

Explore of Engineering Consulting on Institutional Improvement in a View of Engineering Philosophy

Wei-Dong Wu¹, Ren-Yi Zhu²

¹South West Petroleum University, Chengdu 610500, China;

²School of engineering and civil engineering, South West Petroleum University, Chengdu 610500, China;

E-mail: ¹845506951@qq.com ; ²316700699@qq.com

Abstract

Abstract. By recognizing the new market conditions of the engineering consulting industry in China, the author explored the drawbacks of the engineering consulting industry system from an engineering perspective of philosophy. And then six new entry points of engineering consulting industry on institutional improvement was proposed by means of analyzing specific issues, making great significance to the healthy development of engineering consulting industry.

Keywords: Philosophy of Engineering; Engineering consulting; Institutional improvement.

1. Introduction

Since the 1998 Asian financial crisis, the Chinese government increased investment to ease the financial crisis brought about by the recession atmosphere. so the infrastructure construction and housing construction was carried out in full swing in china. For a variety of reasons, some seriously substandard quality of construction projects (such as the "Building collapses") one after another "exposure", which gave rise to the construction industry and the state government's strong attention. To ensure the quality of construction, the state authorities had taken series of effective measures, such as a project manager responsibility system, strict construction; consulting unit must perform construction procedures, strict implementation of the project decision-making advisory evaluation system. These initiatives are a strong push to carry out the principle of "prior consultation. Furthermore, the project owners paid more attention to the role of consulting engineering, which provided a fertile ground for engineering consulting industry in China. During this period the number of engineering consulting firm and employees increase rapidly. The total Grade cost consulting enterprises reached 1850, Certified Cost Engineer 120 thousands, which has made great contributions to China's construction. However, many bad headache problems emerged simultaneously.

2. Inherent relationship between engineering and philosophy

The two basic activities Philosophy and the project is an integral part of modern society, which need to think in a philosophical level, from a "conquest of nature" to "Harmonious Engineering". Furthermore, engineering concepts penetrate into the whole process of construction activities and profound impact on the project strategy, engineering decisions, project planning, engineering design, engineering construction, and project management, which largely determines the success and efficiency of the project. In addition, the project is directly related to the public interest and social well-being, so engineering activities must be understood and participated by the public. Philosophy of Engineering has a strong practical and

application value, and its research and popularization activities in the project will enable us to avoid detours, to improve efficiency and effectiveness. Following the concept of philosophy in engineering construction activity, the builders can analyze all aspects of construction problems methodically.

3. Chinese engineering consulting industry development status

Since the Administration promulgated the fundamental law of the "Construction Law", the construction companies, survey and design units, engineering supervision and other units of the qualification, licensing and legal liability are expressly provided except engineering consulting industry, which leads to the consulting industry's role and status indefinite and the legal liability unclear. In addition, there is a confliction between the relevant provisions formulated by the National Development and Reform Commission and the scope of practice of registered consulting engineer (investment). It will inevitably lead to the practitioners of consulting industry irresponsible, affecting the engineering consulting industry developing healthily and rapidly.

Nearly 20 years, the engineering consulting industry has achieved unprecedented development and the number of employees increased rapidly. However, at the same time, the quality of our manpower has been declining. It arose a troubling and irregular phenomenon in the consulting industry market, which inevitably reduced the quality of consulting service.

This paper analyzes the latest market situation and the problems in a dynamic point of view. Moreover, And then six new entry points of engineering consulting industry on institutional improvement was proposed by means of analyzing specific issues, making great significance to the healthy development of engineering consulting industry.

4. Philosophical entry points to improve engineering consulting industry

4.1. Public Participation - improving engineering consulting industry laws and regulations

To ensure engineering consulting market in legal and regulatory environment, the engineering consulting industry should draw up Legislation and regulation based on China's national conditions. Now with the rapid development of network technology, basically 99% of college students (college students, undergraduate, graduate) can come into contact with the network, even savvy, as well as white-collar workers, business leaders and economic class elites. To achieve this goal, the national government should launch a number of online forums, such as engineering consulting industry reforms forum, building energy conservation forum.

In this way, whether the building staff or officers engaged in commercial economy, they are available in this building forum to express their views and opinions. Then, the government organized a number of full-time staff to sort out organize forums. There will be a lot of views or opinions beneficial for the engineering consulting industry reform. Once adopted, the sponsor should offer them some mental or substance awards to encourage them to serve for the national construction industry better.

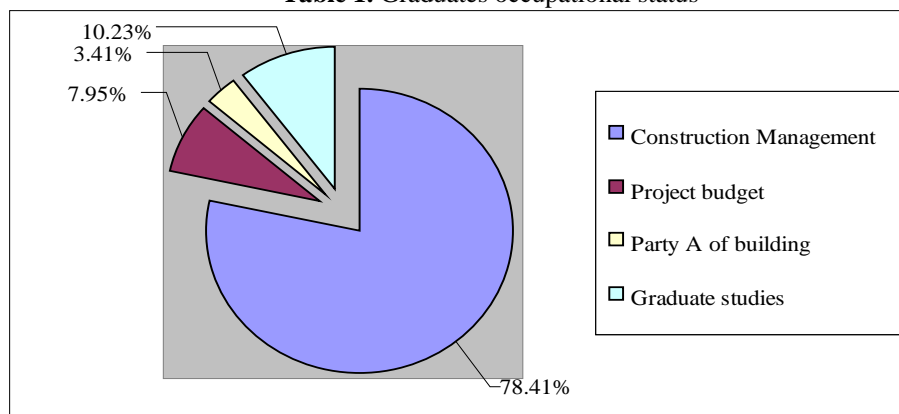
4.2 Philosophical concepts in engineering training - hiring engineering talents

Engineering talents and scientific talents are two different types of people, which possess their own characteristics and laws of education. So the school authorities should cultivate engineering talents in appropriate way, instead of following the ideas and methods of training scientific talents. Engineering Consulting is a technology-based and intelligence-intensive service industry. The pros and cons of the quality of talent is closely related to the quality of service level. Furthermore, it will affect virtually

consulting industry's image. To ensure the companies recruit the best engineering talents, it is necessary to implement a new concept philosophy of engineering in training processes according to the market needs and requirements.

Here is an employment survey of project management class graduates. The investigators issued a total of 91 questionnaires by means of the network, and received valid questionnaires 88 copies, 2 copies invalid questionnaires, a distorted questionnaire. The findings that graduates engaged in work are as follows. (see Table 4.1)

Table 1. Graduates occupational status



According to market conditions, engineering consulting employees should not only be familiar with national economic policies and regulations, but also proficient in certain areas of expertise. And they should be familiar with market research and forecasting analysis, good economic evaluation and risk analysis. With background of the project management college students, undergraduates, management science and engineering graduate students are just familiar with construction laws and regulations. In addition, they can use the computer for financial evaluation skillfully, technical and economic assessment and risk identification and analysis. By possessing certain project management knowledge, they increasingly become the best choice engaged in engineering consulting industry. However, due to the situation in China, Engineering Consulting only focus on the "image" (is not a party member, student leaders) rather than the expertise during recruitment. It resulted in a large number of project management compound talents had to choose construction industry to make a living, which caused a huge waste of consultative talent, buried many complex talents best for engineering consulting industry. If the consulting units can give priority to recruit project management class college students, undergraduates, and graduate students and offer them a platform to display their talent from the long-term interest, it will create a number of compound talents not only understand the law but also be able to manage. Accordingly, the work efficiency engineering consulting industry can be improved significantly as well as enhancing the corporate image.

4.3 Linking theory with practice -- to encourage universities to open engineering consulting practicum

Although engineering undergraduate and graduate own the relevant knowledge of engineering consulting, and they can also be engaged in engineering consulting work. But we all know, after all, they

did not learn the depth knowledge in engineering consulting field. Similarly, they have no person engaged in engineering consulting services to communicate experiences. Therefore, they will be seriously lack of the actual experience related to consulting services. Take the examples of the actual structure of the framework; they can only rely on imagination to guess. It will undoubtedly affect their understanding of the consulting industry, reducing the quality of advisory services! If the majority of universities open construction project consulting practicum, college students can, face to face, communicate with on-site engineering consulting teachers. And they can carry out the consultation theoretical research, thereby improving the level of engineering consulting services. These graduates will be able to adapt to the engineering consulting work quickly, avoiding the embarrassing situation that lots of graduates cannot find a suitable job after they enter the society. The graduating college students can quickly be qualified for their work, which will, in turn, prompt engineering consulting unit to give priority to these potential graduates in the recruitment. As a result, consulting graduates will be easier to find a suitable job to ease the employment pressure on society, and engineering consulting units can also hire outstanding consulting talent, too.

4.4 Rights and responsibilities - the implementation of engineering consulting guarantee system

The laws and regulations of engineering consulting industry are not very healthy and community recognition for engineering consulting industry is not enough. It lead to this phenomenon that most consulting firms just to seek the profits instead of providing the requester with really high quality service. Therefore, in order to establish corporate image of engineering consulting agency and regulate the market of construction engineering consulting functioning healthily, the government should implement consultation guarantee system to improve the quality of service and credibility level of engineering consulting. Once implemented the engineering consulting guarantee system, the advisory body have to provide financial guarantees issued by financial institutions and other security agencies when signing a contract business. Furthermore, the financial institutions will carefully examine the affordability and credit conditions of engineering consulting agencies before deciding to give a guarantee. So the engineering consulting agencies will spare no effort to improve their operational capacity and continuously improve the quality of services in order to establish their own good image in the public mind. In addition, they will also enhance their competitiveness in the market, forming a virtuous circle of market consulting industry. If you really can do this, the engineering consulting industry will develop healthily.

4.5 Advancing with the times – the establishment of Legal person Responsibility in engineering consulting industry

The significance of engineering consulting industry is to provide professional and technical services for government departments, construction units, construction units and design units, which want to facilitate its scientific decision-making. And now the actual situation in China is that the engineering consulting industry has many drawbacks, such as some consulting practitioners dealing with it arbitrary, copying data on similar projects with a little modification rather than establishing the specific consultation report according to the actual project. There is no doubt that it ignored the real significance of existence of the engineering consulting industry. The reason is that engineering consultants, information is for reference only and it is easy to get their profits. As a result, even if the advisory information brought serious losses to the commissioning party, they would not have any serious

responsibility. Given this reality, the Chinese government should establish Legal person responsibility of advisory body similar to the project manager responsibility system, which is beneficial for the engineering consulting industry market to function healthily and making some constraints to unreasonable conduct of the engineering consulting personnel. Legal person responsibility should establish such provisions. If engineering consultants or agencies have a significant error, causing serious economic losses to the commissioning party, it should make reasonable compensation. In addition, the advisory body should be punished of reducing its Enterprise Qualification or suspending its Business license. The practitioners with serious mistakes should be training and education or got a punishment for limiting their practicing certificates. Serious cases will be recorded in their personal credit file. For the consulting engineering practitioners with their personal credit file exceeding the specified number, they cannot be hired for life.

4.6 “Act according to actual circumstances” –Distinguish between grade-1 certified consulting engineers and grade-2 certified consulting engineer

In order to urge China's engineering consulting industry to develop healthily and steadily, the government departments must constantly advance our engineering consulting industry institutional improvements and vigorously promote the engineering consulting industry restructuring. In order to meet construction needs of the market, a comprehensive qualification hierarchy with international practice should be established timely.

Nowadays, because of the strict examination condition for engineering consulting engineers, a lot of people have to deliberately register consulting engineer qualification. However, due to the shortage of personnel engaged in consultation business, many consulting engineers who do not get registered qualification certificate have the opportunity to engage in this work. It occurs a shoddy phenomenon, which seriously affected the consulting corporate image.

Given this situation, the effective policies to divide grade-1 certified consulting engineers and grade-2 certified

consulting engineer should be quickly introduced. In addition, the conditions that grade-2 certified consulting engineers entering themselves for an examination should be relaxed a little. Such obtain grade-2 certified consulting engineer qualified consulting engineering staff can join the low qualification advisory unit, engaged in small projects engineering consulting work. Meanwhile, grade-1 certified consulting engineers can provide more complex larger projects consulting services, avoiding the undesirable shoddy phenomena existing in engineering consulting industry. As a result, two levels of registered consulting engineers have a clear division of responsibilities and the scope is clear. You can first obtain grade-2 certified consulting engineer qualification to engage in simple consultation companies, and enterprise will also hire a professional qualification certificate of engineering consultants to work. It will prompt the advisors, weak in technical knowledge, to improve themselves and broaden their knowledge through their own learning. Only in this way can engineering consulting market achieve healthy competition among consultants, ensuring our country's engineering consulting industry into the track of healthy development.

5. Conclusion

As China's engineering consulting industry started relatively late and a lot of engineering consulting industry laws and regulations should be improved, there are many shortcomings and objective difficulties.

Based on the current situation at the present stage of China's construction and engineering consulting industry, the article analyzed specific issues of engineering consulting agency and explored some new entry points for institutional improvement. There is some positive significance for engineering consulting industry developing well. Engineering consultants should guide the engineering activities in line with the concept of engineering philosophy, vigorously implement the construction project engineering "first consultation, after making" principle and respond positively to the great scientific concept of development strategies. So they should make their own contributions to the healthy, steady and harmonious development of the engineering consulting industry.

Acknowledgments

This paper was supported by the Department of Civil Engineering and Architecture, Southwest Petroleum University. In addition, I am very grateful to my mentor to give guidance in the writing process, and to the students to give me a help.

References

- [1] Jiang Xiaoyan, Zhu Jianhua. China Engineering Cost Consulting Industry Sustainable Development Strategy. Construction Economics, 2011, (6) 6-9. (in Chinese)
- [2] The Notice of National Development and Reform Commission on the issuance of Engineering consulting Industry Development Plan 2010-2015 .National Development and Reform Commission, 2010. (in Chinese)
- [3] Yin Yilin. Chinese Engineering Consulting Industry and Professionals System. (1st ed) Tianjin: Tianjin University Press, 2006. (in Chinese)
- [4] Jiang Younv, Liu Xueqin. The Development of the Project Cost Consultation Industry. Construction Science and Technology, 2009 (9). (in Chinese)
- [5] Wang Shuang. Engineering Cost Consulting Fees for Institutional Presence Problems. Guide to Business, 2012 (4). (in Chinese)
- [6] Wang Zheng. On the engineering consulting industry development status and trends. Chinese Consulting Engineers, 2008, (9) : 39-40. (in Chinese)
- [7] Bai Yunshan,Wang Liwen. Reflections on the engineering consulting industry in our country [J].Construction Economy, 2006 (9). (in Chinese)