The Financial Management of Development Sector’s Contracts in Water and Wastewater Projects

Ahmad Bagheri1 and Kamal Davideh2

1Department of Agricultural Management, Ahvaz Branch, Islamic Azad University, Ahvaz, Iran
2Environmental Engineering Department, Ahvaz Branch, Islamic Azad University, Ahvaz, Iran

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ABSTRACT

Weak financial management of projects, existing disharmonies in different sectors of the administrative organizations and wrong conceptions of laws as well as using government’s limited resources to provide financial resources of water and wastewater projects in the country have made administrative operations incomplete in many cases in the first predicted period and making execution period longer results in increasing financial burden of projects and decreasing economic productivity of projects. This cost increase has been manifested in different forms and finally is considered as contractors’ claims and should be paid to them. At last, in some cases, administrative organizations are faced with incomplete and non-utilizable projects in spite of paying costs more than their administrative estimation. One of the factors of financial burden increase is regulating in permitted delays period as well as paying fee to counseling engineering companies (supervision organization) and other factors such as mission fee of employer for excellent supervision over such projects and many other factors. Therefore, in this research, while presenting total results of examining 203 contracts of developmental projects as well as accurate analysis of two samples of the mentioned contracts as case studies, the identification of the most important and effective factors of projects’ financial burden increase is conducted. In this process, first, the factors and causes of costs’ increase are identified and then the effect of these factors on the each other is investigated. Based on the conducted analysis of the two presented case samples, this increase rate averagely has assigned 72% of the initial estimation cost to itself.


1. INTRODUCTION

Administrative projects in the country are usually confronted with financial burden increase as compared with the initial estimation. These projects, owing to various reasons, are exposed to costs in the administrative phase and are not completed at the planned time and according to the initial estimated cost. This issue may question the economic justification of the project and make some problems in providing this cost increase for some administrative organizations. The results of the conducted examinations of 203 contracts of developmental projects and more accurate investigation of two case samples of the above contracts are selected as the case study in this paper. In this research, first, factors and causes of costs’ increase are identified and then the effect of these factors on the each other is investigated. Based on the conducted analysis of factors of costs’ increase in the two projects, this increase rate averagely has assigned 72% to itself that this costs increase imposes considerable pressure on the government or administrative organizations owing to the great number of such projects in the country. To obviate or minimize the increase of projects’ full costs in relation to their initial estimation, different technical and managerial solutions and recommendations are offered to make time and full costs of administrative projects coincided or closed to the predicted initial plans by their application.

One of the common problems in administrating developmental projects is the appearance of delay in their administration and utilization. In this research, factors, which increase financial burden of water and wastewater projects, are as follows:

1. Employer’s inappropriate management in encountering with contractors’ out-of-shortcoming delays and nonuse of the evaluation results of previous conducted works
2. Fundamental changes in the approved communicated administrative maps
3. Carelessness in the initial estimation of the work and creating an appropriate atmosphere for manifesting contractual claims
4. Delay in delivering workshop by employer
5. Delay in delivering employer-responsible materials
6. Nonpayment of financial liabilities by employer
7. Lack of timely license obtaining from the authorities (municipalities, traffic department, roads and transportation and so on)
8. Imbalance between budget and work volume
9. Lack of timely allocation of credits
10. Tastefully encounters
11. Cost increase of instructions and communicated technical specifications to the contractors by some counselors (without employer’s agreement)

* Corresponding Author: Ahmad Bagheri, Department of Agricultural Management, Ahvaz Branch, Islamic Azad University, Ahvaz, Iran ahmadbagheri53@gmail.com
2- The Significance and Necessity of the Research Title
In respect to the fact that financial resources of administrating developmental projects are limited and economic justification of projects depends on reducing financial burden of projects. Therefore, administrative organizations should identify and document the factors of projects’ financial burden increase to prevent from increasing costs in the future projects using its results.

3- Research Objectives
Identification of increase causes and factors of costs, which bring about financial burden of water and wastewater projects
Presentation of appropriate improving managerial solutions
Practical use of the obtained results from other projects to minimize costs’ increase in the administration phase

4- Report of “Investigation and Obviation of Cost Increase or Expensiveness of Developmental Projects”
This report is issued by Management and Planning Organization in which the investigation of costs’ increase including causes relevant to the design, supervision and administration of projects is dealt with. Generally, in this report, 34 different factors are mentioned and important ones are as follow:
Changes during work administration by employer
Lack of timely decision-making by employer
Inappropriate selection of contractors
Haste in holding bidding
Weak supervision over administration
Timely nonpayment of financial liabilities by employer
Timely non-deliverance of land to contractor

5- Major Reasons of Identified Developmental Projects’ Delay from Parliament
Approved credit deficit 22.5%
Credit allocation deficit 13.2%
Weakness of some administrative organizations 11.8%
Land providence by employer
Inability of some contractors

6- Supervisory report of evaluation office of developmental projects of Iran’s Management and Planning Organization
In part of this report, the delay causes in the administrating developmental projects are investigated for 1996, 1997, 1998 and 1999 that summarily the percentage mean effect of each cause is as follows.

<table>
<thead>
<tr>
<th>Order</th>
<th>Causes</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Credit problems</td>
<td>31.8</td>
</tr>
<tr>
<td>2</td>
<td>Administrative organization’s weakness</td>
<td>11.5</td>
</tr>
<tr>
<td>3</td>
<td>Study weakness</td>
<td>3.07</td>
</tr>
<tr>
<td>4</td>
<td>Design weakness</td>
<td>3.8</td>
</tr>
<tr>
<td>5</td>
<td>Weakness in providing machinery</td>
<td>5.6</td>
</tr>
<tr>
<td>6</td>
<td>Contractor’s weakness</td>
<td>8.2</td>
</tr>
<tr>
<td>7</td>
<td>Land Providence</td>
<td>5.43</td>
</tr>
<tr>
<td>8</td>
<td>Miscellaneous</td>
<td>30.6</td>
</tr>
</tbody>
</table>

Table 1: Supervisor report of Management and Planning Organization

7- Quantitative Examination of Delays
In this research, the quantitative examination of projects’ delays of Saudi Arabia, Jordan, Nepal, Ghana, Vietnam and Malaysia is investigated that a summary of important causes of delays is as follows:
Inappropriate selection of contractors
Employer’s financial liabilities
Land possession
Contractors’ managerial weaknesses
Change of employer’s managers
Incongruity of maps with delivered land
In respect to the above-mentioned concerning identifying the factors of projects’ financial burden, in this part, mentioning two samples of water and wastewater projects, while describing the causes of financial burden increase of water and wastewater projects, the percentage of these factors is expressed based on the result of experiences and conducted researches.
8. Table of General Information of the Project of Operations of Establishing Wastewater-Gathering Network in City A

**Table 1. General information of Project A**

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Price (million Rial)</th>
<th>Factors of project’s financial burden increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>38.45</td>
<td>3219</td>
<td>Machinery cost</td>
</tr>
<tr>
<td>13.37</td>
<td>1119</td>
<td>Human force cost</td>
</tr>
<tr>
<td>11.76</td>
<td>984</td>
<td>Workshop supervision fee cost</td>
</tr>
<tr>
<td>6.83</td>
<td>572</td>
<td>Communication of two delay periods</td>
</tr>
<tr>
<td>3.39</td>
<td>284</td>
<td>Excellent supervision fee cost</td>
</tr>
<tr>
<td>1.45</td>
<td>121</td>
<td>Employers’ mission and car cost</td>
</tr>
<tr>
<td>75.25</td>
<td>6300</td>
<td>Sum total</td>
</tr>
</tbody>
</table>

**Diagram 1**: Comparison of sums related to each of factors of financial burden increase

8-1 Reasons of financial burden increase of this contract summarily are as follows:
Lack of timely providence of project’s material by employer
Work suspension by municipality
Fundamental changes in communicated approved administrative maps
Lack of credit allocation by Planning and Strategic Supervision Vice-presidency
Carelessness in initial estimation of work and he creation of appropriate atmosphere for manifesting contractual claims

8- Table of General Information of the Reform of Water Distribution Network and Domestic Bifurcations in City B

**Table 3. General information of Project B**

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Price (million Rial)</th>
<th>Factors of project’s financial burden increase</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

9-1 Reasons of financial burden increase of this contract summarily are as follows:
Cost increase of instructions and communicated technical specifications to the contractors by some counselors (without employer’s agreement)
Work suspension by municipality
Lack of credit allocation by Planning and Strategic Supervision Vice-presidency
Lack of timely license obtaining from traffic department

**Table 4. Analysis of Project B**

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Price (million Rial)</th>
<th>Factors of project’s financial burden increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>35.1</td>
<td>1551</td>
<td>Human force cost</td>
</tr>
<tr>
<td>5</td>
<td>232</td>
<td>Machinery cost</td>
</tr>
<tr>
<td>18.4</td>
<td>812</td>
<td>Workshop supervision fee cost</td>
</tr>
<tr>
<td>6.8</td>
<td>299</td>
<td>Employers’ mission and car cost</td>
</tr>
<tr>
<td>3.4</td>
<td>150</td>
<td>Excellent supervision fee cost</td>
</tr>
<tr>
<td>68.75</td>
<td>3034</td>
<td>Sum total</td>
</tr>
</tbody>
</table>
9- Conclusion

1. Administrative organization (employer) should be assured of providing its financial resources before holding bidding.
2. Excavation license of municipality and traffic department and generally authorities before holding bidding should be obtained and relevant letters of agreement should be exchanged.
3. Administrative organization (employer) should attempt to purchase material, which has undertaken before holding bidding that in these two research samples, purchasing pipe and joints are of priority.
4. Preventing from the duration increase of contracts and timely planning y administrative organization’s managers
5. Administrative organization should leave the guidance of plan to experienced person in the field to make decision concerning continuance or cancellation of administrative operations on time
6. Sufficient mastery of project managers over the general conditions of the covenant to solve contractors’ stipulated cases
7. According to the fact that the role of counseling engineering company in the third phase (workshop and excellent supervision) of project guide and more importantly it is employer’s technical arm, therefore, administrative organization should pay careful attention in selecting experienced and long-established counseling engineering company relevant with contract issue able to solve project’s problems as soon as possible through consultation with employer.
8. Law revision and creation of consistency between phases of designing and constructing as well as revising traditional system of contracts
9. Reducing the use of government’s financial resources and increasing the participation of private sector and using BOT, EPCF and BOO contract conditions
10. Preventing from non-expert and tasteful views employer’s factors in phases of administrating projects
11. Holding appropriate and pertinent educational courses for administrative organizations’ experts as projects’ custodian
12. Custody administrative organization’s session with mayors with governor general’s agreement in order to prevent from stopping contractors’ administrative operations at city-wide level.
13. Employing scientific and experienced experts with relevant academic degrees in administrative organizations’ administrative units
14. Forming technical committee in administrative organizations to solve contractors’ problems and to prevent from prolongation of contracts’ duration

REFERENCES


