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# Measuring And Analyzing the Economic Efficiency of Abu Al-Khaseeb Municipality for The Period(2023-2021)

**[1]The Researcher Baeda Abbas Khalaf , [2] Professor Dr.Rajaa Abdullah Issa**

[12]University of Basrah

College of Administration and Economics

Department of Economics

The country of Iraq

[1]pgs.baydaa.abbas@uobasrah.edu.iq, [2] rajaa.esa@uobasrah.edu.iq

**Abstract:**

Measuring economic efficiency and productivity is essential to evaluate the performance of the municipality of Abu Al-Khaseeb. It takes steps to ensure the achievement of the goals efficiently and effectively because the research focused on studying and analyzing how to use resources and efforts in the municipality of Abu al-Khaseeb to achieve optimal results at the lowest possible cost. The method of data envelope analysis, which is one of the tools of operations research to measure productive efficiency by determining the optimal combination of a set of inputs and outputs for the municipality Directorate, is the method used in this research. To achieve that, a sample of Abu al-Khaseeb municipality Directorate has been chosen. One of the most important result is that (1) the municipality of Abu al-Khaseeb has achieved a high relative efficiency of up to 100%, (2) a condition of stagnant values, which is zero, and (3) a high technical efficiency. This indicates that the decision-making units in this municipality can achieve the greatest outputs with the least available inputs, as its technical efficiency has reached (1.000), which is highly assuming maintaining a constant level of outputs. Furthermore, Abu Al-Khaseeb Municipality is considered a self-referential municipality because its efficiency in weight equals (1).

**Keywords**: performance efficiency, productivity, yield , Data envelopment analysis ,Abu al-khaseeb municipality

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**I: Introduction: -**

Abu Al-khaseeb municipality is taking its first steps that are racing against time to keep pace with future developments in the public services sector provided in accordance with plans, visions and aspirations based on a clear strategic plan within a specific road map during the period (2021-2023). This is to develop pioneering in providing various services that depend entirely on the system of providing the best services.

This study seeks to evaluate the efficiency of the municipality's processes and services and identify the ways to enhance them to better meet its objectives. It also examines various factors influencing economic efficiency and productivity in the Abu Al-Khaseeb municipality, including technology, resource allocation, work efficiency, and management policies. Additionally, the study compares Abu Al-Khaseeb's with other municipalities to assess its performance in these areas.

**Importance of the Research:**

The study attaches a lot of importance to the municipal sector that contributes in improving services to the community and quality of life. Accordingly, the research deals with one of the important and recent topics

which is the productive and economic efficiency of municipal institutions, as well as the lack of research related to studying the efficiency of the municipal sector.

**Research Objective:**

The research aims to measure and analyze the productive and economic efficiency by analyzing the inputs, outputs and returns of the municipality of Abu Al-Khaseeb. This is to find out the relative and technical efficiency of the directorate of the municipality of Abu Al-Khaseeb and its ability to exploit its available resources and production scale for the period (2021-2023).

**Research Problem**:

The research problem lies in the inability of the Directorate of Abu Al-Khaseeb municipality to keep up with part of its specific objectives, because the operating capital allocated to it is low compared to other municipalities. This was a failure to achieve its goals despite the human requirements for the productive process.

**Spatial and Temporal Boundaries of Research**

1) Spatial boundaries: the Directorate of Abu Al-khaseeb municipality has been chosen as a spatial boundary for measuring and analyzing economic efficiency.
2) Time limits: The analysis of the inputs and outputs of the municipality of Abu Al-Khaseeb was for the year (2021-2023).

**Research Hypothesis:**

1) Efficiency is a relative and multifaceted concept with multiple goals, areas and uses.
2) There is a discrepancy between the productivity of capital and the productivity of labor during the years of research.
3) There is a correlation between the inputs (operating expenses and capital) and the volume of outputs (the number of residents benefiting from the service, patchwork areas and planted seedlings, drainage lines and equipped houses, the amount of rubble and waste removed)

**II: Previous Studies:**

**1- Karim (2017)**has aimed to identify the objectives of the unified accounting system for municipalities and propose other indicators. These indicators help in auditing the performance of municipal institutions in addition to ensure the role played by regulatory bodies in achieving efficiency, effectiveness, economic and environmental aspects of services provided using indicators of the activity of municipal institutions. The research has also sought to prepare and implement a performance audit program for these institutions. The researcher has concluded that there is no coordination between the municipal institutions and other relevant authorities in raising the efficiency and effectiveness of the services provided. Also, the study has recommended that it is necessary to prepare and implement plans to develop the capabilities and efficiency of the performance of its employees and work to develop them through the establishment of training courses and workshops through which to improve and raise the level of performance of services provided to citizens.

**2- Safa and Hamadi(2020)**has sought to measure and evaluate the efficiency of **Al-Ramadi municipality Directorate** departments using the data encirclement analysis method, and determine the evaluation ratios necessary to achieve efficiency by determining the optimal quantities of services and outputs. Also, their study has aimed to identify municipal departments with full efficiency and identify them as a reference for municipal departments that have not achieved full efficiency. The research has recommended that when measuring the efficiency of any municipal institution, it is necessary to choose the efficiency measure according to the returns of the variable size, and it is preferable to use the orientation towards outputs to maximize the municipality's products represented by public services in the interest and welfare of society.

**3- Tamimi (2022)**aims in general to provide a proposed model to evaluate the performance of municipal directorates in general and the Directorate of the municipality of

Basra in particular. In addition, the research seeks to achieve the objectives and disclose the indicators included in the manual of the Federal Financial Control Bureau and related to the evaluation of the performance of municipal directorates and are not used in the evaluation of performance because they have no data, or they do not include all their activities. The research also aims to disclose additional appropriate indicators that can be adopted in evaluating the performance of municipal directorates. The researcher also recommends that it is necessary to rely on evaluation systems that are characterized by objectivity, that depends on the quality and efficiency of the achievement and with transparency far from courtesy in the evaluation process. The study also recommends adopting a preventive control approach to develop remedies or take corrective measures necessary to address some errors or challenges and deviations expected to occur in the future.

**4- Saeed(2022)**

achieves several objectives, including measuring the overall productivity of each municipality within the Baghdad to determine their technical efficiency indicators. It also aims to assess technical change, pure efficiency change, and scale efficiency change, identifying municipalities that have not achieved full relative efficiency and understanding the underlying reasons. The study employs the Data Envelopment Analysis (DEA) model to measure the performance efficiency of Baghdad's municipalities and identify efficient municipalities using their available resources to reach the targeted outputs. The researcher has concluded that despite the significant capital and operational expenditures, the municipalities in the study sample did not fulfill their role in meeting the residents' needs from clean water, eliminating environmental pollution, creating a green economy, and keeping up with sustainable development requirements. This has been attributed to administrative and financial corruption. The researcher recommends that Baghdad Municipality focuses on less efficient municipalities and provide them with sufficient inputs to keep pace with the efficient units, as some municipalities with larger inputs did not achieve higher efficiency than those with fewer inputs.

## III: The Concept of Economic Efficiency, Productivity and Methods of Measuring them

### 1) The Concept of Efficiency and Its Importance

#### 1-1-The concept of economic efficiency

Researchers and economists differ in defining the term efficiency due to the multiplicity and difference of opinions, as it is one of the topics that have received a great attention in the economic and administrative literature. Economic efficiency can be defined as the use of wealth resources to achieve one of two things: (1) a greater production with the same production costs and (2) the same previous production with lower production costs (Al-Karim, 2011: 45). In addition, it is defined as the ability to maximize value and minimize costs, because efficiency cannot be achieved by either reducing costs or by maximizing values. Efficiency is also defined as "the ratio of actual (completed) production to standard or planned production", so the efficiency of the organization increases as this ratio increases (Mahmoud, 2010: 55). Also, , the Organization for Economic Co-operation and Development (OECD) defines it as the way in which inputs (labor, capital, etc.) are converted into outputs in an economic manner (Al-Nasser, 2023: 45) . Through the previous definitions, the researched has concluded that efficiency is working to achieve the goal in the thing, or the work to be accomplished, and this is embodied either by achieving maximum outputs from specific inputs, or by achieving minimum inputs for specific outputs.

#### 1-2- The Importance of Efficiency

The notion of competence holds significant importance across all tiers of the organization, encompassing the individual, collective, and organizational levels.

#### 1-2-1- The Importance of Efficiency at The Individual Level:

Efficiency has become of great importance to the individual considering challenges, and the most important reasons that prompted individuals to pay more attention to efficiency is the following (Ibrahim, Nawal :18):

a) Increasing the risk of losing a job or position, whether by transfer or layoff due to the competitive demands that necessitate this.
b) Improving the chances of obtaining a place in the labor market that corresponds to the aspirations of the individual, by possessing a certain skill properly.
c) Facing the inflation of scientific degrees, and despite the importance of the knowledge gained through university study, it reduces the access of individuals to work commensurate with their ambitions which helps to motivate them more.
d) Only those who meet the qualification component will be able to advance in their current position within an organization, and this can only be done by prioritizing the competence component.

**1-2-2- The Importance of Efficiency at The Collective Level**

This importance of this level is manifested in the following (Samira et al., 2016, 9):

a) The success of work within a project depends on cooperation and synergy between individuals, which ultimately leads to much better results than those achieved by an individual alone.
b) Using competency network system consisting of the sum of individual competencies, where everyone contributes to enrich this network facilitating the solution of problems associated with production or organization.
c) Contributing in resolving conflicts between individuals without resorting to the authority or the manager, because this contributes to good understanding between individuals to serve the objectives of the project.

**1-2-3- The Importance of Efficiency at The Organizational Level**

The importance of efficiency at the organizational level is manifested in the following (Asia, 2011: 24-25):

a) Efficiency is an essential part of the organization's strategy, and this importance is reflected in its support for the competitive advantage of the organization, which distinguishes it from other competitors.
b) Institutions have become dependent on knowledge in general and efficiency in particular, because this is considered the main way for institutions to face the new challenges created by the conditions of globalization and technical developments. It gives them more freedom to work and without a direct intervention to take advantage of the benefits of creativity. What prompted the institution to do this is its absolute conviction that its real capital and the main source of value creation is its efficiency.
c) Investment in the human resources of the organization, which affects the basic needs, especially in the field of skills, is now achieving significant returns, whether tangible returns (profits, good productivity, etc.), or intangible returns, customer satisfaction, ensuring loyalty and good relations with customers. Therefore, the company pays a great attention to invest in this area, especially since the race between the company and its competitors revolves around this point.
d) Individuals work on a set of personal resources (knowledge, skills, etc.), but their ignorance, lack of knowledge and awareness of how to integrate and move these resources will not bring any benefit to the organization. So, it is necessary to priortize efficiency because it is the only way for to exploit the resources of its employees.

**2) Productivity - Its Concept and Measurement Methods**

**2-1-Concept of Productivity:**

Productivity is considered the most important source of economic growth in the world over the past three centuries. The decline in productivity rates is one of the main reasons for the decrease in growth rates in Arab countries until the end of the 1990s. Productivity is defined as the amount of production factors produced by the unit (Babiker, 2007: 3). It can also be defined as a measure of the relationship between a specific product and the means used to produce it, taking into account the efficiency of resource use. It is usually expressed as the ratio of output to input, represented by the following equation (Anisa, 2016: 4):

$$productivity = \frac{outputs}{inputs}$$

Productivity can also be defined as the optimal use of production factors to achieve the largest possible volume of production with a specified quality level, specific type, at a specific time, and at the lowest possible cost, thus achieving the highest possible surplus of profitability (Mahmoud, 2010: 20). Productivity is more broadly defined as a method for measuring the effectiveness of resource uses by individuals, communities, organizations, machines, and equipment achieving the best performance in the best possible ways (Mustafa, 2015: 12). Accordingly, the researcher has noticed that the primary focus of the concept of productivity, in general, is the relationship between the final output ratio (outputs) to the elements involved in forming this thing, or what is known as the inputs that constitute it.

**2-2- Methods of Measuring Productivity:**

There are two types of productivity measures: measuring total productivity and partial productivity. There are numerous methods to measure productivity depending on the measurement level, which refers to whether productivity is measured at the level of the enterprise, sector, or activity (Yahya et al., 2021: 288–289).

**2-2-1-Measuring overall productivity:**

It is a single indicator that measures the organization's overall effectiveness by dividing outputs by inputs. While total productivity can be calculated using the quantity of production or the value of production, when it comes to inputs, quantity cannot be used. This is because it is not possible to aggregate the quantity of different elements of inputs. Here, the total productivity must be calculated using the value of input components, whether the output is qualitative or quantitative and the total productivity is calculated through two criteria, the quantitative and the value.

**a) Quantity criterion**

Total productivity = quantity of output (total number of units produced) /total value of inputs used (all inputs)

**b) Value criterion**

Total productivity = total output value / total input value

**2-2-2- Measuring Partial Productivity**

Partial Productivity is the sum of the output divided by a part of the input, that is, by one of the elements of the input productive process, such as:-

a) Labor productivity: it is the output divided by the labor, the number of workers and working hours. (Reza, 2008: 31)
b) Material productivity: it is the output divided by the raw materials (Hassan, Abed, 2007 :207)
c) Capital productivity: it refers to the relationship between the value of production, and the value of invested capital. (Abu Safiya, 2017: 36).

**3)The Concept of The Data Envelope Analysis Method**

Data envelope analysis is one of the most important tools of the nonparametric method, where it uses the linear programming technique to measure the relative effectiveness of a group of institutions called decision-making units (DMUS). It was initially developed to assess the relative effectiveness of units of one organization, such as branches of one bank, because it includes homogeneous decision-making units in terms of using the same type of inputs and outputs. Homogeneous decision-making reflects how to preserve the resources of that unit without affecting its output, or increase the amount of its output without increasing its input (Al-Obeidi, 2017: 13)

The analysis of the data envelope is based on two basic concepts, the first of is the Farrell scale (1957) of efficiency, which is defined as the ratio of output to input. Its value ranges from zero to one, where the value one indicates that the decision-making unit has achieved full efficiency, while zero indicates a lack of efficiency. Farrell has identified two methods for calculating efficiency - the first in the results-oriented

aspect (results-oriented metrics), in which the goal of the decision-making unit is to increase its output without increasing the amount of its input, while the second is from the input-oriented side and its goal is to reduce its input without reducing its output.

The second concept is the economic theory known as Pareto optimization, which assumes that any decision-making unit is ineffective if another decision-making unit or a group of other decision-making units can produce at least the same amount of output. This is because this unit has a smaller number of inputs and without an increase in any of the other inputs, and the decision-making unit is effective if the opposite is achieved (Nasser, 2017; 264).

It is also known as the mathematical methodology for assessing the relative efficiency of production units. It uses the linear programming method to determine which decision-making units are effective and which are ineffective. Further, it determines how much optimization ineffective units must perform to become effective. Therefore, data encapsulation analysis focuses on both inputs and outputs and identifies the relative changes in each of them (Mahmud, 2017; 338).

4) **Basic Conditions for the Application of the Method of Data Envelope Analysis**:

The application of the method of analyzing the data envelope to measure the efficiency of municipalities is subject to a set of restrictions. These restrictions must be met to ensure the achievement of the power of the model discriminating efficient units from inefficient units, these conditions are as follows: -

a) Relative homogeneity of decision-making units, that is, the units being evaluated are similar in terms of inputs and outputs and similar in their basic goals and the nature of their activities.
b) The relationship between input and output should be a direct, because in theory the input should contribute to an increase in the volume of the output, and vice versa. (Hassan, 2019; 125)
c) There is no need to specify pre-weights for inputs and outputs, but it is left to the model that determines them automatically, and there is no need to determine the prices of these inputs and outputs. (Al-Barzanji, 2023: 6)
d) In principle, a good efficiency should correspond to fewer inputs and an increase in output (Araj, 2018: 61).
e) There should be a proportionality between the variables represented by the total input and output and the number of decision-making units (Mustafa, 2023; 76).

**IV: Analysis of Inputs and outputs of Abu Al-Khaseeb Municipality for the period 2021-2023**

**1) The Emergence of Abu Al-Khaseeb Municipality**

Founded in 1973, the municipality of Abu Al-Khaseeb is among the first-class municipalities. The southern Iraqi district of Abu Al-Khaseeb is situated southeast of the town of Basra. Abu Al-Khaseeb district's administrative border is 958 km, the municipal border is 80 km, and the basic design area is 48 km. This region contains four residential units, eight health clinics, and twenty industrial stores. (Directorate of Abu Al-Khaseeb, Calculator Division).

**2) Works carried out by the Directorate of Abu al-Khaseeb municipality:**

The following are the principal functions carried out by the Directorate of Abu al-Khaseeb municipality (Directorate of Abu al-Khaseeb municipality):

a) Implementation of the basic designs of cities.
b) Cleaning the city, from waste and its treatment in controlled landfills (sanitary landfill).
c) Opening and paving and maintenance of streets, development of sidewalks and side molds, establishment of recreational facilities, public gardens and parks and the organization of central islands.
d) Allocation of land for various commercial, industrial and residential uses.
e) Establishment of various service facilities such as (commercial and industrial markets of all kinds)
f) Street planning and engineering procedures for the organization of traffic, numbering of cities and the establishment of crossroads and bridges.

g) Monitoring the properties and real estate of municipal institutions such as crop sales centers, shops, squares and others.

**3) Analysis of Revenues and Expenses of Abu Al-Khaseeb Municipality for the Period (2021-2023)**

From the data of table (1) of revenues and expenses of the municipality of Abu al-Khaseeb during the period of the study, and the analysis of the rates of return obtained by the municipality of Abu al-Khaseeb, it becomes clear that the municipality in 2021 received a very low rate of return compared to the subsequent years (2022 and 2023). The rate of return reached (2.13 -) due to the fact that its expenses exceed its revenues by an amount of (1531738005) Iraqi dinars. As for 2022 and 2023, we note that the rate of return in the two years increased by an average of 1.13 and 1.57, respectively, since its revenues exceeded its expenses in those two years. According to that, the municipality of Abu al-Khaseeb was the best in 2023 because it achieved the highest rate of return compared to the previous years, and the reason for the superiority of the latter is due to the excess of its revenues, which amounted to (3314244233) Iraqi dinars, on its expenses amounting to (3146365621) Iraqi dinars.

As for the productivity of Labor and capital, according to the data recorded in table (1), it is clear that labor productivity ranges from high to low during the period (2021-2023), as the municipality obtained the highest labor productivity in 2022 amounting to (922.5). The lowest productivity in 2023 amounted to (698.8), while capital productivity achieved the highest productivity in 2022 compared to the years 2021 and 2023 .

From the above, it is evident that labor productivity is higher than capital productivity. This implies that the municipality relies on a labor-intensive system because the operating capital is not properly utilized and administrative corruption results in waste, loss of capital, and an inability to invest it.

**Table (1) Productivity and rate of return for Abu al-Khaseeb municipality**

**for the period (2021-2023)**

| Resources / years | 2021 | 2022 | 2023 |
|---|---|---|---|
| Revenues | 3071.723278 | 1439.924384 | 3314.244233 |
| Expenses | 4603.461283 | 1055.977903 | 3146.365621 |
| profit ratio | -0.49 | 0.26 | 0.05 |
| rate of Return | %0.21_ | %0.11 | %0.15 |
| number of employees | 455 | 458 | 584 |
| Labor productivity | 741.6 | 922.5 | 698.8 |
| Capital productivity | 14.73 | 18.44 | 12.84 |

Labor productivity = production value (output) / number of employees

Capital productivity = production value (output) / capital

Rate of Return = profit / capital ratio

Source: preparation of the researcher based on data of:

1-Directorate of municipalities Basra governorate - accounts department-exchange division

2 - Directorate of municipalities of Basra governorate - Human Resources Division

**Table (2) Inputs and outputs of Abu Al-Khaseeb municipality**

| **Inputs/outputs** | **Resources** | **Years** | | |
|---|---|---|---|---|
| **Inputs** | Operating expenses | **2021** | **2022** | **2023** |

| | | | | |
|---|---|---|---|---|
| | | 2776.446874 | 3360.929177 | 3066.513068 |
| | capital | 22904.800438 | 22904.800438 | 31773.967648 |
| **Outputs** | Houses equipped with water | 12945 | 14980 | 15492 |
| | Sewer lines | 1275 | 1993 | 2200 |
| | Patchwork spaces | 2671 | 17449 | 17449 |
| | Number of seedlings planted | 5918 | 44355 | 44307 |
| | Waste removed | 74750 | 97346 | 19826 |
| | Removed rubble | 9748 | 16261 | 72840 |
| | total number of people benefiting from the service | 230122 | 230122 | 236033 |

The table above is prepared by the researcher based on the data of

1- Basra Governorate Municipalities Directorate - Accounts Department - Budget Division (2021-2023)
2- Basra Governorate Municipalities Directorate - Planning and Follow-up Department
3- Basra Governorate Sewerage Directorate - GIS Division
4- Basra Governorate Water Directorate - Imports Division

**4) Analysis of the inputs and outputs of Abi Al Khaseeb Municipality for the period 2021-2023**

**4-1-Input analysis for the period (2021-2023)**

4-1-1- **Current operating expenses**: It is clear from the data in the table above that Abi Al Khaseeb Municipality in 2022 acquired the highest value in terms of current operating expenses. It amounted to (3360.929177) IRAQI DINARS compared to the years (2021 and 2023), as its current operating expenses in those years reached (2776.446874 and 3066.513068) IRAQI DINARS . The reason for this is that in those years it had expenditure on regional development projects whose completion rate ranges between 99 and 100%.

4-1-2- **Operating capital**: The data of the above table indicate that Abu al-Khaseeb municipality received the highest amount of operating capital in 2023 compared to the two years (2021 and 2022) amounting to 31773.967648 Iraqi dinars. In the previous two years, it has the same value of operating capital amounting to (22904.800438) Iraqi dinars.

**4-2- Output analysis for the period (2021-2023)**

**4-2-1-Houses equipped with water:** The data in the table shows that compared to the previous two years (2021 and 2022), Abu Al-Khaseeb municipality achieved the highest rank in terms of the number of homes equipped with water in 2023, reaching (15492) homes.

**4-2-2- Sewage lines**: According to the data recorded in the above table, the sewage lines in the municipality of Abu Al-Khaseeb in (2023) amounted to (2200) $m^2$, which is higher compared to the two years (2021 and 2022), where the number of lines reached (1275 and 1993) $m^2$, respectively.

**4-2-3- Patchwork areas**: It was shown through the table data and in comparison with the years under study that the municipality of Abu Al-Khaseeb received the lowest patch areas in the year (2021),

amounting to (2671) $m^2$ compared to the following two years (2022 and 2023). . It received the same patch areas in the two years amounting to (17449).

**4-2-4-Number of seedlings planted**: The table data indicates that, in terms of seedlings planted, the municipality of Abu Al-Khaseeb obtained the greatest number in 2022 (44,355), and the lowest number in 2021 (5918). This is because the green spaces devoted to agriculture increased in 2022.

**4-2-5-Amount of waste removed:** The data table reveals that, compared to the years under investigation (2021-2023), Abu Al-Khaseeb municipality removed the least amount of waste in (2023) (19826) tons and the most waste in 2021 (74750 tons).

**4-2-6-Number of debris removed:** According to the data in the table, Abu Al-Khaseeb municipality removed the least amount of rubble in 2021(9748 m), while receiving the most in 2023(72840 m). This is because of the rise in construction and related activities, which raises the quantity of rubble that needs to be lifted each year.

**4-2-7- Total number of people benefiting from the service:** Based on the data presented in the table, it can be observed that in 2023, the municipality served the greatest number of residents (236033) as opposed to the two years prior (2021 and 2022), when the number of residents served by the municipal service was (230122) individuals. This trend was likely caused by an increase in the population and the municipality's pressing need to provide these services.

**V: Estimation of Efficiency and Analysis of Results**

**1) Data envelope R. Ramanathan (2003)**

To evaluate the study's hypotheses and accomplish its objectives, the research used both the quantitative and descriptive approaches previously indicated. The study provided a thorough and comprehensive examination of the municipality of Abu Al-Khaseeb. The analysis of the data envelope was used in this study to estimate economic efficiency and divide it into two components: technical efficiency and allocative efficiency. The non-symmetric data that is included in the field created by Data DEA allows efficiency to be assessed based on the relationship between the resources combined in this region, representing a symmetrical production curve. There are two approaches to analyzing this type of data: the first uses DEA based on the constant return of scale CRS and the variable return of scale VRS, which allows for the estimation of technical efficiency TE, scale efficiency SE, and allocative efficiency AE. This model is estimated using the change in return capacitance caused by (input-oriented) input. The initial data was collected from field sources considering the annual municipal directory.

**2) Analysis of The Results**

To estimate the volume of resources achieved for economic efficiency in the research sample, particularly for the main research variables (operating expenses, capital) and outputs (total population, waste removal, rubble removal, number of seedlings, patch areas, number of drainage lines), the analysis of the results has been based on estimating the volume of resources that achieve economic efficiency for non-productive projects.

The research has used the data envelope analyzing (DEAP) method as well as scale efficiency, which refers to the change in production when all inputs are modified. Furthermore, it refers to how much a municipality can benefit from returning to ideal scale. The scale efficiency is calculated by dividing the technical efficiency index under constant return to scale (CRS) by the technical efficiency index of the production unit under change of return to scale (VRS). The municipality of Abu Al-Khasab's scale efficiency is equal to (1), indicating that it uses its resources efficiently to maximize production. Additionally, the production unit does not reach full scale efficiency if the municipality's scale efficiency (SE=1) indicates that it is efficient on a large scale, i.e., the inputs and outputs are efficient. TSo, there is a difference between technical efficiency under the change of scale yield and the stability of scale yield. Accordingly, the marginal production differs from the optimal output and the number of inputs used differs from the number of actual inputs.

In other words, the technical efficiency is determined twice—once for scale efficiency and again for allocation efficiency. The municipality of Abu Al-Khaseeb has achieved a relatively high efficiency in input and output guidance, as its amount reached 100%. It has also achieved the condition of stagnant values, which is zero, as well as scale efficiency =1, based on the data of the research period (2021–2023) and through the analysis of our results in Table (1). Given its technical efficiency (1.000), which is high given maintaining a constant level of output, and that its efficiency by weight is (1), the municipality of Abu Al-Khaseeb is a self-reference municipality. This means that the municipality is efficient on a large scale, meaning that inputs and outputs are effective under CRS-VRS as well. It also shows that the decision-making units in this municipality are able to achieve the greatest outputs with the least number of available inputs, and productivity has increased by more than 105%, indicating that the municipality is making the best use of its resources. This is the outcome of technological advancements that have had a good impact on the Abu al-Khaseeb municipality, as indicated in Table (2).

From the foregoing, we can infer that the Abu Al-Khaseeb municipality has been able to accomplish high efficiency levels of up to 100% and has been able to offer its district's citizens useful services.

**Table(3) Scale And Technical Efficiency in The Municipality of Abu Al-Khaseeb's Stability and Shift in Scale Yield Throughout the period 2021–2023**

| CRST Technical Efficiency Under Fixed Yield | VRST Technical Efficiency Under Variable Yield | Capacitance Efficiency EC | Volume Yield | Reference Units |
|---|---|---|---|---|
| 1 | 1 | 1 | - | 1 |

Source: preparation of the researcher using the deep program

**Table (4) Change of total production efficiency**

| Indicators | Change in total productivity TP | Change in volumetric efficiency (capacity) | Net technical efficiency change | Technical change | Technical Efficiency change |
|---|---|---|---|---|---|
| | 1.507 | 1 | 1 | 1.507 | 1 |
| Average | 1.507 | 1 | 1 | 1.507 | 1 |

**VI: Conclusions and Recommendations**

**1) Conclusions**

1) The municipality of Abu Al-Khaseeb has demonstrated a high degree of relative efficiency, reaching up to 100%, and meeting the requirement of stagnant values, which is zero. Additionally, the municipality has demonstrated a high level of technical efficiency, reaching (1.000), which is high provided that output levels remain constant. These accomplishments demonstrate the ability of the decision-making units in this municipality to produce the highest levels of output with the least number of inputs.

2) The municipality of Abu Al-Khaseeb has achieved a productivity growth of more than 105%, which means that the available resources are used to the maximum in the municipality due to the technical change.

3) We conclude that Abu al-Khaseeb municipality has managed to reach high levels of efficiency up to 100% and has been able to provide beneficial services to the residents of its district.

4) A strategic plan has been prepared for the municipality, which is the starting base for one of the distinguished workstations through which all sectors and achievements work to keep pace with continuous development in all service fields.

5) The performance provided by Abu Al-khaseeb municipality in paving streets has improved, and plans are prepared for maintenance purposes for various main and secondary roads of the city.

6) The attention to the extension of a wider network of safe drinking water increased. The municipality has achieved the highest rank in the number of houses equipped with water in 2023, which amounted to (15492) houses, as well as sewage lines, but the increase in the population in the city requires expansion even more.

**2) Recommendations:**

1) Organize the supervision of activities and provide an integrated and innovative service system, exceeding stakeholders' expectations by supported specialized staff, infrastructure, advanced digital technology and high-quality partnerships to ensure the highest levels of availability and flexibility. There is a need to increase the level of responsibility and autonomy of work teams as well as encourage good management practices.

2) The decision-making units in Abu Al Khaseeb Municipality should develop a development program for the technology used, and use program to develop the performance of employees to be more productive.

3) The management of the Municipality should follow up the economic performance periodically to ensure the achievement of the set goals. It has to take the necessary measures in case of any administrative deviations by activating the role of the monitoring bodies represented by internal audit to submit periodic reports to the top management on the weaknesses and delays in the performance of some departments responsible for the provision of services in the district.

4) The need for comparative studies in the municipality, and municipalities in Arab countries, to show the extent of the impact of the technology applied in each country and its impact on the productivity of municipalities.

5) There is a need to analyze the comparative economic performance of Abu Al Khaseeb Municipality by comparing its economic performance with other Basra Governorate municipalities to identify strengths and weaknesses and take the necessary measures to improve performance.

**6)** The municipality should develop new strategies to improve economic performance and achieve more goals for subsequent future periods.

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