

Proposed Framework for Auditing Sustainable Development Practices in Iraq

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Abstract— Sustainable development is one of the most important goals that most countries seek to achieve in order to protect the environment, reduce environmental costs and achieve competitive advantage.

This research aims to present a proposed framework for auditing sustainable development practices in Iraqi organizations by identifying the most important audit bodies, the most important indicators of sustainable development, the degree of compliance by organizations with environmental legislation and the degree of environmental disclosure in the annual reports of organizations, in addition to evaluate the contribution of the organizations in enhancing the sustainable development in Iraq.

The main problem of the study is how to design an integrated framework has the ability to audit sustainable development practices despite the difference of international auditing standards, methods of applying, and indicators of sustainable development from one sector to another.

The researchers relied on previous studies, scientific researches, and related literature in addition to review and analyze some international experiences to propose the framework.

Keywords—*Audit, Environment, Sustainable Development*

I. INTRODUCTION

The auditing of sustainable development practices is one of the most important trends adopted by many governments in developed countries. Several relevant studies have been published and several laws and standards have been legislated to control activities related to the environment.

One of the most important of these efforts is the efforts of international organizations to identify the most important indicators of sustainable development. The United Nations (UN), the organization for economic cooperation and development (OECD), and the World Bank have made great efforts to develop a framework for all sectors to preserve the environment.

In view of the significant role played by audit in monitoring the activity of organizations, International Auditing and Assurance Standards Board (IAASB) has developed many international standards for auditing sustainable development practices. Sarbanes-Oxley's Act (SOX) also addresses the need to adopt sustainable development in companies in order to preserve the natural resources of future generations and enhance the role of auditing in improving the productivity and services of companies.

II. METHODOLOGY

A. Study Problem

Audit plays a major role in the achievement of sustainable development, especially under the pressure exerted by international, professional and academic organizations to reconcile their economic objectives with environmental and social requirements.

So, the study problem can be illustrated by the ability of designing an integrated framework for auditing sustainable development practices by determining the companies' degree of compliance with the indicators of sustainable development according to international standards on auditing (ISA) and the requirements of Sarbanes-Oxley Act (SOX).

B. Study Objectives

The study aims to achieve the following objectives:

1. Identifying the most important indicators of sustainable development which can be applying in Iraq.
2. Clarifying the importance of sustainable development to improve the organizations performance
3. Identifying the influence of audit on sustainable development through applying ASI and the requirements of SOX Act
4. Designing a proposed framework for auditing sustainable development practices in Iraq.

C. Study Importance

The study importance can be considered as a pioneer attempt to examine the applying of sustainable development according to an integrated framework that can be applied by many parties to enhance the sustainable development practices in Iraq.

D. Study Hypotheses

The study is based on a main hypothesis that an integrated framework can be designed to audit sustainable development practices in Iraq. The main hypothesis can be divided into 2 sub-hypotheses as follows:

H1: Identifying the main indicators of sustainable development can be helpful to enhance the auditing of sustainable development practices

H2: Identifying the role audit and SOX act in the implementation of sustainable development practices efficiently and effectively can be helpful to enhance the auditing of sustainable development practices.

III. LITRETURE REVIEW

Leal (2016) argues that the function of audit is to hold the government accountability for how it uses resources and its performance in achieving the goals of sustainable development. He states that the accountability should focus on enhancing the role of control and involving the education sector, governmental institutions, legislative sector, control entities, communications media, international cooperation, civil organizations, and citizens to implement good practices of sustainable development^[1].

While Toepfer (2004) states that environmental accountability is an important requirement to achieve the goals of sustainable development, and one of the most important approach that can be used to ensure environmental accountability in the public sector is by implementing the environmental auditing, as the audit could contribute significantly to this purpose^[2].

But Yusoff (2016) argues that developing countries where the development of economic takes first place over environmental interests, the issues of coordination between environment and development become a critical factor which limiting the role of environmental auditing^[3].

The GAO report (1995) summarized the main obstacles to audit sustainable development practices through the inconsistent application of the audit report, enforcement policies, non-compliance by senior agency management, incentives from federal agencies, and technical expertise of agencies^[4].

IV. THEORETICAL FRAMEWORK

The main objective of any economic activity is to maximize profits with minimal damage in terms of environmental and social aspects as well as economic aspects and therefore it is necessary for organizations to work towards achieving sustainable development goals. Therefore, auditing on the activities of organizations and their environmental information is one of the most important aspects of auditing.

In this section we review the most important concepts related to the study topic.

A. *The Sustainable Development*

The concept of sustainable development grew at the end of the 20th century due to the deterioration of the environmental situation and the lack of growth and development at the global level.

1) *The Concept of Sustainable Development*

Although the concept of sustainable development has spread globally, it has been criticized for its ambiguity and its focus on a broad perspective of the parties' problems participated in decision-making. So far no agreement has been reached on a unified definition of sustainable development that meets the needs of all parties.

The report of IUCN (1980) defines the sustainable development as "A Continuous pursuit to regard the quality

of human life, considering the environmental abilities and possibilities of the natural system"^[5]. The report of WCED (1987) defines it as "The development that meets the needs of the present without affecting the ability of future generations to meet their needs"^[6].

Strange and Bayley (2008) defines it as "progressive development that meets the current need without negative impact to meet the needs of future generations"^[7], and Thabit and Mardini (2015) explain it as "A combination of methods to decrease the rising deterioration of the natural resources and to deal with the results of this deterioration in the development of economic and community"^[8].

So, the sustainable development can be introduced as "The cooperation between management, organizations and individuals to use natural resources wisely to serve current and future generations".

2) *The Sustainable Development Importance in Improving the Organizations Performance*

Organizations that adopt sustainable development in developing their strategies, formulating their policies and implementing their operations are achieving the following^[9],^[10],^[11].

- **Creating competitive advantage:** The adoption of sustainable development in the company will reduce costs and increase revenues. Organizations that develop new environmentally friendly products will increase their market share, as well as, the producing of the same products with fewer inputs will have a positive environmental and economic impact, in addition to a positive impact on the organization's cost structure.
- **Risk reduction:** Organizations that disclose environmental information in their annual reports are more likely to reduce the risk of non-compliance with laws and avoid threats that negatively affect their financial performance and liquidity
- **Maintaining stakeholder loyalty:** The failure of organizations to identify the environmental, social and economic impact of each stage of the production process would expose them to substantial risks that could threaten the loyalty of stakeholders.
- **Activating corporate governance:** Organizations that publish periodic environmental reports will raise the level of disclosure and transparency on financial, environmental and social performance and enhance governance.

So, The organization's adoption of sustainable development can have positive effects for the long-term benefit of the organization by improving its productivity, maximizing profits with minimal costs, expanding its investments, reducing commitment, attracting new customers, increasing trust, increasing credibility and increasing market share.

3) *The Indicators of Sustainable Development*

The international trend to adopt the sustainable development led to the need for identifying the main indicators of sustainable development that explain the interaction between economic, social, environmental and institutional factors.

Many organizations, such as UN, OECD, IIED, IISD, and World Bank, identify (17) key indicators among the economic, social, environmental and institutional factors.

These indicators are^{[12], [13], [14], [15], [16]}:

a) The Economic Factor

The economic factor includes (5) indicators:

- GDP Per capita
- Gross fixed capital formation (GFCF)
- Ratio of exports to imports
- Ratio of net ODA received to GNP
- Ratio of External debt to GDP

b) The Social Factor

The social factor includes (6) indicators:

- Unemployment rate
- Population growth rate
- Illiteracy rate of adults
- Enrollment rate for schools and universities
- Percentage of urban population
- Protection and promotion of health

c) The Environmental Factor

The environment factor includes (3) indicators:

- Agricultural land per capita
- The changing in forest areas
- Desertification

d) The Institutional Factor

The institutional factor includes (3) indicators:

- Getting information
- Number of researchers in the scientific research
- Spending on R & D

B. The Influence of Audit on Sustainable Development

The applying of sustainable development practices in any institution requires five stages. Audit is one of the most important factors in the implementation of sustainable development practices efficiently and effectively, so it plays a key role at every stage according to SOX act as follows^{[17], [18]}:

- Policy and Strategy Development Stage: When the organization decides to adopt a sustainability policy, the duty of audit can be:
 1. Test policy alignment with the organization's strategic plan
 2. Check policy coverage on standards, regulations, instructions, and protocols
 3. Ensure that these policies are reported to all stakeholders

4. Assess the risks associated with adoption of this policy

- Planning and Risk Management Stage: The audit duty at this stage can be:

1. Ensure that sustainable development practices are consistent with the goals and objectives of the organization's policies and strategies
2. Check the characterization of managerial roles and responsibilities with the policies and strategies of the organization
3. Ensure that sustainable development practices are integrated into risk management
4. Provide management advice in identifying and evaluating methods of risk management

- Implementation and operation stage: The audit duty at this stage can be:

1. Assess the efficiency of the Sustainable Development director in achieving environmental practices
2. Audit the official reports of senior management in order to discover the obstacles of achieving the goals
3. Review of the adequacy and sustainability of the Communication Plan on Sustainable Development
4. Evaluate the efficiency and effectiveness of the communication plan according to the needs of the organization and indicators of sustainable development.

- Verification and corrective actions stage: The duty of audit can be:

1. Evaluate the efficiency and effectiveness of generating performance indicators
2. Detect weaknesses in the implementation process and diagnose key causes
3. Examine of submitted complaints inside and outside the organization
4. Review the effectiveness of settling the internal and external complaints

- Management examination and continuous development stage: The duty of audit can be:

1. Check the efficiency and effectiveness of sustainable development practices in order to ensure continuous improvement
2. Check the effectiveness of internal control mechanisms
3. Ensure that information is consistent with other reports used to monitor performance
4. Ensure that audit results are clear and effective in order to achieve continuous improvement in the adoption of sustainable development

V. THE PROPOSED FRAMEWORK

The main aim of this study is to propose a reasonable framework for auditing sustainable development practices in Iraqi companies. In order to achieve this aim, the data were collected by questionnaires.

The questionnaire was designed according to the related previous studies and divided into two main parts according to the indicators of sustainable development, and international auditing standards and Sarbanes-Oxley act requirements by submitting 20 paragraphs to 3 sub-samples (managers, clients and auditors).

The degree of agreement of the research sample and the materiality of questionnaire's paragraphs were determined.

The study was conducted on Iraqi Cement State Company in Nineveh Governorate, where the study population consists of all the managers, the main customers and the auditors in the cement factories of the Nineveh (Old Badoosh Cement Factory, New Badoosh Cement Factory, Badoosh Cement Factory 2nd Extension, Old Hammam AL-Alil Cement Factory, New Hammam Al-Alil Cement Factory, and Sinjar Cement Factory Lines)^[19], which were (212) responses. So, the researchers selected (136) responses as a random sample according to Sekaran's table^[20]. The number of valid questionnaires for analyzing were (74) by (54.4%) of the study sample and (34.9%) of the study population.

A. The Statistical Methods Used for Data Analyzing

The researchers used (percentages and frequencies, arithmetic averages and standard deviations, Cronbach's Alpha test to determine the stability of the questionnaire, and T-test) to achieve the study aims by applying SPSS 22.0.

B. The Statistical Analysis and the Testing of Hypothesis:

1) The Analyzing of the Sample Characteristics

Table (1) displays that the managers represent (6) and main customers represent (51) while the auditors represent (17) of the study sample.

TABLE I. THE SAMPLE CHARACTERISTICS

Sub-Sample	Frequency	Percentage
Manager	6	8.1%
Customer	51	68.9%
Auditor	17	22.9%
	74	100%

2) The Analyzing of Questionnaire Stability

The test of Cronbach's Alpha aims to evaluate the accuracy and consistency degrees of the questionnaire paragraphs. So, if the Cronbach's Alpha coefficient value is $\alpha \geq 0.6$ the value will be acceptable. According to the results of SPSS, the value of $\alpha = 0.718$, and the reliability value of $\alpha = 0.729$ which means they are acceptable.

3) The Test of Hypotheses

Three statistical methods were used to test the hypotheses of the study (arithmetical average, standard deviation, and T-test) in order to determine the statistical decision for paragraphs.

The paragraphs of questionnaire were divided into two parts (each part consists of 10 paragraphs) to test the sub-hypotheses of the study

a) The Test of the First Hypothesis

H₁: Identifying the main indicators of sustainable development can be helpful to enhance the auditing of sustainable development practices

Table (2) shows the first part of questionnaire which consists 10 paragraphs and relates to H₁ and their codes.

TABLE II. THE H₁ CODES OF THE QUESTIONNAIRE PARAGRAPHS

Code	Paragraph
H ₁₋₁	The indicators of sustainable development are a good basis to cover all key areas that help to preserve the environment
H ₁₋₂	The indicators of sustainable development are based on a clear rationale and a proper measurement of all environmental-related practices
H ₁₋₃	The indicators of sustainable development are based on a measurable plan within the limits of uncertainty data
H ₁₋₄	The indicators of sustainable development are relevant to the environmental practices of the factory and are reliable and easy to explain.
H ₁₋₅	The indicators of sustainable development illustrate the trends of the factory towards providing a suitable environment for the community.
H ₁₋₆	Management's compliance is effective in implementing the indicators of sustainable development.
H ₁₋₇	The indicators of sustainable development help to enhance the efficient use of human, financial, and other resources used in the factory programs.
H ₁₋₈	The indicators of sustainable development help to control the negative environmental impacts of economic activity and enhance the effectiveness of the factory policy in achieving its objectives
H ₁₋₉	The costs of environmental information disclosure in the factory's annual reports according to indicators of sustainable development can be reduced over time.
H ₁₋₁₀	The environmental information disclosed in the annual reports of the factory has a preventive effect and helps to achieve the objectives of indicators of sustainable development.

Table (3) shows the results of statistical analyzing for the first part of questionnaire's paragraphs, the statistical decisions, and their materiality.

TABLE III. THE RESULTS OF ANALYZING H₁

Code	Arithm. average	Stand. deviat.	T-Test	Rank	Statis. decision
H ₁₋₁	3.81	0.754	6.44	2	Sign.
H ₁₋₂	2.45	1.244	1.99	9	Not Sign.
H ₁₋₃	3.01	0.845	5.89	8	Sign.
H ₁₋₄	2.21	1.789	1.72	10	Not Sign.
H ₁₋₅	3.11	0.921	6.49	6	Sign.
H ₁₋₆	3.06	0.716	6.78	7	Sign.
H ₁₋₇	4.05	0.452	7.85	1	Sign.
H ₁₋₈	3.47	0.779	7.15	4	Sign.
H ₁₋₉	3.19	0.751	5.27	5	Sign.
H ₁₋₁₀	3.78	0.641	6.46	3	Sign.
	3.214				

According to the results of analyzing the first part of the questionnaire related to H₁, table (3) can show the following:

- There are two paragraphs are considered not significant. The values of arithmetic average for paragraphs (H₁₋₂) and (H₁₋₄) equal (2.45) and (2.21)

sequentially, and their standard deviation values equal (1.244) and (1.789), which confirms that there some misunderstanding among the respondents about these two paragraphs due to lack of environmental culture.

- The paragraph (H₁₋₇) obtains the highest rank among other paragraphs because of the arithmetic average value equals (4.05) and the standard deviation value equals (0.452), which confirms the good compatibility of the responds.
- The rate of arithmetic average of all paragraphs for the first part is (3.214), which confirms that H₁ can be accepted by the researchers.

a) *The Test of the Second Hypothesis*

H₂: Identifying the role audit and SOX act in the implementation of sustainable development practices efficiently and effectively can be helpful to enhance the auditing of sustainable development practices.

Table (4) shows the second part of questionnaire which consists 10 paragraphs and relates to H₂ and their codes.

TABLE IV. THE H₂ CODES OF THE QUESTIONNAIRE PARAGRAPHS

Code	Paragraph
H ₂₋₁	The audit plays a main role to test policy alignment with the organization's strategic plan.
H ₂₋₂	The audit plays a main role to assess the risks associated with adoption of this policy.
H ₂₋₃	The audit can be an evidence to ensure that sustainable development practices are consistent with the goals and objectives of the organization's policies and strategies
H ₂₋₄	The audit can provide management advice in identifying and evaluating methods of risk management.
H ₂₋₅	The audit can control the official reports of senior management in order to discover the obstacles of achieving the goals
H ₂₋₆	The audit can evaluate the efficiency and effectiveness of the communication plan according to the needs of the organization and indicators of sustainable development.
H ₂₋₇	The audit can detect weaknesses in the implementation process and diagnose key causes.
H ₂₋₈	The audit can review the effectiveness of settling the internal and external complaints.
H ₂₋₉	The audit can check the effectiveness of internal control mechanisms.
H ₂₋₁₀	The audit can ensure that audit results are clear and effective in order to achieve continuous improvement in the adoption of sustainable development.

Table (5) shows the results of statistical analyzing for the second part of questionnaire's paragraphs, the statistical decisions, and their materiality.

TABLE V. THE RESULTS OF ANALYZING H₂

Code	Arithm. average	Stand. deviat.	T-Test	Rank	Statis. decision
H ₂₋₁	3.48	0.772	5.22	7	Sign.
H ₂₋₂	3.68	0.786	6.78	5	Sign.
H ₂₋₃	3.91	.0951	5.04	4	Sign.
H ₂₋₄	3.25	0.653	6.74	8	Sign.
H ₂₋₅	4.12	0.485	7.43	1	Sign.
H ₂₋₆	4.08	0.684	7.09	2	Sign.
H ₂₋₇	3.95	0.512	5.18	3	Sign.
H ₂₋₈	3.18	0.637	6.72	9	Sign.

H ₂₋₉	3.43	0.874	7.43	6	Sign.
H ₂₋₁₀	3.04	0.977	6.77	10	Sign.
	3.612				

According to the results of analyzing the second part of the questionnaire related to H₂, table (5) can show the following:

- All paragraphs are considered significant because of the values of arithmetic average for all paragraphs are between (4.12) to (3.04), and their standard deviation values are between (0.485) to (0.977), which confirms that there is a high level of awareness for the role of auditing in enhancing the sustainable development practices.
- The paragraph (H₂₋₅) obtains the highest rank among other paragraphs because of the arithmetic average value equals (4.12) and the standard deviation value equals (0.485), which confirms the good compatibility of the responds.
- The rate of arithmetic average of all paragraphs for the second part is (3.612), which confirms that H₂ can be accepted by the researchers.

CONCLUSIONS

There is an environmental awareness weakness in Iraqi society due to the weak knowledge of international legislations and policies related to the environment as a result of the government's lack of serious interest in environmental issues.

Audit plays a credible role in controlling and monitoring environmental practices in Iraq but needs more efforts to enhance its role as an important factor to build a strong base for sustainable development practices.

A framework for auditing the sustainable development in Iraq can be proposed according to the indicators of sustainable development, international standards on auditing (ISA) and the requirements of Sarbanes-Oxley Act (SOX).

RECOMMENDATIONS

Based on the following conclusions of the study, the researchers conclude the following:

1. The level of environmental culture in Iraqi companies and factories should be increased through holding of conferences, seminars and training courses periodically for managers and employees and spreading of environmental awareness in society.
2. The government's efforts to update auditing practices in accordance with international standards on auditing (ISA) and the legislations of (SOX) Act should be continuously enhanced through developing a mechanism to adopt these standards in a manner consistent with the Iraqi environment.
3. All Iraqi companies and factories must be obliged to employ the indicators of sustainable environmental in order to reduce harmful emissions, reduce costs, raise production levels, and improve the environment.

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