

# THE APPLICATION OF VALUE CHAIN MODEL IN MUNICIPAL PROJECT MANAGEMENT (A CASE STUDY IN BAQUBA MUNICIPALITY DIRECTORATE)

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## ABSTRACT

*The study aims to analyze the application of the value chain model in the project management process for the Directorate of Baquba Municipality to diagnose problems and constraints by identifying the strengths and weaknesses of the projects. Two projects were selected in the Directorate of Baquba Municipality for the purpose of this study (The construction of Mafraq Bridge in Diyala and the rehabilitation of Al-Quds-Muradiya road), and the projects which were selected are similar in the implementation method and have high costs and different years to find out the reasons for not completing them on time and the reasons for delays in the implementation of these projects.*

*The case study method was used based on a checklist that was subject to arbitration by specialists to determine the weights of each paragraph of the study, and the information was collected through personal interviews, official documents and records of the department. The research reached a number of conclusions, the most important of which is the lack of use of value chain analysis tool in the management of the Directorate of the Municipality of Baquba to diagnose problems for projects scientifically, and relying on traditional (classical) methods in the evaluation of projects based on reports submitted to the stakeholders which do not help in revealing the strengths and weaknesses of projects. In addition, the Directorate of the Municipality of Baquba follows outdated and unchanged instructions, laws and regulations, and most of the projects are behind schedule due to a number of reasons the most prominent of them are the inaccuracy of the studies prepared for the projects in the planning aspects and the lack of commitment to the scale of quantities. The study came up with a set of recommendations, the most important of which is 1) the need to prepare special classification criteria by specialists for the Ministry of Housing and Reconstruction and for the Municipalities for contractors or companies, by developing evaluation criteria according to specific grades so as to facilitate the selection of the company or contractor when applying for projects, 2) and the need to review the laws, procedures and instructions periodically whenever necessary, especially those which hinder the implementation of projects by submitting them to the official authorities for the purpose of approving them, and finding solutions to make amendments that helps in attracting well established companies to work by providing financial and legal facilities that guarantee the rights of executing companies.*

## INTRODUCTION

The business environment is witnessing accelerated changes that are very complex and unpredictable, pushing companies and organizations to prepare the necessary plans to face these changes in order to maintain their continuity, growth and resilience. Like other organizations, government institutions face significant challenges and variables in their business environment, which require a re-evaluation of their internal situation and the development of appropriate strategies to address and reduce these environmental changes. As part of the overall concept of management and shared with the same concept, project management guides the activities of material and human resources and coordinates these resources throughout the project life cycle.

Projects face many problems that occur during the implementation of the project, including the lack of completion and disbursement of the approved budget before completion, as a result of the lack of clear estimates and inaccurate feasibility studies. As a result, organizations have to make every effort to improve the performance of the projects and achieve the desired objectives to reduce the high cost of completion. However, the major changes that present challenges to project management are the lack of project resources, the increase in its size, complexity and organization, in addition to the emergence of companies specialized in the implementation of projects. All this led to using new methods to develop the efficiency of project management performance, and perhaps the value chain model is one of those strategic tools as an important scientific tool in the analysis of the internal environment that divides the project activities into main activities and supporting activities, and contributes to the detection of problems and constraints by identifying the strength and weakness points.

The objective of the study is to analyze the project management activities in the Directorate of Baquba Municipality and to use the value chain model in diagnosing problems and constraints and finding

solutions and treatments for the purpose of developing project management. In this study, a list of strengths and weaknesses was used and the Divad measurement method was determined for the purpose of extracting and analyzing the results to evaluate the projects.

Accordingly, the research included four topics, the first of which dealt with the research methodology, while the second one dealt with the theoretical aspect and included project management activities, the concept of value chain, value chain analysis and value chain analysis of project management. The third topic included the practical aspect in an attempt to use the value chain analysis model and applying it to the projects of the Directorate of Baquba Municipality in order to highlight its role in the diagnosis of problems and obstacles in the management of projects to find appropriate solutions for it, while the fourth and final topic included a number of conclusions and recommendations.

## RESEARCH METHODOLOGY

### 1. Research problem:

There are several problems and obstacles in the implementation of projects, the most important of which are the pauses and delays in the completion period, this is due to the inaccurate cost of the actual estimates compared to the estimated cost, as well as the inaccuracy of forecasting the duration of the project. This shows the variance in the estimated time from the actual time of completion, which leads to an increase in cost and time, but there are other reasons, including non-compliance with the scheduled quantities for projects due to the change in the specifications of materials and the emergence of additional new work at the implementation of the project, which requires the issuance of spare orders sometimes either as a decrease (deleting paragraphs) or an increase (adding paragraphs), as well as procedures for obtaining long-term approvals that cause disruptions to the project.

From the above, the problem of the study can be expressed by raising several research questions as explained as follows:

1 - What are the methods adopted by the Directorate of Baquba Municipality in the analysis of project management activities in order to diagnose the constraints and to find out the reasons for failing to complete the projects as planned and whether these reasons include the value chain model?

2 - How well is the model able to find solutions that help in the process of developing the efficiency of the project as a result of its application in the Directorate of Baquba Municipality's Projects?

3 - What are the projects that have exceeded the completion period and are behind the estimated time, and what is the actual cost compared to the estimated costs?

4 - To what extent does the information obtained from the value chain model contribute to control decision-making, planning and implementation and how much will it contribute to future projects?

## 2. Research importance:

The importance of the study comes from the importance of projects implemented by the Directorate of Baquba Municipality in various fields, also it lies in the following points:

1 - Highlight the value chain analysis model as a useful scientific tool for analyzing project management activities, how it works and the purpose of its application in diagnosing existing and recurring faults in most projects.

2 - The research's contribution in the benefit of municipal projects of the Directorate of Baquba Municipality to develop projects' performance and work to take advantage of the strengths and avoid weaknesses and reduce their impact on other projects.

3 - Introducing senior leaders in the Directorate of Baquba Municipality to the importance of value chain analysis in the analysis of project management

activities, and introducing how to use the value chain model in project management and encouraging its use in analyzing future projects, taking into account the conclusions and recommendations that contribute to the development of projects implemented in the Directorate of Baquba Municipality and other government departments.

## 3. Research objectives:

The main objective of the research is to analyze the project management activities in the Directorate of Baquba Municipality and to use the value chain model. The study aims to achieve the following sub-objectives:

1 - Diagnose the status of projects implemented in the Directorate of Baquba Municipality, indicate the extent of optimal use of its resources, and work on the development at all levels.

2 - Analyze the activities of the Directorate of Baquba Municipality's projects by dividing the activities into main activities and supporting activities, defining the tasks for those activities and promoting them by utilizing the value chain model in adding value.

3 - Using the value chain analysis model to diagnose the strengths and weaknesses in the management of projects in the Directorate of Baquba Municipality.

## 4. Research sample:

The Directorate of Baquba Municipality was chosen as the site for conducting the study. The study sample was represented by the projects implemented in the department, and a number of projects have been selected as being implemented in different areas of Diyala province and are implemented by different companies and contractors, and the selected projects are high cost, in addition, they are similar in terms of the implementation method shown in the sample below:

1 - Construction of Mafraq Bridge in Diyala.

2 - Rehabilitation of Al-Quds-Muradiyah Road.

## THEORETICAL ASPECT

### 1. Project value chain analysis

Value chain analysis is a useful analytical tool that helps understanding general trends in production and reorganization of change factors in determining the strengths of public policies and technical inputs. Once the value chains are selected, the next step in the value chain analysis approach is to identify the main objectives of the analysis which are:

- 1 - Identify key players in the value chain, their role, and interrelationships in (market systems).
- 2 - Identify international sales markets and competitors, to meet demand (Lusby & Panlibuton, 2007: 8).
- 3 - Identify processing channels and supply trends within the value chain.
- 4 - Identify constraints and opportunities that prevent value chain growth and competitiveness.
- 5 - Focus on identifying and meeting consumer needs.
- 6 - Evaluate different alternatives to provide raw materials for production.
- 7 - Achieving increased product efficiency and contribution to profits.
- 8 - Other information such as the number of companies and sales volume can also be collected and assigned as layers on the value chain map, (Zo'rob, 2013: 49).

The value chain goes through three main sequential phases:

- Upstream.
- Operations.
- Downstream.

The upstream phase includes the development of the organization's products associated with suppliers, the operations phase refers to manufacturing processes, retail stores (individual companies) or company services, or processes involved in providing products

or services, the downstream phase refers to linkages with customers, including delivery, service, and other related activities. Some pointed out that the upstream phase analysis is called supply chain management and the final phase analysis is called customer relationship management (Blocher et al., 2010: 38).

The value chain consists of a coherent set of activities to create internal value for the organization and the main idea used in analyzing the competitive position of the organization as Porter described includes two different categories of activities. **First: Initial main activities**, including five internal supply activities, operations, external extension services, marketing, sales, and services contributing to the creation of a physical product or service, sale, transportation to the buyer, and after-sales services. **Second: Supporting activities**, procurement, development, technology, human resources management, and public administration that add value to their activities or add value through important relationships with each of the primary and other supporting activities (Dess et al., 2014: 72).

### 2. The basic components of the value chain model

There are two distinct groups of activities carried out by organization in the Porter Value Chain, the first set of activities, which is called the **Initial main activities** of the Organization being directly related to (production or services), and the second group is **Supporting activities**, which relate to the activities of the functions including the organization infrastructure that help to perform the initial main activities phase. All these activities, whether main or supportive, are linked in Porter's value chain, and all areas of activity in the chain must be managed together by the organization in order to succeed (Jung, 2014: 134-135).

The value system is the idea that confirmed activities are part of a large stream of activities for a single organization, and the value model for Porter is a term, which includes activities carried out by all organizations involved in the manufacture of products or services, from basic raw materials to the final

delivery to consumers. Therefore, the concept of a value system is broader than comparing one organization with its corresponding value chain. Under Porter's value chain model, each organization has nine distinct value activities that are linked in the value chain. And then there are five main activities to find value in the market, deliver the product to buyers, and then the after-sale service and supporting it (Nguyen & Kira, 2001: 3). The key components of the value chain model are illustrated below:

### **1 - Supporting activities**

The task of supporting activities is to make the communication of the initial activities possible and easy, and it includes (organization infrastructure, human resources, technological development, procurement). These systems enable supply chain management to respond quickly and intensively to consumers, link the value chain of organizations with the value chain of sellers and consumers, and link consumer behavior with distributors and production. These systems enable supply chain management to respond quickly and intensively to consumers, link the value chain of organizations with the value chain of sellers and consumers, and link consumer behavior with distributors and production (Al-Taher & Al-Khafaf, 2011: 112-113):

### **A - Core infrastructure**

Core infrastructure includes activities such as public administration, planning, accounting, finance, legal support, organization relations, or full support requirements for the work of the value chain through its infrastructure, and the organization continually strives to identify opportunities and external threats, identify resources and capacities, and core competency support and each activity must be examined against competitors (Hitt et al., 2009: 86).

### **B - Human resources**

The HR function can follow a number of ways in helping the organization to create more value that ensures that the organization has the right mix of skills

to perform effective activities. The HR function also ensures a sufficient number of trained individuals and incentives to compensate for the performance of tasks by creating value, and if human resources work well, the productivity of people increases (which reduces costs) and improves customer service (which increases the benefit), which will enable the organization to create more value (Hill & Jones, 2009: 86).

### **C - Technological development**

All value activities require technical knowledge (know-how) of which are directly concerned with the product (such as R&D and product design), with operational processes (such as operational process development) or with special materials (e.g. raw material improvements) (Al-Khafaji, 2010: 167).

### **D - Procurement**

The value chain procurement department is a support function for all main activities that add value to outputs, as they can have an important role in each main activity, and the procurement management, for example, can support the processes of activities associated with creating value within the value chain through so-called linkages. These linkages can be described as the relationship between the performance of one activity and another, and since those activities are interrelated they must be horizontal and aligned with each other (Scholten & Faber, 2015: 18).

### **2 - Initial main activities**

They are the important activities in the physical composition of the product or service provided by the organization and its delivery and marketing to the buyer as well as the after-sales service (Abbas, 2015: 13), and it consists of five main or core activities involved in the creation of the physical product in the sale and distribution to buyers and after-sales services as described below:

### **A - Internal supplies**

Internal supplies include activities, cost, and assets associated with access to fuel, energy, raw materials,

component parts, goods, receipt of consumables from vendors, storage, distribution of inputs from suppliers and control of inventory management (Robinson & Pearce, 2007: 159).

### **B - Sales and marketing**

Porter (1985) described marketing and sales activities as those related to providing buyers with the means to buy products and urging them to do so, such as advertising and promotion, pricing, sales channel management, and advertising channels such as mass advertising, email advertising, or online interactive ads, where advertisers can interact directly with customers.

### **C - External supplies**

External supplies refer to activities associated with the collection, storage and distribution of products, or the services of buyers. These activities include finished goods, storage and handling of materials, means of product delivery (delivery), process preparation, and scheduling (Dess et al., 2012: 75).

### **D - Operations**

It is the activities required for conversion of inputs provided by logistical support (machinery, packaging, assembly and maintenance of equipment) are examples of operations activities in the form of a final product (Hitt et al., 2011: 87). It's for producing a commodity or a service, because production generally means manufacturing, as for services such as banking, which is done in the same location as the customer when providing a service, as in the case of banks giving loans to customers. The production function helps the organization to perform its activities efficiently, while reducing the cost structure. For example, efficient production processes for Honda and Toyota help these car companies to achieve higher profitability compared to competitors such as General Motors. The production function can carry out its activities in a manner consistent with high product quality, which leads to differentiation (and higher value) and lower costs (Hill & Jones, 2010: 82).

### **E - Services**

Services or after-sales services include the aspects of (quality, delivery, pre- and after-sales, contact, handling of customer complaints). Sales activities can also include after-sales service, as for **activities related to the "project value chain"** meet the requirements of the objectives and actions, or perhaps social objectives, or both, or the set of multiple objectives of the project, depending on the type of support, and for that decision (in the construction phase), at any point that increases the effectiveness of the project to third parties must meet those needs.

The value chain actions of a project can be different in regulating the value creation of goods or services, and the performance of any activity can also have an impact on cost and differentiation from competitors. Therefore, that tool could therefore be used to identify the implications of project management, improve the project and improve project management practices in the organization. According to the Porter model, there are initial vertical activities that produce for any project, while horizontally supported activities such as procurement are supporting activities that affect the initial activities of the project (Jakobs, 2016: 48).

## **PRACTICAL ASPECT**

### **1. Value chain analysis for the following projects:**

#### **1 - Construction of Mafrag Bridge in Baquba**

The project of the construction of the Mafrag bridge in Baquba was referred to Ahl Al Wafaaand Hanan and Azza Company (National Group) for General Contracting Ltd. within the investment plan for (2011) after analyzing the offers by the study and analysis committee to accept the tender. It was referred on 7/3/2011 and below is the information about the project:

The actual cost of referring the project is 18.450.000.000 IQD

The total actual cost is 20.191.955.000 IQD

Duration of work is 600 days

The company started work on 5/5/2011

Completion Date 1/11/2013

The following table (1) shows the results of the analysis of the strengths and weaknesses obtained by the paragraphs of the checklist for the project of the construction of Mafraq bridge in Baquba.

Points	No.	Paragraphs	Weight	Rank	Weighted weight
Strengths	1	Availability of funds for the project	0.35	4	1.40
	2	The project has programs and detailed plans for the project and others	0.10	3	0.30
	3	The project budget has sufficient flexibility	0.02	4	0.08
	4	The implementation of the project depends on people with competence and work experience	0.05	4	0.20
	5	There is sufficient professionalism and experience to manage the project	0.09	3	0.27
	6	Project management contributes to the provision of project management training and all related issues	0.05	3	0.15
	7	There are infrastructures provided for the project and all views are addressed before, after and during the implementation of the project	0.05	3	0.15
Weaknesses	8	Feasibility studies are not accurate and integrated	0.05	2	0.10
	9	Inaccurate forecasting of the duration of the project	0.02	1	0.02
	10	Project risks are not considered and are not measured or assessed	0.02	2	0.04
	11	Lack of a checklist to evaluate the project during implementation	0.02	1	0.05
	12	There is a lack of programs that support the project after the final handover	0.01	1	0.01
	13	There is a lack of documentation, archives, and transfer of project experience to other projects	0.02	2	0.04

14	The process of obtaining approvals is long	0.02	1	0.02
15	There is a lack of evaluation for contractors	0.02	1	0.02
16	There are bottlenecks in the work during project phases	0.01	2	0.02
17	Lack of cash flows available for urgent items	0.02	1	0.02
18	There is a lack of quantitative criteria for identifying qualified contractors	0.02	2	0.04
19	The financial instructions of the municipal institution are considered obsolete	0.01	1	0.01
20	There is a shortage of observers with the number of supervised projects and negligence in their training	0.02	2	0.04
Total		100		2.98

## **2 - Rehabilitation of the road from the intersection of Al-Quds to the control of Muradiyah with the central islands and sidewalks and traffic furniture and afforestation and lighting**

The project of rehabilitation of the road from the intersection of Al-Quds to the control of El Mouradia with the central islands, sidewalks, traffic furniture, afforestation and lighting was referred to Bilad Al-Rafideen Company as part of the development plan for the regions (2010). After the offers were analyzed by the study and analysis committee to accept the tenders, they were referred for implementation on 28/10/2010. Below is information about the project:

The cost of referring the project is 25,629,273,875 IQD

Total Actual Cost is 28,189,966,975 IQD

Duration of work 540 days

The company started work on 28/10/2010

Partial completion date of (85%) 1/7/2013

Table (2) below reflects the strengths and weaknesses according to the checklist: Rehabilitation of the road from the intersection of Al-Quds to the control of Al-Muradiyah with the central islands, sidewalks, traffic furniture, afforestation and lighting.

Points	No.	Paragraphs	Weight	Rank	Weighted weight
Strengths	1	Availability of funds for the project	0.35	3	1.05
	2	The project has programs and detailed plans for the project and others	0.10	3	0.30
	3	The project budget has sufficient flexibility	0.02	4	0.08
	4	The implementation of the project depends on people with competence and work experience	0.05	3	0.15
	5	There is sufficient professionalism and experience to manage the project	0.09	3	0.27
	6	Project management contributes to the provision of project management training and all related issues	0.05	3	0.15
	7	There are infrastructures provided for the project and all views are addressed before, after and during the implementation of the project	0.05	3	0.15
Weaknesses	8	Feasibility studies are not accurate and integrated	0.05	1	0.05
	9	Inaccurate forecasting of the duration of the project	0.02	1	0.02
	10	Project risks are not considered and are not measured or assessed	0.02	1	0.02
	11	Lack of a checklist to evaluate the project during implementation	0.05	1	0.05
	12	There is a lack of programs that support the project after the final handover	0.01	1	0.01
	13	There is a lack of documentation, archives, and transfer of project experience to other projects	0.02	2	0.02

	14	The process of obtaining approvals is long	0.02	1	0.02
	15	There is a lack of evaluation for contractors	0.02	1	0.02
	16	There are bottlenecks in the work during project phases	0.01	1	0.01
	17	Lack of cash flows available for urgent items	0.02	1	0.02
	18	There is a lack of quantitative criteria for identifying qualified contractors	0.02	1	0.02
	19	The financial instructions of the municipal institution are considered obsolete	0.01	1	0.01
	20	There is a shortage of observers with the number of supervised projects and negligence in their training	0.02	2	0.04
	Total		100		2.48

## 2. Comparing the results of evaluating the strengths and weaknesses of projects:

After analyzing the results reached to determine the strengths and weaknesses and calculate the total weights of the strengths and weaknesses of the projects and indicate how the paragraphs deal with the nature of the projects implemented, the strengths and weaknesses of the projects will be compared and then the total weights of the project's strengths and weaknesses will be assessed as follows:

### 1 - Comparing the strengths of projects

Table (3) shows the results of the strengths weights in the selected projects (**the construction of Mafraq Bridge in Baquba, to the rehabilitation of the road from the intersection of Al-Quds to the control of the Muradiyah with the central islands and sidewalks and traffic furniture and afforestation and lighting**) obtained from the checklists for each project of the research projects and represents the overall strengths added value to the project.

Table (3) Results of the checklists' strengths in the research projects

Points	Activities	No.	Paragraphs	Mafraq Bridge Project	The Al-Quds-Muradiyah Project
Main Activities	Supply Chain	1	Availability of funds for the project	1.40	1.05

		2	The implementation of the project depends on people with competence and work experience	0.20	0.15
Supportive Activities	Core Infrastructure	3	There are infrastructures provided for the project and all views are addressed before, after and during the implementation of the project	0.15	0.15
		4	The project budget has sufficient flexibility	0.08	0.08
	Information Systems	5	The project has programs and detailed plans for the project and others	0.30	0.30
	Human Resources	6	There is sufficient professionalism and experience to manage the project	0.27	0.27
		7	Project management contributes to the provision of project management training and all related issues	0.15	0.15
	Total			2.55	2.15

It is clear from Table (3) that the Mafraq Bridge Project is the best in the total strengths weights. The Mafraq Bridge project has obtained three main strengths for paragraphs (1), with a weight of (1.40), and paragraph (4), with a weight of (0.08), and paragraph (2), with a weight of (0.20) of the total (7) points for strength, while the remaining paragraphs received secondary strengths. As for the Al-Quds-Muradiyah project, it obtained two main strengths for paragraphs (1) with a weight of (1.05), and paragraph (4) with a weight of (0.08), while the remaining paragraphs received secondary strengths. The weights of the strengths of the Mafraq Bridge and Al-Quds-Muradiyah projects also showed that Mafraq Bridge received a total strength of (2.55), which means that the project is in a strong position, while the Al-Quds-Muradiyah project has a total strength of (2.15), which puts the project in a weak position. Therefore, we conclude that the more the project has the main strengths, the higher the weights of the points, and the higher the secondary strengths, the lower the total weight of the points according to the weight of the paragraph as shown in the second project.

## 2 - Comparing the weaknesses of projects

Table (4) shows the results of the weaknesses weights in the selected projects (**the construction of Mafraq Bridge in Baquba, to the rehabilitation of the road from the intersection of Al-Quds to the control of the Muradiyah with the central islands and sidewalks and traffic furniture and afforestation and lighting**) obtained from the checklists for each project of the research projects and represents the overall weaknesses deducted value from the project.

Table (4) Results of the checklists' weaknesses in the research projects

Points	Activities	No.	Paragraphs	Mafraq Bridge Project	The Al-Quds-Muradiyah Project	
Main Activities	Supply Chain	8	Feasibility studies are not accurate and integrated	0.10	0.05	
		9	Inaccurate forecasting of the duration of the project	0.02	0.02	
10		Project risks are not considered and are not measured or assessed	0.02	0.02		
11		Lack of a checklist to evaluate the project during implementation	0.04	0.02		
12		There is a lack of programs that support the project after the final handover	0.04	0.02		
13		There is a lack of documentation, archives, and transfer of project experience to other projects	0.04	0.02		
14		The process of obtaining approvals is long	0.02	0.01		
Supportive Activities		Project implementation	15	There is a lack of evaluation for contractors	0.05	0.05
			16	There are bottlenecks in the work during project phases	0.04	0.04
		Project delivery	17	Lack of cash flows available for urgent items	0.01	0.01
	Core Infrastructure	18	There is a lack of quantitative criteria for identifying qualified contractors	0.02	0.02	
		19	The financial instructions of the municipal institution are considered obsolete	0.02	0.02	
		20	There is a shortage of observers with the number of supervised projects and negligence in their training	0.01	0.01	
				Total	0.47	0.31

Table (4) shows that Al-Quds-Muradiyah Project has obtained a total weakness of (0.31) and that the Mafraq Bridge Project has a total of (0.47) points.

It is also clear from the table that Mafraq Bridge Project has the highest rate of weaknesses. It obtained main weaknesses of paragraphs (8) with a weight of (0.10), and paragraph (11) with a weight of (0.04), and paragraph (12) with a weight of (0.04), and paragraph (14) with a weight of (0.02), and paragraph (19) with a weight of (0.02), and

paragraph (16) with a weight of (0.02) of the total (13) points of weakness, while the remaining paragraphs received secondary weaknesses. The Al-Quds-Muradiyah project had the highest main weaknesses of the paragraphs (20 ,14) with weights (0.02, 0.04) respectively, while the remaining paragraphs received secondary weaknesses. From the above, it can be said that the more the main weaknesses, the higher the total weight, and the lower the secondary weaknesses, the less the total weight, depending on the weight of the paragraph.

### 3 - Assessing the strengths and weaknesses of projects

After comparing the strengths and weaknesses of each project, to find out which projects have the highest strengths and weaknesses, the strengths and weaknesses of the projects will be evaluated. Table (5) below shows the total weights of the strengths and weaknesses of the selected projects as follows:

Table (5) Total Weights of Strengths and Weaknesses of Projects

No.	Project	Total Weights
1	Construction of Mafraq Bridge in Baquba	2.98
2	Rehabilitation of the road from the intersection of Al-Quds to the control of the Muradiyah with the central islands and sidewalks and traffic furniture and afforestation and lighting	2.48

Table (5) shows that the **construction project of Mafraq Bridge in Baquba** obtained the highest total weights of strengths and weaknesses (2.98), which is higher than the average of (2.50), while the project of Rehabilitation of the road from the intersection of Al-Quds to the control of the Muradiyah with the central islands and sidewalks and traffic furniture and afforestation and lighting obtained a total weights of the total strengths and weaknesses of (2.48), which is less than the average of (2.50).

It is also clear that the Mafraq Bridge Project has the highest total weight, which is higher than the average, which indicates that the internal situation of the project is very strong because it has strengths that enable it to minimize the impact of weaknesses on the project, hence any strengths represent a value addition, which indicates that the project is one of the projects that had a strong internal situation. As for the Al-Quds-Muradiyah project, we got a total weight lower than the average, which indicates that its internal situation is weak because it has more weaknesses than the strengths, so the weaknesses affected the strengths because it does not have enough strengths points, which indicates the loss of value for the project, and its internal situation is considered weak and this project is one of the projects with a fragile and weak internal situation, which necessitates the Department to develop appropriate strategies for the purpose of

developing its work in the implementation and management of projects

### CONCLUSIONS

1 - The study showed that the value chain model tool was not used to analyze the activities of the Directorate of Baquba Municipality in scientific diagnosis of problems of projects, and its reliance on the traditional (classic) methods in the evaluation of projects based on reports submitted to the relevant authorities, which does not help in revealing the strengths and weaknesses of projects, which contributed to repeating the same mistakes in all projects.

2 - The study showed that most of the projects are similar in their exposure to the problems that occurred during the implementation, although the projects were selected for different years and regions. The most important of these problems are the pauses and abuses

that occurred on the project path that occurred in most projects, which shows the lack of response of the Department to address the problems and deviations that occur in the projects and not to benefit from the previous lessons of those projects.

3 - It was found that the estimates of the estimated cost of the projects were not accurate and correspond to the actual costs of the completion of the projects due to the issuance of spare orders for most projects to add paragraphs to the table of quantities, which led to an increase in the actual cost over the estimated cost.

4 - The study showed that most of the projects are behind schedule for completion due to a number of reasons, the most important of which is the inaccuracy of the feasibility studies developed and the lack of attention to the planning aspects by putting detailed plans for projects, in addition to non-compliance with the schedule of quantities of projects as a result of the change in specifications and plans, by the implementing companies and the inaccuracy of information on the project as well as the lack of interest in updating the registration schemes, which caused the halt of the project, which caused the delay in the completion period.

5 - The study showed that the Ministry of Housing and Construction, Municipalities and Diyala Governorate lacked special criteria in evaluating companies and contractors. The department relies on the identity of the classification of companies and contractors issued by the Ministry of Planning mainly when applying to the contractor. Thus, the criteria established in the classification process may differ from the nature of the projects implemented by the Municipality of Baquba.

6 - The study showed that all companies executing the projects are local companies and therefore not to involve or the presence of solid foreign companies compete with local companies when submitting will be limited to those companies, which reflected on the quality and implementation of the project in all respects, except that these local companies may be new and they do not have the experience and skill in the implementation of such projects due to the

circumstances of their establishment as a result of reluctance of foreign companies to work inside Iraq because of the security situation, which allowed the establishment of these new companies.

7 - The study showed that there is a shortage of supervisors and observers on projects, which affected the ratio of monitors relative to the number of projects implemented, which led the department to use non-specialized staff to supervise and control the projects, which affected the performance of the project because of their lack of understanding of the role of supervisors and observers properly in the monitoring of projects.

## RECOMMENDATIONS

1 - Diversifying funding sources for the Directorate of Baquba Municipality by finding alternatives for the purpose of financing projects such as:

A - Call for increased support by the State to increase the allocation of the general budget allocated within the investment plan. To implement the planned projects and not to postpone important projects.

B - Benefiting from the budget of the development of the regions and the donating parties to work on the use of these funds in the implementation of necessary projects.

C - Increase revenues collected by the Directorate of Baquba Municipality from the services provided to citizens and others in the allocation of part of these funds for the implementation of plans and urgent projects.

2 - Preparation of feasibility studies and preparation of designs matching the actual reality of the project. By applying the following:

A - Updating the registration plans periodically through the meeting of the committee formed between all the ministries to coordinate in order to provide information and data to the registration plans to maintain the infrastructure of electricity, water, communications and others.

B - The use of advanced technology in determining the coordinates and the path of the streets and indicate the type and determine ownership in the implementation of the project using advanced equipment.

C - Addressing the obstacles and abuses that occur before the start of the project so as to reduce the time and cost and reduce the issuance of spare orders.

D - The need to carry out on-site inspection of the project effectively by the company for the purpose of drawing up plans and designs for the project to be responsible for any delay in completion.

3 - Activating the role of the Committee for supervision and control of projects through the preparation of reports on the progress and stages of project completion, and addressing the deviations and diagnosing it accurately. And stimulating them through a system of incentives, and freeing the Supervisory Committee from the side effects of internal and external parties, and focusing on increasing their skills and experience by opening specialized courses.

4 - The need to prepare special classification criteria for the Ministry of Housing and Construction and Municipalities for contractors or companies by specialists to develop evaluation criteria according to specific grades so as to facilitate the selection of the company or contractor when applying for projects.

5 - Working to provide and prepare specialized staff in the process of project management, such as technicians and administrators, and relying on the experienced in the management of those projects by increasing support for them morally and financially and work to involve staff working with the owners to gain knowledge of the reality of work to develop skills.

6 - Delegating part of the powers of some managers to rely on a mechanism to simplify procedures in the implementation of projects in order to reduce time and cost and facilitate procedures and controls that contribute to obtaining approvals quickly.

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