

## Study on the Post Evaluation System of PPP Project

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**Abstract.** Due to the complexity and variability of PPP projects, the necessity of post-project evaluation is clarified. By comparing with the post-evaluation model of general construction project, the content of evaluation system after PPP is analyzed. From the evaluation of the post-process evaluation, benefit and impact post-evaluation, post-evaluation of public and private cooperation, and post-evaluation of sustainability, the contents of them are introduced. In view of the shortcomings of the current post-evaluation, this paper puts forward feasible suggestions for China's PPP projects in the future.

### Introduction

As the country vigorously promoted the construction of One Belt And One Road, the domestic infrastructure construction also achieved rapid growth. Capital pressure, long construction period and high project risk also mean that traditional construction methods are no longer suitable for such projects. PPP mode is one of the most suitable construction methods for infrastructure. Post project evaluation refers to a kind of management activity after the project construction is completed and put into use or operation for a certain time, which is to compare the main contents of the project feasibility study report and the examination and approval documents, contrast and analyze the actual effect achieved after the completion of the project, find out the gap and the reasons, summarize the experience and lessons and put forward the corresponding countermeasures and suggestions to improve the construction and operation efficiency of the project, and become the basis of improving government investment supervision system and accountability system. According to the need, it can also be used to evaluate the project construction and the operation process. Since PPP projects involve more massive capital, more public welfare and attention, its construction and operation are directly related to the public welfare and the government's credibility. Therefore, it is imperative to introduce the post-project evaluation mechanism in PPP project management.

### Necessity of Post project evaluation

#### It is the demand to deal with project variability and complexity

On the one hand, PPP projects involve a large number of participants, including government, Banks, builders, operators, purchasers and third-party institutions such as insurance and law. In the construction of the project, different participants have different attention to priorities for the project. It is difficult to balance the interests of all parties. Once there is a change of design and construction period, there will be contradictions between the parties, whether to find reasonable and effective measures in the changeable construction environment is the key to the success of PPP projects. On the other hand, China's PPP projects currentl

They exist in three areas: natural resource development, infrastructure construction and public service facilities. Many large and complicated projects, such as power plant, sewage treatment plant, airport, railway, underground transportation network, communication, etc. It is not only the problem of large amount of project funds and long construction cycle, but also the characteristics of dynamic nature and openness in project management. For such a complex system, we need review and summarize the project practice activities by the Post project evaluation. Determine whether the project's expected goals are met, whether the project is reasonable and effective, and whether the project's main benefit indicators are realized, and find out the reasons for the success or failure of the project, and summarize the experience and lessons to provide valuable reference information for China's PPP projects.

### **The performance of PPP projects is increasingly valued by both public and private parties**

With the popularity of PPP projects, the proportion of government's budgetary investment in the country's fiscal expenditure has increased year by year, rising from 10% in 2003 to 20%. Whether the government or the private sector focuses on whether it can "win-win". Because project participants are different, the time nodes of participating projects are different. For the private sector, it is necessary to focus on the financial situation from the beginning of the project to the end of the project. For the public sector, more attention is paid to the post project evaluation of economic benefits, because from the beginning of the operation to the end of the project life is the main benefit period of the public sector. The post project evaluation of PPP projects will help to improve the decision-making level of the participants, and more scientific and rationalized in the management and investment of the funds, so as to avoid the blind use of project funds.

### **Differences between the post evaluation of the PPP project and the post valuation of general construction project**

(1) The contents of the post project evaluation are different. The post valuation of general construction project mainly includes project objective evaluation, implementation process evaluation, project financial evaluation, project social benefit and impact evaluation, sustainability evaluation; compared to the general construction project and as a public-private partnership project, the public-private partnership evaluation of the project is also necessary, in order to balance the interests of all parties and build a reasonable risk sharing system.

(2) The scopes of the post project evaluation are different. The post project evaluation of general construction project is a comprehensive analysis of the project decision-making, construction objectives, design and construction, completion acceptance and the whole process of production and operation, as well as an evaluation of the financial, economic, social and environmental benefits and sustainability after the completion of the project. The implementation process evaluation is the implementation process analysis of the whole project, including prephase work evaluation, construction implementation evaluation, production operation evaluation and management evaluation[1]. The evaluation scope should include the whole construction cycle of the project. The objective evaluation is to investigate the the degree of realization of the objective, and the evaluation range is from the decision period of the project to the completion of the project. The financial evaluation is to reevaluate the actual benefits after the production begins. In order to investigate the yield, loan repayment period, as well as the difference between product cost and forecast value, the financial evaluation of the post evaluation should be made from the completion to the production and operation stage. The purpose of the social benefit and

sustainability evaluation is to focus on the results and effects of the project after completion, so this scope should be defined in the production and operation stage ; while for the PPP project, after the completion of the project, there exists a handover process of the project, whether the project in BOT mode is transferred to the government public sector or jointly owned by the public and private. Therefore, in order to investigate the sustainable social, economic, environmental and partnership impacts of the project, the project handover phase should also be included in the scope of the sustainability evaluation.

### **Main contents of the post evaluation of the PPP project**

(1) Post process evaluation : The post process evaluation of the PPP project should run through the whole life cycle of the project, collect relevant information and summarize the problems existing in the process of construction and operation, and provide help for the construction and operation management units. Post process evaluation should be carried out in three stages: decision-making stage, construction stage and operation stage. In the decision-making stage, through the post evaluation of the project planning, feasibility study, risk assessment, financing scheme and bidding work, analyze whether the project decision is correct, whether there is deviation from the expected construction objective, and whether the economy is reasonable or not; in the construction stage, evaluate the implementation of equipment procurement, construction schedule, construction quality, project supervision and other aspects; in the operation stage, evaluate the operation of the project during the period from operation to handover, including the product market situation and the supply of raw materials.

(2) Post evaluation of benefits and impacts : When the project is put into operation for a certain period of time, analyze the project cost and benefit from a financial perspective, which includes not only the benefit of the project itself, but also the external benefit of the project. The evaluation contents can be divided into two parts: internal benefit and external benefit. The internal benefit refers to the construction cost and operation cost of the project, and the external benefit refers to the benefit generated by the project consumers and the peripheral benefit of the project.

(3) Post evaluation of public-private partnership : Due to the large number of participants in the PPP project, the participants have different concerns, and different interest preferences. The evaluation of public-private partnership is mainly to balance the interests of all parties and build a reasonable risk sharing system and a fair franchise agreement[3]. Therefore, the post evaluation of public-private partnership can be divided into three parts: post evaluation of risk sharing, post evaluation of franchise agreement and post evaluation of supervision system. The post evaluation of risk sharing aims at the public-private partnership project, the possible risks and the possible impacts brought by the project itself, and examines whether the project is implemented in accordance with the established risk sharing principle and whether unexpected risks have occurred; the franchise agreement is the core content of the PPP project, and the confidentiality, systematicness and scientificity of the agreement will be the key to the success of the project, so the post evaluation of franchise agreement is necessary to examine the performance of the project after the execution of the franchise, explore whether it is necessary to revise the defective parts in time and change them in time[2].

(4) Post evaluation of sustainability : The post evaluation of sustainability is a dynamic evaluation process in order to explore the sustainable development of the PPP project and the coordination degree with the existing facilities. It includes the evaluation of sustainability factors and the evaluation of sustainable state. The factor evaluation includes the scientificity and rationality of the project itself, and the coordination degree with the external environment; the status evaluation includes the evaluation of social, economic and environmental impacts as well as the partnership of the project.

### **Existing problems in post-evaluation of PPP projects**

(1)The post-evaluation execution subject is not clear.At present, the execution bodies relevant to the post project evaluation in China include the NDRC National Investment Project Evaluation Center, NDRC Major Project Office, Ministry of Finance Investment Evaluation Center, China Development Bank Verification and Evaluation Department, China International Engineering Consulting Corporation Post Evaluation Bureau. In general, the post evaluation team shall be established jointly by the demand department, national finance department, audit department and the experts dispatched by the third party organization, but in many cases, due to various reasons, the internal agencies will be directly appointed to be responsible for the post project evaluation. This way of self-evaluation can save time and cost, but it is difficult to judge whether the project can be evaluated objectively and impartially.

(2)Value benefit evaluation and despise sustainability evaluation. Due to the short time of the PPP project development in China, and the lack of risk and responsibility consciousness and comprehensive quality of both sides, the post evaluation is not paid enough attention to. The post evaluation work is not carried out actively, which only unilaterally attaches importance to financial evaluation and national economic evaluation[4]. But it's worth noting that the sustainability evaluation is an important basis for the long-term development of the PPP project. Most of the PPP projects are infrastructure projects that have important impacts on the natural environment and social economy, so simple economic evaluation has been unable to reflect the value of the project.

### **Improve the countermeasures and Suggestions of PPP project evaluation system**

We must strictly carry out the process of post-evaluation and implementation standards.Firstly, according to the current situation of China's PPP project application, the post-evaluation system in line with China's national conditions should be formulated.Then we will strengthen the investment in the post-evaluation working capital, set up special funds.Finally, attention should be given to the recruitment of post-evaluation managers,both the government and the private sector should cultivate a number of professional post-evaluation staff.These suggestions are expected to be helpful to the evaluation of Post project evaluation of PPP.

### **Conclusions**

Post-evaluation work has important strategic significance in PPP projects.Not only to sum up the previous work, but also to improve the efficiency of subsequent work.The post-project evaluation work is not only to improve the management level of the project, but also a necessary step for the development of PPP projects in China.Post-evaluation work is also

crucial to the development of the social economy, We need to solve the existing problems as soon as possible to realize the scientific engineering management of our country.

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