

Significance and Measures of Realizing Multiple Values of Engineering Projects

Rui Zhang*, Yunning Hu

Southwest Petroleum University, Chengdu 610000, China

Abstract: In today's society, engineering projects should not only be aimed at achieving economic benefits, but also take into account their multifaceted impacts on the environment, society, and culture. Many scholars have conducted long-term research on the multifaceted value of engineering projects and achieved certain results, but few have proposed a comprehensive discussion on the multiple values of engineering projects. Therefore, achieving the multiple values of engineering projects has become a top priority. This article will analyze and discuss the multiple values of engineering projects separately, explore the significance of their implementation, and provide different suggestions for realizing various values.

Keywords: Engineering project, Multiple values, Balance, Ethics.

1. Introduction

An engineering project is a collection of engineering activities planned, designed, implemented, and managed by a project team to achieve specific objectives. These activities typically include the phases of defining project objectives, preparing project plans, allocating resources, engineering, construction, testing, acceptance and operations. Engineering projects can involve various fields, such as construction engineering, infrastructure construction, information technology, environmental protection, etc. Engineering projects are very important for social and economic development. However, more aspects need to be considered. At the beginning of development, some engineering projects lack of consideration in many aspects. At the beginning, good economic benefits have indeed been achieved, and other problems have not appeared. However, with the passage of time and the development of society, more problems begin to appear. Some environmental and social impacts begin to erode the benefits of the project and cause other greater impacts. On the contrary, more funds should be used to make up for it, so many aspects of influence should be considered at the beginning of the construction of the project. Macroscopically speaking, engineering has great positive value for human beings, and any viewpoint denying this positive effect and positive evaluation of engineering is wrong. Microscopically speaking, that is, from the perspective of specific engineering projects, engineering activities, as people's conscious and active changes and natural practical activities, have strong value-oriented. Engineering can serve many purposes, that is to say, engineering not only has economic value, but also scientific, political, social, cultural and ecological values. Engineering as a natural creation of change is a comprehensive integration of the environment, economic management, environmental ecology and culture and other aspects of the whole. The realization of multiple values of engineering projects can not only bring economic, social, environmental and other benefits, but also it is very beneficial for the long-term development of the company to bring social reputation and fame to the company, so it is extremely beneficial to realize the unity of multiple values of engineering projects not only for individuals, companies and society, but also for the

development of human society. Therefore, it is particularly meaningful to study the multiple values of engineering projects.

2. Literature Review

Wei Feng [1] thinks that during the construction process of the project, because the construction process is often affected by various factors, especially the economic impact, the economic value of the project also includes many aspects, so the treatment of economic value is particularly important for the project; Zhao Jianjun and Ding Taishun [2] think that the value of engineering projects is different in different times, but it is fundamentally inseparable from economic value and environmental value. In different times, we need to put forward different thinking and schemes for the multiple values of engineering projects. Wang Xiaozheng [3] proposed to combine environmental protection and resource conservation into traditional engineering projects, which can not only improve the economic value of the project, but also fully protect the environment and enhance the environmental value, which meets the needs of China's development. Zhang Xiuhua [4] thinks that engineering activities are carried out from the expectation of engineering value. Engineering value has hierarchy, one is called utilitarian value, the other becomes humanistic value. Without the engineering that creates value, it is difficult for people to base themselves on society. Zhang Kunmin [5] believes that development should be scientific. At the beginning of our country's development, in order to rapidly improve the economy, we greatly increased the output in many heavy industries, thus causing certain environmental pollution and damage. Now we should consider more environmental impacts in the construction of engineering projects to promote sustainable and long-term development. Wang Xihong [6] believes that a low-carbon, energy-saving and environment-friendly development path is not only a problem considered at the national level, but also a development path that should be included in the thinking of various enterprises and projects. Under the guidance of China's "carbon peak" and "carbon neutralization" policies, enterprises should carry out projects with positive environmental value, which should not only meet the actual needs of their own enterprise development, but also consider the long-term development and national policy unification

level. Xu Peng and Liu Liyan [7] proposed that enterprises should set their own carbon pricing and then deal with the risks of climate change by reducing carbon emissions and reducing carbon emissions in the process of operation to enhance their own value. On the one hand, this shows that the environmental value realized by enterprises in certain ways can promote the enhancement of other values of enterprises; Shu Li, Ding Bo and Han Fei [8] put forward the theory of ecological harmony, which means that engineering projects need to consider the sustainable development of the project. Green engineering does not only mean reducing pollution or no pollution, but also more reasonable use of various resources, especially the use of recyclable resources in the project to embark on the road of sustainable development.

3. Significance and Realization Suggestions of Multiple Values of Engineering Projects

Ethics is the pursuit of human good value, if there is no good meaning and value, no matter how valuable the project cannot be said to have value, so this is a big problem. Engineering has multiple value effects, but among them, the value of ethical significance to human beings (good) should be put first instead of economic benefits (value) [9]. The multiple values of the project discussed in this article include the following:

3.1. Economic Value

Economic value is one of the main purposes of engineering project construction. On the one hand, the creation of economic value can meet the living capital needs of employees, and on the other hand, the economic value generated by engineering projects can bring long-term taxation and employment security to the local area. In addition, the construction of engineering projects can promote the technological progress and innovation ability of related industries. Economic value drives the progress of new technologies, and the progress and development of new technologies can also promote sustainable economic development. With the progress of society and the rapid development of market economy, the number of infrastructure projects in China is also increasing, which has led to increasingly fierce market competition in the construction industry, and construction enterprises are facing greater pressure. At the same time, the scale of construction projects is increasing, and the required funds will also increase accordingly. The relevant parties of the project need to take more measures. Here are some suggestions and measures to achieve positive economic value of engineering projects:

(1) To analyze and evaluate the market and demand, the construction of engineering projects must meet the needs of the market and the public. Only by building projects that meet the needs of society can we not only meet the needs of society on the one hand, but also quickly withdraw funds from projects that meet the needs on the other hand. We can apply engineering projects to practice instead of building some unrealistic engineering projects that do not meet the needs, which will not only occupy the company's funds but also occupy certain social resources. This is not beneficial to the engineering side at all.

(2) Rationalizing the use of funds, the project faces problems such as large project investment, complex project, long construction cycle and slow return of funds. Relevant

staff shall carry out project construction in strict accordance with the progress of project construction scheme to meet the requirements of fund issuance. Meanwhile, accounting personnel shall do a good job in reviewing various procedures and make accurate records of fund issuance channels and source channels.

(3) Strengthen project cost management control, project construction party should have clear purpose and record for each fund of construction, strengthen internal supervision on fund use, and avoid abuse of construction cost. The finance department, construction party and relevant professionals shall also evaluate the cost of each stage of project construction, determine a reasonable cost range, implement the project construction funds, and avoid fund redundancy and confusion. All parties to the project shall strengthen the formulation and management of the contract, supervise the construction through the contract and supervise the implementation of Party A's funds. Only in this way can the cost be controlled and the efficiency be improved.

(4) Project risk assessment and financing management, the project construction party should fully assess the implementation risks of the project, accurately judge the feasibility of project implementation, which is very important for the completion of the later project and the realization of economic value. At the same time, the construction of the project needs fund support, and the construction party shall formulate complete fund source management to ensure the stability of the fund chain and the safety of payment, and ensure the stability of the project construction.

3.2. Environmental Value

The environmental value of a project refers to the positive impact of the project on the environment, including contributions to reducing environmental pollution, protecting ecosystems, and promoting sustainable development. In the past, engineering projects were all at the cost of serious environmental pollution and high proportion of investment to obtain high income. The long-term result was serious waste and pollution of resources and environment. In terms of project objectives and results, previous engineering projects mainly focused on economic benefits to realize the environmental value of the project. It is necessary to comprehensively consider the design, construction, operation and later management stages of the project, and adopt a series of measures to minimize the negative impact on the environment and promote the protection and improvement of the ecological environment. Here are a few common methods:

(1) Reasonable project construction design, including project scheme design and construction scheme design. The project scheme refers to the design purpose of the project, the interaction between the project and the environment, etc. For example, the design scheme of a factory has a very reasonable pollution discharge scheme, and such project design is very environmentally friendly and reasonable. The project construction scheme is concerned with how the project construction process is carried out, the construction route, the construction progress, what materials are used, etc. The construction of the project should try to use clean technology and green technology to reduce pollution and damage to the environment, select the scheme with the least damage to the environment, select environmentally friendly materials, energy-saving equipment and environmentally friendly technology, reduce energy consumption and emissions, and minimize the negative impact on the environment.

(2) Adopt circular economy concept and optimize construction scheme. At present, some methods adopted in the design of construction project scheme, such as excavation for filling (using excavated earth and stone as filling material) in highway and railway construction, channel excavation for land filling in port construction, concrete filling with excavated waste rock in water conservancy project, reclamation of abandoned slag in construction project, etc., are all simple methods conforming to the concept of circular economy. Circular economy includes the concept of "3R" (Reduce, Recycle, Reuse), as well as the concept of ecological process, and also includes various meanings such as saving resources and reducing environmental impact. To optimize the construction scheme by using the concept of circular economy is a problem that needs to be explored vigorously in EIA. Environmental protection measures should be creatively developed in combination with the specific conditions of construction projects and their environmental characteristics. In particular, it is necessary to continuously learn and understand new technology and process progress, apply it to EIA practice, and promote the progress and deepening of environmental protection of construction projects.

(3) Recovery work after project construction. Some projects inevitably have some impacts on the environment during the construction process, but these impacts are not irreversible. Therefore, upon completion of the project, all parties to the project, especially the construction party, shall recover the negative environmental impacts generated during the project construction process. For example, green plants removed during the construction process shall be replanted afterwards, and even the vacant land generated by the project can be covered with green plants. For other industrial pollution generated during the project construction process, it is necessary to control and deal with it in time.

3.3. Social Value

The social value produced by engineering projects is very common. Different engineering projects produce different types of values to meet various needs of human beings. The purpose of engineering projects is to create value, such as hospitals to meet people's medical needs, park projects to meet people's leisure needs, etc., completing an engineering project with higher quality and higher efficiency and serving the various needs of the people for a long time will meet the social value attributes of engineering projects. Therefore, some measures to realize the positive social value of engineering projects are proposed:

(1) For cultural protection and inheritance, at the beginning of project design and planning, local history, culture, tradition, etc. shall be investigated and understood, and these factors shall be fully considered in the construction of the project. Through reasonable design and planning, the project can protect the local cultural tradition or can be well integrated into the local cultural tradition, and become a great project capable of inheriting culture. New engineering concepts are adopted. The high development of society puts forward higher and diversified requirements for engineering projects.

(2) Engineering projects need to adopt new concepts for project development and construction. On the one hand, sustainable development concepts are implemented in all aspects of engineering construction, and local natural ecology and biodiversity are protected through sustainable development concepts to ensure the inheritance of local

culture; On the other hand, cultural education can be strengthened during project construction, so that more people can know more about local culture by spreading local culture to the local public, and cultural creative design can be increased in project projects to stimulate people's cultural enthusiasm.

3.4. Cultural Values

Cultural value is a relationship that often satisfies people's cultural needs. On the one hand, there are objects that can meet cultural needs, and on the other hand, there are subjects with cultural needs. The joint existence of these two forms a cultural value relationship. The cultural value of engineering projects refers to the cultural satisfaction brought to objects with cultural needs after the completion of the project. It can also be a cultural promotion and inheritance method that an engineering project can bring to the local community, society, residents, etc. The realization of the cultural value of engineering projects is very difficult because culture is often diverse, and different regions and people have different inheritances of culture. The relevant parties of engineering projects often have different understandings of cultural concepts with the local construction site. The following are some suggestions for realizing the cultural value of engineering projects:

(1) cultural protection and inheritance. At the beginning of engineering project design and planning, it is necessary to investigate and understand the local history, culture, traditions, etc., and fully consider these factors. Go into the construction of engineering projects, through reasonable design and planning, engineering projects can protect or integrate local cultural traditions well, becoming a great project that can inherit culture.

(2) Adopting new engineering concepts, the high development of society has put forward higher and diversified requirements for engineering projects. Engineering projects need to adopt new concepts for project development and construction. On the one hand, sustainable development concepts should be implemented in all aspects of engineering construction, and the concept of sustainable development should be used to protect the local natural ecology and biodiversity, ensuring the inheritance of local culture; On the other hand, cultural education can be strengthened during engineering construction, by disseminating local culture to the local public to help more people understand it. Cultural creative design can also be increased in engineering projects to stimulate people's cultural enthusiasm.

4. Comprehensive Realization of Multiple Values in Engineering Projects

Engineering, as a creative practice of reforming nature, is a comprehensive integration of various elements such as environment, technology, economy, management, society, culture, etc. Therefore, generally speaking, a project always contains multiple values. The economic, social, cultural, scientific, ecological, and other values of the aforementioned engineering are the evaluations made by the engineering in terms of its attributes, functions, subjects, and functions. The realization of multiple values is difficult because the construction of a project often focuses on realizing certain aspects of value, especially economic value. At the same time, when realizing other values, it often has a negative impact on

economic value, which is often the most important aspect for the engineering party. Therefore, in order to achieve multiple positive values of the project at the same time, the engineering party should be able to change traditional thinking and pay attention to other values of the project. At the same time, all parties involved in the project should strengthen training in this area, guide actions with ideas, and let the new ideas of multiple values of the project deeply penetrate into their hearts; For the country, guidance and support should be provided at the national policy level to reduce the cost of realizing the multiple values of engineering projects and alleviate the execution pressure on relevant parties; For universities, strengthening ideological training in relevant courses and actively guiding relevant talents is very meaningful for achieving multiple values in future engineering.

5. Conclusion

The value of an engineering project is multifaceted, and its economic value reflects the construction feasibility and expected short-term benefits of the project, which is a value that all parties involved in the project are jointly concerned about; Environmental value is the positive impact that engineering projects will bring to the environment. In the short term, environmental value will have an impact on economic value. Therefore, only the government and public welfare organizations often pay attention to the environmental value of engineering projects, but little do they know that environmental value will have a significant positive impact on economic value in the long term; Social value refers to the impact of engineering projects on local people, communities, and society. As the saying goes, one area nurtures the other. Engineering projects built in different places will have different social values for different places. The positive social value generated by the same project may not necessarily have the same positive impact in other places,

and may even generate negative social value; Cultural value refers to the impact of engineering projects on local culture, customs, social customs, and other aspects. The design purpose of some engineering projects is to have a positive guiding effect on local culture, and the positive cultural value of engineering projects cannot be ignored.

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