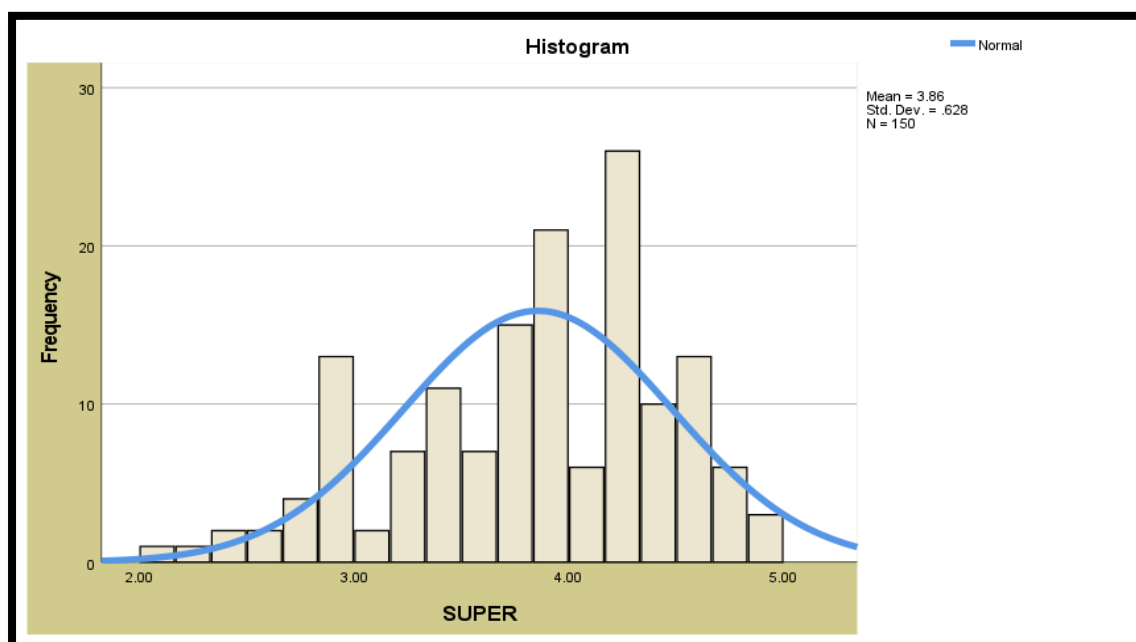

Figure 3: The normal distribution of sustainable performance data
Source: Hair, J.F., Black, W.C., Babin, B.J., & Anderson, R.E. (2019). "Multivariate Data Analysis",7th ed., Prentice Hall, Upper Saddle.

2.7.1.1 Analyzing and Diagnosing the Independent Variable(Training and Green Development):

In Table 2, after undergoing green training and development, the Ministry of Environment adopted, to a relatively of significant extent (75%), my high-level performance with a GPA of 3.75. The ministry maimed to possess a set of tools and resources preferred by them to enhance the performance of employees and increase their skills in implementing environmental management programs. They also encouraged their participation in environmental green courses and seminars. The responses tended towards agreement with a slight standard deviation (0.752). The relative difference coefficient was 20.1%. I explored this aspect in paragraphs 15-11 and obtained a high-level mean (3.91 and 3.60), with a standard deviation of 1.032 and 0.904, a relative difference coefficient of (28.1%-24.3%). The ministry showed a good level of interest (78.1% and 72%) in assisting employees in applying what they have learned in their jobs. Additionally, they adopted a process of developing and training their staff with environmental skills in specialized external institutions. They provided time and budget for their training and development to protect the environment. Based on this, they employed e-training and communication on a wide scale, with a focus on training areas that enhance communication among employees for the sake of environmental protection.

Table 2: Green training and development according to descriptive statistics (n=150)

No.	Items	Numerical mean	Empirical deviation	Attributed importance %	Coefficient of variation%	Precedence
11	The ministry strives to save time and budget for training and developing its employees to protect the environment.	3.91	0.985	78.1	25.2	3
12	The ministry adopts a process of developing and training employees who possess specialized environmental skills in external specialized institutions.	3.84	0.946	76.9	24.6	2
13	The ministry supports employees in implementing what they have been taught in their jobs.	3.72	0.904	74.5	24.3	1
14	The ministry aims to focus training efforts on enhancing communication among employees to protect the environment.	3.67	1,032	73.5	28.1	5
15	The ministry extensively employs e-learning and communication for training purposes.	3.60	0.969	72	26.9	4
16	Green training and development	3.75	0.752	75	20.1	Fifth

The source: program output (SPSS V.28).

2.7.1.2 Analysing and Diagnosing the Dependent Variable (Sustainable Performance):

The researchers examined the responsive variable according to the title of the research and its hypothetical framework, which focused on sustainable performance across three dimensions (economic performance, social performance, and environmental performance). Through 15 items and responses from 150 employees of the Ministry of Environment, sustainable performance achieved a calculated mean of 3.86, indicating a high level. This was attributed to its ability to achieve its economic, social, and environmental goals and better utilize its human resources by providing them with training and development opportunities and involving them in specialized courses related to sustainable performance. The standard deviation of 0.627 indicates a good relative interest of 77.2% and a relative difference coefficient of 16.24%, suggesting a consensus of opinions. Accordingly, sustainable performance ranked first among the researched variables in the study. As shown in Table3, the ranking of the five dimensions based on the relative difference coefficient is as follows: please provide the specific order or names of the dimensions in the original text for accurate translation.

1. According to the results in Table 3, the Ministry of Environment adopted social performance as the first pillar to enhance sustainable performance. It achieved a high mean of 3.89, with a good relative interest of 77.7% in possessing behaviours that create a better working environment. This was reflected in the harmony among employees, positive relationships, communication, and the exchange of friendly feelings in the workplace. The standard deviation was 0.693, with a relative difference coefficient of 17.8%. In terms of items 40-36, they had a good mean ranging from 3.99 to 3.82, with standard deviations of 0.983 to 0.859 and relative difference coefficients of 25.6% to 22.3%. The relative interest in these items was good, ranging from 88.8% to 83.2%, indicating the ministry's commitment to maintaining continuous communication channels with stakeholders in the community. Moreover, the ministry aimed to achieve job enrichment by developing the capabilities of its employees and striking a balance between work style and work-life quality. This is especially notable because the organizational climate of the ministry is characterized by openness and positive relationships among employees. Therefore, the ministry sought to achieve better alignment and harmony among its members within its internal environment, resulting in a unified team performance.

2. In the second rank, the Ministry of Environment demonstrated its adoption of economic performance to improve sustainable performance. It achieved a high mean of 3.83, indicating its commitment to efficient performance aimed at enhancing its services provided to the community, increasing their well-being and purchasing power. The dimension received a relative interest of 76.6% with a standard deviation of 0.715 and a relative difference coefficient of 18.7%. Regarding items 35-31, they obtained high means ranging from 4.12 to 3.71, with standard deviations of 0.979 to 0.805 and relative difference coefficients of 26.2% to 19.5%. These items received a good relative interest of 82.5% to 74.3% regarding the impact of the ministry's specific budget in determining its projects. This influenced the ministry's focus on identifying services that provide it with greater financial benefits while considering methods to develop tacit knowledge to increase employees' productivity. As a result, the ministry delivered high-quality services at low costs, considering the economic feasibility when selecting projects to undertake.

3. The Iraqi Ministry of Environment turned towards adopting environmental performance as the third priority to enhance sustainable performance among its employees. It achieved a high mean of 3.85, indicating its commitment to environmental standards and specifications to dispose of waste and preserve the work environment. The organization's performance in this aspect received a good relative interest of 77%, with responses indicating agreement and a standard deviation of 0.732 and a relative difference coefficient of 19%. In terms of items 45-41, they obtained high means ranging from 3.98 to 3.79, with standard deviations of 0.974 to 0.859 and relative difference coefficients of 25.5% to 21.5%. These items received a good relative interest of 79.7% to 75.9% in maintaining open communication channels with relevant environmental entities. This reflects the ministry's focus on reducing energy consumption to

protect the environment from a social responsibility perspective. Furthermore, the ministry adheres to international environmental standards and specifications, adopts waste disposal methods to preserve the work environment, and actively participates in reducing environmental pollution while providing environmentally friendly services that are well-received by all.

Table 3: Sustainable performance according to descriptive statistics (n=150)

No.	Items	Numerical mea	Empirical deviation	Attributed importance%	Coefficient of variation%	Precedence
31	The specified budget of the ministry affects the determination of the projects it undertakes.	4.12	0.805	0.825	19.5	1
32	The ministry is concerned with determining services that yield financial benefits to it.	3.82	0.880	0.765	23	2
33	The ministry takes into consideration the development of tacit knowledge to increase workers' productivity.	3.74	0.893	0.748	23.9	3
34	The ministry provides high-quality services at a low cost.	3.71	0.914	0.743	24.6	4
35	The ministry takes into account the economic feasibility when choosing the projects it undertakes.	3.74	0.979	0.748	26.2	5
	Economic performance	3.83	0.715	76.6	18.7	The second
36	The ministry is working towards achieving better harmony among its employees.	3.84	0.983	76.8	25.6	5

37	**The ministry is striving to achieve a balance between work style and work-life quality.**	**3.82**	**0.859**	**76.4**	**22.5**	**3**
38	**The ministry achieves job enrichment by developing the capabilities of its employees.**	**3.99**	**0.893**	**79.9**	**22.4**	**2**
39	**The organizational climate in the ministry is characterized by openness and positive relationships among employees.**	**3.89**	**0.956**	**77.9**	**24.6**	**4**
40	**The ministry consistently adopts the preservation of communication channels with stakeholders in the community.**	**3.88**	**0.866**	**77.6**	**22.3**	**1**
	Social performance	**3.89**	**0.693**	**77.7**	17.8	**The first**
41	**The ministry adheres to international environmental standards and specifications.**	**76.9**	**0.917**	**3.84**	**23.9**	**3**
42	**The ministry is committed to waste disposal to preserve the work environment.**	**75.9**	**0.914**	**3.79**	**24.1**	**4**
43	**The ministry participates in reducing environmental pollution by providing eco-friendly services.**	**76.5**	**0.974**	**3.83**	**25.5**	**5**

44	**The ministry is dedicated to reducing energy consumption to protect the environment.**	76.3	0.892	3.81	23.4	2
45	**The ministry maintains open channels of communication with relevant environmental entities.**	79.7	0.859	3.98	21.5	1
	Environmental performance	**77**	**0.732**	**77**	**19**	**The third**
sustainable performance		<u>**3.86**</u>	<u>**0.627**</u>	<u>**77.2**</u>	<u>**16.24**</u>	

The source: The output of SPSS V.28.

From the researchers' review of the previous Tables (2 and 3) concerning the research variables, it became apparent that sustainable performance achieved the lowest relative difference coefficient among the variables, amounting to 16.24%, indicating the agreement of the sample on its availability and practice in the first place. The mean was high at (3.86). The Iraqi Ministry of Environment enhanced sustainable performance through social performance, while the other dimensions (environmental performance and economic performance) were directed towards improvement. Green training and development ranked the second, obtaining a relative difference coefficient of 17%, with a relatively high level of importance (74.2%) and a high mean of 3.71. Green training and development are aimed at improving green human resource management in the Iraqi Ministry of Environment.

2.7.2.1 Confirmation of the Correlation Hypothesis

Green training and development are significantly associated with sustainable performance and its dimensions.

The sub-hypothesis was verified: showing a strong positive correlation (0.653**) between green training and development as well as sustainable performance, with a probability value of 0.000. This means that any increase in the attention given by the Iraqi Ministry of Environment to green training and development by one unit, through additional focus on the tools and methods used by the organization to enhance employees' performance and skills in implementing environmental management programs through their participation in green training courses and seminars, will necessarily lead to their increased focus on sustainable performance. This focus is linked to the organization's ability to achieve its economic, social, and environmental objectives and effectively invest its human resources through training and development initiatives.

Regarding the relationship between green training and development and the dimensions of sustainable performance, green training and development could establish a strong positive correlation (0.604**) with economic performance, with a probability value of 0.000. In addition, green training and development achieved a strong positive correlation (0.542**) with social performance and a strong positive correlation (0.576**) with environmental performance, both with a probability value of 0.000. This indicates that the Ministry of Environment has successfully utilized green training and development to significantly improve sustainable performance, social performance, environmental performance, and economic performance. Based on the above, the third sub-hypothesis of the first main hypothesis (the association between green training and development, and sustainable performance with its dimensions) is accepted as statistically significant.

Table (4) The link matrix of green training and development with sustainable performance and its dimensions

Green training and development	0.604**	0.542**	0.576**	0.653**	Positive	Strong

2.8 Hypothesis Testing

Hypothesis Testing (correlation-effect) Between Green Training and Development with Sustainable Performance

The current study aims to identify the type, strength, and direction of the relationship (correlation and impact) between the research variables (green training and development) as the independent variable, and (sustainable performance) as the dependent variable, which is the research objective in the process of improving the Ministry of Environment when facing crises with the assistance of green training and development. After the researchers investigated the opinions of a sample including 150 observations from employees of the Iraqi Ministry of Environment, the correlation relationship between the independent variable and the dependent variable and its dimensions (economic performance, social performance, and environmental performance) was tested. The correlation coefficients were found to be between (1+/-), while the strength of the relationship in both positive and negative directions, as interpreted by the researchers, was weak in the range of (0<->0.30), moderate in the range of (0.30-<0.50), and strong in the range of (0.50->1), according to Cohen's interpretation (Cohen, 11506).

2.8.1 The researchers employed a linear regression model to analyse the correlation between green training, independent development, and sustainable performance of the subsidiary. We used the variables as predictors and the sustainable performance variable as the response variable, then assessed the relationship between them through regression analysis. This model allows for determining the strength of the correlation and the impact of green training and development on sustainable performance.

2.8.1.1 Testing the hypothesis of correlation

1. After training and implementing green training and development, a strong positive correlation (0.653**) was found with sustainable performance, with a probability value of 0.000. This means increase in attention provided by the Iraqi Ministry of Environment to green training and development, may necessarily lead to its focus on sustainable performance. This is associated with its ability to achieve its economic, social, and environmental goals and better utilize its human resources by adopting training and development and involving employees in specialized courses. The value will be equal to the correlation coefficient between them, and vice versa.

In terms of the relationship between green training and development and dimensions of sustainable performance, green training and development were able to establish a strong positive correlation with economic performance (0.604**) with a probability value of 0.000. It also achieved a strong positive correlation with social performance (0.542**) and environmental performance (0.576**) with a probability value of (0.000). This means that the Ministry of Environment succeeded in employing green training and development to significantly improve the level of sustainable performance, as well as enhance social, environmental, and economic performance. Based on all the above, the third sub-hypothesis of the first main hypothesis is accepted (there is a significant relationship between green training and development with sustainable performance and its dimensions).

Table 5: The link matrix of green training and development with sustainable performance with its dimensions

Relationship Intensity	The nature of the Relationship	Sustainable performance	Environmental performance	Social performance	Economic performance	Dimensions
		0.000	0.000	0.000	0.000	
		0.000	0.000	0.000	0.000	
Strong	**Positive**	0.653**	0.576**	0.542**	0.604**	**Green training and development**
		0.000	0.000	0.000	0.000	
		0.000	0.000	0.000	0.000	

$P** < 0.01$, $P* < 0.05$, n=150, DF=149, T=1.976

The table above represents the link matrix between green training and development with sustainable performance and its dimensions.

2.8.1.2 Hypothesis 2: The impact of environmental training and development on sustainable performance:

The second main hypothesis of the research is determined according to the hypothetical framework: There is a significant effect of green training and development on sustainable performance and its dimensions (economic performance, social performance). To verify the validity of these hypotheses, the multiple linear regression model was implemented using the stepwise backward method, based on the following sub-hypotheses:

1. Green training and development significantly affect economic performance.
2. Green training and development significantly affect social performance.
3. Green training and development significantly affect environmental performance.

The Verification of Sub-Hypothesis 1: Green training and development collectively have a significant impact on economic performance.

The interpretive model presented in Table 6 is statistically acceptable and can be relied upon to interpret the improvements in economic performance, especially since the calculated model value (33.369) exceeds the tabulated value (3.905) at a degree of freedom (149) and a probability value of (0.05). These results lead to the acceptance of Sub-Hypothesis 1 from the second main hypothesis, which states that green training and development collectively have a significant impact on economic performance. Furthermore, the results shown in Table 6 indicate the presence of a determination coefficient with a value of 0.537 and an average determination coefficient of (0.521). This means that green training and development can explain 52.1% of the variations in economic performance, while the remaining 47.9% is attributed to other variables not included in the tested model.

Moreover, there is a positive and significant impact on economic performance with a magnitude of 0.393 and a probability value of (0.000). The calculated value (4.593) exceeds the tabulated value (1.976) at a degree of freedom (149) and a probability value of 0.05. Additionally, there is an impact from the dimension of green training and development with a magnitude of 0.228 and a probability value of 0.008, and the calculated value (2.673) supports this with a probability value of (0.05). Furthermore, there is an impact from employees with a magnitude of 0.224 and a probability value of (0.015), and the calculated value (2.455) supports this with a probability value of (0.05). It is therefore observed that the Ministry of Environment relies on the dimensions of green human resource management (green training and development) to positively improve economic performance.

Table 6: The effect of green training and development on Economic Performance (n=150)

Economic Performance							The Independent Variable
F	T	p-v	A R²	R²	B	A	
	4.593	0.000			0.393		
	1.813	0.072			-0.156		
	2.677	0.008			0.228		Green training and development
33.369	0.805	0.422	0.521	0.537	0.080	0.841	
	2.455	0.015			0.224		
	1.658	0.099			0.117		

The source: The output of SPSS V.28

The Verification of Sub-Hypothesis 2: Green training and development have a significant impact on social performance.

The explanatory model presented in Table 7 is statistically acceptable and can be adopted to interpret the improvement in social performance. This is evident from the calculated value of (F) (50.328) and exceeds the tabulated value (3.905) at a degree of freedom (149) with a probability value of (0.05). These results lead to accept Sub-Hypothesis 2 of the second main hypothesis, which states that green training and development have a significant impact on social performance. The coefficient of determination (R-squared) is 0.508, indicating that green training and development explain 49.8% of the variations in social performance, while the remaining (50.2%) is attributed to other variables not included in the tested model.

Furthermore, there is a positive and significant effect on social performance with a coefficient value of 0.473 and a probability value of 0.000. The calculated value of (T) is 5.834, which exceeds the tabulated value (1.976) at a degree of freedom (149) and a probability value of 0.05. Moreover, there is an effect with a coefficient value of 0.177 and a probability value of 0.030. The calculated value of (T) is 2.194, indicating that there is no significant investment in improving social performance through green training and development as their effect is not meaningful.

Table 7: Green training and development Affect on social performance n=150

Social Performance							Social Performance
F	T	p-v	A R²	R²	B	A	
	5.834	0.000			0.473		
	1.340	0.182			-0.112		
	0.971	0.333			0.084		Green training and development
50.328	1.186	0.238	0.498	0.508	-0.111	1.010	
	2.194	0.030			0.177		
	1.882	0.062			0.128		

The source: The output of SPSS V.28

The verification of Sub-Hypothesis 3: Green training and development collectively have a significant impact on environmental performance:

The interpretive model is statistically acceptable and can be relied upon to interpret the improvements that occur in resources. As shown in Table 8, the computed value (F) for the model (84.982) exceeds the tabulated value (3.905) at the degree of freedom (149) with a probability value of (0.05). These results lead to accept Sub-Hypothesis 3 of the second main hypothesis (Green training and development collectively have a significant impact on environmental performance). In addition, an interpretive coefficient of 0.536 and an average interpretive coefficient of 0.530 are existed. This indicates that green training and development can explain approximately 53% of the variations in environmental performance, while the remaining (47%) is attributed to other variables that were not included in the tested model.

Furthermore, there is a positive direct effect on environmental performance with a coefficient of 0.534 and a probability value of 0.000, along with a computed t-value (6.807). Moreover, there is an effect with a coefficient of 0.320 and a probability value of 0.000, along with a computed t-value (4.538), which exceeds the tabulated value (1.976) at a degree of freedom (149) with a probability value of (0.05). However, no significant impact of the green training and development dimension on improving environmental performance was observed.

Table (8) The impact of green training and development on environmental performance (sample size = 150)

Environmental Performance							The Independent Variable
F	T	p-v	A R²	R²	β	A	
	6.807	0.000			0.534		
	0.072	0.942			0.006		
84.982	1.499	0.136	0.530	0.536	0.124	0.668	**Green training, and development**
	0.967	0.335			0.086		
	4.538	0.000			0.320		
	0.482	0.630			0.040		

The source: The output of SPSS V.28

3. Discussion of Results

 i. The ministry is committed to saving time and budget for the training and development of its employees with the aim of environmental protection. With a high average score of 3.91, the ministry has shown a relatively good level of care (78) in obtaining a set of preferred tools and resources to enhance the performance of its employees and individuals.

 ii. The ministry relies on the process of developing and training its employees who possess environmental skills by collaborating with specialized external institutions, with an average rating of (3.84).These employees are involved in implementing environmental management programs and participating in training courses and seminars specifically related to the green environment.

 iii. The budget allocated to the ministry has an impact on the selection of projects it commits to, with a high average rating of 4.12, There is a good relative interest in possessing behavior that enhances an optimal work environment through employee alignment and openness in positive relationships.

 iv. The ministry is concerned with identifying services that provide tangible benefits with an average rating of 3.82 and a moderate level. It possesses a relative interest of (0.765), It demonstrates a good ability to possess behavior that fosters an ideal work environment through employee alignment and openness in their positive relationships, as well as communication and the exchange of positive feelings in the workplace. Moreover, it is characterized by a deviation of 0.880 and a relative factor of 23.

v. The ministry offers high-quality services at low prices with an average rating of (3.71). It possesses a low level and relative interest of 0.743. It excels in providing behavior that fosters an ideal work environment through employee alignment, openness, communication, and the exchange of positive feelings in the workplace. Additionally, it exhibits a deviation rate of 0.914 with a relative factor of 26.

vi. The ministry achieves functional enrichment through developing the capabilities of its employees with a significantly high average rating of 3.99, This indicates its adoption of a performance that aims to enhance the services provided to the community, increase its well-being, and purchasing power. This aspect is distinguished by a relative interest of 9.79 and a deviation of 0.893, with a relative factor of 22.3%.

vii. The ministry provides high-quality and low-cost services with an average rating of 3.71. It enjoys a low level and relative interest of 0.743. It excels in developing behavior that promotes a better work environment through employee harmony, openness, communication, and the exchange of friendly feelings in the workplace.

viii. The ministry achieves job improvement through enhancing the capabilities of employees, with an exceptionally high average score of 3.99, indicating its adoption of a performance that aims to provide capabilities aimed at enhancing the services offered to the community and increasing their well-being and purchasing power. A significant relative interest, reaching (9.79), is observed in this dimension.

ix. The ministry is committed to maintaining open communication channels with relevant stakeholders in the field of environment and is characterized by a high numerical level of 3.98. This level reflects a relative interest level of 79.7% in the performance that the institution adheres to regarding the environment and the implementation of waste disposal standards and specifications. The ministry is keen on maintaining a work environment.

x. The ministry is committed to waste management to preserve the work environment with an arithmetic average score of 3.97. A relatively good level of interest (75.9) is shown through performance as the establishment adheres to environmental standards and specifications. Their answers indicate a level of agreement (0.914) with varying relative coefficients.

xi. The ministry aims to contribute to reducing environmental pollution by providing environmentally friendly services at an average level (3.83). These services demonstrate good performance (76.5) in terms of adhering to environmental standards and specifications for waste disposal. The ministry is concerned about maintaining a safe working environment, as indicated by their responses. It includes a standard deviation value of 0.974 and a relative difference coefficient of 25.

4. Conclusions

i. The ministry has adopted an environmental strategy aimed at achieving sustainable outcomes by prioritizing communication with environmental stakeholders and participating in activities that work towards reducing environmental pollution and providing eco-friendly services.

ii. The ministry considers social performance as one of the tools it utilizes to enhance sustainable outcomes. It places great emphasis on continuous communication with stakeholders in the community and strives to promote collaboration and harmony among its members.

iii. The ministry has focused on improving its resources by adopting a high-level environmental training and development strategy. These efforts are evident through supporting employees in applying the knowledge they have acquired in their roles, enhancing communication among them, and ongoing work to protect the environment.

iv. The Ministry of Focus places great importance on economic performance and improving sustainable outcomes by focusing on selecting projects that have a positive impact on the budget. Additionally, the ministry considers economic aspects when making decisions regarding projects.

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تأثير التدريب والتطوير الاخضر في الاداء المستدام

علي حسون فندي الطائي   **ولاء طارق جاسم**

جامعة بغداد / كلية الادارة والاقتصاد/ قسم الادارة عامة   جامعة بغداد / كلية الادارة والاقتصاد/ قسم الادارة عامة

بغداد , العراق   بغداد , العراق

Ali.altaee @ coadec. Uobaghdad.edu.   walaatariq93@gmail.com

مستخلص البحث:

تهدف الدراسة الحالية إلى اختبار تأثير التدريب والتطوير الأخضر على الأداء المستدام واستكشاف آثاره داخل وخارج وزارة البيئة العراقية. تدور المشكلة الأساسية للبحث حول مدى تنفيذ التدريب والتطوير الأخضر والأداء المستدام في الوزارة (ما هي طبيعة العلاقة بين التدريب والتطوير الأخضر والأداء المستدام في الوزارة؟). لتوضيح العلاقة بين المتغيرات البحثية، صُيّغت فرضيتان رئيسيتان بالإضافة إلى فرضيات فرعية. تهدف الدراسة أيضًا إلى تقييم مستوى اهتمام الوزارة بالمتغيرات البحثية وتقديم توصيات رئيسية لتعزيز الأداء المستدام من خلال اعتماد التدريب والتطوير الأخضر. تم استخدام المنهج الوصفي-التحليلي في هذه الدراسة، حيث تم جمع البيانات من عينة عشوائية تتألف من 250 فردًا، وتم جمع 150 استبيانًا. استخدم الباحث مجموعة من الأساليب الإحصائية باستخدام برامج مثل Excel وSPSS V28 وAmos V25.تشير أهم نتائج الدراسة إلى أن الأداء البيئي المستدام يمكن تعزيزه من خلال التركيز على التدريب وتطوير الممارسات البيئية الخضراء بشكل عام. كما لوحظ تأثير ملحوظ لكلا المتغيرين (التدريب والتطوير الأخضر والأداء المستدام)، مع إيلاء الأولوية والتفضيل للأداء المستدام في التنفيذ العملي على التدريب وتطوير البيئة. بناءً على النتائج، يُوصَى بتحسين الأداء المستدام من خلال تنفيذ برامج التدريب والتطوير البيئي داخل وزارة البيئة، مع التركيز أيضًا على المتغيرات البحثية المرتبطة بالأداء المستدام.

المصطلحات الرئيسة للبحث: التدريب والتطوير الاخضر، الاداء المستدام، ، الأداء البيئي.