

# The Role of Value Chain Analysis as well as Programs and Performance Budget in Reducing Waste of Public Money (Applied Study)<sup>1</sup>

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## ABSTRACT

Programs and performance budget represents a sophisticated method of public budget numbers, which includes all allocations to be determined for each job or activity within government entity, which are analyzed according to their needs and costs, and this method can be applied using one of the cost accounting techniques, which is the technique of analyzing the value chain that reduces costs by avoiding activities that do not add value and enhance activities that add value to the economic entity, the current research aims to develop the budget system in government entity by using the budget of programs and performance as a tool for planning and monitoring events and activities, thereby reducing the waste of public money by reducing unnecessary public expenditures.

The current research was conducted in Muthanna Cement Laboratory, one of the formations of the Iraqi Ministry of Industry and Minerals, where a model was prepared to balance programs and performance according to the technique of analyzing the value chain, and the activities in the laboratory were divided into major and sub-activities, and after accounting for the total budget costs according to the activities specified for 2019, the activities that achieved the highest percentage of the budget, and activities that achieved the lowest percentage, this helps to draw the attention of Senior management to unjustified and avoidable expenditures for the purpose of reducing the total cost in the future, and therefore the use of programs and performance budget benefits for the purposes of planning and control the use of available resources, the study has reached a set of recommendations, the most important of which is the need to move when preparing budgets in government entity from the traditional budget (balancing items) to programs and performance budget, because it has several advantages, the most prominent of which is its efforts to reduce costs and this in turn limits the waste of Public money, and therefore it is a tool for assessing performance and financial planning in government entity, departments and employees.

**Opening words:** *value chain, programs and performance budget, wasting public money*

## INTRODUCTION:

The modern concept of the public budget has evolved from being merely a list of the allocation of state resources in various uses, to an important economic tool through which the state's economic, social and political policies can be extrapolated, as well as to reduce the waste of public money.

Due to the importance of optimizing the allocation of available re References and guiding them efficiently and effectively towards targeted programs and activities, many countries have moved away from balancing items, and the trend towards programs and performance budget BPP, which represents a structured administrative work program that ensures that all expected activities and programs are taken into account and works to achieve the specific objectives of each administrative level with the aim of distributing re References and rationalizing spending in order to achieve the best results and strategic objectives required, and to prepare the public budget of the state In the way of programs and performance budget, especially when Using one of the cost accounting techniques, which is the technique of analyzing the value chain, which divides activities into one head and another sub, this increases the accuracy of the

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planning and implementation process, which helps in allocating the specific funds for each activity or program and predicting and preparing for future events and for a number of years compared to balancing items that are for one year only, so the use of programs and performance budget when preparing the public budget of the state achieves the greatest possible benefit through the implementation of programs. The state is more accurate, efficient and effective based on the application of the basis of the benefit on which cost accounting depends in its modern methods, which help to determine and measure the cost of expected and actual programs and activities, which in turn leads to the reduction of waste and waste of public money.

## **FIRST TOPIC: RESEARCH METHODOLOGY**

### **First: Search problem**

The public budget of the state adopted in Iraq is the budget of items, which is a tool for controlling exchange only, because it does not use measures and techniques to evaluate performance and analysis of return and cost, so the problem of research is reflected in the need to move from balancing items to programs and performance budget because it is concerned with the elements of financial and non-financial inputs and procedures and outputs, and all of this is linked to objectives and policies, and can be done using modern cost techniques, including value chain analysis technology because it represents a group of successive activities aimed at achieving goals, including reducing the waste of public money.

### **Second: The importance of research**

The importance of research stems from the importance of the public budget of the state as it is the main artery that feeds its activities and maintains its durability, therefore it must be reviewed in the way it is prepared, and move from the traditional methods of balancing items to modern methods of programs and performance budget, because it represents the main tool for implementing economic policy in the short and long term, it helps guide the Iraqi economy to achieve the required growth rates and raise the standard of living, and therefore the development of a budget strategy is necessary and important, because it shows Real financial commitment to different sectors, and works to distribute expenditures rationally and rationally.

### **Third: Search objectives**

The research aims to achieve the following:

1. Introducing the concept of value chain analysis technology and its importance.
2. Introducing the concept of programs and performance budget and their importance and stages of preparation
3. Introducing the importance of adopting the budget of programs and performance to reduce the waste of public money.

### **Fourth: The hypothesis of research**

The research is based on the hypothesis that (the use of program and performance budgeting based on value chain analysis technology helps in planning and rationalizing government spending and also contributes to oversight and performance evaluation, which in turn leads to reducing the waste of public money).

### **Fifth: Research Platform**

The research is based on two approaches:

- 1- Inductive approach: which identifies the problem and studies it and analyzes it intellectually and theoretically based on scientific References of books and available research.
- 2- Practical (experimental) approach: which creates the right solution to the problem and applies it in the right place, to find a practical solution to achieve the goal of research and try to generalize it in other entity

### **Sixth: Search limits**

Search limits include:

- 1- Spatial boundaries: A partial sample of the government production entity, represented by AL- Muthanna Cement factory, was conducted.

- 2- Temporal limits: Research in analysis and proof of its hypothesis depends on the financial statements of AL-Muthanna Cement factory for 2019.

## SECOND TOPIC: VALUE CHAIN ANALYSIS TECHNOLOGY AND ITS IMPORTANCE

### First: The concept of the value chain

The value chain is seen as a set of interrelated activities that add value to both the economic entity and customer, starting with the product being an idea during the R&D phase until this product is marketed to the customer and providing after-sales services (Horngren, et.al., 2015:6), so the value chain is a set of successive activities geared towards achieving strategic cost management objectives in terms of understanding the behaviour of cost elements in order to reduce cost and help search for References of creativity and excellence. Whether it's for the time being or in the future.(Hoque,2003:110), the value chain focuses on activities that add value to the economic entity and the customer, where these activities are strengthened and focused on improving product quality and production process (Feller, et.al., 2009) 7), the key to the concept of value chain is to seek to add and improve value at every stage of the product's life cycle, and this can be measured by determining the costs of activities that do not add value and work to get rid of them in addition to improving the profitability and quality of products, and the value chain aims to Improving the operations and products of the economic entity and reducing its costs as well as improving quality by making products more suitable for customer use and conforming to the specifications and standards established from research and development to customer service through design, production, marketing and distribution (El-Kelety,2006:121), the value chain consists of the following activities:

- 1- Research and development: is to collect and experiment ideas for the operations, products and services of the economic entity, which are within its available potential, and the research and development activity consists of a range of sub-activities, the most important of which is the training and qualification of workers and services of research, consulting, travel and dispatch for training and study purposes (Williams, et.al., 2008:796).

- 2- Design: Is to carry out engineering and detailed planning processes for the operations, products and services of the economic entity in a way that suits the needs of customers and the requirements of the competitive market, where design engineers review the designs developed (Drury,2008:554).

- 3- Production: is the process of converting inputs into outputs by making physical conversions of both ideas and designs into reality on the ground in the form of physical products or services provided to customers, and in industrial economic entity production activities take the largest share of the costs because they include the cost of raw materials and the cost of formation (Horngren, et.al., 2015:6).

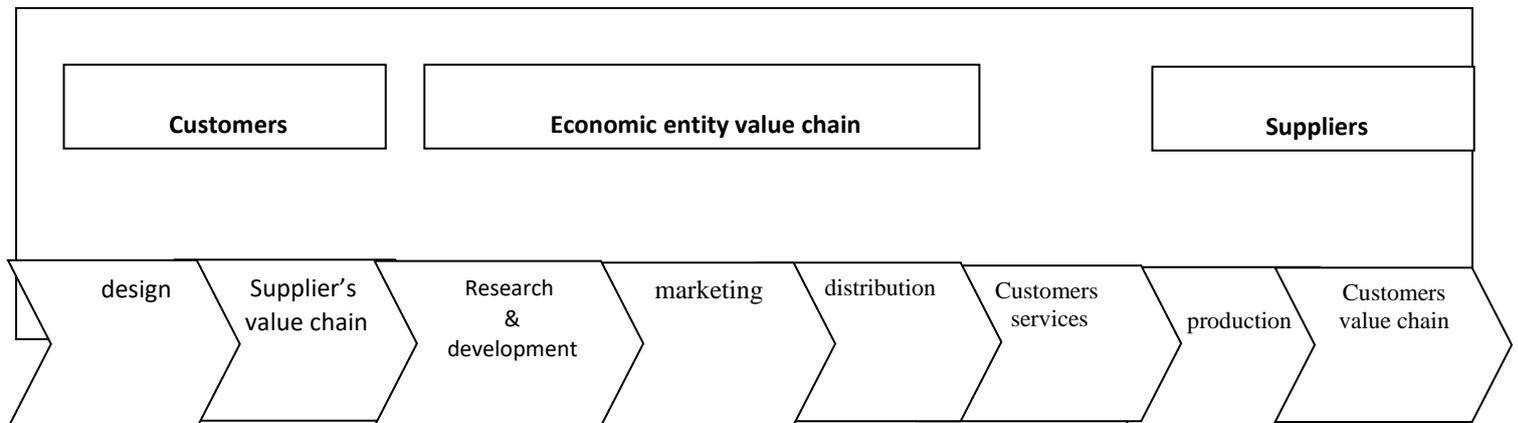
- 4- Marketing: Is to contact individuals and groups in order to introduce them to the products and services of the current and new economic entity, as well as to inform them of the advantages and characteristics of these products and services, and the marketing activity includes a range of sub-activities represented by each of the activities of advertising and activities of packaging products and packaging activities of course and publishing and others (Elbert,2016:4).

- 5- Distribution: Is the appropriate mechanism used by the Economic Entity in order to deliver its products to customers through different distribution channels, whether they are individuals or groups, and includes distribution activity on a range of activities, including activities related to the rental and maintenance of transportation and transportation, in addition to the wages of individuals working in different distribution channels (El-Kelety,2006:122).

- 6- After-sales services: these services are provided by the Economic Entity to its customers after completing the sale of products to them, and these services relate to the installation and repair of products in addition to answering customer inquiries and questions (Maher, et.al., 2008:117).

The value chain of economic entity can be explained by the following form:

Shape (1)

**Economic entity value chain**

Reference: (Drury, 2008:552), (Garrison,et.al.,2011:7) .

**Second: Analysis of the value chain and its importance to economic entity:**

Value chain analysis is intended as a test of each of its activities and determines whether it adds value and represents a competitive advantage. Activities that add value can help achieve competitive advantage, either activities to the contrary, should be eliminated by deleting them or merging them with other activities (Kinney, et.al., 2006:666), so the value chain analysis focuses on identifying References of competitive advantage for the economic entity by pooling different activities and events and determining whether they Represents strengths or weaknesses now or in the future (Feller, et.al., 2009:7), so the focus will be on activities that add value to both the economic entity and the customer and work to strengthen them, and on the other hand activities that do not add value or get rid of them are reduced altogether, resulting in a reduction in the unjustified costs associated with these activities (Sweeney, 2009:320), value chain analysis is concerned with the costs of all activities from research and development to customer service in order to provide a clear vision that can help understand and analyze all elements of costs, particularly indirect costs, in order to work towards a real reduction (Hoque, 2003:107), so value chain analysis is an important strategic tool that can be used to achieve the best understanding of competitive advantage, achieve and maintain it in a manner consistent with the competitive strategy of the economic entity, and the activities of the economic entity's series can be divided Value into three types, as follows: (Blocher, et.al., 2010:38)

1) Upstream activities: activities related to research and development activities and design activities in the economic entity and represent the starting point in the value chain.

2) Operational activities: activities related to converting inputs into outputs through various production processes.

3) Downstream activities: activities related to marketing and distribution activities in addition to activities for after-sales services to customers.

Dividing value chain activities into upstream, operational and downstream activities makes value chain analysis the best way to achieve strategic objectives. Decisions to delete part of the value chain sub-activities are strategic decisions that have an effective impact on achieving the objectives of the economic entity in terms of reducing its costs and improving the quality of its operations and products, as well as reducing the time of both design and manufacturing as a result of eliminating activities that do not add value to the economic entity as a whole. (Hilton,et.al.,2006:10). Either on the importance of analyzing the value chain, it can be explained by the following:

1) Reducing costs associated with activities that do not add value to both the economic entity and the customer, and deleting these activities does not adversely affect the quality of products (Feller, et.al., 2009:14).

2) Improve design quality and conformity quality and thus provide products that can match the needs of customers better than competitors (Maher, et.al., 2008:117).

3) Improving production processes in the economic entity by reducing time losses and waste of resources as well as helping to manage tasks effectively and efficiently (Lu, 2011:6).

4) Reduce the development time of existing products or new products as a result of following the best possible methods and methods by focusing on value-adding activities (Aniki & Charles,2014:52).

5) Help understand activities that cause additional costs, which helps to reach the competitive price by which customers can be attracted and gained their loyalty (Brown,2009:11-12).

6) Helping to excel over competitors and thus achieve competitive advantage as a result of cost reduction, quality improvement and reduced design and manufacturing time (Johnson, et.al., 2006:115-116).

Accordingly, value chain analysis can be said to be an important strategic tool that helps the economic entity achieve its objectives of achieving competitive advantage, and therefore this analysis is more appropriate to the requirements of the modern manufacturing environment and the accompanying rapid and successive changes and developments. The use of value chain analysis method more accurately determines the cost of programs and activities, which depend on the information, provided by the basis of entitlement in their application, as well as other modern cost accounting methods. This needs to be shifted to the application of the budget of programs and performance in the preparation of the public budget of the state, which in turn depends on the basis of entitlement in its application, making it more effective and efficient in influencing the administrative decisions of different levels of the state.

### **THIRD TOPIC: PROGRAMS AND PERFORMANCE BUDGET, THEIR IMPORTANCE AND STAGES OF PREPARATION**

#### **First: The concept of programs and performance budget**

Interest in programs and performance budget has emerged recently and this represents a developed trend in the preparation of budgets and has been known as the administrative direction where the budget is called the budget of the administration and the birth of this budget emerged at the beginning of the twentieth century in the United States of America and was applied in the business sector and then moved to the government services sector.

The idea of programs and performance budget focuses on the work done more than the means of accomplishing this work in the sense that it focuses on the work done by the government and not on the things that you buy, i.e. it is based on purposes and objectives to know the efficiency of the executive management levels, so it is concerned with the outputs of various activities and not the types of expenses or expenses (Al-Shuwaiki and Abu Shamlah, 2012: 97).

The program budget and performance by the U.S. Economic Development Commission is known as the set of methods by which program managers are able to focus on implementing objectives that fall within their responsibilities accurately, and comparing the implementation of these goals by time, amounts, working hours and materials, that this system provides those who use it with information that they cannot obtain through traditional budget methods, as it helps to obtain better results for decision-making. (Saleh, 2015: 92).

Programs and performance budget was defined as a plan aimed at achieving a range of goals, both long-term and short-term, by linking those objectives to the organizational structure of the organizational entity, which is divided into terms of Reference, programs, activities and projects in light of the careful renewal of the expected costs and returns with the aim of achieving the maximum efficiency possible to allocate the available resources (Abdul Dayem, 2016:269-270).

From the regulatory and administrative side, the budget of programs and performance was defined as "a means of tabulation of the state budget data to focus on government programs and not on the goods and services purchased by the government, i.e. it is working to highlight a new function of the state, which is the function of administrative control instead of focusing on the function of traditional financial control, i.e. a tool in the service of government administration (Saleh, 2015: 92).

#### **Second: The importance and advantages of applying the budget of programs and performance**

It is possible to determine a set of advantages when preparing the budget of programs and performance: (Ghannam, 2006: 58-59)

1- Balancing programmes and performance leads to the existence of a planning element intended to predict and prepare for future events and may be long-term planning i.e. for a number of years compared to balancing items that are for one year and therefore the executive branch can by programs and performance budget future planning of programs and projects for ministries and for a number of years and determine the expected expenditures.

2- programs and performance budget helps to identify the main programs and projects that are implemented by government agencies and then divide these programs and major projects into sub-programs and activities in a way that helps to balance the necessary funds for their implementation in accordance with the sections and spending clauses specified in the state budget document.

3- programs and performance budget helps to make an analytical comparison of the available evidence in terms of efficiency and effectiveness as well as the costs and returns of each alternative and the extent to which the general objectives of the government agencies are achieved and the choice of the best alternative in reaching the objectives of the executive branch.

Programs and performance budget helps evaluate and evaluate government programs and projects that have been implemented or are still in the process of being implemented, and this helps to accurately diagnose problems or weaknesses and determine ways to address them.

### **Third: The objectives of preparing the budget of programs and performance**

A- The objectives in terms of decision-making are:

1. Helps provide the necessary data and information to plan for the future and make good decisions.
2. Providing information that helps departments make appropriate decisions for the purposes of economic healing. (Shuwaiki and Abu Shamlah, 2012: 99).
3. Making administrative decisions that improve the quality of workers in the state agencies responsible for preparing and implementing the public budget of specialists in modern administrative sciences such as cost accounting, administrative accounting and financial analysis methods. (Al-Sabari and Fakhr Al-Din, 2017: 188)

B- The objectives in terms of the performance of government administrative entity are:

1. programs and performance budget helps management to provide accurate measurement methods such as: entity cost, measurement of work and performance rates, and this is done by determining programming and its branches and then measuring the performance achieved, which will lead to the achievement of the objectives of those programs. (Al-Sabari and Fakhr Al-Din, 2017: 188)
2. Identify deviations by comparing the tabs that include actual and estimated costs, which include activities and projects, which make up each program individually and therefore can prepare appropriate financial reports. (Saleh, 2015: 93).
3. Providing information on the indicators of tyrannical performance on the relationship between inputs and outputs, achieved by the ministry or government entity, which helps to identify a clear goal of performance and allocate the exact resources necessary for it. (Ghannam, 2006: 64)

### **Fourth: Stages of preparing the budget of programs and performance**

The stages of preparing the budget of programs and performance can be determined as follows: (Al-Sabiri and Fakhr Al-Din, 2017: 188-189).

1- Setting goals and programs:

At this stage, the objectives that the government entity expects to achieve during the fiscal year, whether these objectives are related to the performance of services or the completion of projects within the framework of the state public service, are then divided and tabled according to the government programs that the executive branch intends to achieve during the budget year, and then divide these programs according to their nature into two current and investment groups, and divide these programs - ongoing and investment - into a set of projects and activities, which is the focal point of the budget that is built in accordance with their nature. It has credit estimates as well as accounting and reports.

2- Identify activities:

It is known that the work of government entity is based on the completion and performance of certain services and goods for citizens, and these services must be placed within a particular project or activity, and this activity or project must be within the framework of a major program to be assigned to a particular ministry or easy. This phase relates to the identification of entity of measurement that correspond to the nature of the operations performed by each section of the activity, as well as the study of the means to ensure that these rates are raised, thereby improving the

level of service and reducing the cost of their performance, and therefore estimated costs can be reached for each of the operations performed by the activity entity.

### 3- Determining performance entity:

At this stage, each government entity divides its share of projects and activities into performance entity and represents the service entity or goods it will provide to the public. This stage is considered one of the most difficult stages as it requires each government entity to determine the performance entity that will perform them, which is to detail the services that will perform, i.e. this stage requires the need for the availability of performance rates of activity and project, and the preparation of these rates is based on technical methods.

### 4- Costing:

This phase is a comprehensive definition of the state budget as it uses the rules of accounting for costs in calculating the cost of the performance entity in a form almost standard, which is an advanced stage accounting, and notes that in the regulatory budget or balancing items the method used was government financial accounting, but the use of costs is an advanced procedure administratively, the cost of the performance entity is calculated using methods of accounting for costs, and hits the number of entity to be completed in the budget in medium. The cost of the entity produces the total value of the funds to be provided to the government administrative entity, where it is obliged to implement the number of performance entity without a decrease within the limits of the funds specified for them and without increasing. Thus, performance efficiency is controlled at every standard cost, and therefore the control is double, it is control over the implementation and completion of performance entity at record levels, i.e. quantitative control and how, on the other hand, it is control over the completion of performance entity at record cost rates to ensure that there is no extravagance or inevitable loss.

### 5- Follow-up the implementation of the budget:

At this stage, the implementation of works, programs and projects is followed up and costed, and takes place at the end of the fiscal year, in which the events completed are compared with estimates and confirm the efficiency of the executive branch, and that the work is going according to the limits set and takes place on time, which corresponds to the final calculation phase in balancing items, and this stage is an assessment of the performance of government entity and the accountability of those responsible for their achievements during the year in a practical way.

Both Salloum and Al-Mahayni have identified a number of steps in the application of the budget of programs and performance, as follows: (Salloum and Mahayni, 2007: 108).

1. Identifying the objectives to be achieved and mentioning them briefly in the form of a list.
2. Design the necessary programs to achieve the required goals.
3. Estimating the costs required for the programmes for the year and then notifying the public budget Department to monitor the funds for the implementation of those programs.
4. Estimating results from major programmes, sub-programmes and projects.
5. Estimating the amount of money that programs need.
6. Develop a system and procedures for follow-up and analysis of the results of the implementation of programs and projects.
7. Establish a system and procedures for obtaining information on a regular and permanent basis.
8. Determining administrative responsibility when implementing programs.

### **Fifth: Using the budget of programs and performance to reduce the waste of public money**

Many countries around the world have sought to develop and improve their systems and means used in the production of information, whether in the government sector or the private sector and at the level of the government sector, some countries have worked to shift to programs and performance budget and developing the regulatory aspect in order to protect public money from waste and loss.

He pointed out (Herara) that among the means, which lead to the preservation of public money from manipulation, fraud and waste, is censorship of all kinds, whether external, such as the Financial Control Bureau, which is a representative of the legislative authority in monitoring the work of the executive branch or internal control, which is carried out by the executive branch through the Ministry of Finance and the public budget of the state, in order to ensure the proper use of public money and protect it from theft, embezzlement, manipulation, misuse and waste. Neglect (Herara, 2016: 9-11)

We find that the independence of the regulatory bodies certainly leads to the exercise of their oversight role is more effective and efficient in the field of preserving public money, good management in accordance with laws and regulations and ensuring the achievement of the objectives set by the duties of government activities and programs (Sawalha, Saadi and Shabita, 2013: 288), as well as, financial control has an active role in rationalizing government spending through the development of cadres working in the field of control, which leads to increase the capacity of government entity to reduce deviations of actual expenditures. Compared to the state budget (Herara, 2016: 25). A form of financial corruption is causing waste, waste and loss of public funds, as well as non-compliance with laws, regulations and instructions, whether intentional or unintentional, is also a type of financial corruption that leads to damage to the national economy (Adday, 2013:6).

The shift to programs and performance budget is an important means in the province and reducing waste and waste with public money, and this shift is a sophisticated method in the preparation of budgets, if this budget works to identify the programs and activities to be implemented, and makes it easier for the executive branch to monitor and understand the work of its government entity. This budget enables the state to determine its objectives and measure its success in reaching those goals easily, through its various organs and the ease of follow-up and monitoring of the budget, which leads to easy decision-making sound and rational decisions and addressing deviations in a timely manner (Abu Zaiter, 2012: 24-25).

The goal of government spending is to maximize the benefit of satisfying the needs of society compared to its resources (Al-Wahidi, 2017: 10). The satisfaction of the needs of society is done through the state budget and the development of its numbers will preserve public money from waste and loss (Dhiab, 2019: 12).

Therefore, the application of the budget of programs and performance, leads to ensuring the proper functioning of the work and the good use of resources in accordance with the specific government programs and activities and at the appropriate cost and in a way that ensures the greatest possible production and benefit and with the least possible spending and the shortest possible time while maintaining the required quality. Avoid as much extravagance and waste as possible with public money and achieve the state's objectives within the specified period (Meshkoor, Abd and Mutab, 2018: 9-10).

The use of program and performance budgeting is appropriate for the application of the merit basis and cost accounting systems in modern methods, leading to the cost of government programs and activities. In a more accurate way and not exceed this cost and expenditures specified in the public budget, which leads to the fight against waste and waste of public money, and achieve the goals of the state with the required quality and at the lowest costs (Sultan and Mohammed, 2918: 379-380).

The researchers believe that the use of programs and performance budget in the preparation of the public budget of the state, leads to the preservation of public money from waste and loss, and achieve the greatest possible benefit, through the implementation of state programs more accurately, efficiently and effectively, relying on the application of the basis of entitlement on which cost accounting depends in its modern methods. These include the analysis of the value chain, which helps to determine and measure the cost of expected and actual programs and activities, i.e. increased accuracy in the planning and implementation of the public budget, through the use of programs and performance budget in the preparation of the public budget of the state, which in turn reduces waste and waste of public money.

#### **FOURTH TOPIC: THE APPLIED ASPECT**

##### **First: An overview of AL- Muthanna cement factory**

AL- Muthanna Cement Factory is one of the formations of the General Company for the Manufacture of Southern Cement under the Iraqi Ministry of Industry and Minerals, the plant was established in 1984 with the aim of supporting the national economy and meeting the needs of customers of ordinary cement and resistant cement, the plant is located in Muthanna province / Salman District The design capacity of the plant is 1959,000 tons of cement per year, as the cement produced is identical to Iraqi specification No. 5 of 1984, although the products produced by the plant compete with foreign products in terms of quality. However, they are not exported out of the country for reasons related to export laws and high cost, and there are several factors that drive the plant to develop its production, the most important of which is that the plant has qualified administrative, engineering and technical staff following the latest technological and industrial developments in the field of The cement industry, in addition to conducting periodic market research in order to identify the actual needs of customers, and for the accounting system used in the laboratory is the unified accounting system, where chapters 5 to 9 are allocated to cost calculations divided between production centers and service centers, and cost accountants in the laboratory prepare cost lists in order to determine the cost of the entity

produced (per ton) based on the actual cost system in the light of the financial statements provided by the financial data provided by the financial department of the laboratory, and then lifted up the cost lists in order to determine the cost of the entity produced (per ton) based on the actual cost system in the light of the financial statements provided by the financial department of the laboratory, and then lifted Cost lists to the department, which in turn transfers these lists to the pricing committees in the laboratory in order to determine the appropriate selling prices for the products.

Second: Identify the main programs and proposed activities of AL-Muthanna Cement factory for the purpose of preparing the budget of programs and performance in the laboratory research sample, it is necessary to identify the main programs and related activities, and the main programs and activities proposed for AL-Muthanna Cement factory can be clarified by the following:

- 1) Research and development program: This program includes the training and rehabilitation of workers and the activity of scientific research and consulting services.
- 2) Design program: This program includes engineering planning activity for production processes and detailed planning activity for production processes.
- 3) Production program: This program includes raw material storage activity, material inspection and testing activity, processes and product production activity.
- 4) Marketing program: This program includes advertising activity and publishing and printing activity.
- 5) Distribution program: This program includes the rental activity of transportation and the activity of maintenance of transportation and transportation.
- 6) After-sales services program: This program includes customer communication activity and product delivery activity to customers

The main programmes and proposed activities of AL-Muthanna Cement factory can therefore be identified, with a number for each program and activity being neutralized by the following table:

**Table (1) Major programmes and proposed activities of AL-Muthanna Cement factory**

<b>Program No.</b>	<b>The name of the program</b>	<b>Activity No.</b>	<b>Proposed activities</b>
<b>1</b>	<b>Research and development program</b>		
		1-1 2-1	Training and rehabilitation of workers Research and consulting services activity
<b>2</b>	<b>Design program</b>		
		1-2 2-2	Engineering planning activity for production processes Detailed planning activity for production processes
<b>3</b>	<b>Production program</b>		
		1-3 2-3 3-3	Raw material storage activity Material and process inspection and testing activity Product production activity
<b>4</b>	<b>Marketing program</b>		
		1-4 2-4	Advertising activity Publishing and printing activity
<b>5</b>	<b>Distribution programs</b>		
		1-5 2-5	Transport rental activity Transport and transport maintenance activity

<b>6</b>	<b>After-sales services programs</b>		
		<b>1-6 2-6</b>	<b>Customer contact activity Product delivery activity to customers</b>

Reference: by researchers

### Third: Preparing the budget of programs and performance according to the activities of the value chain in AL-Muthanna Cement factory for the year 2019:

The cement industry is a strategic industry in all countries of the world, yet it is still simple compared to other industries because it relies on uncomplicated production processes and simple components, and for the purpose of analysing the value chain in AL-Muthanna cement factory, the main value chain activities and their sub-activities must be identified. The main activities of the value chain are research and development activities, design activities, production activities, marketing activities and distribution activities as well as activities for post-value services. Sale, the main programs of AL-Muthanna Cement factory can be explained by the following:

#### 1- Research and development program:

AL-Muthanna Cement factory has many activities for collecting and experimenting with ideas related to the operations and products of the plant, the nature of the cement industry makes R&D very limited and therefore the wheel of development of the industry is slowly evolving as a result of uncomplicated production processes, yet new technologies have emerged for the cement industry, namely, the shift from wet to dry production, where levels of damage in production are low and losses are reduced in time, as well as accuracy in controlling By mixing raw materials and thereby improving the quality of the product, the costs of the R&D program of AL-Muthanna Cement factory can be explained by table (2).

**Table (2) R&D program costs for 2019**

<b>NO.</b>	<b>DETAILS</b>	<b>AMOUNT (IQD)</b>
<b>1</b>	Training and rehabilitation of employees	<b>266895200</b>
<b>2</b>	Activity of scientific research and consulting services	<b>320274300</b>
	<b>Total R&amp;D program costs</b>	<b>587169500</b>

Reference: Prepared by researchers based on data available in the laboratory.

According to the table above, the total cost of the R&D programme has reached IQD 587169500, and these costs have been spent in order to seek new ideas aimed at developing production processes to help transform the plant from wet to dry production in order to improve the exploitation of production capacity and reduce damage and loss of re References and time, in addition to achieving sufficient accuracy in controlling the mixing of raw materials and thereby improving the quality of the product.

#### 2-Design program:

The design engineers in the laboratory carry out engineering and detailed planning of production processes and design suitable for this, and the designs developed from time to time are reviewed and adjusted according to the References and possibilities available to the laboratory and the developments of the competitive market and the needs and desires of customers in a way that is consistent with the competitive strategy followed, and the costs of the design program can be explained by the following table:

**Table (3) Design program costs for 2019**

<b>No.</b>	<b>Details</b>	<b>Amount (IQD)</b>
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<b>1</b>	<b>Engineering planning activity for production processes</b>	<b>58015600</b>
<b>2</b>	<b>Detailed planning activity for production processes</b>	<b>77986000</b>
	<b>Total design program costs</b>	<b>136001600</b>

*Reference: Prepared by researchers based on data available in the laboratory.*

According to the table above, the total cost of the design program has reached IQD 136001600, this indicates the interest of the factory management in design activity as the design engineers are experienced and competent in the work.

### 3- Production program:

The production processes in the plant are carried out according to agreed mechanisms in the field of cement industry, as there is a series of successive stages, namely the cracking and mixing of raw materials, the milling phase, the burning phase, the drying phase and finally the packaging phase, for the cracking phase and Mixing raw materials, during which the raw materials (limestone, gypsum stone, standard sand, boxet soil, iron oxides and chemical materials) are introduced into special crushers that soften and sift these materials and then store them in the form of piles It is transported to the grinding stage, and during the grinding phase the piles of raw materials are mixed with water to prevent dust from flying and the grinding process continues until these piles reach a high degree of softness and then placed in special basins and sent to the burning phase, and during the stage.

Incineration pulls raw materials into rotary ovens at a temperature of 1500 °C in order to disassemble the bonds of calcium carbons to obtain clinker, the component of cement, and after extraction of this substance is dried during the drying phase, and then sent to the packaging phase for storage in storage silos or packing with special bags, the costs of the production program can be explained by the following table:

**Table (4) Production program costs for 2019**

<b>NO.</b>	<b>DETAILS</b>	<b>AMOUNT (IQD)</b>
<b>1</b>	<b>Raw material storage activity</b>	<b>253278100</b>
<b>2</b>	<b>Material and process inspection and testing activity</b>	<b>192491400</b>
<b>3</b>	<b>Product production activity</b>	<b>1317046000</b>
	<b>Total production program costs</b>	<b>1762815500</b>

*Reference: Prepared by researchers based on data available in the laboratory.*

Table 4 notice that the total costs of the production programme have reached IQD 1762815500, and after this analysis the indirect industrial costs are observed as a result of the presence of sub-activities that do not add value, consisting of storage, inspection, testing and failure analysis activities, so these sub-activities need to be eliminated to eliminate associated costs.

### 4- Marketing program:

Cement marketing is carried out in two ways, the first method is for cement, which is marketed to concrete factories, where it is transported by private basin cars that are packaged and then weighed with a special balance, either the second method relates to the cement bag, which is filled with special bags weighing 50 kg and sold to customers, and the costs of the marketing program in the laboratory can be explained by the sample search through the following table:

**Table (5) Marketing program costs for 2019**

No.	Details	Amount (IQD)
1	Advertising activity	65319700
2	Publishing and printing activity	114383700
	<b>Total marketing program costs</b>	<b>179703400</b>

Reference: Prepared by researchers based on data available in the laboratory.

According to the table above, the total cost of the marketing program was IQD 179703400, and after deliberation with marketing officials on the importance of marketing activities, it was found that these activities were necessary and therefore value-adding activities.

#### 5- Distribution program:

The laboratory follows a specific mechanism for delivering its products to customers, and distribution activities include a range of sub-activities, namely the activity of renting transportation through which materials are transported and handled, as well as the maintenance activity of transportation and transportation where periodic and comprehensive maintenance of these means is carried out in order to make them fully operational, which can be explained with the associated costs through the following table:

**Table (6) Distribution program costs for 2019**

No.	Details	Amount (IQD)
1	Transport rental activity	49021600
2	Transport and transport maintenance activity	58825900
	<b>Total distribution program costs</b>	<b>107847500</b>

Reference: Prepared by researchers based on data available in the laboratory.

It is clear from table (6), that the total costs of the distribution program amounted to IQD 107847500, and that these costs were spent on the rental of transportation in addition to the maintenance and disappearance of transportation and transportation as well as the wages of distribution workers, and that these costs are necessary to carry out the tasks of distributing the products of the plant to customers through different distribution channels.

#### 6- After-sales services program:

The laboratory provides some services to customers after selling products such as making free calls with customers in addition to delivering products to them, and although the factory products are of high quality, there is sometimes damage to the products as a result of storage or due to humidity or other reasons, which led to the laboratory incurring additional costs related to compensation and fines as well as costs related to sales returns for poor quality, and the costs of the after-sales services program can be explained through Table:

**Table (7) After- sales Services Program Costs for 2019**

No.	Details	Amount (IQD)
1	Customer contact activity	65362100
2	Product delivery activity to customers	24510800
	<b>Total after-sales service program costs</b>	<b>89872900</b>

Reference: Prepared by researchers based on data available in the laboratory.

According to the table above, the total cost of the after-sales services program has reached IQD 89872900, indicating the interest of the laboratory management in the research sample in the post-service program and activities in order to help achieve customer satisfaction and gain their loyalty.

Once the main activities of the AL-Muthanna Cement factory value chain and its component activities have been identified and associated costs determined, the costs of balancing programmes and performance for the plant as a whole can be determined by the following table:

**Table (8) Costs of programs and performance budget for AL-Muthanna Cement factory for 2019**

No.	Details	Cost (IQD)	Percentage
1	Program of Research and Development	587169500	20.5%
2	Design Program	136001600	4.8%
3	Production program	1762815500	61.6%
4	Marketing program	179703400	3.6%
5	Distribution program	107847500	3.7%
6	After- sales Services Program	89872900	3.1%
	<b>Total costs of after-sales services program</b>	<b>2863410400</b>	<b>100%</b>

*Reference: Prepared by researchers based on previous tables.*

Table 8 shows that the total cost of programs and performance budget during 2019 was IQD 2863410400, notice that the costs of the production program achieved the highest percentage, equivalent to 61.6% of the total costs of programs and performance budget, and also notes that the costs of the after-sales services program have achieved the lowest percentage and are equivalent to 3.1% of the total costs of programs and performance budget, which helps to draw management's attention to unjustified spending citizens that can reduce costs that can reduce costs. in it, so that the total cost of the product can eventually be reduced.

#### **FOURTH: PREPARING THE PUBLIC BUDGET OF THE STATE USING THE BUDGET OF PROGRAMS AND PERFORMANCE BY TAKING ADVANTAGE OF THE METHOD OF ANALYZING THE VALUE CHAIN**

The preparation of the public budget of the state using the budget of programs and performance makes the planning and implementation of the public budget of the state more accurately, especially when using the method or tool of analysis of the value chain in the identification and measurement of programs and activities, which were mentioned earlier whether research and development programs or design programs or marketing or the costs of the production program, and this leads to results mentioned in the following:

1- This helps to identify deviations more accurately, especially when comparing the actual cost with the cost of programs and activities under the state budget, which are prepared under the budget of programs and performance, which leads to sound and rational decisions made by the different administrative levels of the state, especially at the level of the legislative and executive branch, which in turn reflect on addressing those deviations, whether negative or positive and identifying their causes more accurately.

2- This helps to determine and measure the cost of actual programs and activities using the method of analyzing the value chain, which in turn reflects better on the planning of programs and activities in the future, using the balancing of programs and performance, which in turn determines the basic programs and activities, which the state seeks to implement in the future.

3- Applying the method of analyzing the value chain and preparing the public budget of the state using the budget of programs and performance helps to reduce costs and reduce waste and waste with public money.

#### **THE FIFTH TOPIC: CONCLUSIONS AND RECOMMENDATIONS**

##### **First: Conclusions**

1- The shift from balancing items to programs and performance budget at the level of the government sector is an important measure for the purpose of developing the regulatory aspect and to maintaining public funds.

2- It is possible to apply the balance of programs and performance using cost accounting tools that consist of different techniques, including value chain analysis technology.

3- Value chain technology analyzes government activities and programs into major and sub-activities, for the purpose of evaluating performance at the management level and employees of government entity.

4- The purpose of government spending is to satisfy the needs of society according to the available resources, and this is done through the public budget of the state and the development of the process of its numbers will reduce the waste of its resources.

**Second: Recommendations**

1- As a result of the development taking place on the economic and social side, there is an urgent need to move from the traditional method of balancing items to programs and performance budget when preparing the state budget.

2- The need to prepare accounting and financial data, and to provide human elements with appropriate and qualified competences to apply the budget of programs and performance to avoid difficulties and problems when applying.

3- There is a need to raise awareness between the heads of government entity and the enemies of the state budget for the importance of implementing the budget of programs and performance and their role in achieving strategic objectives.

4- As a result of the crises that accompany the preparation of the state budget, including the lack of revenues, therefore, the budget of programs and performance should be applied to preserve available resources and reduce their waste.

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