

# Chapter 130

## Analysis of Causes and Countermeasures for Rising Labor Costs in International Construction Projects

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**Abstract** The labor costs in international construction projects conducted by Chinese building enterprises have presented rapid rising trend in recent years, which has adverse impacts on the project success and financial performance of building enterprises. This paper analyzes the causes for rising labor costs in terms of market supply/demand conditions and expected wage growth driven by inflation force. In order to reduce the labor costs and improve the working efficiency, we propose the countermeasures as (1) to determine the bid price and labor wage reasonably, (2) to adjust the ratio between Chinese and local workers, (3) to emphasize the importance of the training for local workers, (4) to strengthen the construction organization.

**Keywords** International construction projects • Labor market supply/demand conditions • The ratio between Chinese and local workers

### 130.1 Introduction

Construction industry is one of the representative labor-intensive manufacturing industries. It has absorbed approximate 240 million peasant-workers in China. Labor costs usually occupy a major percentage in construction project costs, so work efficiency and labor costs control of construction industry have been research focuses for many years [1, 2]. In the recent years, the labor costs of construction

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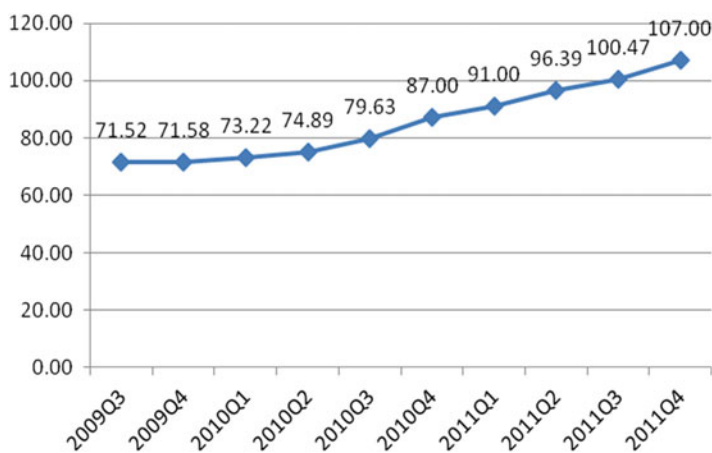
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industry have represented rapid rising trend, which has adverse impacts on the project success and financial performance of building enterprises. In this paper, we analyze the causes for rising labor costs in terms of market supply/demand conditions and expected wage growth driven by inflation force. In order to reduce the labor costs and improve work efficiency, we propose the countermeasures described in the following text.

## 130.2 Analysis of Labor Costs Rising Trend in International Construction Projects

### 130.2.1 Analysis of Rising Labor Costs of Construction Industry in China

In the recent years, labor costs of construction industry have represented rapid rising trend under the influence of macro-economy development, inflationary force and population structure transformation. The data presented in Fig. 130.1 distinctly shows the rapid rising trend of average labor costs in construction industry between 2009Q3 and 2011Q4 in China. In this article, we find that the average labor costs of 2010Q4 increased 21.45 % over the same period of the previous quarter and the quarter to quarter rising rate of 2011Q4 achieved 22.9 %. Obviously, the rising rate of average labor costs of construction industry exceeded the rising rate of GDP (about 9 %) greatly in the recent years in China. The rising rates in metropolis were remarkable such as the average rising rate of Beijing had achieved around 15–25 % in the recent 5 years.



**Fig. 130.1** The average labor cost of construction industry in China (yuan/working day) (Data from: 2012/5/5, <http://www.chrd.com.cn/index.html>)

### ***130.2.2 Analysis of Rising Labor Costs of international Construction Projects***

Because the skilled workers taking up international projects would require higher expected wage than the ones working inland and employ restrictive policies were applied in some host countries, the labor costs of international construction project exceeded inland projects greatly. In the recent years, the average wage of skilled workers increased about 5–10 % annually in international projects conducted by Chinese building enterprises. Taking the Congo (Brazzaville) National Road One Second Project as an example, the average wage of skilled workers achieved about 1,400\$ per month exceeding the inland ones' (about 400\$ per month) greatly. Rising labor cost rapidly could cause contractors to have deficits in terms of labor costs, which have brought about some adverse impacts to international construction projects conducted by Chinese building enterprises. Firstly, the profit performance of contractors will decline under the influence of rising labor costs. It will exert adverse impacts on contractors' long-term development. Secondly, some contractors might pursue profit at the cost of project quality. Finally, labor subcontractors could reject the labor price made in the subcontract, and some radical subcontractors even might stimulate workers to strike or delay the projects in order to make the labor prices enhanced.

### **130.3 Analysis of Causes for Rising Labor Costs of International Construction Projects**

The factors causing labor costs of international construction projects to rise are various, we conclude these as following.

Firstly, economy sustained growth caused the demand of construction labor to increase rapidly. The fundamental driving force of rising labor costs comes from economy development. China's economy has been keeping rapid increasing since 1978, which is the essential dynamic to make labor wage increased and the labor market conditions of supply/demand changed obviously. In terms of the demand of labor, the amount of labor in construction industry is increasing annually under the impacts of boosting domestic demand, stimulating economy development and enlarging fixed assets investment in China [3].

Secondly, the amount of being willing to take up construction production is descending gradually under the impacts of various factors as following. (1) The construction industry is a representative high risk industry as well as the hard and poor working environment. Therefore, most of peasant-workers have to take up construction industry only when they can't find a desirable job in other industries [3]. (2) The application of policies of supporting agriculture and benefiting farmers advances the rural living standard in China, which weakens

the driving force of working outward gradually. (3) The value of peasant-workers has evolved greatly, and the new generation owns more working chances and higher pursuing for material and spiritual civilization than their priors. Therefore, the construction enterprises have to enhance the labor price in order to attract and retain them. All in all, the amount of peasant-workers inflowing into construction industry have been declining in the recent years. According to the statistics of All-China Federation of Trade Unions (ACTU), the amount of peasant-workers inflowing into construction industry has declined about 6 % in the recent 5 years. The contradiction between supply and demand of labor is aggravating constantly, which drives the labor price to rise further more.

Thirdly, the price of commodities are keeping rapid rising in China, and we are encountering greater inflation force. The economic environment causes most of industries to enhance labor price in order to make workers' wage matched with the amplification of consuming. The average wage of construction industry is below the average of all industries, which makes labor price of construction industry increase more rapidly. Rising of commodities price and inflation force have become the key short-term driving factors for rising the labor costs of construction industry.

Finally, the environment of international construction projects is more complex than inland projects, and the expected wage of working abroad increases more than working inland. Peasant-workers working abroad need pay more cost than working inland, moreover, many overseas projects might encounter adverse impacts as political environment instability, social instability and the higher risk in the process of working, etc. Therefore, the peasant-workers working abroad have to require more than working inland.

### **130.4 Countermeasures of Rising Labor Cost**

In order to reduce the labor costs and improve the working efficiency, we propose the countermeasures of rising labor costs as follows.

Firstly, a contractor should determine bidding price and labor price reasonably. In fact, rising labor costs of construction industry is an inevitable trend, so a contractor should keep labor price moderate. If a contractor provided a lower price for workers, he would be hard to obtain sufficient and high-quality workers, and it would be difficult to guarantee project performance. Apparently, it would bring about many disadvantages to the contractor's long-term development. Therefore, the contractor should make a tradeoff between descending labor cost and project's comprehensive benefits rather than only pursuing to minimize the labor costs. A Contractor should ask for more information about labor costs, and forecast the level of labor costs with the help of experience and analysis of history. Based on the comprehensive preliminary work, a contractor

should determine artificial man-days per unit reasonably in bidding documents rather than lowering labor costs to pursuing to win the bidding blindly [4].

Secondly, a contractor should adjust the ratio between Chinese and local workers in order to lower labor costs as much as possible on the premise of ensuring work efficiency and quality. If the wage of Chinese workers were higher than local workers', a contractor could hire more local workers to lower labor costs, and vice versa. There are some law and policies constraining working hours in some countries, so a contractor must think about their impacts on working efficiency. There are some other factors that should be considered, such as the technical level of workers, the exchange rate variation risk, etc. Based on taking all the relative factors into consideration, a contractor can make a decision of employing more Chinese workers or local workers [5]. Local artificial man-days per unit consists of artificial man-days per unit of ordinary workers and that of skilled workers. There are minimum wage standards for ordinary workers and skilled workers in many countries, and even annual minimum wage standards in some countries. Therefore, a contractor must get the in-depth knowledge about these policies and the constitution of local workers wage, because there are no medical insurance or unemployment insurance standards in some countries or regions. A contractor should adjust the level and constitution of wage of local workers when he encounter the condition that there are great difference between the physical truth and labor laws [6]. In addition, many contractors usually pay more attention to the level of wage than the quantity of employed workers when they employed local workers, which has adverse impact on work efficiency. So the contractors should contract work and adopt piece rate as far as possible in order to enhance work efficiency [7]. Taking the Congo (Brazzaville) National Road One Second Project as an example, the average wage of Chinese workers was about 12,000 yuan/month, and the average wage of local workers was about 2,000 yuan/month. The contractor measured to get that the work efficiency ratio was about 1:4. The amount of working days provided by quota was 30 days per month. The ratio between Chinese and local workers determined by the contractor was 1:3. We could use the formula<sup>1</sup> to get that the comprehensive labor wage per working day was 301 yuan/working day.

Thirdly, a contractor should emphasize the importance of training the local workers and strengthen construction organization to enhance work efficiency. There are some points that should be noted as following. (1) The Chinese construction industry work efficiency still possesses more advancement than some advanced countries at present. The construction contractors of China should increase technology content sequentially in order to enhance work efficiency [8]. (2) The contractors of international construction projects should emphasize the importance of training the local workers, cultivating local labor monitors and distribution

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<sup>1</sup> the comprehensive labor wage per working day = the Chinese workers' wage per working day × the percentage of the Chinese workers to all workers + the host country workers' wage per working day × the percentage of the host country workers to all workers/work efficiency ratio

of works. (3) The contractors should meticulously formulate construction organization design, construction method statement and detailed construction schedule against losses caused by poor construction organization, not timely material supply and insufficient working face. (4) The contractors should reasonably divide construction section and organize running water construction to ensure production process continuous in space and time. These measures contribute to reduce losses caused by construction interrupts and reworks.

## 130.5 Conclusion

Rising labor cost rapidly has adverse impacts on the project success and financial performance of building enterprises. Rising labor cost rapidly is caused by contradiction between supply and demand of labor, expected wage growth and so on. In order to enhance work efficiency and reduce labor costs, we propose the countermeasures as (1) to determine bid price and labor price reasonably, (2) to adjust the ratio between Chinese and local workers, (3) to emphasize the importance of training the local workers, (4) to strengthen construction organization, etc.

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