

Review on the Identification and Assessment of Project Risks in International Engineering Contracting Projects

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Abstract: With the steady promotion of the "the Belt and Road" initiative and the introduction of a number of reform measures, the pace of "going global" of Chinese enterprises has been accelerating. More Chinese construction enterprises are actively engaged in overseas engineering construction and have made remarkable achievements. At the same time, the way of project contracting is also constantly upgrading, and the time span, uncertainty and complexity of international project contracting business are increasing, so it is necessary to carry out risk management. In addition, the introduction of relevant policies and regulations at home and abroad has further promoted the construction of overseas risk management of international project contracting enterprises. Therefore, it is necessary to use scientific methods and tools to identify and assess the risks of the project according to the internal and external conditions of the international engineering contracting project, and determine the measures to deal with the risks of the international engineering contracting project according to the results of the risk analysis, its own resource conditions, the environment and other factors. Finally, the corresponding risk response measures and suggestions are put forward based on the actual development strategy of the enterprise and the market environment of international project contracting business.

Keywords: international project contracting, project risk management, risk response

1. Introduction

With the continuous recommendation of the "the Belt and Road" strategy and the introduction of a series of reform measures, the pace of "going global" of Chinese enterprises has been accelerating. The restricted cooperation directions of "the Belt and Road" include, however, among them, enhancing infrastructure building and fostering cross-border and cross-regional connections. Strengthening infrastructure development and fostering cross-border and cross-regional connections are among them [1]. As a result, more and more Chinese construction companies are actively involved in the building of projects abroad. In 2018, 69 and 54 Chinese enterprises were listed in the "Top 250 International Contractors" and "Top 250 Global Contractors" of the US Engineering News Record (ENR) respectively [2]. The listed Chinese companies' overseas turnover was US \$114.097 billion, up 15.3% from the previous year. This is 23.7% of the total international turnover of all listed companies, up 2.6 percentage points from the year before. Among them, 3 enterprises entered the top 10; A total of 10 enterprises entered the top 50 [3].

Under this macro policy background, more and more enterprises in China participate in international project contracting business, and their achievements are more and more remarkable. The number of international projects undertaken by China is increasing, and the number of large and super large projects is increasing. The industries and fields across are also gradually extensive, and the comprehensiveness and complexity of the project are getting higher and higher. The way of project contracting has also been gradually upgraded. It is no longer limited to the original subcontracting of design, procurement and construction, but has developed into taking responsibility for the whole value chain of design, procurement, construction and operation. The international engineering contracting business is gradually developing towards the construction of the whole value chain of engineering contracting, showing a trend of large-scale projects, complex technology and process, and integration of general contracting. In addition, in June 2006, the State owned Assets Supervision and Administration Commission issued the Guidelines for Comprehensive Risk Management of Central Enterprises [4], which details the general principles, process systems, risk assessment, supervision and improvement, risk management strategies and solutions, risk management culture and information systems for central enterprises to implement comprehensive risk management. In September 2017, the Sponsoring Committee of the Anti Financial Fraud Commission (COSO) released a new version of the enterprise risk management framework to build a new risk management system from five elements: governance and culture, strategy and goal setting, implementation, inspection and amendment, and information communication and reporting [5]. It can be seen that risk management has been paid more and more attention in the process of enterprise strategy, performance and value promotion. It is of great significance for enterprises to build a comprehensive risk management system.

In recent years, in order to continuously develop the international project contracting business, the famous domestic construction enterprises have vigorously promoted the transformation and upgrading from contractors to operators, which has enabled them to take the lead in the international project market. CSCEC has built a "big overseas" business system, and has continued to strengthen the priority and high-quality development of overseas business relying on the communication between China and other countries [6]. However, there are still many problems in China's international project contracting. The development of China's foreign contracting business is relatively late, and many enterprises lack theoretical knowledge and practical experience in project risk management. Due to insufficient risk management and control in the design, implementation, and operation of international engineering contracting projects, many Chinese firms suffer significant losses. In international engineering projects, ignoring the control of a particular risk will directly affect the achievement of the objectives of the next stage of the project because of the complexity of the internal links between risks and changes at different stages of the project life cycle at any time [7].

It is essential to first identify the risks that international contracting projects face while doing research on them. It is vital to employ scientific methods and tools to perform risk assessment and analysis in order to carry out international contracting projects in various nations and locations. It is also vital to list the issues encountered and remedies for each throughout the execution of international contractual tasks in various foreign locales. The risk analysis of international engineering contracting projects will be encouraged as a result, and this will have a significant influence on the risk management of such projects for Chinese construction companies [8].

2. Development Status of China's International Engineering Contracting Business

2.1. Overall Trend Dimension

China's international project contracting industry is the product of the reform and opening up policy, which has certain political significance. It is also one of the ways to help China's economy and increase foreign exchange income. Chinese contracting enterprises have accumulated experience and grown up from scratch, from small to large, and have developed for more than 30 years [9].

In April 1988, China Chamber of Commerce for Foreign Contracting Projects was established. From 1990 to 2005, with the deepening of reform and opening up, China's international project contracting industry entered a stage of rapid growth, and the strength of enterprises continued to improve [10]. At this stage, the number of Chinese enterprises shortlisted for ENR Global 250/225 International Engineering Contractors has made a breakthrough. It reached 46 in 2005, second only to the United States. Since 2005, under the general trend of economic globalization and steady development of "going global" and "the Belt and Road" strategies, China's international engineering contracting industry has continued to flourish, and the overall strength and competitiveness of foreign contracted engineering enterprises have been greatly enhanced [11].

2.2. Diversified Development of Business Areas

In addition, international project contracting enterprises will gradually diversify on the basis of core business in the future. Most enterprises start in a certain professional field, but continue to expand their business fields and maintain the competitiveness of their core businesses, extending from the construction field to the industry, manufacturing, petroleum and petrochemical, telecommunications and other business fields. The large foreign contracting enterprises ranking top in ENR basically involve multiple industries [12].

3. Risk Response to International Project Contracting

When conducting risk management of international engineering contracting projects, we should not only pay attention to the macro environment of all aspects of the project location, but also comprehensively consider all kinds of risk problems that may be encountered during the project design, construction and operation stages. The key risk points for projects in different regions are different, and specific projects need further specific analysis. From project development, to specific project implementation, and then to various project guarantees, enterprises should establish a life-cycle risk management system. A special risk monitoring department shall be set up for each international engineering contracting project to take timely response measures for various risks that may occur or have occurred [13].

3.1. Project Development

In the project development stage, the basic information of the country where the project is located is studied, and the nine major risks of the project are preliminarily investigated and analyzed. For strategic risks, we should pay timely attention to the relevant national policies and systems, as well as the international political situation, actively study the relevant policy documents of the international project contracting industry, and formulate business plans consistent with the macro environment and the company's strategic development. For market development risk and investment risk, we should deeply understand the owner's political environment, business environment, cultural environment, capital payment, etc [14]. At the same time, it is necessary to grasp the degree of local industry competition through market due diligence, further understand the

relationship between local owners, supervisors and subcontractors, communicate with the owners, determine the scope of the work program and the attribution of relevant tasks and responsibilities, and add the terms of non performance of duties to the owners.

Before construction, the feasibility analysis of the construction project should be done well to determine appropriate design standards, and the awareness of TSI technical standards and other technical standards should also be strengthened. At the same time, it is necessary to actively maintain the relationship with the local government [15].

3.2. Project Implementation

During the specific implementation of the project, regular inspection and irregular spot check shall be conducted on the progress and quality of the project, as well as risk assessment and report. For the project management risk, strictly control the construction project nodes, and timely adjust the project construction mode and construction plan according to the actual needs [16]. At the same time, it is necessary to strictly control the project quality and grasp the initiative of public opinion by establishing a public opinion monitoring system. For subcontractors, liability for breach of contract should be added to the contract to further increase the binding force for effective management of subcontractors.

For the risk of material procurement, the procurement plan of equipment and materials shall be arranged in advance, and the local procurement and import procurement shall be properly selected by comprehensively considering the ordering, transportation, customs clearance, warehousing and other links [17]. At the same time, it is necessary to carefully investigate the performance ability of suppliers and select multiple material suppliers to spread risks.

For safety and environmental protection risks, collect or monitor geological and hydrological data and historical data along the construction project as much as possible, organize construction reasonably, and reduce quality and safety risks caused by natural environment [18]. Regular inspection and maintenance shall be carried out during the construction of the project, and reasonable maintenance and protection measures shall be taken. For areas with poor public security, strengthen the security facilities in the project camp, equip security personnel, set up public security alerts and organize security training drills; Implement a comprehensive environmental assessment.

4. Conclusion

The risk management of international project contracting is very necessary. At a time when the "the Belt and Road" initiative has gradually changed from a Chinese initiative to a global consensus, as an important force and carrier for the implementation of the "the Belt and Road" and international production capacity cooperation, China's foreign contracting industry has played an irreplaceable role. As the business scale continues to increase, the geographical scope, business fields and business models involved are gradually diversified, and the uncertainties in the international engineering market are also increasing, such as the lack of continuity in the policy of regime change in some countries, and the delay in the performance of the owners due to financial difficulties. Only by attaching importance to project risk management can we maintain long-term competitiveness in the international project contracting industry.

The risk management of international engineering contracting projects has both generality and individuality. Different projects need to focus on different risk points, and specific projects need specific analysis. Even projects in Central and Eastern Europe, where the macro environment is relatively stable, are not necessarily less risky than those in Africa. When conducting international project contracting business, enterprises need to conduct multiple analysis, and need to constantly

compare to conduct a comprehensive risk assessment of the project. They can also consider quantifying the risks by analyzing the various risk points faced by the project.

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