

TECHNICAL ARTICLE

Project Overhead Costs in Saudi Arabia

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ABSTRACT:

The authors conducted a survey that investigated project overhead cost practices in Saudi Arabia. Contractors should carefully examine contract conditions to make sure that project overhead costs are properly covered. The survey results show that project overhead costs vary from project to project and that they are increasingly important, since they have increased in recent years and because contractors have no control over them.

Key Words: project overhead cost, company overhead cost, Saudi Arabia, construction, contractors

Project overhead, jobsite overhead, or general conditions overhead costs are all a part of a contractor's expenses in managing a project at the site. Project overhead is the cost specific to a project, but not specific to a trade or work item [2, 7]. Unlike company overhead costs, project overhead costs can be estimated with some accuracy, which means that contractors should carefully examine contract conditions to properly cover project overhead costs. Contractors who choose to go the easy way and recover project overhead costs by setting a percentage of direct costs may end up over- or underestimating these costs, leading to an inaccurate bid. The components of project overhead costs vary considerably, depending upon project size, type, location, the consultants involved, and the owner [8]. This situation works against the inclusion of project overhead costs as a percentage of project direct costs. The amount of project overhead ranges between 10 and 30 percent or more of the sum of material, labor, and equipment costs [4].

Average government spending in Saudi Arabia on the construction sector, including operation and maintenance contracts, has dropped to only 8.7 percent of the gross national product in the past 5 years; this represents almost half of the previous demand on contractor services. This has forced contractors to work in severely competitive conditions to deliver

projects at minimal cost and of higher quality, which leaves only a minimal profit margin. In an environment of intense competition, declining profit margins, and shrinking market shares, the only way to stay competitive is to reduce and control costs while maintaining quality products. Overhead costs are a good starting point for cost reduction because they act as a "silent harvester" of retained earnings. Furthermore, overhead costs rise continuously and never go down on their own, producing ever-higher production costs [6]. Given this scenario, finding ways to reduce and control overhead costs will continue to gain importance.

The objective of this article is to investigate project overhead cost practices in Saudi Arabia. Several aspects were examined, including contractor awareness, ways to estimate overhead costs, and factors that affect overhead.

PROJECT OVERHEAD COSTS

A discussion of project overhead costs is never complete without including project planning; many items in project overhead are directly proportional to project duration. Components such as supervision and project financing costs are estimated based on the forecast duration of the project. For a contractor to be competitive and win the bid, a project plan has to be prepared that includes the best com-

bination of the resources needed to finish the job in optimal time. This optimal time is the base for estimating many project overhead costs. It must be clear that the project overhead cost estimate is as accurate as the project planning, and for that reason it is said that estimating project overhead is perhaps the most difficult cost to estimate with reasonable accuracy, especially for large, complex projects [3]. Major project overhead costs include surety bonds, project insurance, financing, supervision, temporary construction, repairs, equipment, and miscellaneous costs.

RESEARCH METHODOLOGY

Data needed for the research were collected by a questionnaire that was developed based on a thorough review of the related literature. It reflects the existing level of overhead costs and how local contractors deal with them.

The questionnaire covers three parts: the construction firm, overhead costs in general, and project overhead costs. The first part contains 22 questions to elicit general information about the participating contractor. The second part contains 8 questions about overhead in general and explores the contractors' backgrounds and their opinions of overhead. The third part contains 11 questions about project overhead and addresses issues such as the percentage of project overhead costs to the direct costs of the project, and whether the project overhead has increased or decreased in the past, and why. This section also addressed what the components of project overhead costs include, what percentage of each, the method used to estimate project overhead, why it is used, and factors that affect the amount of project overhead. The questionnaire also asks what steps contractors are taking to reduce project overhead costs.

The population of this study includes all of the building contractors classified by the Ministry of Public Works and Housing (MPWH) in the first three grades for Saudi contractors and in the first five grades for foreign contractors (who can bid for projects worth up to US \$13.3 million). The total number of contractors in-

cluded was 230; out of these, 61 contractors participated in the research [5].

RESULTS AND ANALYSIS/ OVERHEAD COST AWARENESS

In order for any contractor to properly state his or her opinion on overhead issues, it is first important to check what the contractor's basic understanding is of overhead in general.

What Is an Overhead Cost?

Our results reveal that 64 percent of the sample did not properly define overhead costs and directly crossed to examples of overhead costs. Another 23 percent defined overhead with a reasonably accurate definition by stating that it is not part of the actual construction cost but is an indirect cost. Only 13 percent of the sample gave the proper definition of overhead costs. These results indicate that even large contractors do not have a unified or proper understanding of the term *overhead costs*.

Type of Overhead Costs

About 87 percent of our respondents differentiate between company overhead costs and project overhead costs. The remaining percentage considers all overhead costs together.

Percentage of Overhead Costs

Total overhead costs usually do not exceed 15 percent of the annual construction volume in the US [1]. Table 1 shows that only 48 percent of the contractors have overhead costs of 15 percent or less. The remaining 52 percent have a higher percentage, which indicates that overhead costs are a serious challenge. The overall percentage is 16.8 percent, which is also higher than the ratio found in literature on the subject.

Contractors' Perception of Overhead

The overall perception contractors have about overhead costs is investigated in this question from the survey, as shown in table 2. The majority of contractors surveyed believe that their current rate of overhead is not acceptable. They also feel that uncontrolled overhead can negatively

affect performance. Although they believe that overhead costs were not as important in the past, they are important now. However, project overhead can be monitored and controlled.

RESULTS AND ANALYSIS/ PROJECT OVERHEAD COSTS

In this section, survey results on project overhead costs are presented. These results include the definition of project overhead, the types of project overhead, how it is estimated, factors that affect the size of project overhead, and efforts exerted to control these costs.

What Is Project Overhead Cost?

Contractors were asked to identify project overhead costs in an open-ended question; 61 answers were obtained. All of the contractors defined project overhead costs correctly, but with different degrees of clarity. In fact, all of the contractors surveyed defined the term as those costs specific to a project but not to a work item within the project. Many examples were mentioned, such as supervision cost and temporary construction.

Table 1—Ratio of Total Overhead Costs to Annual Construction Volume

Ratio of Overhead to Construction Volume	Frequency	Percent	Cumulative Frequency	Cumulative Percent
10 or less	04	06.6	04	06.6
11-15	25	41.0	29	47.6
16-20	16	26.2	45	73.8
21-25	13	21.3	58	95.1
Above 25	03	04.9	61	100.0
Not calculated	00	00	61	100.0

Table 2—Contractors' Perception of Overhead Costs

Parameter Under Investigation	1	2	3	4	5	Total	Average
Overhead level now acceptable	08	09	09	23	12	61	3.36
Overhead badly affects performance	13%	15%	15%	38%	20%	100%	2.26
Overhead was not an important issue in the past	14	26	13	07	01	61	2.26
Overhead will be of greater importance in the future	23%	43%	21%	11%	02%	100%	3.24
Overhead can be monitored and controlled	05	13	13	19	09	59	3.24
	09%	22%	22%	32%	15%	100%	
	39	14	05	00	00	58	1.41
	67%	24%	09%	00%	00%	100%	
	05	03	18	23	09	58	3.48
	09%	05%	31%	40%	15%	100%	

1 = strongly agree 2 = agree 3 = neutral 4 = disagree 5 = strongly disagree

The Ratio of Project Overhead Cost to the Project's Direct Cost

Project overhead costs vary from project to project, but range from 5 to 30 percent of the material, labor, and equipment total costs [1]. The results in table 3 indicate that project overhead costs for the majority of contractors range from 11 to 20 percent of the direct costs, which is an acceptable range compared to the data found in the literature. The overall ratio is 14.9 percent.

Contractors' Perception of Project Overhead

Changes in project overhead costs—the results in table 4 clearly show that the overwhelming majority of contractors believe that project overhead has increased in past years.

Reasons for increased project overhead costs—seven potential causes for increased project overhead are shown in table 5.

Potential causes are given below in order of severity:

- delayed payments and financing costs;
- client requirements;
- cost inflation;
- government regulations;
- lack of new projects; and
- a firm's growth.

Acceptance of the current rate of project overhead—the amount of project overhead differs from one project to another, which makes it difficult to sense its acceptance among contractors. However, because the contractors surveyed usually use government or semi-government contracts in their projects, the project requirements are similar. Table 6 reflects contractors' opinions on the issue.

Distribution of Project Overhead Cost

Results for project overhead distribution are given in table 7, and are arranged by type of project overhead cost as follows:

- supervision;
- equipment;
- temporary construction;
- financing;
- profit;
- estimate contingency and unforeseen conditions;
- insurance, taxes, and bonds; and
- the cost of rework.

Estimating Project Overhead Costs

In this question, contractors were asked to identify the method used to incorporate project overhead in the project estimate. The results shown in table 8 indicate that the contractors surveyed use only two methods. The majority estimate project overhead directly from the contract documents by checking contract requirements and estimating resources needed by the project (such as the workers needed to supervise work at the site or temporary construction). The other method uses project total direct costs as a base to calculate project overhead, and is used by 29 percent of the contractors surveyed.

Why a particular method is used—contractors also were asked why they use these

Table 3—Ratio of Project Overhead to Project Direct Costs

Ratio of Project Overhead to Project Direct Costs	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00-05	01	02	01	02
06-10	11	18	12	20
11-15	23	38	35	58
16-20	16	26	51	84
21-25	10	16	61	100
26-30	00	00	61	100
Not calculated	00	00	61	100

Table 4—Directions in Project Overhead Costs

Directions in Project Overhead Costs	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Increased	56	92	56	92
Decreased	02	03	58	95
No change	03	05	61	100

Table 5—Reasons for Increased Project Overhead Costs

Reasons for Increased Project Overhead	5	4	3	2	1	Total	Index %	Rank
I) Lack of new projects	07 11%	06 10%	16 26%	21 35%	11 18%	61 100%	52.4	6
B) Cost inflation	21 35%	07 11%	06 10%	16 26%	11 18%	61 100%	63.6	4
C) Delayed payments	40 65%	12 20%	09 15%	00 00%	00 00%	61 100%	90.2	
IV) Government regulation	07 11%	13 21%	16 26%	22 37%	03 05%	61 100%	59.6	5
E) Increased financing cost	34 56%	02 03%	11 18%	10 16%	04 07%	61 100%	77.0	2
VI) Client related req.	09 15%	18 30%	20 32%	05 08%	09 15%	61 100%	64.2	3
G) Firm's growth	00 00%	12 20%	10 16%	13 21%	26 43%	61 100%	42.6	7
H) Other	00 00%	00 00%	00 00%	00 00%	00 00%	61 100%	00	N/A

5 = strongly agree 4 = agree 3 = neutral 2 = disagree 1 = strongly disagree

Table 6—Level of Acceptance of Current Project Overhead Costs

Level of Acceptance	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Strongly accepted	27	45	27	45
Accepted	13	21	40	66
Neutral	16	26	56	92
Not accepted	05	08	61	100
Strongly not accepted	00	00	100	100

methods to estimate project overhead. Table 9 shows that 67 percent of the contractors do so because contract documents, particularly contract special conditions and bill of quantities, allow them to directly or indirectly quantify project overhead costs. Another 21 percent of those surveyed use direct costs as a base for cal-

culating project overhead because the two costs are related. Only 12 percent of the respondents gave other reasons for using a particular estimation method. In fact, most project overhead costs are time-related, but the time factor was not appreciated in the contractors' responses.

Table 7—Classification of Project Overhead Costs

Types of Project Overhead	0-5 %	6-10 %	11-15 %	16-20 %	Over 20 %	Item Not Included	Index %	Rank
Supervision cost including staff wages	00	02	03	23	33	00	88.6	1
Insurance, taxes, and bonds	38	21	02	00	00	00	29.2	7
Estimate contingency and unforeseen conditions	62%	34%	04%	00%	00%	00%	37.4	6
Temporary construction	16	37	08	00	00	00	76.4	3
Cost of rework	04	10	06	14	27	00	76.4	3
Financing cost	00	00	00	00	00	61	28.2*	8
Profit	00%	00%	00%	00%	00%	100%	64.8*	4
Equipment cost	00	00	28	09	00	24	40.0*	5
Other	00%	11%	00%	00%	00%	89%	82.0*	2
	00	00	02	01	07	51	N/A	N/A
	00%	00%	03%	02%	11%	84%		
	00	00	00	00	00	00		
	00%	00%	00%	00%	00%	00%		

N = 61/ 0-5% (very low) = 1 and over 20% (very high) = 5
 *For contractors who include this item as a project overhead cost

Factors that affect project overhead—usually, contractors depend on contract documents and checklists to figure out project overhead costs, but as with company overhead costs, there are other factors that affect contractors' final decisions in determining project overhead. These factors include the type of contract, the amount of subcontracted work, the nature of the project, the payment schedule, how badly the contractor needs the work, the number of competitors, and the client's reputation in supervision of the work. The survey results on these factors are presented in table 10.

These results reveal that factors affecting project overhead can be arranged in the following order:

- project complexity, location, and size;
- percentage of subcontracted work;
- payment schedule;
- the need for work;
- the client's strictness in supervision;
- type of contract;
- the number of competitors; and
- how much cash the contractor has available.

Controlling Project Overhead Costs

Some project overhead costs are affected by factors beyond the contractor's control. However, there are measures which, if implemented, lead to reduced project overhead costs. In this question, contractors were asked if they implement a cost control plan for project overhead and to explain such plans. The results are shown in table 11.

The percentage of contractors who claim to implement cost control plans on project overhead costs is only 23 percent, while the percentage for implementing cost control plans on company overhead costs is 77 percent. However, explanations presented for such plans only show some common cost reduction measures that cannot constitute a real cost control plan because they lack the four major components of any cost control plan: target cost, execution, monitoring, and correction. Contractors may exert less effort to control project overhead because they have the impression that project overhead costs are project-, not company-driven, which means that owners will compensate contractors for them just as for any other direct costs. Furthermore, the consequences

Table 8—Method Used to Estimate Project Overhead Costs

Methods Used to Include Project Overhead Costs in the Project Bid	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Estimate from contract documents	42	71	42	71
Relatively fixed amount	00	00	42	71
Percentage of labor cost	00	00	42	71
Percentage of material cost	00	00	42	71
Percentage of material and labor cost	00	00	42	71
Percentage of all direct costs	17	29	59	100
Project overhead is not estimated	00	00	59	100
Other	00	00	59	100

Table 9—Reasons for Using an Estimating Method for Project Overhead

Reasons Why a Particular Method Is Used	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Projects are similar	04	07	04	07
Project overhead is mainly a time-related expense	03	05	07	12
Project overhead can be related to direct costs	13	21	20	33
Contract documents allow for estimation	41	67	61	100
Other	00	00	61	100

of high project overhead costs are not as serious as those for high company overhead costs. Contractors who implement cost reduction measures mentioned the following actions:

- accurately estimating project overhead costs from documents and checklists in the first place;
- practicing proper activity planning and scheduling to help in accurately estimating project duration, which deeply affects supervision and financing costs;
- proper site management to maintain progress as scheduled and to limit delays;
- planning for mobilization or temporary construction by saving site offices, camps, and workshops for future projects;
- recruiting engineers and supervisors for low wages and using the lowest possible number of staff to administer the project; and
- using the client's available resources whenever possible on a rental basis rather than arranging for new facilities.

Contractors' Comments

Participants were asked if they had additional comments or suggestions regarding project overhead costs. Only two contractors answered this question. Their main concern is rising financing and insurance costs. These costs constitute a significant amount (15 to 25 percent for some contractors) of the project overhead cost, yet contractors have no control over them.

The results of this survey indicate that project overhead costs vary from one project to another. They range from 11 to 20 percent of the direct costs. The overall ratio is 14.9 percent. The majority of contractors believe that project overhead has increased in the past few years; reasons for this include delayed payments and financing costs, client requirements, and inflation. The four highest project overhead costs are for supervision, equipment, temporary construction, and financing. Contractors use two methods for overhead estimation. The majority estimate project

Table 10—Factors Affecting the Project Overhead Costs

Factors Affecting Project Overhead	5	4	3	2	1	Total	Index %	Rank
I) Type of contract	03 05%	10 16%	11 18%	37 61%	00 00%	61 100%	53.2	6
II) Project complexity, location, and size	29 47%	15 25%	16 26%	01 02%	00 00%	61 100%	83.6	1
III) Need for work	10 16%	17 28%	12 20%	10 16%	12 20%	61 100%	61.0	4
IV) Payment schedule	02 03%	22 36%	33 54%	04 07%	00 00%	61 100%	64.6	3
V) Contractor cash availability	00 00%	07 11%	23 38%	04 07%	27 44%	61 100%	43.2	8
VI) Client's strictness in supervision	11 20%	14 25%	08 14%	00 00%	23 41%	56 100%	56.4	5
VII) Subcontracted work ratio	28 46%	13 21%	12 20%	07 11%	01 02%	61 100%	79.6	2
VIII) Number of competitors	07 12%	14 24%	10 17%	09 15%	19 32%	59 100%	50.2	7
IX) Other	00 00	00 00	00 00	00 00	00 00	61 100%	00	N/A

5 = strongly agree 4 = agree 3 = neutral 2 = disagree 1 = strongly disagree

Table 11—Rate of Implementing a Cost Control Plan on Project Overhead

Rate of Implementing a Cost Control Plan	Frequency	Percent	Cumulative Frequency	Cumulative Percent
A) Not implemented	47	77	42	69
B) Implemented	14	23	61	100

overhead costs directly from the contract documents, while the other method uses project total direct costs as a base to calculate project overhead. Some factors that affect project overhead are project complexity, location and size, percentage of subcontracted work, payment schedule, and the contractor's need for work. There is concern about the rising financing and insurance costs, which constitute a significant amount, yet contractors cannot control them.

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