



Research paper

The Role of SAIs in Auditing SDGs

Prepared by

Adeeleh Mustafa Al Admat

The Audit Bureau of the Hashemite Kingdom of Jordan

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Summary of the study

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This study aimed to identify the role of SAIs in auditing SDGs; it also aimed to know the government's preparedness and readiness to implement the SDGs, In addition to knowing the most important obstacles to audit the SDGs, The researcher used First: the descriptive approach, which is based on the description of the concepts contained in the study a scientific description aimed at determining the concept of Sustainable Development, its origins, goals and indicators in order to analyze it and reach the results, Second: the analytical approach based on knowing the preparedness and readiness of the Auditee to achieve the SDGs and then state the role of SAIs in auditing it and ensuring the achievement of the SDGs, in addition to knowing the most important obstacles to audit the achievement of these goals and then stating the results in order to come up with appropriate recommendations.

Through the theoretical framework of the study and data analysis, the researcher was able to reach a set of results, which included that in order for the SAIs to play their expected role in auditing the achievement of the SDGs, governments had to cooperate with their SAIs to achieve the SDGs by:

1. Focus on the importance of documenting decisions, papers and documents on the status of Sustainable Development in all government agencies concerned with implementing these goals and submitting them to the SAI when needed.
2. Establishing a database on the level of work accomplished in the strategic and national plans related to the implementation of the SDGs, linking it with the approved performance measurement indicators, and giving authority to the SAIs to access the database to be part of the SAIs audit methodology.
3. The need to clarify the direct link between the objectives and indicators of the Executive Development Program and the goals and indicators of Sustainable Development in order to facilitate the monitoring and control process in implementing the government's political commitment to implement the SDGs.
4. Activate cooperation and coordination among SAIs and government agencies concerned with the implementation of the SDGs, and respond to data and information request notes within an acceptable time frame.

In light of these findings, the study concluded with the following main recommendations:

1. Involve representatives from SAIs in awareness workshops conducted by the Supreme National Committees for Sustainable Development.
2. Clarify the accountability procedures and arrangements related to the operational work of the SDGs among all stakeholders.
3. Determine the responsibility for implementing the SDGs, especially those that more than one governmental agency shares in implementing, and then determine the implementation mechanism within the time periods specified for the implementation of these goals.
4. Regular reporting on the actual achievement levels of the SDGs, as well as identifying the obstacles and barriers facing the government in implementation and explaining how to overcome them.
5. Determine a mechanism to audit the implementation of all SDGs and distribute them over the time periods specified for the implementation of those goals.

Keywords: Sustainable Development, SDG Audit, SAIs

Chapter One

The Role of SAIs in Auditing SDGs

Introduction

The concept of Sustainable Development has taken a great deal of interest at the global level, as development sustainability has become a global intellectual school spread in most countries of the world and adopted by official, popular and international bodies demanding its implementation. So conferences, summits and seminars have been held for it, and despite the rapid spread of the concept of Sustainable Development from the beginning of its emergence, this concept is still vague as it includes social, environmental and economic dimensions.

Setting the Goals of Sustainable Development helps to follow up these goals and pursue them through balanced and harmonious economic and social development that improves the quality of life, while protecting the vital system and without damaging the quality of natural resources used in human activities and which the development process depends on.

International, regional and local attention to Sustainable Development issues has put pressure on economic units to assume their responsibilities towards society, as this responsibility is no longer limited to producing goods, providing services and making material profit, but its role extends to several other areas such as the preservation of natural resources through several indicators of Sustainable Development, including its three economic, social and environmental dimensions, so many conferences that discussed this subject were held, and the Stockholm Conference of 1972 was the first United Nations conference to discuss environmental problems and the fundamental principles governing Sustainable Development.

At its 70th Summit in September 2015, the United Nations adopted the 2030 Agenda for Sustainable Development, which included a Program of Action for the Humanity, the Planet and Prosperity, and aimed at promoting world peace in an atmosphere of freedom and poverty eradication, which is an indispensable condition

for Sustainable Development.

The Agenda included (17) goal (169) objective and (232) indicator applicable to all developed and developing countries alike, they are indivisible goals and objectives that seek to balance the three dimensions of Sustainable Development: economic, social and environmental.

Research concern and its inquiries

As a result of the spread of the concept of Sustainable Development in line with the global orientation to achieve the SDGs to ensure the participation of most countries in the world to achieve these goals, which are not limited to the economic aspect only, but the Sustainable Development also seeks to integrate the environmental, economic and social dimensions for equality for all, therefore, it was necessary to have a distinct role for SAIs to ensure the readiness of the Auditee to achieve the SDGs and then study the role of SAIs in auditing the SDGs, and the research concern lies in the following:

- Lack of a clear and specific mechanism by which to know the readiness of the Auditee to achieve the SDGs.
- The difficulty of measuring indicators of the commitment of Auditee to achieving the SDGs.
- Not knowing the most important obstacles to audit the achievement of the SDGs.

Therefore, this research came to answer the following questions:

1. To what extent can the SAIs contribute in knowing the readiness of the Auditee to achieve the SDGs?
2. Is there an impact of the SAI auditing in achieving the SDGs?
3. What are the main obstacles to audit the achievement of the SDGs?

Research goals

This research aims to identify the role of SAIs in auditing the SDGs, and this research has come to achieve the following goals:

- a. Identify the role of SAIs in determining the readiness of the Auditee in achieving the SDGs.
- b. Identify the role of SAIs in auditing SDGs.
- c. Identify the most important obstacles to audit the SDGs.

Research importance

The importance of this research lies in identifying:

1. The efficiency and effectiveness of the SAls (the Audit Bureau of Jordan) in auditing the SDGs as it is the Institution authorized to audit the commitment of the Auditee to achieve the SDGs and the goal and the indicator on which operate up on.
2. The importance of providing decision makers with a clear idea of possible opportunities to audit the SDGs and the most important obstacles to achieve these goals.

According to the researcher, this research is one of the first in this field and therefore this research constitutes a reference framework and an important source to guide future research to address various topics within the general framework of the current research in auditing the achievement of the SDGs in Jordan.

Research structure

The current research is concerned with achieving the SDGs audit, and addressing the definition of Sustainable Development and its goals and indicators to ensure that these goals are achieved, and then knowing the readiness of the Auditee to achieve the SDGs and then auditing the SDGs to ensure that they are achieved and to overcome the obstacles to audit the SDGs as detailed in the following:

Chapter one:

The research concern, goals, importance and structure

Chapter two:

The theoretical framework for this research: it addresses Sustainable Development in its concept, goals and origin, thereby defining the most important indicators of Sustainable Development and how to audit the SDGs.

Chapter three:

Addresses previous studies that deal with the topic in addition to the most important features of this research from previous studies, and research hypotheses.

Chapter four:

Addresses research methodology and data collection sources.

Chapter five:

Includes analysis and discussion of results.



Chapter six:

Includes a summary of the most important findings and the most prominent recommendations proposed.

Chapter Two

The theoretical framework for the research

Introduction

The concept of Sustainable Development emerged strongly in the late 2000s to occupy an important place among researchers, environmentalists and decision makers, this interest is due to the increasing pressures on the potential available in developed and developing countries, the concept of Development has known changes over time where the concept of Development has differed, with those who classify it as an inclusive growth process that is accompanied by fundamental changes in the economies structure of the developing countries, and the most important of which is concern with industry, while the World Bank has another vision of Development where the world is classified according to gross national income per capita, the traditional view of Development has focused on Development issues and overlooked aspects that have a fundamental role in the present and future life of mankind, that is, the potential available are not only to be harnessed to present generations, but to consider how future generations can benefit as well.

The concept and origin of Sustainable Development:

The definition in the 1987 Brundland report published by the United Nations Commission on Development and the Environment is the most common one where Sustainable Development is defined as the Development that meets the needs of the present generation without sacrificing or compromising the ability of future generations to meet their needs⁽¹⁾.

FAO has defined Sustainable Development as managing and disbursing the resource base and guide the process of biological and institutional change in a way that ensures that the human needs of present and future generations are met continuously in all economic sectors, without leading to environmental degradation⁽²⁾.

(1) The World Commission on environment and development, our common future Oxford: Oxford University Press.

(2) Salam, Mohamed Amin, Corporate Governance and its Role in Attracting Foreign Investments and Achieving Sustainable Development Cairo, Dar Al-Nahda Al-Arabiya, 2013.

In 1992, the concept of Sustainable Development was firmly established at the Rio Summit, known as the Earth Summit in Brazil, which defined economic, social and environmental standards for how to achieve Sustainable Development as a developmental alternative for humanity to meet the needs of the 21st century⁽³⁾.

Through the previous definitions, we will conclude that they all have in common (the needs - the idea that resources are limited, looking at the world with a holistic view, and looking at the quality of life as an integrated system).

The Second Earth Summit was held in New York in 1997, where principles were presented to fight global warming⁽⁴⁾, and conferences on Sustainable Development continued from the Millennium Summit that were held at United Nations Headquarters, where world leaders met at United Nations Headquarters in New York for the Millennium Summit conference to adopt the United Nations Millennium Declaration, committing their nations to a new global partnership to reduce extreme poverty and set a series of time-bound goals – with a deadline in 2015 - now known as the Millennium Development Goals (MDGs)⁽⁵⁾. At the 2002 Johannesburg Summit in South Africa, an understanding was reached on "Development" that would support economic and social development, prevent continued environmental degradation, and lay the foundation for a global partnership between developing and more developed industrialized countries based on mutual needs and common interests, that will ensure a healthy future for the planet, where several non-governmental associations interested in the environment have emerged with a national, regional and global dimension, especially in developed countries, and all the countries participating in the Convention have agreed to it, resulting in the emergence of the so-called the Agenda of the 21st century. The main feature of this program is the interest in continuous Development. It then evolved to include the conservation of natural resources and biodiversity, which was attended by more than 100 heads of state and representatives of governments, associations and institutions⁽⁶⁾.

(3) Abdullah Khababa, Rabeh Bouguerra, Economic Facts "Economic Globalization - Sustainable Development", Alexandria University, 2009, p. 349.

(4) Adeeb, Abdel Salam, Civilized Dialogue - Dimensions of Sustainable Development, Social Researcher 2002.

(5) Adeeb, Abdel Salam, Civilized Dialogue - Dimensions of Sustainable Development, Social Researcher 2002.

(6) International Organization of Supreme Audit Institutions (INTOSAI, Sustainable Development: The Role of Supreme Audit Institutions) INTOSAI Working Group on Environmental Audit (WGEA) 2004.

In 2015, 193 UN member states endorsed the Sustainable Development Plan, Transforming our world: the 2030 agenda for Sustainable Development, which included (17) goal and (169) objective for Sustainable Development that the United Nations seeks to push and support member states⁽⁷⁾.

Sustainable Development Goals (SDGs):

In 2015, countries adopted the 2030 Agenda for Sustainable Development, these goals were mentioned in the UN General Assembly resolution on 25 September 2015 and came into force from January 2016, the 17 SDGs were included in the 2030 Agenda for Sustainable Development, the SDGs are a plan for a better and more Sustainable future for all, these goals also address the global challenges we face, including those of poverty, inequality, climate, environmental degradation, prosperity, peace and justice, in addition to the consistency of the goals, and to ensure that no one is left behind, it is important to achieve each goal by 2030⁽⁸⁾. The following figure illustrates the SDGs as outlined at the 70th Summit of the United Nations General Assembly.



Source: UN 2015⁽⁹⁾

(7) www.un.org/ar/sustainabledevelopment/ar/development.agenda.

(8) Jens Martens, "The 2030 Agenda - anew start towards global sustainability?" In Spotlight on Sustainable Development, ed.Jens Martens et al. (Beirut: Development Alternatives with Women For anew Eva (DAWN), Third World Network (TWN), Social Watch, Global Policy Forum (GPF) and Arab (NGO) Network For Development (ANND), 2016.

(9) <https://www.un.org/sustainabledevelopment/ar/sustainabledevelopment-goals>.

Sustainable Development Indicators:

To achieve the SDGs, there had to be indicators to measure progress towards the achievement of Sustainable Development at the individual country level, helping each country to prioritize the SDGs, to understand key implementation challenges and identify gaps that needed to be filled to achieve the SDGs by 2030, so that each indicator allows each country to make a comparison between them and the countries of the region in which they are located, and the Sustainable Development Indicators have been divided into three main types⁽¹⁰⁾:

Economic Indicators:

1. **GDP per capita:** Calculated by dividing GDP by current prices in a given year by the population of that year, and economic importance of this indicator is through its reflection of economic growth rates and the measurement of the level and volume of total production.
2. **The ratio of gross fixed investment to GDP:** The composition of gross fixed capital is defined as part of the real-time productive capacity directed at the production of capital goods, such as buildings, construction, machinery and means of transport, and fixed capital is divided into two parts: Net capital formation that is used to increase production capacity, and compensatory capital formation, which is used to maintain existing production capacity or compensation of the extinction of existing fixed capital.
3. **Export-import ratio:** The indicator of exports of goods and services as a percentage of imports of goods and services shows the country's ability to continue to import, and highlights the vital importance of the indicator of the fact that domestic economies are highly open to the world economy.
4. **Official Development Assistance total:** which include official development assistance such as grants and loans, provided by the formal sector to some countries with the aim of promoting development and social services on concessional financial terms, this indicator measures different levels of assistance and is calculated as a percentage of the Gross National Income. The Sustainable Development Strategy does not require significant reliance on aid and foreign assistance.
5. **External debt as a proportion of GDP:** This indicator is calculated as a percentage of GDP, represents countries' indebtedness and helps to assess their debt sustainability⁽¹¹⁾.

(10) Al-Bareedi, Abdullah bin Abdulrahman, 2016, Abdullah bin Abdulrahman Al-Bareedi, Sustainable Development An integrated approach to the concepts of sustainability and its applications with a focus on the Arab world, Obeikan Library, Riyadh, Saudi Arabia.

(11) Al-Bareedi, Abdullah bin Abdulrahman, 2016, Abdullah bin Abdulrahman Al-Bareedi, Sustainable Development An integrated approach to the concepts of sustainability and its applications with a focus on the Arab world, Obeikan Library, Riyadh, Saudi Arabia.

Social indicators:

1. **Unemployment rate:** This indicator reflects the number of people of working age who are able and have not been employed, as a percentage of the total labor force in a country.
2. **Population growth rate:** The average annual rate of change in population size and its importance in Sustainable Development is illustrated by the requirement that per capita income growth not lag behind population growth.
3. **Adult illiteracy rate:** Calculated by the proportion of individuals over 15 years of age who are illiterate to the total adult population.
4. **Elementary, secondary and high school enrollment rate:** the number of people enrolled in elementary and secondary and high school to the total population. This indicator reflects the extent to which education and knowledge are spread in a country.
5. **The rate of population in urban areas:** This represents the ratio of the population living in urban areas to the total population. This indicator reflects the degree of urbanization as well as the extent to which the industrial sector is involved in achieving the Sustainable Development⁽¹²⁾.
6. **Protection and promotion of human health:** The most important requirement for Sustainable Development related to human being is the availability of healthy drinking water and health services, which is calculated by dividing the number of people who do not have these services to the total population.

Environmental indicators:

1. **Per capita agricultural land:** This indicator includes the measurement of the per capita agricultural land suitable for agriculture, and per capita land available for agricultural production, the agriculture provides food and jobs, and is the engine of economic growth, especially as it contributes to the alleviation of poverty and unemployment.
2. **Change in forest areas and forest land:** This indicator shows the ratio of change in the area of green land to the total area of the country, if the ratio of this indicator is high indicates the possibility of increasing agricultural production, and the contrary indicates the desertification expands and creeps into green lands.

(12) Al-Bareedi, Abdullah bin Abdulrahman, 2016, Abdullah bin Abdulrahman Al-Bareedi, Sustainable Development An integrated approach to the concepts of sustainability and its applications with a focus on the Arab world, Obeikan Library, Riyadh, Saudi Arabia

3. **Desertification:** Measuring land affected by desertification and its proportion to the total area of the country, and reducing desert land areas is one of the requirements for achieving Sustainable Development.

How to audit SDGs:

Sustainable Development is important for the SAIs because they are part of the government strategies and policies, as well as in line with the 16th SDGs issued by resolution of the General Assembly of this organization no.(A/RES/70/299) on 25 September 2016 for the new global program. For Sustainable Development under the title " Transforming our world: the 2030 agenda for Sustainable Development", which aims to build effective, transparent and accountable institutions at all levels, the SAIs must play their role in auditing the achievement of the SDGs through the following:

1. Ensure the government's readiness to implement and monitor the SDGs and to report on the level of progress in achieving them, and that after auditing its operations and the credibility of the data it produces⁽¹³⁾.
2. Auditing the goals in order to know whether the goals are realistic and have been based on a correct understanding and evidence of what to do, the SAIs may examine whether the goals cover key aspects as well as whether they reflect international commitments, It should be ensured that the goals are linked to the indicators set by the government and that they are built on a clear basis and a sound scientific understanding of the underlying problems and their causes⁽¹⁴⁾.
3. Audit indicators, to see if they are adequate and reasonable, this can be done by ensuring that the indicators are appropriate, easy to interpret, responsive to changes in driving forces and are analytically sound based on a clear understanding of Sustainable Development, and it can be measured by auditing the progress made by developing indicators against goals.

(13) www.oecd.org/env.

(14) International Organization of Supreme Audit Institutions (INTOSAI, Sustainable Development: The Role of Supreme Audit Institutions) INTOSAI Working Group on Environmental Audit (WGEA) 2004.

Chapter Three

Previous Studies

Introduction

The topic of Sustainable Development is one of the important topics that has received the attention of some researchers in the economic, social and environmental fields, and international organizations such as the United Nations General Assembly at its 70th Summit in 2015, which included the 2030 Sustainable Development Plan, emphasized the necessity of countries to commit themselves to the SDGs, the Sustainable Development has become a fundamental requirement for all countries striving to achieve their goals, and the views of intellectuals and researchers in addressing the issue of Sustainable Development have become numerous, occupying a prominent place at the local and international levels as a crucial issue that reflects on the future of the coming generations, Although there have been a significant number of studies on Sustainable Development, its origins, goals and indicators in many countries, none of the studies reviewed dealt with the role of SAIs in auditing SDGs.

Arabic Studies

1. Study (Hamdan, 2016) entitled "The Role of SAIs in Sustainable Development.

This study aimed to introduce the concept of Sustainable Development and its stages of development, goals and indicators within its economic, social, environmental and institutional dimensions, and then to know the role of SAIs in achieving Sustainable Development through the analysis of Sustainable Development indicators in Iraq. The study concluded that strategies should be developed by the state to contribute to reducing poverty and mortality and benefit from the experiences of other countries, and they should develop an economic policy to ensure that all economic sectors contribute to state revenues without relying solely on the oil sector⁽¹⁵⁾.

(15) Hamdan, Khawla Hussein, 2016, entitled the role of the Supreme Audit Institutions in Sustainable Development ". Al-Ghari Journal of Economic and Administrative Sciences - College of Business and Economics - University of Kufa, Iraq, p 38, pp. 321-346.

2. Study (Chile, 2014) entitled "The Role of Total Quality Strategy in Achieving Sustainable Development in the Economic Institution - Field Study in the Port Institution of Skikda"⁽¹⁶⁾.

This study aims to highlight the strategic role played by Total Quality in achieving Sustainable Development in the economic institution. To address this issue, the study addressed the theoretical aspect to identify and define the various concepts related to the strategy of Total Quality and Sustainable Development. It also discussed how to establish the principles and concepts of Total Quality in the production processes, and how to adopt them as a strategy to achieve a competitive advantage for the institution. In addition, various economic, social and environmental models of Total Quality that adapt to environmental, social and economic considerations within the framework of Sustainable Development have been addressed.

The study also highlighted the most important pricing methods for achieving Sustainable Development in the institution derived from ISO standards (0999,18000,26000, and 14000) that show their relationship to Total Quality and the benefits resulting from its application by the institutions. The study also found that the adoption of the Total Quality strategy by the institution leads to achieve Sustainable Development. The field study at the Port Institution of Skikda also tried to know the strategic role of Total Quality and the extent of its adoption of the Sustainable Development dimensions, through questionnaires distributed to the departments in the senior management of the institution, where it was analyzed by the Statistical package for social sciences (SPSS), the study found that the Port Institution of Skikda relies on a Total Quality Strategy to achieve the Sustainable Development dimensions.

3. Study (Hosseini, 2014) entitled "the Sustainable Development dimensions and its relationship to Local Development - a case study of the municipality - Hujaira"⁽¹⁷⁾.

The study aimed to reveal the reality of local development in the embodiment and activation of many programs and development projects in the long term by harnessing all the possibilities and qualifications available in the region in order to enable citizens to participate in the development process at the local

(16) Chile, Elham, 2014, Elham Chile, The Role of Total Quality Strategy in Achieving Sustainable Development in the Economic Institution - A Field Study at the Port of Skikda. Unpublished Master Thesis, Farhat Abbas Setif University, Algeria.

(17) Hosseini, Mariam, 2014, Mariam Hosseini, Dimensions of Sustainable Development and its Relationship with Local Development - Municipal Case Study - Al-Hujaira, Unpublished Master Thesis Kasidi Merbah Dargla University, Algeria.

level and the rational exploitation of the natural resources available in the region in order to achieve Sustainable Development in various sectors of development, The researcher studied the reality and contributions of the development program in the municipality of Al-Hujira, The State of Warkla from 2012 to 2014 and the extent of activation on the ground through the embodiment of comprehensive and Sustainable Development policies, where we found that investment in the development work is important and an irreversible option in activating and upgrading Development programs at the local level for achieving the local Sustainable Development, In addition, there are challenges and obstacles that are considered a stumbling block in carrying out many development projects, such as a lack of financial support, especially in projects of great importance in the local community to promote the long-term development process despite the municipality's potential to achieve Sustainable and inclusive local development in all sectors of development.

4. Study (Khamisi, 2013) entitled "The Impact of Global Trade Liberalization on Sustainable Development in the Arab Countries - The Case of Algeria" ⁽¹⁸⁾.

This study aimed to identify the extent of the consistency between international trade and how it contributes to Sustainable Development, In addition to knowing the obstacles facing the Arab countries that pose a barrier to export so that they can conform to international standards and agreements. This study also aimed to identify how to achieve compatibility between the economic, environmental and social policies pursued by the Arab countries that will improve their competitiveness, the researcher followed the descriptive analytical approach in addressing the theoretical side and the case study approach in the applied side through a case study (Algeria). The study concluded that the Arab countries cannot currently rely on modern technology in production due to the high costs required by the process at the moment, and the industrialized countries always see the Arab countries as an important source of primary resources and therefore working to leave it as it is. One of the most important things recommended by the researcher in this study is the need to eliminate all forms of corruption by activating the SAIs of all kinds, and the importance of the Arab countries work to remove all barriers and obstacles to intra-Arab trade and activate the Arab region for free trade as a way out of restrictions on international trade.

(18) Khamisi, Sabaa, 2013, Saba Khamisi, The Impact of Global Trade Liberalization on Sustainable Development in the Arab Countries - The Case of Algeria, Unpublished Master Thesis, University of Algiers, Algeria.

5. Study (Al-Salem, 2008) entitled (Reality and Possibilities of Sustainable Development of local communities in the Tubas region) ⁽¹⁹⁾.

This study aimed to identify the reality and possibilities of Sustainable Development of the local communities in Tubas region (Tubas, Tammoun, Tayasir, Aqaaba, Al-Far'a). The researcher followed the historical approach, the descriptive approach and the analytical approach using some scientific tools such as the questionnaire. The researcher processed the preliminary information available to him through the field questionnaire, which was analyzed by the Statistical Program (SPSS) and the researcher conducted some interviews to provide the most basic information for the study in addition to some other information available from different sources. The reality of Sustainable Development in the study area has been assessed and a set of findings and recommendations have been produced, the most important of which was the lack of fairness in the distribution of public services in the region, which led to the distinction of some communities from each other in the study area. The study showed a weakness in medical services, with the region mainly suffering from the lack of any hospital, as well as a shortage of health centers and a shortage of specialist doctors, the results of the study also indicated that the community is moving towards urbanization in agricultural land, which threatens the future of the agriculture sector as an important and major economic resource in the region, the study recommended the need to distribute public services fairly in the communities of the study area, especially educational, health, cultural and recreational services, in addition to the need to build a hospital in the region in order to provide medical services. Moreover, the agricultural and livestock sector in the region should be supported because of their fundamental and direct role in the development process. It is also necessary to reclaim the unutilized land in order to increase the area of agricultural land and thus increase the opportunities and possibilities for development.

(19) Al-Salem, Ghalib, 2008, Ghalib Al-Salem, The reality and possibilities of sustainable development of local communities in the Tubas region. Unpublished Master Thesis, An-Najah National University, Nablus, Palestine.

Foreign Studies:

1. Study (Venkatesh, 2015) entitled :(**Sustainable Development as a single Measure: Case study of Some Developing Asian Countries**) ⁽²⁰⁾.

This study addressed the indicators developed at the 1992 Earth Conference summit held in Rio de Janeiro to measure the Sustainable Development, and considered these indicators as an assistance to the decision makers at various levels and the researcher presents in this paper how to develop a total stability index for any country, taking into account the social, economic, environmental and infrastructure dimensions when developing this indicator. The researcher's methodology was to apply these indicators to (12) developing countries in Asia where Sustainable Development is vital in the coming years, countries were also compared using the relevant indicators for each country, the study also found that the comparisons may not make sense because they do not measure the state of a country at a particular point but cover a path that must be followed over time in the Sustainable Development curve in which the comparison is made, these indicators can also be a good planning tool for decision makers at different levels of the government.

2. Study (Lorenza, et al., 2015) entitled: (**Assessing SDGs: Anew Methodology to Measure Sustainability**).

This paper focused on the draft assessment of the SDGs policies and plans, particularly the quantitative assessment of the 17 SDGs, which were developed by the United Nations in September 2015, the project is divided into two parts, the first part calculates indicators for all SDGs in (139) countries and then derives additional dimensions of indicators according to the global trend of sustainability, allowing the identification of today strengths and weaknesses in economic and social development, as well as environmental criticalities, all around the world, the second part aims to assess the future trends of development of the world by 2030, and assessing the SDGs implemented through a dynamic, repetitive and counterbalanced vision in the macroeconomic model that includes social and environmental indicators. The final goal of the study is to highlight future challenges left unsolved in next 15 years of socio-economic development and analyze costs and benefits of specific policies to support the achievement of proposed targets.

(20) Venkatesh, G, 2015, Sustainable Development as a single Measure: Case study of Some Developing Asian Countries, Problems of Sustainable Development, 2/2015, PP31-42.

This paper represents the methodology and results of the retrospective evaluation, including key steps:

1. Examine the indicators that are qualified to achieve the goals set by the United Nations.
 2. Collect data from relevant sources.
 3. Organizing the three dimensions of development (economic, social and environmental).
 4. Normalization of common measures.
 5. Group the 25 indicators in composite indicators by columns as well as the multiple dimensions of the indicators.
 6. The last part summarizes the development performance of the countries as proposed in the countries under consideration in Central Northern Europe (Sweden, Norway and Switzerland the first three), and most European countries, for example (Germany and Britain) whose environmental performance was insufficient and Canada ranked (24th) and America ranked (52) among the developed countries ,the emerging countries in the ranking of sustainability ranked Brazil (43), Russia (45), China (80) and India (102) because of the complex social structure, and in terms of overall sustainability, Sub-Saharan Africa (Central African Republic and The Republic of Chad) finished last in the ranking⁽²¹⁾.
- 3. Study (Simon, et al., 2007) entitled :(Weak and Strong sustainability in the SEEA: concepts and measurement) ⁽²²⁾.**

The study examined the latest international guide to environmental accounting, known as the System of Integrated Environmental and Economic Accounting (SEEA) issued by the United Nations and others in 2003, which can be used to measure the strengths and weaknesses of Sustainable Development, in order to understand the differences between strong and weak development to determine what are the current best practices for measuring and knowing the difference and the relationship between the 2003 SEEA discussions and this study, which is very important to cover the differences between knowledge of the basics and indicators of Sustainable Development and the experience of applying these principles.

(21) Campagnolo, Lorenza, Carraro, Carlo, Eboli, Fabio & Farina, Luca, 2015, Assessing SDGs: A new Methodology To Measure Sustainability, Paper presented at the United Nation Summit On Sustainable Development Goals, New York, September 25, 2015.
(22) Dietz, Simon and Neumayer, Eric (2007) Weak and strong sustainability in the SEEA: concepts and measurement. Ecological Economics, 61 (4). pp. 617-626.

The study found that although a very wide range of concepts and indicators cover the application of Sustainable Development in this guide and measure these indicators whether they are weak or strong, there are differences between the theoretical guide and the practical application of this guide.

What distinguishes this study from previous studies:

What distinguishes this study from previous studies is that it may be one of the first studies that discuss the subject of auditing the SDGs by SAIs, being the regulatory body responsible for the audit of ministries and official and public government institutions, and this study seeks to highlight the government's readiness to implement the SDGs and to audit the SDGs.

Study hypotheses

This research is based on several hypotheses and states:

The first hypothesis:

There is no audit on the SDGs by SAIs (Audit Bureau of Jordan):

The second hypothesis:

There is no role for SAIs in determining the readiness of the Auditee to achieve the SDGs.

The third hypothesis:

There are no obstacles to audit SDGs by the SAIs (Audit Bureau of Jordan).

Chapter Four

Research Methodology

Introduction

This chapter contains a clarification of the research methodology used, as it contains data collection sources and a review of literature on Sustainable Development, its concept, its construction, its goals and indicators.

Methodology and data collection sources:

In order to achieve the research objectives, the researcher adopted two approaches in the preparation of this research:

1. The descriptive approach, which is based on the precise scientific description of the concepts contained in the study, aims to define the concept, goals and indicators of Sustainable Development in order to analyze them and reach the results.
2. Analytical approach based on knowing the readiness and preparedness of the Auditee to achieve the SDGs and then showing the role of the SAIs in auditing them and ensuring the achievement of the SDGs, in addition to knowing the most important obstacles to audit the achievement of these goals and then to indicate the results in order to come up with appropriate recommendations.

Chapter Five

Analysis and Discussion of Results

Introduction

At a high-level meeting in September 2015, the UN General Assembly adopted the 17 Sustainable Development Goal (SDGs) officially known as "Transforming our world: the 2030 agenda for Sustainable Development".

Jordan is one of the first countries to work globally to achieve the MDGs and has made significant progress in the first 10 years, particularly in the field of poverty, maternal and child health, communicable diseases, universal elementary education and a sustainable environment.

Before starting to talk about the role of SAIs in auditing the SDGs, it is necessary to review the readiness and preparedness of the Jordanian Government to implement the SDGs. This will be discussed later.

The readiness and preparedness of the Jordanian Government to implement the SDGs

The role of SAIs in monitoring and auditing the achievement of the Sustainable Development Goals (SDGs) was the core theme of the 22nd INCOSAI meeting held in Abu Dhabi in 2016 ⁽²³⁾. The conference emphasized the high attention given by SAIs to the implementation of the SDGs. By defining the following four approaches:

- Monitoring the readiness and preparedness of national governments to achieve the SDGs.
- Performing performance audits in relation to the SDGs.
- Contribute to the achievement of the Goal 16, which provides for building effective, transparent and accountable institutions.
- The potential of SAIs to play a model role in transparency and accountability in the implementation of their functions.

(23) Abu Dhabi Declaration of the 22nd International Conference of Supreme Audit Institutions INCOSAI, 7-11 December 2016.

The 2030 SDGs represent important and necessary goals for Jordan to achieve development and prosperity in all economic sectors; it assists the Government in formulating the strategic plans and programs of action necessary to achieve those goals, taking into account the external and internal challenges facing Jordan, particularly the political and security instability in the surrounding region, in addition to the lack of funding for the implementation of the Sustainable Development Plan's programs and activities. Therefore, a working group of auditors has been formed to review the preparatory procedures by the Jordanian Government to implement the UN Sustainable Development Goals 2030 to ensure the readiness of the Government to achieve the SDGs by:

- Verify the adequacy and comprehensiveness of the procedures taken by the Government to plan for the implementation of the SDGs in general.
- Reviewing and evaluating the procedures taken by the Government to plan for the implementation of the Sixth Goal related to drinking water and sanitation services.
- Reviewing and analyzing the procedures that the Government will adopt in establishing a mechanism to measure and monitor the implementation of the SDGs.

The review scope of the procedures taken by the Government covered several fields, most notably:

- The procedures and decisions taken regarding the political commitment and national responsibility in line with Sustainable Development.
- The procedures taken to raise awareness of the importance of the SDGs and to encourage dialogue with stakeholders, particularly non-governmental parties.
- The procedures taken with regard to the distribution of responsibilities and duties related to the implementation of Sustainable Development at the ministerial level or at other relevant levels, as well as procedures taken in the optimal distribution of the financial, physical and human resources, and the establishment of accountability arrangements for the implementation of these goals.
- The procedures and decisions taken to prepare the necessary plans for the implementation of the SDGs that include identifying the roles of the various stakeholders and determining how to implement the goals and objectives in a coordinated and integrated manner.
- The procedures for designing and establishing systems to measure and

- monitor the implementation of the SDGs.
- The procedures taken by the Government in implementing the Sixth Goal on drinking water and sanitation services ⁽²⁴⁾.

One of the main findings of the Audit Bureau task force after reviewing the procedures taken by the Government to implement the SDGs was that the Ministry of Planning and International Cooperation is responsible for organizing, coordinating and supervising the work related to the implementation of the SDGs in Jordan. The Minister of Planning chairs the Supreme National Committee for Sustainable Development and the Minister of Environment is his deputy, and Jordan's political commitment to implement the 2030 SDGs is represented by the signature of His Majesty King Abdullah II ibn Al Hussein on the UN General Assembly resolution which was signed by the leaders of most countries. Jordan is also committed to implementing the SDGs by including these goals in the National Agenda Goals (2017-2007) for successive Jordanian Governments and Jordan Vision 2025, The Supreme National Committee for Sustainable Development was established in 2002 since the beginning of the MDGs, representing the Jordanian Government's commitment to implement its international obligations and representatives of youth, women and civil society organizations were added to the membership of the Supreme National Committee for Sustainable Development. A road map has been worked out to implement the SDGs by 2030 and it is currently being translated into an action plan to implement the SDG.

The Ministry of Planning and International Cooperation, which is responsible for organizing, coordinating and supervising the work related to the implementation of the SDGs in Jordan, informed all stakeholders in the implementation of the 2030 Agenda through a workshop and a national consultation campaign in March 2016 in which A large number of stakeholders represented from different sectors (public sector, private sector, civil society institutions, women, youth, academics, parliamentarians, in the presence of a number of international institutions) to pave the way for the implementation of the 2030 plan, the Minister of Planning and International Cooperation, in his capacity as Chairman of the Supreme National Committee for Sustainable Development in Jordan, committed to attend meetings and seminars and provide the United Nations with the necessary reports and information.

(24) Reports of the Audit Bureau of Jordan

With regard to the review and evaluation of the procedures taken by the government to plan the implementation of the Sixth Goal on drinking water and sanitation services, it was found that the Ministry of Water and Irrigation has been informed of the implementation of the water sector part of the SDGs through the Ministry's participation in the awareness workshop held by the Ministry of Planning, in which national responsibility for the implementation of the SDGs by stakeholders was determined, the National Water Sector Strategy for the Years (2025-2016) has also been developed and linked to the SDGs.

A national water committee was formed in 2015 from all stakeholders in the water sector, this committee is chaired by the Secretary General of the Ministry of Water and includes representatives from the Water Authority, the Jordan Valley Authority, the Ministry of Agriculture, the Ministry of Planning, the Ministry of Health and the Department of Statistics, one of the committee's tasks is to secure the data necessary for the performance measurement indicators for the Sixth Goal of the SDGs.

From the above, we can say that the Jordanian Government is ready to some extent to implement the SDGs, where the road map for the implementation of the SDGs was prepared by the Ministry of Planning, which included (11) themes, it relied on existing institutional arrangements for its implementation under the chairmanship of the Supreme National Committee for Sustainable Development, also, 18 working groups of the Supreme National Committee for Sustainable Development have also been formed, the aim of which is to carry out the necessary planning for the implementation of the SDGs, coordinate among all stakeholders and distribute implementation responsibilities among them, as well as follow up on the implementation of those goals with all relevant stakeholders, and considering the outputs of the Executive Development Program of the Government is the reference in preparing the state budget and will be the mechanism to achieve the goals of 2030 within this Program, and directing the external funding towards this program is considered the reference in obtaining foreign assistance. The cost of achieving the SDGs can also be calculated through the use of scenarios based on mathematical models. The Government can also add the Sustainable Development goals and indicators to the goals and indicators available at the current Executive Development Program, which will be ready in 2019.

The role of SAIs in auditing the SDGs (Audit Bureau of Jordan):

It is the responsibility of the SAIs to follow up on the implementation of the Sustainable Development Goals by their countries, given the wide range of the SDGs in many issues that fall within the scope of SAIs, whether through financial audit, compliance audit or performance audit, the SAIs had to play an active role in supporting their countries to achieve the SDGs and report any progress in achieving these goals, The Audit Bureau of the Hashemite Kingdom of Jordan is the supreme institution for auditing all ministries and public and official institutions under Article (19) of the Constitution and audits the governmental departments according to the Audit Bureau Law No. (28) for the year 1952 and its amendments, where the functions of the Audit Bureau as stated in article 3 of the above law includes ⁽²⁵⁾:

- Auditing the state's revenues and expenditures, and the accounts of deposits, advances, loans, settlements and warehouses.
- Providing advice in accounting areas.
- Audit the legality and effectiveness of the public funds spending.
- Ensuring the proper implementation of the applicable environmental legislation in coordination with the relevant authorities.
- To ensure that administrative decisions and procedures in the Auditee carried out in accordance with the legislation in force.

Article (4) of the above law also states that the Auditee are as follows:

- Ministries, government departments, official public institutions and public institutions.
- Municipal and village councils and joint service councils.
- Any entity that the Council of Ministers decides to instruct the Audit Bureau to audit its accounts.

The Audit Bureau of Jordan has exercised its audit role, which is guaranteed by the Constitution to audit the implementation of the SDGs through its financial and performance auditing or comprehensive auditing to ensure that the Government implements some of the Sustainable Development Goals and indicators by following all the standards followed by the SAIs, for example, INTOSAI standards or other national standards. The Audit Bureau of Jordan has followed the goals set by the United Nations 2030 as the basis for implementing and defining the goals it wishes to achieve, and then developing indicators that are appropriate to the nature of the goal so that it can measure progress in achieving these goals.

(25) The Law of the Audit Bureau No. (28) for the year 1952 and its amendments.

Some of the plans developed by the Audit Bureau included the formation of task forces to audit the government's implementation of the SDGs mainly in order to study the efficiency and effectiveness of ministries and government departments in the management and implementation of the projects financed by the public budget, and their contribution to Sustainable Development ⁽²⁶⁾.

Key objectives and sub-objectives have been set for each team and the field and scope of auditing for each task force have been defined, and one of the main sub-objectives is to measure the ability of relevant ministries and government departments to optimize the financial and human resources available, as well as measuring the compatibility of the policies, legislation and standards applied in these ministries with international policies and standards and finally verifying the extent to which the results of projects contribute to achieving the strategic objectives of the state, and here are the following are the applicable examples of some projects that have been audited to ensure the Government implementation of the SDGs ⁽²⁷⁾ :

(26) Reports of the Jordanian Audit Bureau

(27) Reports of the Jordanian Audit Bureau

1. Waste Sector:

(Linked to SDG 6) Separation and collection of household waste in Greater Amman Municipality (GAM):

The problems related to waste in Jordan are represented in the increased waste generation and the non-systematic segregation of household waste from the source, In addition, hazardous waste disposal remains weak and illegal, and the selection of dumpster sites, for example (close to water basins), causes the waste juicer to leak from the dumpsters. To overcome this problem, a waste recycling project has been launched in cooperation between the Ministry of Environment, the Ministry of Municipalities and the Greater Amman Municipality. The project aims to introduce the community to the principle of separating waste from the source or sorting all or part of the waste for recycling and extending the life of the solid waste dumpster by reducing the amount of waste received and raising environmental awareness.

After the audit of the project, it was found that the Greater Amman Municipality had partnered with the private sector to conduct a study to develop a long-term strategy for sorting household waste from the source, which led to the postponement of the project until a clear vision of private sector inclusion in solid waste management has been reached.

The above shows that there is no proper planning in terms of developing a clear vision for involving the private sector in the implementation of the project, and a lack of prior coordination between both the Greater Amman Municipality and the Ministries of Environment and Municipalities.

2. Water sector:

To assist efforts to implement SDG 6, through increasing water, sanitation and hygiene efficiency, significantly improving water quality and reducing pollution leading to improved water quality and human well-being.

A legal audit was conducted and a review of the performance of industrial and domestic wastewater treatment to include the following⁽²⁸⁾:

- (i) The National Water Strategy (2016-2025), including water sector policies, was developed and linked to the SDG.

(28) Reports of the Jordanian Audit Bureau

- (ii) Relying on the Executive Development Program (Government Plan) to implement Jordan Vision 2025 in relation to projects and programs related to the water sector in Jordan.
- (iii) An Action Plan is currently being prepared by the Ministry of Water and Irrigation to implement the National Water Strategy (2025-2016), including SDG 6 indicators related to drinking water and sanitation, as well as setting the base year value for these indicators.

After the audit, the link between the goals and indicators of the SDG 6 and the water and sanitation sector goals and indicators within the first Executive Development Program (2019-2016) was unclear, which shows a clear difficulty in following up on the commitment of water sector stakeholders to implement what is required on the 2030 Agenda for Sustainable Development, There is also no evidence that action has been taken regarding a clear determination of the responsibilities assigned to each of the water and sanitation sector, especially when there are shared responsibilities between these entities, knowing that there are overlaps in the powers and functions of these entities from a legislative and organizational point of view. This may later indicate increasing poor coordination and implementation of water and sanitation projects and programs, as well as a need to clarify and document accountability arrangements among those involved in the implementation of the SDGs in terms of compliance with planned and monitoring the achieved work, then audited by SAIs to ensure compliance with the implementation of the SDGs, there is also a need to activate the participation of relevant stakeholders in monitoring progress in the implementation of the SDGs in Jordan, particularly external regulators (Audit Bureau of Jordan).

The most important obstacles that prevent SAIs from auditing SDGs:

1. The lack of direct link between the goals and indicators of the Executive Development Program and the goals and indicators of Sustainable Development in order to facilitate the monitoring and auditing process in the implementation of the government's political commitment to implement the SDGs and then audit them.
2. Representatives of the SAIs are not involved in awareness workshops implemented by the Supreme National Committees for Sustainable Development.
3. There are no periodic reports on the actual levels of achievement of the

SDGs, as well as the identification of obstacles and barriers faced by the Government in implementation and explaining how to overcome them.

4. Failure to clarify accountability procedures and arrangements related to the operational work of the SDGs to all stakeholders.
5. Failure to activate cooperation and coordination between government agencies involved in implementing the SDGs and SAIs.
6. The failure of the Auditee to respond to the data and information request notes at an acceptable time.

Analysis and discussion of hypotheses tests

The Research:

In the light of the research hypotheses and objectives identified in the first chapter which aimed at identifying the role of SAIs in auditing the SDGs, It also aimed to know the government's readiness and preparedness to implement the SDGs, as well as the most important obstacles to audit the SDGs, after using the descriptive method to identify the concepts contained in the research and describe them accurately and scientifically through which the concept of Sustainable Development, its origins, goals and indicators have been identified, and after reviewing the analytical approach, by taking practical and applicable cases to audit the SDGs it shows the following:

The first hypothesis:

There is no audit of the SDGs by SAIs (Audit Bureau of Jordan):

In reviewing the theoretical framework and the practical cases of the role of the SAIs (Audit Bureau of Jordan) in auditing the SDGs, it was found that there is little effective audit of the SAIs (Audit Bureau of Jordan) in auditing the SDGs, but governments should cooperate with their SAIs to achieve the auditing objectives.

The second hypothesis :

There is no role for SAIs in determining the readiness of the SAIs to achieve the SDGs:

There is a role for SAIs in determining the readiness of the Auditee to achieve the SDGs by referring to the strategic plans, papers and documents related to the Sustainable Development status of the Auditee and ensuring that the Auditee are committed to provide a database on the level of work done in in the strategic and national plans for the implementation of the SDGs.

The third hypothesis:

There are no obstacles to audit the SDGs by the SAIs (Audit Bureau of Jordan).

Research and analysis of practical cases revealed that there are many obstacles to audit the SDGs by the SAIs (Audit Bureau of Jordan), including the non-involvement of the SAIs staff of the in the awareness workshops implemented by the Supreme National Committees for Sustainable Development, and failure to clarify accountability procedures and arrangements related to the operational actions of the SDGs of all stakeholders.

Chapter six:

Conclusions and Recommendations

First: Conclusions

In order for the SAIs to play their expected role in auditing the achievement of the SDGs, governments have to cooperate with their SAIs to achieve the SDGs by:

1. Focus on the importance of documenting decisions, papers and documents on the status of Sustainable Development in all government agencies concerned with implementing these goals and submitting them to the SAI when needed.
2. Establishing a database on the level of work accomplished in the strategic and national plans related to the implementation of the SDGs, linking it with the approved performance measurement indicators, and giving authority to the SAIs to access the database to be part of the SAIs audit methodology.
3. The need to clarify the direct link between the objectives and indicators of the Executive Development Program and the goals and indicators of Sustainable Development in order to facilitate the monitoring and control process in implementing the government's political commitment to implement the SDGs.
4. Activate cooperation and coordination among SAIs and government agencies concerned with the implementation of the SDGs, and respond to data and information request notes within an acceptable time frame.

Second: Recommendations:

1. Involve representatives from SAIs in awareness workshops conducted by the Supreme National Committees for Sustainable Development.
2. Clarify the accountability procedures and arrangements related to the operational work of the SDGs among all stakeholders.
3. Determine the responsibility for implementing the SDGs, especially those that more than one governmental agency shares in implementing, and then determine the implementation mechanism within the time periods specified for the implementation of these goals.
4. Regular reporting on the actual achievement levels of the SDGs, as well as identifying the obstacles and barriers facing the government in implementation and explaining how to overcome them.

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5. Determine a mechanism to audit the implementation of all SDGs and distribute them over the time periods specified for the implementation of those goals.

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