



Research on the Whole Process Cost Consultation Based on Municipal Engineering PPP Project

Liwei Fang

Wenzhou Polytechnic, Wenzhou 325035, China

Abstract: Under the guidance of Xi Jinping's new era of socialism with Chinese characteristics, my country's engineering consulting industry has entered a new period of development, and the whole process of engineering consulting pilot work has been steadily advanced. In addition, as the PPP model is widely used in infrastructure projects, how to ensure the successful implementation of the project and the interests of both parties have become a key issue. Based on the characteristics of both parties of PPP cooperation and the characteristics of whole-process engineering consulting services, this paper studies the application of whole-process engineering consulting in PPP projects, and discusses the important role of whole-process engineering consulting services in PPP projects in terms of service form and service advantages. This project adopts the form of school-enterprise cooperation, combined with the actual project "Wencheng County Urban Pipeline Network Reconstruction Project PPP Project" participated by Zhejiang Sankai Engineering Management Co., Ltd., adopts a whole-process engineering consulting service combination, and focuses on cost (cost) control and management. In terms of teamwork, the allocation of human resources has been further optimized, and various tasks have been detailed and clarified, avoiding duplication and overlap of work content, and avoiding the phenomenon of unclear responsibilities and mutual wrangling; in addition, the strength of university teachers Injection, complementary advantages, while drawing on successful cases and effective experience at home and abroad, rationally applying the theoretical knowledge of the whole process engineering consulting to municipal engineering PPP projects can improve efficiency, reduce costs, and shorten the construction period.

Keywords: PPP project, whole process cost consultation, municipal engineering.

1. Introduction

Whole-process engineering consulting services refer to the provision of engineering consulting services in various aspects such as organization, management, economics,

and technology for the entire life cycle of a construction project. Including the whole-process management of the project and professional consulting services at all stages of engineering construction projects such as investment consulting, survey, design, cost consulting, bidding agency, supervision, and operation and maintenance consulting. The whole process of engineering cost consulting is only one part of it. Its current main business is engineering cost consulting. The enterprise is entrusted by the construction unit to focus on the construction project from the early decision-making stage (project establishment, feasibility study), design stage, and implementation stage (bidding, construction) The project cost in the completion and settlement stage is monitored and controlled throughout the whole process (that is, mainly during the construction period), and consultation opinions on cost decision-making are provided.

The results of the preliminary consultation of most municipal engineering PPP projects need to be linked to the implementation of the subsequent procurement, and the whole process of consultation is required for follow-up revision. The Ministry of Finance recently issued a notice to comprehensively monitor the fiscal expenditure data of the PPP project database, and ensure that the entered data is consistent with the relevant documents and that the data information is accurate and complete. It can be seen that with the large-scale implementation of PPP projects, periodic review and process supervision of PPP projects are carried out to ensure that the pre-consultation and post-execution data are consistent and consistent, and the accounts are consistent. Beware of the actual implementation of the project. Become a trend. In other words, for PPP projects, it is necessary to promote the whole process of consultation in order to ensure timely response to information and prevent responsibility shirk.

2. Background

Caijin [2014] No. 113 "Notice on Printing and Distributing the Operational Guidelines for Government-Social Capital Cooperation Mode (Trial)" also provides a corresponding explanation for the full life cycle of PPP projects: Whole Life Cycle (Whole Life Cycle) refers to The complete cycle of the project from design, financing, construction, operation, maintenance to termination and handover. On the other hand, the whole-process engineering consultation mentioned in the aforementioned Jianshi [2017] No. 101 involves planning consultation, pre-feasibility studies, engineering design, bidding agency, cost consultation, and engineering throughout the life cycle of a construction project. Supervision, pre-construction preparation, construction process management, completion acceptance and operation warranty management services at various stages. From the explanation of the two concepts of full-process engineering consulting services and PPP full life cycle, we can see that because PPP projects involve

the operation, management, and transfer of later project companies, PPP projects require consulting services to cover compared with general engineering construction projects. The cycle is longer, and the whole-process engineering consulting service is also included in the whole-life-cycle consulting service. The whole-life-cycle consulting service is the enrichment of the practical application and extension of the whole-process consulting service.

In recent years, the PPP model has been widely used in municipal engineering projects. Compared with general engineering construction projects, PPP projects must not only provide services such as design, supervision, and auditing in the field of traditional engineering construction, but also provide public services during the operation period to meet the output performance requirements. guide. The PPP project consulting service extends from the construction period of the project identification preparation stage and the project execution stage to the operation stage, so that the integrated application from decision-making to execution can be realized. This requires a consulting company to provide for the entire life cycle of the project. Comprehensive, cross-stage, and integrated overall design consulting services. With the large-scale implementation of PPP projects, it is bound to become a trend to conduct periodic review and process supervision of PPP projects, that is, to introduce whole-process engineering consulting services into PPP projects.

According to the characteristics of construction project contracts, the current contract structure of PPP projects in my country can be seen: In order to lead the PPP project management work, the government implementing agencies of PPP projects need to cooperate with bidding agencies, PPP consulting units, project management (including supervision) units, Cost consulting units, preliminary technical consulting units, etc. have signed relevant service contracts, and the contract management workload is relatively large, which is not conducive to the government's leading and supervisory role in PPP projects. In addition, PPP project companies need to sign design contracts, construction contracts, and material contracts. The project company's project management experience and personnel requirements are relatively high, and the temporarily formed project company may not be competent.

Combining the aforementioned Jianshi [2017] No. 101 full-process engineering consulting pilot and the advantages of the system itself, and taking the EPC model as an example. PPP projects also use the whole-process engineering consulting and engineering general contracting (EPC) construction combined model to form a brand-new contract structure diagram. Among them: the whole-process engineering consulting is mainly responsible for the services such as preliminary project consulting, application for approval and construction, investment management, design management, bidding and procurement management, contract management, project

supervision, and information management. EPC is mainly responsible for the engineering design, construction, procurement, and trial operation of the project. Its purpose is to realize the integration of design and construction, provide the integration of construction project resources, and realize the value-added of project construction. Under the full-process engineering consulting and engineering general contracting (EPC) construction mode of PPP projects, the government can take advantage of the resource integration, internal coordination, and goal unification of the entire process of engineering consulting to give full play to its leading role in the PPP project; General contracting (EPC) realizes the integration of design, construction, procurement, etc., which greatly avoids the problem of insufficient capacity of the project company in the management of construction projects; at the same time, the system allows PPP projects to be integrated from the original engineering construction and management experience. Inadequate communication and coordination between the government and social capital parties have been transformed into coordination and supervision between the full-process engineering consulting unit with rich engineering management experience and the general project contracting (EPC) unit, which greatly improves the construction efficiency of the project and guarantees the PPP Realization of the value-added goal of project construction.

3. Process

As a university teacher, in order to ensure that the content of the teaching can be used in practice, he should keep pace with the times and always stand at the forefront of the industry. This visit to the work project gave me the opportunity to go deep into the front-line work of the cost industry, and to get a close understanding of the current difficulties and future trends of the industry. Based on the emergence of a large number of municipal engineering PPP projects in my country and the construction market's eager desire for full-process engineering consulting services, this project will cooperate with Zhejiang Sankai Engineering Management Co., Ltd. through actual participation in engineering projects to carry out the "Wencheng County Urban Management Network transformation project PPP project full-process engineering consulting service" project research, collated and summarized related materials and documents, reflected on the difficulties and problems of the project in the process, proposed constructive relevant measures, and summarized and refined the results. The solution, strive to be applied to similar construction projects in the future.

4. Current Problems

4.1 Imperfect knowledge system and lack of corresponding professional talents
Engineering consulting for PPP projects has high requirements for professional and

compound talents, and requires professionals involved in finance, engineering management, and law. Therefore, the requirements for consulting agencies are relatively high. Many engineering consulting agencies know little about PPP business consulting and have insufficient capabilities. For many engineering consulting services, especially the new field of PPP project consulting, most engineering consulting agencies and practitioners are not yet familiar with it.

4.2 The business is relatively concentrated, with a wide range of professional fields. Traditional consulting agencies only participate in a certain part of the construction project, and the participation time is short. At the same time, PPP projects involve many stages, and management consulting services also have many aspects and are more complicated. PPP projects involve a variety of infrastructures, and the large professional span easily makes it difficult for cost consulting units to adapt to traditional construction models.

5. Effective Way to Solve the Problem

5.1 Deepen the integrated consulting business and strengthen the talent pool. According to the characteristics of the PPP project consulting business, the consulting agency has established a special department and equipped with a certain number of qualified personnel to provide information collection for the implementation of the PPP project, internal and external contacts, and system adjustments related to the statistical information of the results work. Enterprises need to strengthen the awareness of talent reserve, and form a stable project team and talent echelon to achieve the sustainable development of consulting enterprises as much as possible.

5.2 Actively play the role of communication and coordination of engineering consulting agencies

As the bridge between the two parties of the PPP project, the engineering consulting agency plays a very important role in the implementation of the project. It is necessary to regularly organize project information exchange meetings and PPP project consultation report meetings to promote information exchange and common development of the industry. Engineering consulting agencies should conduct professional knowledge training and assessment for employees to standardize their operations, and hire experts to regularly inspect employees and answer questions for them, improve the professional quality and technical quality of the entire team, and establish a professional team.

6. Application Advantages of Whole Process Management in PPP Projects

6.1 Simplified structure management

Using the whole process of engineering consulting, its consulting unit participated in

the work of the PPP project when the project began to discuss, and participated in the entire process of the work. In this process, the government only needs to sign a contract with it, and can use it to complete the management work at each stage of the project, and also complete the consulting management work at each stage of the project. This not only promotes the improvement of project management efficiency, but also avoids more risks for the government.

6.2 Systematization of contract management

The government's insufficient experience in PPP project cooperation is prone to various problems, especially when the terms are signed, if the government cannot make the most favorable identification of the terms in time, it will cause profit risks. In the project management that cooperates with the whole-process engineering consulting unit, the enterprise unit has more management experience, can identify in various terms, and help the government choose more favorable terms, and then put forward reasonable suggestions to ensure that the PPP project is concluded. The various contracts are conducive to the interests of the government and the project.

6.3 Comprehensive investment control

The whole process consulting unit will use its relevant experience to do a good job for the government in actual construction. Whether it is design budget or construction drawing design budget review, there is a strict process. In addition, because the government represents the income of state-owned assets, in order to increase the investment income of state-owned assets, the consulting unit will also conduct more stringent verification of on-site visas during the construction phase to ensure that the government is more comprehensive. The investment is controlled within a reasonable range.

6.4 Systematization of quality management

In PPP projects, the social capital party generally undertakes the work of project construction. During the process of participating in cooperation, it mainly seeks to maximize the benefits. During the construction process, it is difficult to carry out the construction work in accordance with the requirements of the construction drawings. As a result, problems frequently occurred during the construction process. The whole-process engineering consulting unit represents the government's interests. It tends to pay more attention to construction quality in its work, and it will pass strict rules and regulations and personnel supervision during construction to ensure that the construction process is in accordance with laws, regulations, and drawings. In order to do a good job of quality management more systematically.

6.5 Scientific safety management

In the process of infrastructure projects, safety issues are particularly important. As a kind of infrastructure projects, PPP projects should pay more attention to their safety

management issues. In the process of work, the whole-process engineering consulting unit, as a representative of the government's interests, will provide more scientific safety management for the entire project construction process through relevant system guarantees, and eliminate possible safety problems through timely survey management of the construction site. It not only ensures the public welfare of the project from the root, but also provides a reference for the smooth advancement of government infrastructure projects.

6.6 Progress control rationalization

At present, many government-led and promoted infrastructure projects have certain problems in construction. The more important problem is construction delays, especially in the whole process of PPP project management, the government does not have a relevant responsible team and management experience has caused the problem of lag in construction. With the help of the whole-process engineering consulting unit, it can make a scientific schedule management plan on behalf of the government, and put forward adjustment suggestions and suggestions, thereby providing a guarantee for the normal operation of the construction schedule.

7. Conclusion

Under the general environment of focusing on promoting the development of domestic PPP projects, engineering consulting agencies should give full play to their own advantages, integrate corporate resources, innovate and develop, and adapt to the new development situation. Engineering consulting for the whole process of PPP project is an innovative activity, but also a high-value-added consulting business. The traditional consulting model can no longer meet the requirements. The engineering consulting industry with engineering and project management advantages should seize the rare opportunity to focus on the entire process of PPP project engineering consulting, and deepen the expansion of PPP project consulting business, so as to achieve engineering consulting that can save investment, increase project value, and save service costs.

8. Acknowledgements

Thanks to everyone who supported and helped this article. In addition, I would like to thank the Zhejiang Provincial Department of Education for the support of the 2020 High School Visiting Engineer School-Enterprise Cooperation Project (project number: FG2020064).

References

- [1] Zhang Zhihui. The development process and problem analysis of China's PPP model[J]. *Manager*, 2017(30).

- [2] Ministry of Housing and Urban-Rural Development of the People's Republic of China, Notice on the Pilot Project of the Whole Process Engineering Consultation [DB/OL]. Jianshi [2017] No. 101.
- [3] Wang Kai, et al. Research on model construction and optimization strategy of consulting knowledge value chain in the whole process of PPP project[J]. Journal of Jilin Radio and Television University, 2018(04).
- [4] Dong Xin. Research on the adoption of PPP model in my country's infrastructure projects [D]. Chengdu: Southwestern University of Finance and Economics, 2016.
- [5] Feng Linlang, Tao Shengjian, Hu Xinzan. Application research of whole-process engineering consulting in PPP projects [J]. China Engineering Consulting, 2018(21).
- [6] Wang Guangyuan, Li Lei. Discussion on the development positioning of engineering consulting in the government and social capital cooperation (PPP) mode [J]. China Engineering Consulting, 2015, (13).
- [7] Zhao Lilong, Wang Wenhua. Opportunities and challenges brought by PPP projects to the engineering consulting industry [J]. Project Cost Management, 2017, (02).
- [8] Huang Ying. Practice and thinking of engineering consulting service under PPP mode[J]. Practice exchange, 2017, (01).
- [9] Feng Linlang, Tao Shengjian, Hu Xinzan. Application Research of Whole Process Engineering Consulting in PPP Projects[J]. China Engineering Consulting, 2018, (21)