

# The Professional Specialization of Green Auditing and Its Reflection on Tax Collection and State Resources

**\*Dr. Hala Abdalhadi Yahya, \*\*Asst. Lect. Raafat Basem Thannoon,**

**\*Dr. Huda Salim Hussein, \*Asst. Prof Dr. Rafi Nazar Jameel**

\*University of Mosul, College of Administration and Economics

\*\* University of Mosul, Internal Audit and Control Department

DOI: 10.37648/ijps.v21i01.013

<sup>1</sup>Received: 19/03/2026; Accepted: 17/04/2026; Published: 20/04/2026

---

## Abstract

The research aimed to identify the concept, dimensions, and importance of professional specialization in green auditing within both auditing firms (external auditing) and tax authorities, and its impact on the efficiency and effectiveness of tax collection on the one hand, and state resources on the other. It also seeks to identify the human, technical, and administrative challenges hindering the promotion of this type of tax audit (green tax auditing). The research problem stems from this, posing several key questions: Is there a statistically significant relationship between professional specialization in green auditing and tax collection? Is there a statistically significant relationship between professional specialization and state resources? Are there (technical, human, and administrative) challenges to auditing environmental activities that affect tax collection and state resources? The overall objective of this research is to demonstrate the role of the professional specialization of external auditing in providing transparent and impartial reports to government agencies regarding companies' environmentally impactful activities. This aims to subject these companies to environmentally-oriented taxes, thereby impacting state resources. Based on this objective, the researchers gathered opinions from a sample of academics specializing in accounting and auditing at Iraqi universities, a sample of professionals working in external auditing firms, and employees of Iraqi tax authorities. This was achieved through a questionnaire distributed manually and electronically using Google Forms to a sample of (66) respondents. The questionnaire comprised three axes: the first concerned the relationship between the professional specialization of green auditing and tax collection; the second concerned the relationship between the professional specialization of green auditing and state resources; and the third addressed the challenges (technical, human, and administrative). The research yielded several key findings, the most important of which is that the key to the success of environmental taxation lies in its acceptance. Gaining this acceptance should be the core of environmental fiscal policy in any democratic society. Among the most important recommendations is the necessity for external auditors of environmental activities to understand the role that they perform their duties in relation to various relevant standards and assurance tools, working as part of a global network to facilitate the exchange of expertise at the operational, practical, and policy levels within the state.

---

<sup>1</sup> *How To Cite The Article*: Yahya H.A., Thannoon R.B., Hussein H.S., Jameel R.N. (April 2026); The Professional Specialization of Green Auditing and Its Reflection on Tax Collection and State Resources; *International Journal of Professional Studies*; Jan-Jun 2026, Vol 21, 150-167; DOI: <http://doi.org/10.37648/ijps.v21i01.013>

**Keywords:** *Professional specialization; Green Auditing; Green taxation; State resources*

## 1. Introduction

The accounting profession is evolving across various fields and is attracting increasing attention. Sustainable development will undoubtedly lead to the emergence of new markets and a growing demand for new types of services. Companies can no longer delay adapting their activities, as they will be required to prepare environmental reports that are likely to be subject to environmental auditing and, subsequently, to environmental tax regulations.

In the present era, accounting has assumed a leading role in incorporating environmental issues into its function as an information system, despite the fact that such considerations were absent from the traditional financial accounting model. Given the functions of modern accounting, accounting reports and related data that include environmental aspects have been integrated into the process of general environmental reporting, thereby becoming part of environmental accounting practices.

Some studies indicate that, despite the increasing level of environmental disclosures by business firms, improvements in the quality of information do not adequately reflect reality, whether through voluntary or mandatory reporting instruments. Moreover, while the quality of information in environmental reports has been a highly significant issue in environmental accounting research, external auditing services as an important verification mechanism have not received extensive examination.

As auditing services have come to be regarded as essential for reporting processes, similar to financial statements, this role has been entrusted to auditors through the oversight of professional bodies and/or legislation. In this context, the present study aims to highlight the role played by external auditing of environmental taxes in relation to state revenues.

## 2. Section One: Research Methodology

### • Research Problem

The effectiveness of the existing system for managing environmental taxes largely depends on independent, comprehensive, and accurate auditing of the most significant and complex environmental issues, conducted by specialized and licensed auditors. Although auditing standards are aligned with the requirements of environmental taxation, there remains a challenge in establishing a consistent legal framework for the external auditing of such taxes one that regulates its content, procedures, reporting requirements, certification bodies, and external auditors.

Accordingly, this study seeks to contribute to highlighting the role played by external auditing of environmentally impactful corporate activities and its implications for state revenues. From this perspective, the research problem is articulated through the following questions:

- **First Question:** Is there a statistically significant relationship between professional specialization in green auditing and tax collection?
- **Second Question:** Is there a statistically significant relationship between professional specialization in green auditing and state revenues?
- **Third Question:** Are there technical, human, and administrative challenges associated with auditing environmental activities that affect tax collection and state revenues?

### • Research Objectives

The first and most important step stems from recognizing that individuals with solid expertise in their respective fields can be trained to enhance their theoretical and practical capabilities. With regard to practitioners of external

auditing particularly those engaged in auditing environmentally impactful corporate activities it is essential that they possess adequate knowledge and preparation concerning the importance, challenges, and requirements of this specialized field.

On this basis, the objectives of this study can be summarized as follows:

- To clarify the concept of “environmental taxes,” their types, and their importance for state revenues.
- To examine the role played by professional specialization in external auditing through the provision of transparent and credible reports to governmental authorities regarding corporate activities with environmental impacts, with the aim of subjecting such companies to environmentally oriented taxation, thereby contributing to state revenues.
- To identify the challenges that hinder the advancement of this type of auditing, namely environmental auditing.
- To outline the key considerations that must be taken into account when conducting external audits of corporate environmental activities.

- **Significance of the Research**

The importance of this study can be outlined as follows:

- It highlights an important topic, namely the linkage between professional specialization in environmental auditing and environmental taxation, and their significance for state revenues.
- There is a need for qualified human resources capable of evaluating how to efficiently and effectively prepare and present audited reports on corporate environmental activities to governmental entities, including tax authorities.
- The study emphasizes the importance of having specialized external auditors, whose work reflects at least to some extent the integrity and professionalism of the reports submitted to governmental bodies regarding environmentally related corporate activities, which in turn positively impacts state revenues.

- **Research Hypotheses**

Within the framework of the explanations it seeks to provide, the study tests the following main hypotheses:

- **First Hypothesis:** There is a statistically significant relationship between professional specialization in green auditing and tax collection.
- **Second Hypothesis:** There is a statistically significant relationship between professional specialization in green auditing and state revenues.
- **Third Hypothesis:** There are technical, human, and administrative challenges associated with tax auditing of environmental activities, which affect tax collection in particular and state revenues in general.

- **Research Methodology**

On the theoretical side, the study adopts a descriptive approach through reference to official documents, books, journals, conferences, theses, dissertations, seminars, and relevant electronic sources. In addition, an inductive approach is employed through an exploratory study conducted by the researchers to collect data related to the

research topic. The results were subsequently analyzed based on a survey instrument distributed to the research sample.

- **Population and Sample of the Study**

The research population consists of academics in Iraqi universities and institutes specializing in accounting and auditing, as well as audit firms and employees of the tax authority. The study sample was selected as a random sample drawn from this population.

### Research Boundaries

- **Thematic Boundaries**

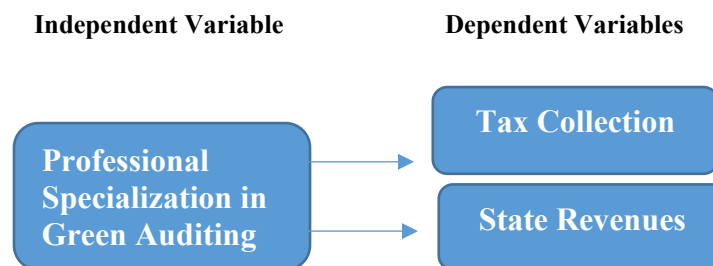
The thematic scope of the study encompasses the issue of external auditing of environmental activities and its significance for both tax collection and state revenues.

- **Spatial, Temporal, and Human Boundaries**

The field study was conducted in Iraq during the period 2025–2026. It included selected academics from Iraqi universities, a sample of audit firms in the governorates of Nineveh, Baghdad, Basra, and Erbil, as well as a sample of employees from the tax authority.

- **Research Model**

This study adopts a descriptive-analytical approach, as it is suitable for the research topic and its variables. The aim is to identify the perspectives of the study sample, comprising academics and professionals, by determining the variables and their interrelationships, as illustrated in Figure (1) below.



**Figure (1):** Research Model

**Source:** Prepared by the researchers

### 3. Section Two: Professional Specialization in Auditing and Green Taxes

- **The Concept of Professional Specialization in Auditing – An Overview**

Professional specialization can generally be categorized into several types, including general experience, which refers to the length of time an individual spends in a specific job, role, or task performance. It also includes professional expertise, defined as the ability to efficiently perform complex, unstructured tasks based on accumulated knowledge in a specific field and the procedures required to carry out such tasks.

Specialization or specialized expertise in auditing refers to possessing a broad scope of scientific knowledge and skills in a specific field, or the knowledge acquired by an auditor as a result of specializing in auditing clients belonging to a particular industry (sector) or performing specific tasks. (Bhattacharya, 2011, p. 21)

- **Objectives of Professional Specialization**

The importance of professional specialization can be summarized as follows: (Al-Maqtari, 2011, p. 6)

- Distinguishing the specialized audit firm from its competitors.
- Increasing the audit fees of specialized auditors.
- Providing high-quality services.
- Increasing income generated from specialized auditing activities.
- Expanding the range of services provided by the specialized auditor.
- Attracting more clients to the specialized audit firm.
- Increasing the market share of professionally specialized audit firms.
- Enhancing auditor independence, objectivity, and adherence to the professional ethical code.

- **The Importance of Professional Specialization for the Auditor**

Significant benefits arise from adopting the concept of professional specialization, and these benefits extend to multiple stakeholders. These can be categorized as follows, adapted from (Rizqia & Lastiati, 2021, p. 6; Sun & Habib, 2021, p. 14):

**First Group: Investors**

- Reducing financial manipulation and fraud in financial statements.
- Supporting the implementation of the SOX Act by providing better protection for the public interest through the high level of knowledge possessed by specialized auditors in each sector.
- Enhancing the detection of earnings management practices adopted by company management.

**Second Group: Audit Firms**

- Achieving a higher market share.
- Reducing audit risk.
- Gaining a competitive advantage for auditors.
- Improving audit service quality.
- Reducing reliance on external experts.
- Strengthening auditor independence.

**Third Group: Audited Companies**

- Providing greater value to clients.
- Enhancing the ability to detect unintentional errors.

The researchers believe that, in addition to the above stakeholders, other parties such as the state also benefit from professional specialization, particularly tax authorities, by ensuring greater professionalism and transparency in reports submitted by auditors. Courts also benefit through more reliable expert judgments, which ultimately enhances the integrity of decision-making based on more competent professional expertise.

- **Professional Specialization and Related Standards**

The researchers believe that there is a clearly defined professional relationship between auditing standards and the importance of professional specialization of auditors, as compliance with these standards guides auditors in the performance of their work. The most important of these standards include the following: adapted from International Standards on Auditing (ISAs):

- **International Standard on Auditing (ISA) 200:** “Overall Objectives of the Independent Auditor and the Conduct of an Audit in Accordance with International Standards on Auditing” – with a focus on ethics.
- **ISA 220:** “Quality Control for an Audit of Financial Statements” – emphasizing the establishment of specific responsibilities for auditors regarding quality control procedures in the audit of historical financial statements.
- **ISA 240:** “The Auditor’s Responsibilities Relating to Fraud in an Audit of Financial Statements.”
- **ISA 250:** “Consideration of Laws and Regulations in an Audit of Financial Statements.”
- **ISA 260:** “Communication with Those Charged with Governance.”
- **ISA 300:** “Planning an Audit of Financial Statements.”
- **ISA 315:** “Identifying and Assessing the Risks of Material Misstatement through Understanding the Entity and Its Environment,” including the study of sector factors, the nature of the entity, its objectives, and strategies.
- **ISA 320:** “Materiality in Planning and Performing an Audit.”
- **ISA 550:** “Related Parties.”

Based on the above, the researchers conclude that professional specialization in auditing can be considered a working strategy that ensures the continuity and development of the auditing profession, enabling it to adapt to various sectorial developments, including environmental changes. A definition of professional specialization strategy for auditors can be formulated as the position audit firms seek to achieve through long-term planning aimed at improving audit quality by employing well-qualified and specialized personnel, thereby benefiting all stakeholders.

- **Factors Contributing to Building a Strategy for Professional Specialization in External Auditing**

There are several important factors that contribute to establishing a roadmap for enhancing or developing professional specialization in auditing. The most important of these include the following: (Bhattacharya, 2011, p. 24)

- **First Group: Client-Specific Factors**

These are characteristics found in clients that create a strong incentive for audit firms to specialize in auditing companies that possess such characteristics. They include: large-sized companies, clients with strong growth and expansion potential, and clients subject to regulatory authorities.

- **Second Group: Industry-Specific Factors**

These refer to characteristics of certain industries, such as industries with full monopoly structures or those dominated by a limited number of highly distinguished firms.

- **Third Group: Country-Specific Factors**

These include characteristics of certain countries, such as those that provide strong investor protection as a key policy for encouraging investment, countries with active and developed financial markets, countries that offer a high-quality financial reporting environment, and countries with low levels of litigation risk.

Based on the above, the researchers note that several studies indicate that, for audit firms to be considered specialized, they should audit at least 10% of the companies belonging to a specific industry. Furthermore, there are important steps for building a strategy of professional specialization for external auditors, including:

- Academic qualification of the external auditor.
- Professional qualification of the external auditor.
- Technical qualification of the external auditor.
- Knowledge and experience.
- Continuous education at local, regional, and international levels.

#### 4. Section Three: Green (Environmental) Taxes and State Revenues

- **Concept of Green Taxes – An Overview**

Environmental taxes are defined as taxes whose primary objective is to integrate the principles of environmental policy and environmental economics into the tax system in order to mitigate the environmental impacts associated with the activities covered by these taxes. This definition is broader than those commonly found in the literature, which are often based on the tax base. Frequently, only one aspect of the tax is reflected in such definitions; for example, air pollution taxes are classified under emission taxes.

Specifically, this study addresses carbon taxes, energy product taxes, vehicle taxes, and taxes on wastewater discharge and industrial waste resulting from production processes, as well as taxes on pesticides and fertilizers, mining activities, and entry or exit fees for transportation modes.

Regarding environmental taxes and their relationship with auditing, the main objective of adopting external auditing is viewed as assessing the compliance and effectiveness of a company's management system, based on the Total Impact/Total Cost Control model of environmental costs. This theoretical approach enables a multidisciplinary integration of economic, environmental, and auditing components, thereby facilitating the development of a cognitive model for interdisciplinary research in auditing, accounting, finance, and natural resources. To ensure the proper application of this framework, the theoretical and empirical background must address the main issues and challenges associated with integrating green taxation and environmental auditing (Breger et al., 2020, p. 5; Turetken et al., 2020, p. 6).

Governments apply environmental taxes as a fiscal or environmental policy instrument, primarily aimed at encouraging emission reductions, motivating producers to invest in efficient technologies and management systems, and promoting the use of less polluting inputs or processes. As with other fiscal instruments, taxes are characterized by two main features depending on the intended objective: the degree of compliance strictness required, and the potential impact on taxpayer behavior. In the case of environmentally oriented taxes, many argue that their application is inefficient due to the increased cost burden on producers and the resulting reduction in their wealth.

Moreover, microeconomic literature on environmental taxation outlines necessary and sufficient conditions indicating that taxes are not necessarily effective tools for achieving environmental improvement, provided that alternative environmental policy instruments exist that can achieve the same outcomes when properly implemented (Shahzad, 2020, p. 12).

## 5. Section Four: Professional Specialization in Auditing – It’s Impact on Tax Collection and State Revenues

- **The Pioneering Role of External Auditing**

Regulations in the legislation of many countries encourage the exchange of information regarding the environmental impacts of economic management through reporting mechanisms. Environmental taxes are considered effective fiscal instruments for controlling the negative effects of wealth production across all sectors of the state, enhancing financial sustainability, ensuring the practical application of full-cost accounting, and enforcing the principle of “the polluter pays.”

Accordingly, the importance of external auditing becomes evident at this stage, particularly in areas related to prevention, monitoring, and the identification of corrective measures for non-compliance cases and deficiencies in environmental funding sources. The principles underlying taxation are governed by universal and constitutional principles (Mpofu, 2022, p. 5).

Environmental taxes have been widely used with the aim of preserving environmental quality and encouraging environmental protection, by attempting to align various sectors of the economy with the principles of sustainable development. These taxes are also used to improve fiscal distribution, penalize violations of environmental standards, and rationalize the use of environmental resources and infrastructure.

Accordingly, public administration, through the collection of environmental tax revenues, is expected to reinvest these revenues in transferring environmental costs to the private sector (Ghazouani et al., 2021, p. 7). However, at the academic level, there is a noticeable lack of studies addressing environmental taxation within the fields of public finance and environmental governance, particularly in the area of auditing (Rafique et al., 2022, p. 8).

- **Successful Implementation of External Auditing in Environmental Taxes and State Revenues**

In order to ensure the successful implementation of external auditing and its positive impact on environmental taxation, it is essential to link the literature on integrating environmental tax auditing into the audit plan. This can be achieved through the proposal of a new framework to activate the role of external auditors within the environmental taxation mechanism.

This framework contributes to benefiting from green growth principles, including making the business environment more sustainable, engaging the private sector through public–private partnerships, and unlocking the potential of private sector participation to examine the shared social and climate benefits of well-designed environmental tax reform. It also supports the improvement of environmental management based on enhanced market mechanisms with pricing that reflects environmental damages.

This framework is particularly significant at the present time, as countries are expected to undergo various reform stages in domestic revenue-generation instruments. To achieve the desired outcomes of comprehensive economic and social reforms, tax structure reforms should take into account the objective of financing projects that may benefit state revenues by unlocking untapped economic potential, reducing fiscal deficits, strengthening a real competitive and open economy, preventing inflation from becoming a factor of social instability and inequality, and narrowing the growing gap in living standards.

The successful implementation of external auditing in environmental taxation requires the establishment of an adequate and appropriate accounting and auditing framework (El-Haddad, 2020, p. 6; Mousa et al., 2022, p. 8).

- **Challenges and Obstacles**

Achieving the objective set by the recent European Union directive of making external auditing of environmental taxes an effective tool requires abandoning the idea of treating environmental taxes as a branch of tax auditing. Although some specific aspects exist, fraud detection related to ordinary taxes does not differ significantly. Some references indicate the limited scope of environmental fraud, which may include small-scale domestic fuel smuggling, but does not extend to large-scale professional international smuggling. However, experience shows that cases involving environmental tax fraud are relatively rare. In general, any activity requiring the detection of illegal products within the normal flow of goods has a high probability of being identified.

Several factors contribute to the limited use of environmental tax detection tools. Some of these factors are external to the tax system itself, while others are internal. External factors are relatively easier to identify. Corporate income tax and value-added tax monitoring, as well as combating social security fraud within income tax systems, are among the top enforcement priorities in most countries. Therefore, environmental considerations are not the primary concern. Environmental taxes are often treated as a secondary issue.

Although governments frequently emphasize their role in holding polluters accountable, they are rarely as strict in enforcement as they are in cases of income tax evasion. Smuggling of cultural heritage, weapons, and toxic waste is considered a top priority for tax authorities. Consequently, environmental taxes are typically assigned a lower priority in task allocation.

Moreover, tax authorities rarely impose taxes directly on farmers except in exceptional cases, instead relying on cooperation with private sector intermediaries. These intermediaries are subject to strict confidentiality rules, which effectively hinder access to the tax information necessary to detect illegal activities.

Accordingly, several challenges hinder the alignment of external auditing within environmental auditing frameworks, the most important of which are the following:

- **Technical Challenges**

The integration of external environmental auditing into the external financial audit tool is theoretically straightforward, but practically difficult. Environmental management and environmental accounting are more complex, ambiguous, and less structured than financial management and financial accounting.

In addition, external financial auditing has received long-term attention and enjoys an independent and professional role that has steadily evolved over time. In contrast, environmental auditing is still in its early stages, relying on incomplete systems and simple analytical tools, while facing a more complex and dynamic environment. It also lacks true independence and authority.

To adapt the financial audit tool to environmental aspects, auditing standards must be revised and new standards must be developed. Several technical challenges must also be overcome to ensure the successful development of environmental auditing (Manes et al., 2021, p. 6).

In this regard, the researchers argue that the physical representation of environmental impact, in its extreme form, may be direct emissions settlement. For a company that emits a variety of substances at a single site, quantification should be relatively straightforward, although emissions may include low levels of toxic chemicals that are difficult to measure precisely.

In contrast, a company may engage in a limited number of activities that generate a large number of emissions distributed over a wide geographical area. In more complex cases, relatively limited total emissions may arise from vehicles or leased equipment and energy generation, resulting from a wide range of buying and selling activities.

In practice, the physical representation of environmental auditing tends to focus on the central point, highlighting expertise in environmental information related to aircraft engine leasing operations, aircraft maintenance services, and container maintenance. All of this requires modern technologies capable of accurately tracking and quantifying emissions related to the audited entity.

- **Legal and Regulatory Constraints**

There are legal and regulatory constraints related to external auditing that constitute obstacles to proactive and effective auditing of environmental taxes. Corporate regulations stipulate that external auditors must limit their reports to the extent necessary regarding compliance with generally accepted accounting principles (GAAP), and that financial statements must be prepared accordingly.

Relevant regulations also require the external auditor to explicitly report non-compliance in cases where the financial statements do not conform to the regulations issued by professional bodies or other regulatory authorities. It is worth noting that financial statements are prepared for each accounting period and are subject to periodic audit by an independent auditor, usually after the issuance of relevant laws.

In contrast, the need for the collection and remittance of environmental taxes is only triggered by the occurrence of key environmental events that may lead to environmental damage (Qian et al., 2022, p. 11).

- **Section Five: Field Study**

In order to identify the nature of the relationship (impact) between green auditing on the one hand, and tax collection and state revenues on the other hand, as well as the requirements for implementing this type of auditing in audit firms and tax authorities and its ultimate reflection on state revenues the researchers designed a survey questionnaire consisting of three axes.

The first axis focuses on the impact of specialized green auditing on tax collection. The second axis addresses the impact of specialized green auditing on state revenues. The third axis identifies the technical, human, and administrative challenges facing green specialized auditing in audit firms and tax authorities.

The study sample, whose data were collected and responses obtained, consisted of (66) respondents out of a total sample size of (N = 66). The respondents included academics and professionals working in audit firms, as well as employees in tax departments across various Iraqi governorates. The questionnaire was distributed electronically via Google Forms as well as in paper form.

The following is a brief description of what the field study included:

- **Description of the Study Sample Individuals:**

The study sample consists of (66) respondents, and their characteristics are described in Table (1) below.

**Table (1)** Description of the Study Sample Individuals

Sample Characteristics	Details	Number	Percentage
Educational Qualification	Bachelor's Degree	19	%28.8
	Higher Diploma	10	%15.1
	Master's Degree	20	%30.3
	PhD and equivalent	17	%25.8
Years of Service	1-5	7	%10.6
	10-6	9	%13.6
	15-11	16	%24.2
	20-16	21	%31.9
	21 years and above	13	%19.7
Specific Specialization	Accounting	42	%63.6
	Auditing	24	%36.4

Source: Prepared by the researchers.

- **Statistical Analysis Method**

The percentage method was used to process the responses of the survey questionnaire by utilizing Microsoft Excel (EXCEL) and benefiting from some of the mathematical and statistical functions available in the program to extract certain results.

The researcher coded the questionnaire items as (X1, X2, X3 ...), according to its three axes, as follows:

- The first axis: "Professional Specialization in Green Auditing and Tax Collection," which included five questions.
- The second axis: "Professional Specialization in Green Auditing and State Revenues," which also included five questions.
- The third axis: "Challenges (technical, human, and administrative)," which included five questions.

- **Testing the Research Hypotheses**

The tables below (prepared by the researchers) present the results of testing the hypotheses related to the three research variables, based on the distributed survey questionnaire.

**Table (2) First Axis: Professional Specialization in Green Auditing and Tax Collection**

Statements	Yes Responses		No Responses		Chi square
	Number	Percentage	Number	Percentage	
The professional specialization in green auditing represents a positive development for the external auditing profession in the local, regional, and global labor market.	43	65.1 %	23	34.8 %	6.061*
The term “external environmental auditing” refers to the examination of environmental tax returns by external auditors.	51	77.2 %	15	22.7 %	19.636*
Professional specialization in green auditing contributes to enhancing tax collection processes within tax authorities, thereby improving the efficiency and effectiveness of work.	39	%59	27	40.9 %	2.182
Professional specialization in green auditing contributes to strengthening the classification and structuring of state revenue collection processes.	61	92.4 %	5	7.5 %	47.515*
There is a need to establish specialized auditing departments for environmental affairs within Iraqi tax authorities.	66	100 %	0	%0	66.000*

**Table (3) Second Axis: Professional Specialization in Green Auditing and State Revenues**

Statements	Yes Responses		No Responses		Chi square
	Number	Percentage	Number	Percentage	
The key to the success of environmental taxation lies in its acceptance, and gaining this acceptance should be at the core of environmental fiscal policy in any democratic society.	66	100 %	0	0%	*66.000

Environmental tax auditing should be based on the general auditing principles and policies of the state, in line with the public interest.	40	60.6 %	26	39.3 %	2.970
Green tax auditing contributes to enhancing the efficiency and effectiveness of state resources, thereby supporting the development of future budgets.	58	87.8 %	8	12.1 %	37.879*
Green auditing positions the state among advanced countries in terms of environmental protection and sustainability.	55	83.3 %	11	16.6 %	29.333*
There is a scientific need to link the literature in the field of environmental tax auditing with the audit plan, through proposing a new framework to activate the role of external auditors in the environmental tax collection mechanism.	66	100 %	0	0%	66.000*

**Table (4) Testing the First Hypothesis:** “There is a relationship between professional specialization in green auditing and tax collection.”

Tax Collection	Correlation Coefficient	Impact	R <sup>2</sup>	F		Level of Significance
		1β		Calculated	Tabulated	
Professional Specialization in Green Auditing	0.860 (28.843)*	1.071 (26.898)*	0.739	868.310	3.992	0.000**

$P \leq 0.05$ , N =66, DF =64 : t (1.998)

$P \leq 0.05$ , N =66, DF = (1, 64): f (3.994)

From Table (4), it is evident that there is a strong positive relationship between professional specialization in green auditing and tax collection.

The correlation coefficient reached (0.860). When tested using the t-test (T) for the significance of the correlation coefficient, it was found that the calculated value amounted to (28.843), which is greater than the tabulated value of 1.998 at a significance level of 0.05 and degrees of freedom (64). Accordingly, there is a positive relationship and effect between the items of the green auditing professional specialization axis (5 items) and tax collection.

Furthermore, the coefficient of determination ( $R^2$ ), which equals 0.739, indicates that the relationship and effect of professional specialization in green auditing explain 73.9% of the variation, which represents an excellent level of contribution. This is further supported by the significance of the calculated F-value (868.310), which is greater than the tabulated value of 3.992 at a significance level of 0.05 and degrees of freedom (1, 64).

Additionally, the regression coefficient ( $\beta_1$ ) amounted to 1.071, and its significance test showed a calculated t-value of (26.898), which is greater than the tabulated value of 1.998.

Accordingly, these results lead to the acceptance of the first research hypothesis (H1):“There is a relationship between professional specialization in green auditing and tax collection.”

**Table (5) Testing the Second Hypothesis:** “There is a relationship between professional specialization in green auditing and state revenues.”

State Revenues	Correlation Coefficient	Impact	$R^2$	F		Level of Significance
		$1\beta$		Calculated	Tabulated	
Professional Specialization in Green Auditing	0.753 (12.231)*	1.071 (26.898)*	0.567	164.467	3.992	0.000**

$P \leq 0.05, N = 66, DF = 64 : t (1.998)$

$P \leq 0.05, N = 66, DF = (1, 64): f (3.994)$

**From Table (5), it is evident that there is a strong positive relationship between professional specialization in green auditing and state revenues.**

The correlation coefficient reached (0.753). When tested using the t-test (T) for the significance of the correlation coefficient, the calculated value was (12.231), which is greater than the tabulated value of 1.998 at a significance level of 0.05 and degrees of freedom (64). Accordingly, there is a positive relationship between the five items of the green auditing specialization axis and state revenues.

Furthermore, the coefficient of determination ( $R^2 = 0.567$ ) indicates that professional specialization in green auditing explains 56.7% of the variation in state revenues, which represents a good level of contribution. This is further supported by the significance of the calculated F-value (164.467), which is higher than the tabulated value of 3.994 at a significance level of 0.05 and degrees of freedom (1, 64).

In addition, the regression coefficient ( $\beta_1$ ) amounted to 1.071, and its significance test showed a calculated t-value of (12.220), which is greater than the tabulated value of 1.998.

Accordingly, these results lead to the acceptance of the second research hypothesis (H2): "There is a relationship between professional specialization in green auditing and state revenues."

**Table (6) Testing the Third Hypothesis:** "There are technical, human, and administrative challenges in environmental tax auditing that affect tax collection in particular and state revenues in general."

S	Statements	Yes Responses		No Responses		Chi Square
		Number	Percentage	Number	Percentage	
1	Weak technical knowledge and low acceptance of a culture of change and development are considered among the challenges to adopting or strengthening the role of professional specialization in environmental auditing within tax authorities and audit firms at the local and regional levels.	50	%75.7	16	%24.2	*17.515
2	It is necessary for external auditing regulators, particularly in relation to environmental activities, to understand the role they play with regard to various standards, and to operate as part of a global network to facilitate the exchange of expertise at both the practical and academic levels.	60	%90.9	6	%9	*44.182
3	The absence of organized standards and legal and regulatory frameworks governing the practice of environmental auditing in any country constitutes one of the key challenges to professional specialization in environmental auditing.	61	%92.4	5	%7.6	*47.515
4	Emphasizing the organization of conferences and scientific workshops between universities, audit firms, and tax authorities regarding environmental auditing and its importance is considered an effective contribution to indirectly increasing state revenues.	59	%89.3	7	%10.7	*40.970
5	The weak training of personnel working in auditing within tax authorities and external audit firms in the environmental field, as well as the insufficient continuous utilization of international expertise in Iraq, represents another	65	%98.4	1	%1.5	*62.061

	important challenge to the accounting and auditing profession, which negatively affects tax collection and state revenues.					
--	--	--	--	--	--	--

**Chi square = (3.84) DF = (0.05): f = (1)**

**From Table (6), it is evident that there is acceptance and agreement with all items of this axis related to the technical, human, and administrative challenges of environmental tax auditing.**

The total Chi-square value for these items reached (36.765), and the overall agreement percentage was (89.9%).

**The highest level of agreement was recorded for the fifth statement:** “The weak training of personnel working in auditing within tax authorities and external audit firms in the environmental field, as well as the continuous reliance on international expertise in Iraq, represents another important challenge to the accounting and auditing profession, negatively affecting tax collection and state revenues.”

**This was followed by the third statement:** “The absence of organized standards and legal and regulatory frameworks governing the practice of environmental auditing in any country constitutes one of the key challenges to professional specialization in environmental auditing.”

**Then came the second statement:** “External auditing regulators in environmental activities should understand their role in relation to various standards and work as part of a global network to facilitate the exchange of expertise at both practical and scientific levels.”

**This was followed by the fourth statement:** “Emphasizing the organization of conferences and scientific workshops between universities, audit firms, and tax authorities regarding environmental auditing and its importance contributes indirectly to increasing state revenues.”

**Finally, the first statement ranked last:** “Weak technical knowledge and low acceptance of a culture of change and development are among the challenges to adopting or strengthening the role of professional specialization in environmental auditing in tax authorities and audit firms at local and regional levels.”

**Based on these results and percentages, the third research hypothesis (H3) is accepted:** “There are technical, human, and administrative challenges in environmental tax auditing that affect tax collection in particular and state revenues in general.”

## 6. Conclusions

The term “external environmental auditing” refers to the examination of environmental tax returns by external auditors, which are then submitted to the taxpayer, along with the existence of mechanisms such as the use of technology for payment reminders and similar tools to reduce environmental tax evasion.

The key to the success of environmental taxation lies in its acceptance, and achieving this acceptance should be at the core of environmental fiscal policy in any democratic society.

The determination of the effectiveness of external auditing in reducing environmental tax evasion depends largely on the existence of an appropriate structure and mechanisms, as well as their efficiency and effectiveness.

Environmental tax auditing is based on the general auditing principles and policies of a given state. In contrast, the availability and effectiveness of specific external auditing principles aimed at preventing misrepresentation in environmental taxation are often left to national regulations, which primarily focus on public expenditure aspects, as it is considered one of its revenue sources.

## 7. Recommendations

It is necessary to initiate the development of a systematic conceptual framework that enables modelling and linking environmental activities with external auditing and environmental taxation, particularly between the polluter (company or entity) and the tax authority.

Modern technologies, as a result of the green digital transformation, are expected to facilitate the implementation of more comprehensive and efficient card-based tax collection systems, while simultaneously reducing administrative costs. In this context, it is essential to enhance the knowledge and technical capabilities of external auditors in this area.

Environmental external auditing regulators should understand their role in relation to various standards and relevant assurance tools, and operate as part of a global network to facilitate the exchange of expertise at practical, scientific, and policy levels.

Encouraging the organization of scientific conferences and seminars between universities, tax authorities, and companies across various sectors regarding environmental auditing and its importance is recommended, as it contributes indirectly to increasing state revenues.

## References

- Al-Haddad, S. A. R. (2008). *Analysis and evaluation of the professional specialization strategy of the external auditor and its impact on the quality of professional performance in auditing services* (Unpublished master's thesis). Islamic University of Gaza.
- Al-Maqtari, M. T. S. (2011). The importance of auditor professional specialization in improving audit risk: A field study in the Republic of Yemen. *Damascus University Journal for Economic and Legal Sciences*, 27(4).
- Bhattacharya, S. (2011). *Auditor industry specialization and earnings response coefficient: A New Zealand perspective* (Master's dissertation). Auckland University of Technology.
- Breger, D., Edmonds, M., & Ortegren, M. (2020). Internal audit standard compliance, potentially competing duties, and external auditors' reliance decision. *Journal of Corporate Accounting & Finance*, 31(1), 112–124.
- El-Haddad, A. (2020). Redefining the social contract in the wake of the Arab Spring: The experiences of Egypt, Morocco and Tunisia. *World Development*.
- Ghazouani, A., Jebli, M. B., & Shahzad, U. (2021). Impacts of environmental taxes and technologies on greenhouse gas emissions: Contextual evidence from leading emitter European countries. *Environmental Science and Pollution Research*, 28, 22758–22767.
- Manes Rossi, F., Brusca, I., & Condor, V. (2021). In the pursuit of harmonization: Comparing the audit systems of European local governments. *Public Money & Management*.
- Mpofu, F. Y. (2022). Green taxes in Africa: Opportunities and challenges for environmental protection, sustainability, and the attainment of sustainable development goals. *Sustainability*.
- Mousa, M., Massoud, H., & Ayoubi, R. (2022). Responsible management education in time of crisis: A conceptual framework for public business schools in Egypt and similar Middle Eastern contexts. *Public Organization Review*.
- Qian, W., Tilt, C., & Belal, A. (2022). Social and environmental accounting in developing countries: Contextual challenges and insights. *Accounting*.

Rafique, M. Z., Fareed, Z., Ferraz, D., Ikram, M., & Huang, S. (2022). Exploring the heterogeneous impacts of environmental taxes on environmental footprints: An empirical assessment from developed economies. *Energy*.

Rizqia, A., & Lastiati, A. (2021). Audit quality and tax avoidance: The role of independent commissioners and audit committee's financial expertise. *Journal of Accounting, Auditing & Business*.

Shahzad, U. (2020). Environmental taxes, energy consumption, and environmental quality: Theoretical survey with policy implications. *Environmental Science and Pollution Research*.

Sun, X. S., & Habib, A. (2021). Determinants and consequences of auditor-provided tax services: A systematic review of the international literature. *International Journal of Auditing*.

Turetken, O., Jethefer, S., & Ozkan, B. (2020). Internal audit effectiveness: Operationalization and influencing factors. *Managerial Auditing Journal*.