

**Environmental management practices and their impact on achieving sustainable development (A case study in the Najibiya power station)**

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**Abstract:**

The study aims to identify the impact of environmental management practices in achieving sustainable development. Environmental management practices include (waste recycling, environmental policy, and cleaning production) and sustainable development includes (the economic dimension, the social dimension, and the environmental dimension). To achieve the goal of the study, 30 questionnaires were analyzed and distributed to managers at the Najibiya Power Station. Using SPSS, the study reached conclusions, the most important of which is the existence of a relationship between environmental management and sustainable development. The study recommended the need to pay attention to environmental management.

**Keywords:** environmental management, sustainable development

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### **Introduction**

The world is witnessing increasing interest in international conferences and seminars held and attended by most countries and hosted by the United Nations and its various agencies. After crises emerged that were appropriate for a long time, such as great diversity, the shrinkage of the outer space of companies, and water and air pollution due to two reasons, global temperature, and the depletion of non-renewable resources, which led many to appreciate that development model, the conference begins as an alternative and works to achieve examples between achieving the development model in terms of protection. The environment and its sustainability on the other hand (Yakhlef and Jamal Al-Din, 2013). The methods of integrated management practices in achieving social development in various companies in general, and in the company working to study specific changes, will have a positive impact on the various performance indicators related to economic, social, and environmental relations, and they must be from today's reality - it is beyond doubt that development has its impact. It represents one of the modern contemporary works in the philosophy of modern management that has diversified to adapt to the painful changes in various fields, as well as the modern observation and goal that is followed and followed by leading organizations (Maatouq and Ghouma, 2022). Moreover, it is crucial that companies are accompanied by an advanced management system because this contributes This includes managing matters that lead to achieving comprehensive development (Ikram and Zhou, P., 2019)

The proposed framework is applied to study the Najibiya power station in Basra, as it is one of the largest stations that produces electrical energy with a capacity of 500 megawatts. This station relies on fuel from black oil, which leads to a large emission of radical gases and increases the sweat rate in Basra Governorate, which has become Wide range of air levels.

Based on the above, the current study gains its importance by identifying internal management practices in achieving social development and highlighting the importance of small management for the company that practices the study. The research has been divided into four main sections, the first section is devoted to research and previous studies, the second section is the theoretical framework, while the third section shows the practical framework and the section: functions and recommendations.

## **I .Research methodology**

### **1 the research problem**

Due to the growing danger of the problem of pollution on the one hand, and the diminishing proportion of resources on Earth and the weakening of its ability to renew itself on the other hand, there is an urgent need to rationalize human interaction. This is because the existing model of modernity, which works to maintain current material needs with complete disregard for the environment and the future, is no longer appropriate and they have not ceased to do so. In the long term, through the above, the problem of the study can be formulated in the following points:

Does the company under study have a clear vision of the concept of environmental management and its practice?

-What is the level of sustainable development dimensions in the company under study?

- What is the impact of environmental management practices on achieving sustainable development in the company under study?

### **2 Study hypotheses**

The study relied on testing the following main hypothesis: There is a statistically significant effect of environmental management practices in achieving sustainable development for the company under investigation.

The following sub-hypotheses branch out from the main hypothesis:

- There is a statistically significant impact of environmental policy on achieving sustainable development in the company under study.

- There is a statistically significant effect of waste recycling on achieving sustainable development in the company under study.

- There is a statistically significant impact of clean production management on achieving sustainable development in the company under study.

Based on the problem statement, there are a number of objectives that can be summarized as follows:

- Identify the level of environmental management practices in the company under study.

- Identify the level of achieving sustainable development in the company under study.

- Study and analyze the relationship and impact between environmental management practices and achieving sustainable development in the company under study.

- Providing a set of recommendations that would contribute to consolidating and improving environmental management practices,

which would reflect positively on achieving sustainable development.

#### **4 The importance of research**

An attempt to cover a modern topic, which is the environmental management system, and highlight its importance to the economic institution. Explaining the role of environmental management practices in achieving sustainable development.

#### **5 previous studies**

It has been shown in previous studies that investing in environmental management practices can increase the possibility of implementing sustainable development and lead to improved operational performance (Pagell and Gobeli, 2009, Yang et al., forthcoming, Yang et al., 2010). The use of integrated solid waste management within four strategies (reduction, reuse, recycling, and recovery, i.e. converting waste into energy) reduces the amount of solid waste by reducing the consumption of raw materials from the source, increasing recovery rates, and using recycling (Abdul and Zumaya, 2014).

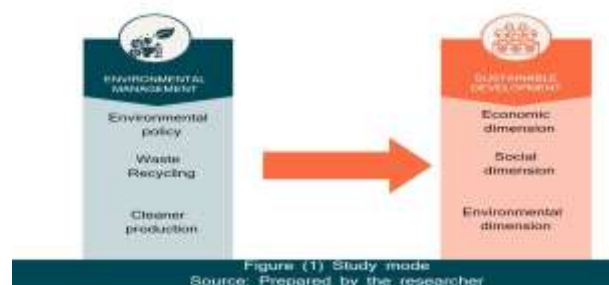
Recycling and cleaner production contribute to achieving sustainable development. Although environmental impact assessment is considered an obstacle to new development projects due to the additional time and costs it entails, it must be overcome, as environmental impact assessment is considered an element of the planning process in order to preserve the environment from pollution. (Amna, 2014) To do this, we need more efficiency than just burning, so modern technological options must be considered to improve waste management (Mahapatra, 2015:23, Feit, 2013:217)

However, despite this expected positive relationship, results have been mixed, and varying views exist on the true benefits of environmental management practices (Yang et al., 2011). Therefore, further research into this important aspect of sustainability is warranted, especially with regard to the impact of environmental practices on corporate performance. The current research contributes to and expands previous studies by examining this relationship through statistical tests on a data set that was intentionally distributed to a group of managers in the company under study. We specifically study the impact of environmental management practices represented by waste recycling, cleaner production, and policy. The environment focuses on the possibility of implementing sustainable development at the social, economic and environmental levels.

Despite the large amount of research on the interaction between

environmental initiatives and performance, the study of this relationship on a global basis is still nascent (Holt and Ghobadian, 2009), and there is still much to learn, especially with regard to the contextual differences introduced by the degree of economic development (Bauer et al., 2011). As a further contribution, we introduce important contingencies of economic development in the factory country to hypothesize about the differential current emphases placed on environmental initiatives, their varying impacts and ensuing outcomes. Such an investigation is long overdue, as most research to date has focused on the importance of environmental initiatives in developed and industrialized countries ( Holt and Ghobadian, 2009 , Zhu and Sarkis, 2006 ). Besides considering relations between industrialized countries, in this paper we focus on specific groups of emerging and developing countries, the latter of which have made less progress towards a fully industrialized country (Schmenner and Swink, 1998). This comprehensive research model is presented in Figure 1.

Figure N° 1. Study mode



Source : prepared by the researcher

## II. Conceptual framework

### 1. the concept of environmental management

It is a group of business activities in the field of work and preparation for work. On the other hand, it is also known as: It is a group of dynamic methods directed towards work, taking measures to help formulate strategies to protect and maintain the environment, then implementing and monitoring the strategies (Salah Al-Din, 2009:17)

The International Organization for Standardization (ISO) also defines the ISO 14001 environmental management system as part of the overall management system that is used to manage environmental aspects, fulfill obligations to conform to the standard, and take into account the risks and

opportunities facing the organization. It is also known as a group of interconnected elements that form a sub-administrative system that aims to manage the environmental impacts resulting from the organization's activities, regardless of the size and type of that activity, by providing an integrated framework for developing, implementing, and maintaining environmental policy, ensuring compatibility with environmental laws, and improving environmental performance. The United Nations Environmental Management Committee, ISO 14001, states that it establishes environmental plans and policies in order to monitor and evaluate the environmental impacts of the industrial project, provided that it includes all production stages, starting from obtaining raw materials all the way to the final product and the environmental aspects related to it (Sabah Majeed, Maha Kamel: 2017: 410)

#### **Environmental management variables**

##### **A. The concept of environmental policy**

Recent policies pay attention to the environmental aspect when developing other policies in various fields to create balance and achieve sustainability. Concern with the environment and its issues is achieved through the adoption of modern environmental policies. The latter are linked to the emergence of external effects that occur as a result of the existence of a gap between the actual costs borne by society and the private costs (Mohamed Ali Embabi, 1998:93). It is defined as that package of broad lines that reflect rules and procedures. Which determines the method of implementing the environmental strategy, while specifying the tasks of the various institutions, agencies, and units participating and responsible for the results of this strategy, under the umbrella of legislative orders binding on each of these agencies. Finally, it clarifies the method of evaluating the results in accordance with the objectives that were previously determined, with an explanation of the mechanisms for correction and development (Anthony ,2002:64).

##### **b. Waste recycling**

Waste recycling or recycling is a term that expresses the use of waste after processing it as raw materials again(Zhuo & Levendis, 2014:13), as it has been noted that it is possible to reuse many types of waste and introduce them into many industries in the form of raw materials, and this reduces the cost of products and reduces the depletion of natural resources, as well as The recycling process helps reduce environmental pollution such as land, air and soil (2015, Ouda et al:2).

### **c .Clean production**

Clean production is the continuous application of an integrated preventive strategy for industrial processes and products, aiming to increase overall efficiency and reduce risks to health and the environment. Environmental researcher Boghos Ghokasyan says in his study in this field that cleaner production includes the use of cleaner technology, (Sahar Qaddouri,2011:217) that is, environmentally sound, whether In extracting natural resources, making products, consuming them, or disposing of them. (Saad, 2005:3)

Clean production is defined as: continuous development in industrial processes, products and services, with the aim of reducing the consumption of natural resources, preventing air, water and soil pollution at the source, and reducing the amount of waste generated at the source, in order to reduce the risks to which humanity and the environment are exposed (Ashour, 2011:18). It is applied As follows (Qaddouri, 2011:87)

-In production (industrial) processes: Cleaner production includes conserving raw materials and energy, removing toxic substances, and reducing the amount of emissions and waste and their toxicity before they leave the production process.

-In products: It focuses on reducing harmful effects during the life of the product, which begins with the extraction of the raw materials necessary for its production, and continues until its final safe disposal. Technology, behavior change and practices through continuous training.

- In services: Cleaner production is applied through research, development, and technology improvement.

### **2.sustainable development**

The first definition of sustainable development surfaced in a 1987 United Nations report titled 'Our Common Future' which is now generally referred to as the Brundtland Report of the World commission on Environment and Development 1987. (Lin& Zhu, 2019:244). defined sustainable development as development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Issa, & Al Abbar,2015:153).

There are several definitions of sustainable development, the most important of which focuses on the optimal use of agricultural land and water resources in the world, which leads to doubling the green spaces on the globe (Jabareen, 2008:78). It is defined from the social and human aspect as striving to stabilize population growth and stop the flow of people into cities through

developing The level of educational and health services in the countryside. (Abdul Khaleq, 1998:244) And you all know that from a technical standpoint, it is development that moves society to the era of clean industries and technologies that use less energy and resources, and produce a minimum of gases and pollutants that lead to an increase in temperature. Earth and harmful ozone (Nadia: 2002:22)

The first definition of sustainable development surfaced in a 1987 United Nations report titled 'Our Common Future' which is now generally referred to as the Brundtland Report of the World commission on Environment and Development 1987. (Lin& Zhu, 2019:44). defined sustainable development as development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Issa, & Al Abbar,2015:34).

### **III. Practical framework**

#### **1. the statistical treatments used**

A questionnaire was prepared on (environmental management practices in achieving sustainable development). The study questionnaire consists of two parts, the first part is devoted to general data on individuals, and the second part consists of two axes:

The first axis: consists of (3) dimensions related to environmental management, which are (environmental policy - waste recycling - clean production). Each of these dimensions consists of (5) paragraphs.

The second axis: consists of (10) paragraphs related to the sustainable development variable.

The Cron-Nbach alpha coefficient was used for the purpose of ensuring the validity and reliability of the questionnaire, and it was found that its value ranged for all items of the questionnaire amounting to (0.82), which is greater than the statistically acceptable value of the Cron-Nbach alpha coefficient, which amounts to (60%). This means that the reliability coefficient is high and statistically significant, and this means the possibility of adopting The results of the questionnaire and reassurance of its credibility in achieving the research objectives.

To achieve the research objectives and analyze the collected data, the researchers used the SPSS program to obtain the arithmetic mean, standard deviation, multiple linear regression, Pearson coefficient, and the T-test for the mean of one sample for a five-point Likert scale. A significance level (0.05) was used, which is considered an acceptable level in the social sciences



in general, and it corresponds to the level of significance (0.05). Confidence equals (95%). (30) questionnaire forms were distributed and all of them were retrieved for the purpose of analysis. If the value of the arithmetic mean is greater than the hypothetical mean (3), the trend is positive. If it is less than (3), the trend is negative. But if its value is Equal to (3) the trend is neutral.

## 2. Statistical analysis of the study sample

Descriptive statistics methods were used for the independent and dependent research variables, where the arithmetic mean and standard deviation were extracted for each variable separately. The arithmetic mean and standard deviation were also extracted for all the axes' statements, where the acceptance or rejection of the research sample for each statement was identified based on the average of the answers.

### Environmental management practices

- The first axis: environmental policy

**Table (1): Sample responses on the environmental policy axis**

Paragraphs	Arithmetic mean	standard deviation	Importance
1. The organization's top management knows the environmental policy	4.43	0.68	1
2. Taking measures that allow the implementation of environmental policy	4.23	0.68	2
3.The environmental policy is appropriate to the nature and size of the environmental impacts resulting from its activities.	3.87	0.97	5
4. Environmental policy includes compliance with environmental legislation	4.13	0.73	4
5. Environmental policy provides an appropriate framework for setting goals and objectives	4.20	0.71	3
The axis as a whole	4.17	0.76	-

Source: Prepared by the researcher based on the results of the

**questionnaire and the outputs of the SPSS program**

It is clear from the table above that the answers of the study sample members regarding the environmental policy axis were in the direction of agreement, with an arithmetic mean of (4.17), which falls within the agreement category of the five-point Likert scale categories, and this indicates the individuals' agreement regarding the items related to this axis.

•Second axis: waste recycling

Table (2): Respondents answers regarding waste recycling

Paragraphs	Arithmetic mean	standard deviation	Importance
1.Your organization separates waste to facilitate the recycling process	4.33	1.03	2
2. Your organization is keen to transport and dispose of waste in a way that does not expose the environment to any danger	3.80	1.00	3
3. Your organization trains its employees to implement such procedures	4.43	1.04	1
4.Your organization is stepping up to provide opportunities to recycle its waste to ensure its sustainable development	3.60	0.89	4
5. Your organization recycles waste resulting from its production operations in order to reduce production costs and achieve sustainable development.	3.47	1.11	5
The axis as a whole	3.93	1.01	-

**Source: Prepared by the researcher based on the results of the questionnaire and the outputs of the SPSS program**

It is clear from the table above that the answers of the study sample members regarding the waste recycling axis were in the direction of agreement, with an arithmetic mean of (3.93), which falls within the

agreement category of the five-point Likert scale categories, and this indicates the individuals' agreement regarding the items related to this axis.

- The third axis: clean production

Table (3): Sample responses on the clean production axis

Paragraphs	Arithmetic mean	standard deviation	Importance
1. Your organization relies on clean production, which contributes to achieving sustainable development	4.20	1.19	1
2. Your organization relies on clean production in order to reduce negative impacts on the environment	3.50	1.11	4
3. Your organization is based on the clean production mechanism in order to prolong the life of the product to achieve sustainable development	3.57	1.10	3
4. Your organization aims to rely on this mechanism to obtain environmentally friendly products	3.77	1.01	2
5. 10. Your organization relies on clean production, which contributes to achieving sustainable development	3.27	1.26	5
The axis as a whole	3.66	1.13	-

Source: Number of students based on the results of the questionnaire and the outputs of the SPSS program

It is clear from the table above that the answers of the study sample members regarding the clean production axis were in the direction of agreement, with an arithmetic mean of (3.66), which falls within the agreement category of the five-point Likert scale categories, and this indicates the individuals' agreement regarding the items related to this dimension.

### **Sustainable development**

Table (4): Sample responses on the sustainable development axis

Paragraphs	Arithmetic mean	standard deviation	Importance
1. The company works to achieve profits by using less resources.	4.40	0.89	2
2. The company works to provide its services at the lowest costs.	3.90	0.80	5
3. The company relies on economic models to achieve sustainability	3.50	1.01	10
4. The company is keen to rationalize energy consumption	3.77	0.94	8
5. The company relies on comprehensive quality strategies that support cleaner production and green marketing functions.	3.80	1.16	7
6. The company seeks to meet the needs of the community in which it operates	3.83	0.79	6
7. The company is constantly researching changing customer desires	4.57	0.82	1
8. The company is developing programs to empower employees with regard to sustainable development	3.90	0.66	3
9. Taking the necessary measures that allow controlling emissions resulting from the production process	3.90	0.76	4
10. The company believes that contributing to sustainable development ensures the development and diversification of national production.	3.60	0.97	9
The axis as a whole	3.92	0.88	-

Source: Number of students based on the results of the questionnaire and the  
596

outputs of the SPSS program

It is clear from the table above that the answers of the study sample members regarding the sustainable development axis were in the direction of agreement, with an arithmetic mean of (3.92), which falls within the agreement category of the five-point Likert scale categories, and this indicates the individuals' agreement regarding the items related to this dimension.

#### 4. Testing hypotheses

To test the main hypothesis, multiple regression was relied upon, which aims to determine the extent of the significance of the effect of the independent variables on the dependent variable. The multiple regression method was adopted to show the relationship between the independent variable on the dependent variable, and the decision rule was based on the calculated moral significance (Sig). On the other hand, the coefficient of determination was used. R<sup>2</sup>, which is a basic indicator in evaluating the significance and interpretation of the relationship between the dependent variable and the independent variables, as it shows the percentage of contribution of the variance in the independent variables in explaining the change occurring in the dependent variable.

- Testing the main hypothesis:

This was done through the use of multiple regression between the independent variable represented by environmental management practices and the dependent variable represented by sustainable development as a whole according to the following hypothesis:

- Null hypothesis: There is no statistically significant impact of environmental management practices on achieving sustainable development in the company under study.
- Alternative hypothesis: There is a statistically significant impact of environmental management practices on achieving sustainable development in the company under study.

The result of the regression analysis was as follows:

Table (5): Multiple regression testing of the main hypothesis

Independent variable	Dependent variable	R	R <sup>2</sup>	F	Sig	t	Indication t	B
Environmental management practices	sustainable development	0.394	0.16	5.137	0.03	2.267	0.03	0.41

Source: Number of students based on the results of the questionnaire and the 597

outputs of the SPSS program

Table (5) shows that the value of the significance level is (0.03), which is less than (0.05), which indicates the significance of the model used and its validity. On the other hand, it appears that there is a direct relationship between each of the research variables, as the value of the correlation coefficient was estimated at (0.394), and the value of The coefficient of determination (0.16) means that environmental management practices explain (16%) of sustainable development, while the remaining percentage is due to other variables. Therefore, we rule by rejecting the null hypothesis and accepting the alternative hypothesis, meaning there is a statistically significant effect.

.Testing the first sub-hypothesis:

Null hypothesis: There is no statistically significant effect of environmental policy on achieving sustainable development in the company under study.

Alternative hypothesis: There is a statistically significant effect of environmental policy on achieving sustainable development in the company under study.

The results of the regression analysis were explained as follows:

Table (6): Testing the first sub-hypothesis

Independent variable	Dependent variable	R	R <sup>2</sup>	F	Sig	t	Indication t	B
Environmental policy	sustainable development	0.598	0.358	3.953	0.000	15.623	0.000	0.812

Source: Number of students based on the results of the questionnaire and the outputs of the SPSS program

The results showed that the correlation coefficient between the two variables is (0.598) and the value of the coefficient of determination is (0.358), meaning it explains 36% of sustainable development, and the remaining percentage is due to other factors. Also, the significance level is equal to (0.000), which is less than the significance level (0.05). This means rejection The null hypothesis and accepting the alternative hypothesis, i.e. there is an effect.

.Testing the second sub-hypothesis:

Null hypothesis: There is no statistically significant effect of waste recycling on achieving sustainable development in the company under study.

Alternative hypothesis: There is a statistically significant effect of waste

recycling on achieving sustainable development in the company under study. The results of the regression analysis were explained as follows:

Table (7): Testing the second sub-hypothesis

Independent variable	Dependent variable	R	R <sup>2</sup>	F	Sig	t	Indication t	B
Waste Recycling	sustainable development	0.759	0.576	6.171	0.000	38.079	0.000	0.874

Source: Number of students based on the results of the questionnaire and the outputs of the SPSS program

Through the table above, the results showed that the correlation coefficient between the two variables is (0.759) and the value of the coefficient of determination (0.576), meaning that it explains 58% of sustainable development, and the remaining percentage is due to other factors. The level of significance is less than (0.05), which means rejecting the null hypothesis and accepting The alternative hypothesis is that there is an effect.

.Testing the third sub-hypothesis:

Null hypothesis: There is no statistically significant effect of clean production on achieving sustainable development in the company under study.

Alternative hypothesis: There is a statistically significant effect of clean production on achieving sustainable development in the company under study.

The results of the regression analysis were explained as follows:

Table (8): Testing the third sub-hypothesis

Independent variable	Dependent variable	R	R <sup>2</sup>	F	Sig	t	Indication t	B
Clean production	sustainable development	0.559	0.313	12.728	0.001	3.568	0.001	0.990

Source: Number of students based on the results of the questionnaire and the outputs of the SPSS program

Through Table (8), the results showed that the correlation coefficient between the two variables is (0.559) and the value of the coefficient of determination is (0.313), meaning clean production explains 31% of 599

sustainable development, and the remaining percentage is due to other factors. The level of significance is equal to (0.001), which is less than (0.05) This means rejecting the null hypothesis and accepting the alternative hypothesis which states that there is an effect.

#### **IV. CONCLUSION**

1. The necessity of paying attention to environmental management and its activities because of their significant impact on achieving customer satisfaction, supporting competitive advantage, and improving the quality of service.
2. By proving the hypothesis, it was shown that the process of recycling and clean production contributes to achieving sustainable development, as the sample members believe that the waste recycling process is important by preserving the environment, sustaining natural resources, and working to provide green products and reduce costs.
3. Environmental policy provides an appropriate framework for setting goals and objectives, and the hypothesis has proven that it has a significant impact on achieving sustainable development.
4. Sustainable development is concerned with achieving two basic goals: preserving the ability of ecosystems to renew their vitality and rationalizing the use of environmental resources.
5. The research sample agreed that environmental management practices have an impact on achieving sustainable development.
6. The station does not recycle waste resulting from its production operations in order to reduce production costs and achieve sustainable development.

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ممارسات الإدارة البيئية و اثرها على تحقيق التنمية المستدامة دراسة حاجة في محطة كهرباء النجيبية

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الملخص:

تهدف الدراسة إلى التعرف على أثر ممارسات الإدارة البيئية في تحقيق التنمية المستدامة، تمثلت ممارسات الإدارة البيئية في (إعادة تدوير النفايات، والسياسة البيئية، وإنتاج التنظيف) والتنمية المستدامة في (البعد الاقتصادي، والبعد الاجتماعي، والبعد البيئي). ولتحقيق هدف الدراسة تم تحليل 30 استبانة وزعت على المدراء في محطة كهرباء النجيبية، وباستخدام SPSS توصلت الدراسة إلى استنتاجات أهمها وجود علاقة بين الإدارة البيئية والتنمية المستدامة، وأوصت الدراسة بضرورة الاهتمام بالإدارة البيئية وأنشطتها لما لها من أثر كبير في تحسين التنمية المستدامة.

الكلمات المفتاحية: الإدارة البيئية، التنمية المستدامة، محطة كهرباء النجيبية