

## **Improving Management of Construction Costs in Vietnamese Building Enterprises: A Case of Hai Thanh Construction and Trading Joint-Stock Company**

**Nguyen Thi Thuy<sup>1\*</sup>, Tran Thi Thuong<sup>1</sup>, Nguyen Thi My Le<sup>2</sup>**

<sup>1</sup>Faculty of Accounting and Business Management, Vietnam National University of Agriculture

<sup>2</sup>Master's Student in Vietnam National University of Agriculture

Corresponding Author: bongthuyhd@gmail.com; thuongkt48@gmail.com

### **Abstract**

Economic integration has created many opportunities and challenges for Vietnamese enterprises. Construction enterprises are also received benefits from this integration. In order to strengthen competitively and develop sustainably in the market, Vietnamese construction enterprises need to have the right strategy and cost effective management methods. Hai Thanh Trading & Construction Joint-Stock Company has operated in construction field for 14 years. However, there are some shortcomings in the management of construction cost of this company. Hence, this study researches about management of construction cost in this company to give some suggestions to improve this management

process for Hai Thanh Trading & Construction Joint-Stock Company in particular and construction businesses in general.

**Key words:** construction cost, management, Hai Thanh Company.

## 1. INTRODUCTION

In the integration economy which has been affected statistically by many factors such as epidemics, and climate change, construction sector is one of the field business which is hurted heavily because of a real estate market froze, large investment costs, and difficult in payment [Phuong, (2018), Tam (2018)]. Therefore, to stand on this market, the construction enterprises need to have right strategy and make effective decisions (Tam, 2018). According to Phuong (2018), these decisions should be based on the usefulness of cost information provided by a cost-effective and cost-effective accounting model. In addition, to exist and develop in the integrated economy, construction enterprises have to manage construction costs effectively to maximize profit.

Hai Thanh Trading & Construction Joint-Stock Company has 14 years in construction field. This company is located in Cam Giang district, Hai Duong province. However, this company has not built a system of cost management criteria, so that no information on cost fluctuations. In addition, the acceptance completed constructions and payment procedure between Hai Thanh Company and investors also have shortcomings. Particularly, there are 25% of completed constructions which has delayed in acceptance and handed over to use (Le, 2019). This issue will lead to delayed payment, extended warranty period, and arising repairment and maintenance costs in using process. Therefore, this article explores cost management accounting in Hai Thanh Company and gives some suggestions. This study is written based on contents of a thesis of master's student in 2019. In this study, Hai Thanh Trading & Construction Joint-Stock Company is called shorter name as Hai Thanh Company.

This paper is divided into six sections. The research methodology of this paper will

be mentioned in section 2. This paper discusses construction cost estimating in Hai Thanh Company which is summarized in section 3. Section 4 is an analysis of management of construction cost in Hai Thanh Company. Section 5 gives some suggestions to improve management of construction cost in Hai Thanh Company. Conclusions of the study is showed in Section 6.

## 2. METHODOLOGY

This study used practical analysis through documents of Hai Thanh Company. In addition, to discover the current situation in management of construction cost in this company, the study utilized questionnaires to interview Manager Boards, Finance and Accounting Department, Materials Supply Department, construction teams, etc. Besides that, this study also gathered information from legal documents such as Law No. 50/2014/QH13 dated June 18, 2014 of the National Assembly about the Construction Law, Decree No. 32/2015/ND-CP dated March 25, 2015 of the government about management of construction costs, and Circular No. 06/2016/TT-BXD dated March 10, 2016 of Ministry of Construction guidelines for identification and management of construction cost.

## 3. CONSTRUCTION COST ESTIMATING IN HAI THANH COMPANY

Generally, management of construction costs include four steps such as (i) planning, (ii) decision making, (iii) organization of implementation, and (iv) test and control (Le, 2018). In Hai Thanh Company management of construction costs is showed in a following figure:

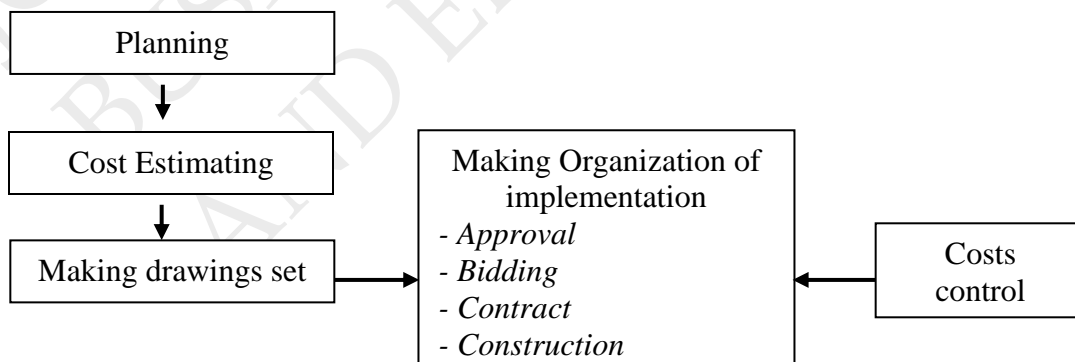


Figure 1. Management of construction cost in Hai Thanh Company

A construction cost estimating bases on construction workload and current legal documents on the basic construction norms promulgated by the State. A construction cost estimating consists of direct material cost estimating, direct labor cost estimating, cost of using construction machines estimating, and general production cost estimating.

In Hai Thanh Company, making construction cost estimating is set up based on (i) design drawings, technical notes; (ii) price of construction materials at the time of making construction cost estimating; (iii) some legal documents such as Law No. 50/2014/QH13 dated June 18, 2014 of the National Assembly about the Construction Law, Decree No. 32/2015/ND-CP dated March 25, 2015 of the government about management of construction costs, and Circular No. 06/2016/TT-BXD dated March 10, 2016 of Ministry of Construction guidelines for identification and management of construction cost.

### **3.1. Direct Materials Cost Estimating**

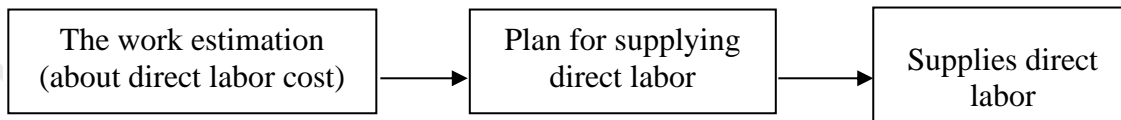
In Hai Thanh Company, there are three steps in direct materials cost estimating (Figure 2). In the first step, Technical Inspection Department checked the proposed construction drawings of investors and transferred to Planning Department to calculate the overall needed volume of materials for this construction. After that, according to established construction schedule, Planning Department makes plans for supplying materials and estimates materials in monthly or quarterly. Main materials include cement, iron, steel, stone, sand, etc. This estimated volume of materials is often adjusted in accordance with actual situation. During the construction schedule, based on the estimating direct materials costs, Finance and Accounting Department provides finance to Material Supply Department to buy materials. After that, Material Supply Department supplies materials to the construction. Currently, direct materials has been delivered directly from warehouses of suppliers to the construction following on the construction schedule and the actual materials on demand. Specially, the actual materials on demand is coordinated by the construction site's board. This idea will help Hai Thanh Company decrease the traffic costs and warehouse costs.



**Figure 2. Direct Materials Cost Estimating in Hai Thanh Company**

### 3.2. Direct Labor Cost Estimating

Similarly, there are three steps in making direct labor cost estimating. In the first step, Technical Inspection Department checked the proposed construction drawings of investors and transferred to the Planning Department to calculate the workload and overall workmanship which are required for this construction. In the second step, in accordance with established construction schedule, Planning Department makes plans for supplying direct labor and estimates direct labor in monthly or quarterly. This direct labor cost estimating is often adjusted in accordance with actual situation. After that, during this construction process, based on direct labor cost estimating, Human Resources Department prepares a plan for mobilizing and training human resources of this company to the construction unit. In addition, this company allows the construction team to rent local manual labor if permanent labor in the company is not enough. Especially, based on direct labor cost estimating, Finance and Accounting Department computes salary, social insurance, union funds, labor protection, etc in accordance with the legal regulations for employees.

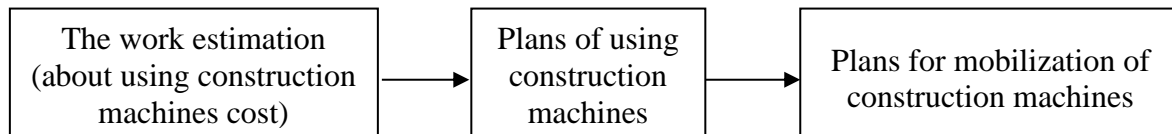


**Figure 3. Direct Labor Cost Estimating in Hai Thanh Company**

### 3.3. Cost of Using Construction Machines Estimating

There are some bases for making cost of using construction machines estimating in Hai Thanh Company. Firstly, Technical Inspection Department checked the proposed construction drawings of investors, and transferred to Planning Department to calculate the number of hours using construction machines, kind of construction which are

required for this construction. Then, in accordance with established construction schedule, Planning Department makes plans for supplying construction machines in monthly or quarterly for this construction. The construction machines often consists of excavator, roller, bulldozer, etc. This estimating is often adjusted following on actual situation. During the construction schedule, based on this estimating, Material Supply Department prepares to repair and maintenance existed construction machines in this company. In addition, if existed construction machines are not enough, the construction team can rent construction machines through equipment lease contracts. Particularly, based on this estimating plan, Finance and Accounting Department supplies finance to Material Supply Department to buy fuel or sign equipment lease contracts.



**Figure 4. Cost of Using Construction Machines Estimating in Hai Thanh Company**

### 3.4. General Production Cost Estimating

According to Decree No. 32/2015/ND-CP dated March 25, 2015 of the Government on management of construction investment costs, general production costs equal to 5.5% of total estimated direct cost of this construction. Especially, total estimated direct cost includes estimated direct material costs, estimated direct labor cost and estimated cost of using construction machines.

### 3.5. Capital in Cash Estimating

Beside construction cost estimating, Hai Thanh Company also prepares capital in cash estimating. Particularly, capital in cash estimating is set up in accordance with four basic points, namely, (i) direct materials cost estimating, direct labor cost estimating, cost of using construction machines estimating, and general production cost estimating; (ii) construction schedule in monthly; (iii) current capital of the company, advance payment under a construction contract and loan from banks if lack of capital. According to

Decision No. 99/2016/ND-CP, the minimum advance fund is from 5% or 20% of an investor's financial sources after there is a contractor's guarantee letter sending to credit institutions to provide guarantees to contractors. In addition, the last basis is the amount of money is recovered after finishing all construction work items.

#### **4. MANAGEMENT OF CONSTRUCTION COST IN HAI THANH COMPANY**

In Hai Thanh Company, management of construction cost describes through each kind of cost in the construction cost estimating.

*For direct materials cost:*

The management materials are controlled and managed by a management team in a construction team. Particularly, based on a estimating direct materials cost and a construction schedule to purchase direct materials. The construction team leader will check and receive volume and quality of direct materials. After that, the construction team leader will sign on an invoice to inform purchased materials which are stored in a warehouse. However, this purchased materials do not make material received note. Unit price of purchased materials must be less than or equal to unit price in the approved estimating direct material cost. If the unit purchased price is higher than estimated unit price or some materials do not have estimated unit price, actual price in the market will be applied. In this case, two parties, namely, Hai Thanh Company and the construction team need to sign in survey records about actual price.

After purchase process, direct materials are stored in a warehouse of the construction team. Daily, direct materials are outputted gradually following on the request of the construction technician. In this case, material deliver note is not set up, a manager of the construction team only signs in a journal.

For the construction team, there is one person who collects purchase invoices of materials, such as, cement, iron, steel, etc and he/she will record these invoices in a statistical book. As such, there are only input - output materials transactions without accounting records of accountants.

For Finance and Accounting Department of Hai Thanh Company, at the end of each month, accountants summarize and all purchase invoices reported by the construction teams for payment reimbursement. Based on these document, accountants can compare the actual volume of input - output materials to estimated direct materials to adjust. In addition, accountants make a table to compare estimated direct materials and actual direct materials to find differences and causes.

*For direct labor cost:*

Perform in work-contract or direct management of each workforce group according to implemented workday.

*For using construction machines cost:*

The construction machines drivers will be paid salary based on the number of working days. The price of working day is set up in accordance with the base salary of the State for each year.

Hai Thanh Company sets up unit price of construction machines and fuel allocation norms for some major machines and equipment to encourage workers work overtime, increase hours to reduce machine costs and accelerate construction progress.

The construction machines cost is also contracted according to the workload. In some cases, Hai Thanh Company rents construction machines in accordance with completed volume workload for each machine shift, so all costs incurred when using the construction machine will be completely borne by the lessor. When the workload is completed, the construction team sends invoices to the Finance and Accounting Department for reimbursement payment. Particularly, accountants based on an economic lease contract, lease invoices, the confirmation of the working schedule of construction machines, the summary of estimated budget to compute.

*For general production cost:*

All invoices or other legal documents relative to general production cost are gathered in monthly. In Hai Thanh Company, general production cost often includes



some kinds of costs, as followed:

Costs in salary for workers and salary deductions based on their salaries. Salary will be paid according to general regulations of this company and current social liability;

Depreciation of fixed assets;

Cost of materials, tools;

Cost of services outside;

Other related costs.

### **Limitations of management of construction costs**

After analyzing the situation of managing construction costs in Hai Thanh Company, this study realized that the cost management process in the company still has shortcomings. First of all, the quality of basic cost estimation is still low. Particularly, the construction cost estimating is imposed from top to bottom without cooperation from staffs of Hai Thanh Company. That is why the content of this estimation sometimes is not close to reality. Secondly, the qualification of managerial staffs in investment activity management is still low. Thirdly, the reviews and amendments about some technical norms in the construction field have not been regularly updated. Fourthly, direction activities and supervision of construction activities have not been regularly. In addition, scientific progress and frequent changes in economy leads to difficulties in estimation of budget. Especially, acceptance completed constructions and payment procedure between Hai Thanh Company and investors still have shortcomings. Particularly, there are 25% of completed constructions which has delayed in acceptance and handed over to use. This issue will lead to delayed payment, extended warranty period, and arising repairment and maintenance costs in using process. Moreover, the average payment cycle of one construction is 2.5 months, while the acceptance conditions of investors are not limited. Additionally, 1.1% of completed workload has been carried out but there are not enough documents and procedures for acceptance and payment. Therefore, all of these issues are causes to damage the company.

## 5. SOME SUGGESTIONS TO IMPROVE MANAGEMENT OF CONSTRUCTION COST IN HAI THANH COMPANY

Hence, in order to improve management of construction costs in Hai Thanh Company, this study also gives some solutions for these shortcomings.

### 5.1. Completing the work of construction cost estimating

#### 5.1.1. *Completing the supplying material plan*

For a good plan of supplying material, Hai Thanh Company should have detail guidelines about suitable tasks for each department. For example, the Planning Department estimates the trend of changes unit price of materials and makes plans for supplying materials. The Finance and Accounting Department prepares capital estimation in cash and mobilizes capital if necessary. The Materials Supply Department based on the material plan which is developed by the Planning Department to sign materials contracts. Especially, restriction purchasing materials are the same category but different specifications and quality. For materials like cement, iron, steel, asphalt, and petrol, etc. that the company cannot produce, the company investigate market through surveys and materials quotation to select suitable suppliers, especially priority to focal businesses. For materials like soil and stone that the company can produce by themselves, the company makes a production plan suitable with construction progress. Site management boards carry out the construction of warehouses to store materials. During the storage process, the construction team must regularly check and output materials suitably to avoid time-expired. Site management boards or construction team leaders manage and allocate materials according to the prescribed procedures.

#### 5.1.2. *Completing the internal cost norms system*

Norms is an effective tool to manage costs, and is the basis to organize, implement, and control construction costs. However, Hai Thanh Company does not have specific internal cost norms to manage direct materials and direct labor.

Currently, Hai Thanh Company has applied norms in accordance with regulations

which was enacted by the government, design capacity of the machines, and some detailed norms set by the company. However, these norms are outdated and reflect only a few specific technical tasks and jobs, the aggregate norms are incomplete for whole the construction. Hence, the norms system at this time does not reflect level of management, and scientific and technical advances in the company's production line. Therefore, Hai Thanh Company needs to set up the norms system which includes direct material cost norms, and direct labor cost norms.

For direct material cost norms, Hai Thanh Company can set up the new norms following on some guidelines. Firstly, the company statistics and catalogues main materials, such as, soil, stone, sand, cement, steel, asphalt, etc which account for a big proportion and regularly using in constructions. From this step the company can calculate the volume of direct materials to produce one unit of output. Secondly, the company determine the percentage of materials loss due to the transport process. This figure equals to the ratio between actual volume of received materials at the construction site and the volume of output materials from warehouses. Loss in transportation depends too much on the organization of transportation. Hence, if the company can produce materials, the company should focus on a production plan and transfer products directly to the construction site. If direct materials are bought from outside, the company should receive materials at the construction site. Loss norms ratio of each transfer equals to 2%.

For direct labor cost norms, there are some suggestions to set up new direct labor cost norms in Hai Thanh Company. The first suggestion is following on the basic norms of the State to compute working hour norms for each technical operation. Secondly, the company chooses workers who have skills in average level to track and statistic the actual number of working hours in accordance with timer method and technical analysis method. Thirdly, comparison the actual number of working hours between two above methods, then analyze, evaluate and select the most suitable working hour norms to apply. Lastly, applying labor cost norms through the form of contracting labor products

or working days for a specific job.

### 5.2. Strengthening the acceptance and handover of completed work items

The process of construction requires sequentially each construction item. Therefore, checking, acceptance and handover of completed work items in time are very important to ensure the progress of the project. Hence, when starting the construction operations, it must be agreed with the supervising consultants and the investors about internal forms, procedures to limit errors and overlapping. In addition, during construction process, the site management board of the construction strengthens management at the construction through regularly records of testing, completion drawings, technical inspection records, records identifying changes arising during the construction process, etc. Then, this board is responsible for preparing and completing these documents to work with investors. After that, the Planning Department implements payment procedures to the investor.

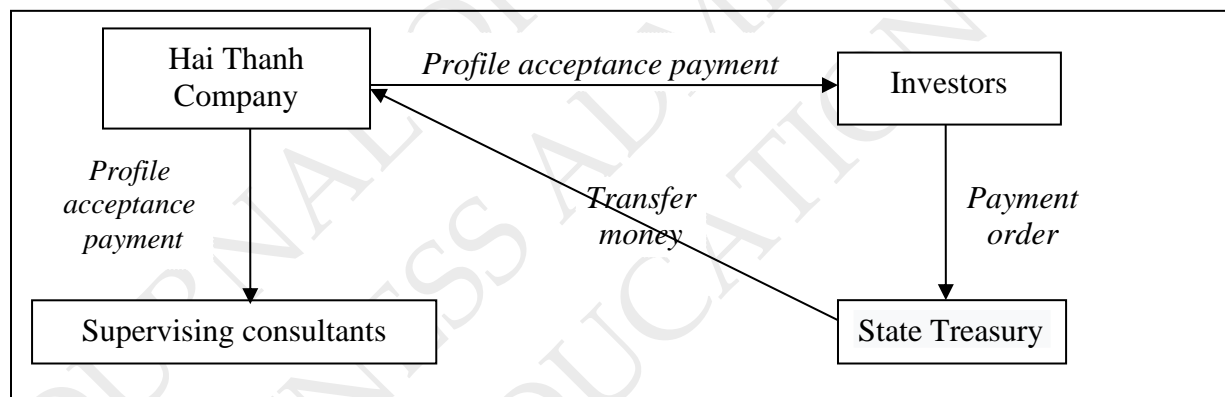


Figure 5. Procedures for acceptance of completed constructions

### 5.3. Development internal regulations to link the responsibilities of each department related to construction cost management

Hai Thanh Company needs to develop and supplement regulations to associate the responsibilities of each relevant department and individuals. Therefore, Hai Thanh Company needs to set up and complete following regulations. These regulations consist of regulations on using machinery and equipment, labor regulations of construction sites

and project management boards, regulation on management of supplies and capital, regulations on rewarding collectives and individuals associated with the assigned work, personal regulations on duties and rights of site commanders and project executives.

There are three steps in the process to set up internal regulations in Hai Thanh Company. First of all, the Organization Department presides draft regulations, amendment, supplement and completion these regulations. After that, the other functional departments provide comments on contents of the draft regulations according to their duties and rights. The last one is the congress of all employees in the company to discuss and approve these regulations.

## **6. CONCLUSIONS**

In conclusion, this study summaries the management process of construction cost in Hai Thanh Company. Particularly, this study mentioned about construction cost estimating which includes direct materials cost estimating, direct labor cost estimating, cost of using construction machines estimating, general production cost estimating, and capital in cash estimating. In addition, this study indicates some shortcomings of this management process in Hai Thanh Company, and this study also gives some suggestions to improve this process. Especially, Hai Thanh Company should complete the work of construction cost estimating through completing the supplying material plan, and completing the internal cost norms system. Additionally, this company should strengthen the acceptance and handover of completed work items. Lastly, this company should develop internal regulations to link the responsibilities of each department related to construction cost management.

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