

# Chapter 62

## Stakeholders Management in Construction Project: A Case of Hydropower Station Project

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**Abstract** In one construction project, different stakeholders have different objectives. The uncertainties among stakeholders always can bring the project risks and conflicts. This paper's research background is the Luojaohu hydropower station's project management. The paper analyzes the roles of different stakeholders as well as the values and interests they want to gain. Through formulating the stakeholders' management strategy, people can manage and coordinate the construction project stakeholders.

**Keywords** Stakeholder • Construction project • Project management • Hydropower station

### 62.1 Introduction

In a construction project, different stakeholders have different expectations for the construction project, enjoy the different interests, play different roles, and have different purposes and pursuits. In order to ensure the management of construction project success, we must analyze the stakeholders' position, function, communication mode, and management characteristics in the management of construction project. We can see from research situation at home and abroad that stakeholder theory research mainly involves the foundation of stakeholder participating in management, as well as the definition and classification of stakeholders. They are all mainly on theoretical research. The empirical study support is less. In addition, research results' operability is not strong [1].

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Without the support of the construction project's stakeholders, construction project can not obtain the necessary resources and environmental conditions, and it is hard to succeed [2]. This paper combines relevant theoretical results, begins with and emphasizes stakeholder management.

## **62.2 Traditional Construction Project Management Mechanism**

From our country's researches we can see that traditional construction project management mechanism usually adopts the way of design- tendering -construction-completion acceptance. That is to say, after construction project proprietors setting up the project, they determine the design organization and construction organization through the way of bidding, and then entrust supervising units to supervise project design, construction progress and quality. The traditional construction project management mechanism is the relationship of a series of separated contracts. But this relationship has many disadvantages. First, all the stakeholders only care about their duties within the scope of the contract, make decision from their own interests. Therefore it is easy to cause conflicts among stakeholders. Even it will bring out opposite relationship, influence the cooperation of all parties, and hinder mutual communication and understanding among the construction project stakeholders. Secondly, the management mode which is lacked of communication and is stepped by stepped makes construction project stakeholders have limited knowledge about project goals. The stakeholders have the tendency of maximizing its own interests. It is easy to have "local best and overall general" phenomenon. Thirdly, the construction project structure has many levels, and then management aspects and process aspects also increase. These lead to information's shortage, distortion and delay. Much information is isolated. It is difficult to control the construction project. We can see that traditional construction project management mechanism has many disadvantages in the changing construction project environment. Its effectiveness reduces greatly. It is urgent to research reengineering.

## **62.3 Construction Project Management Mechanism Based on the Stakeholder Theory**

As market competition becomes increasingly fierce and business environment becomes persistently changing, project requirements turn into diversification and complication. The uncertainty of the project execution becomes higher. All kinds of advanced technology and management method are applied to stakeholders of construction project constantly. It only attaches importance to the enterprise internal resources development and utilization. The construction project management

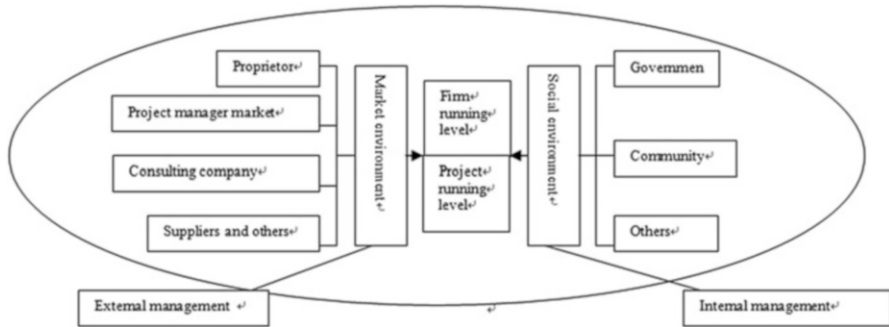


Fig. 62.1 Project stakeholders management structure

mechanism which stakeholders confront each other already can not adapt to the new project environment.

The construction project management mechanism based on the stakeholder theory is that each of construction project stakeholders included the proprietors, the contractor, the project management team, the suppliers, the consulting company, the supervision organization, the government, the relevant administrative department, the community and others establishes construction project management enterprise’s supervision and coordination center, and consummates coordination and communication mechanism to realize sharing risk reasonably and solving contradiction friendly. Wang Yulin 2005 combines enterprise stakeholders’ management with understanding for construction project management to study construction project stakeholder management structure [3]. Figure 62.1 gives the project stakeholder management structure.

According to the stakeholder theory, the construction project is regarded as a large collection of contracts. Each contract party can be regarded as the project stakeholder. In the whole process of the project implementation, each stockholder’s interest should be protected practically [4]. However, the most important way to protect their interests is to let stakeholders participate in the construction project’s management structure. The construction project management mechanism is based on the stakeholder theory whose carrier is construction project. Its coordination center is construction project enterprise. The construction project management mechanism considers the interests of all parties and its guidance is a plan which is synchronized, coordinated, integrated with construction project stakeholder. The construction project management mechanism’s support is various technologies. It can reach project’s best accomplished effect and make project stakeholders get a win-win result through designing, coordinating and optimization control to information flow, project flow and cash flow.

Compared with traditional construction project management mechanism, the construction project management mechanism based on the stakeholder theory overcomes traditional construction project management mechanism’s some defects. It has distinct characteristics: firstly, the relationship among the

stakeholders changes from traditional opposition into cooperation; secondly, when they select design organization, construction organization and suppliers etc., they emphasize price, quality and reliability standards, etc.; thirdly, it breaks the gap between different stakeholders, and it facilitates information flow and object flow in horizontal direction and vertical direction; fourthly, it pays attention to the whole project's implementation and result; finally, it emphasizes the use of information tools. They use automation and electronization to increase the efficiency of information flow.

## **62.4 Analysis on Construction Project Stakeholders**

### ***62.4.1 Project Profile***

The Luojaiohe hydropower station was approved to build in 2004. Its total investment is 120 million RMB. The installed capacity is  $2 \times 10$  MW. According to the installed capacity, we know that this project belongs to medium reservoir small (one) type power station. Its engineering level is third-class. The dam is level 3 building. Its factories and others are level 4 buildings. The Luojaiohe hydropower station consists of the dam, spillway, clamping, power generation tunnel and factories and other main buildings. The hydropower station project management began in October 2004 and ended in March 2007. And the hydropower station generated electricity on 28 September 2006. The hydropower station project management is a whole process management which includes revision preliminary design, construction drawing design, engineering construction, till to delivery operation.

### ***62.4.2 Construction Project Stakeholders***

The construction project stakeholders can be defined as groups or individuals who can influence the realization of the project or can be influenced by the project. The construction project stakeholders participate in the project directly or indirectly during the construction process. Each project has its particular stakeholder groups. According to the definition of construction project stakeholders, the stakeholders mainly include the Developer, construction unit, and design organization, the Contactor, suppliers, supervision unit, financial institutions, relevant governmental departments, community and users. Figure 62.2 shows the stakeholders of the Luojaiohe hydropower station in every stage.

In different stages of the construction project, the project stakeholders are also different. And the different construction project management mode will make each stage of the project stakeholders different. The stakeholders in the project concept

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Project concept stage.	Project planning stage.	Project implementing stage.	Project ending stage.
● Construction Department.	● Design unit.	● Local people.	● Financial institutions.
● Development and reform department.	● Construction department.	● Design management unit.	● Quality supervision unit.
● Water conservation department.	● Development and reform department.	● Scientific research units.	● Subcontracting unit.
● Environmental protection department.	● Governments at all levels.	● Government's functional departments.	● Government's functional.
_____	● Governments at all levels.	● Subcontracting unit.	● Client.
_____	_____	● Supply unit.	_____

Fig. 62.2 Stakeholders of the Luojiaohe hydropower station

stage mainly include construction department, development and reform department, water conservation department and environmental protection department. The stakeholders in the project planning stage mainly include construction department, design unit, governments at all levels and development and reform department. The stakeholders in the project implementation stage mainly include scientific research units, local people, government’s functional departments, subcontracting unit and supply unit. The stakeholders in the project ending stage mainly include quality supervision unit, government’s functional departments, subcontracting unit and client.

### 62.4.3 The Hydropower Station Project Stakeholders’ Expectation Analysis

Engineering can’t avoid having economic or noneconomic connection with various external organizations in the implementation. These stakeholders who are in order to seek for their maximized interests all expect to gain the unique value from the connection. This value may be visible economic interests, or may be invisible reputation, knowledge, technology, management, and other value. Figure 62.3 gives the stakeholders’ expectations of the Luojiaohe hydropower station.

## 62.5 Construction Project Stakeholders Management

### 62.5.1 Management Process

In order to realize construction project stakeholder management, the hydropower station project management team applies the normative management program to deal with construction project stakeholders’ relationship. The management steps

Serial number	Categories	Subclasses	Expectation
One	Client	The energy development Co., LTD.	<ul style="list-style-type: none"> <li>● Making the first wholly -owned hydropower station to generate electricity soon, increasing the company's earning;</li> <li>● Ensuring the engineering's quality and days for construction;</li> <li>● Improving the project proprietors' industry image;</li> </ul>
two	Support parties	The government's functional departments Residents around the hydropower station area	<ul style="list-style-type: none"> <li>● Contributing to the local economy's sustainable development;</li> <li>● Constructing the harmonious society, constructing a new socialist countryside;</li> <li>● Increase employment opportunity;</li> </ul>
three	Contractors	Construction project management Co., LTD. The hydropower station project management team	<ul style="list-style-type: none"> <li>● Completing the project goals according to the contract period;</li> <li>● Adopting the new technologies, reducing construction difficulties, Improving work efficiency;</li> <li>● Gaining the whole project management practice's successful case;</li> <li>● Exercise team, improve the company's brand;</li> <li>● Achieving project profits more than 30%;</li> <li>● Customer satisfaction rate above 90%;</li> <li>● Finishing the project goals smoothly;</li> <li>● Improving work skills, Getting promotion opportunities;</li> <li>● Forming a efficient and harmonious team;</li> </ul>
four	Subcontractors	The BJ water department The second GD hydropower bureau Guizhou PH company The supervision company The GZ dam monitoring center	<ul style="list-style-type: none"> <li>● Expanding the company's influence;</li> <li>● Promoting the new technologies;</li> <li>● Finishing the project goals smoothly;</li> <li>● Adopting the new technologies;</li> <li>● Knowing more cooperative partners, improving the market competitiveness. Providing more market opportunities;</li> <li>● Finishing the project goals smoothly;</li> <li>● Improving the company's brand;</li> <li>● Knowing more cooperative partners, improving the market competitiveness. Providing more market opportunities;</li> <li>● Ensuring the engineering's quality;</li> <li>● Finishing the project goals smoothly;</li> <li>● Ensuring the engineering's quality;</li> </ul>
five	Other related parties	The water quality monitoring station The first DF Cement plant	<ul style="list-style-type: none"> <li>● Meeting the engineering's quality requirements;</li> <li>● Ensuring the engineering's quality;</li> <li>● Improving the company's brand;</li> <li>● Ensuring the engineering's quality;</li> <li>● Knowing more cooperative partners, improving the market competitiveness. Providing more market opportunities;</li> </ul>

Fig. 62.3 LuoJiaohe hydropower station project stakeholders' expectation

are: (1) distinguishing construction project stakeholders and defining them, (2) confirming project stakeholders' requirements, (3) evaluating stakeholders' influence and the importance, and classifying stakeholders' requirements and distinguishing between primary and secondary requirements, (4) making different management strategies to different stakeholders, and (5) implementing the construction project stakeholders' management strategy, (6). Evaluating and improving the construction project stakeholders' management strategy continuously[5].

The hydropower station project management is a dynamic process. According to the feedback of the practice and the changed environment, we can adjust, supplement, and amend dynamically. In the different stages of construction project management's life cycle, different stakeholders have different influences and roles to the construction project. Therefore, this construction project stakeholders management has different management emphases and different management strategies in the different stages of the project management. Figure 62.4 shows the construction project stakeholders' management process.

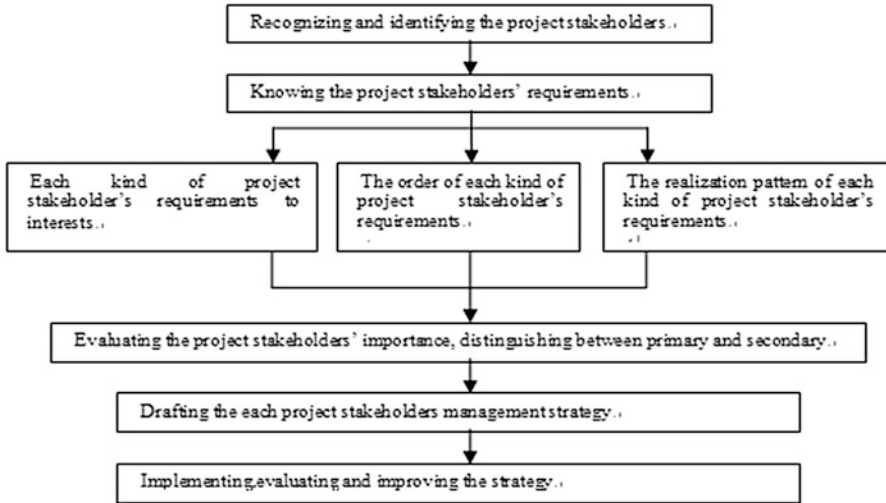


Fig. 62.4 The construction project stakeholders management processes

### 62.5.2 Management Measures

In order to implement construction project stakeholders management effectively, the hydropower station project team adopts a series of special measures.

- To promote and maintain good cooperation relationship, and establish the common goals. Project management goals are specific, measurable and facing results.
- To confirm all parties' duties and rights. The cooperative field, way, content, time limit, responsibilities, interest distribution way and contradiction processing method are formulated in the normative way of contract or agreement. People can use the forms of purchasing contract, supply contracts, franchise rights, guaranty contract, and performance bond and management agreement to share the construction project's core risks.
- To establish the perfect information communication network. After establishing the perfect information communication network people can find problems and solve them as soon as possible.
- To implement the coordinated and different management strategy. These main stakeholders who have a legal contract relationship with hydropower station are more likely to choose to support the project. They have natural cooperation relationship with construction project. So people should fully understand their benefits that they hope to get and then take the corresponding management strategy. People should absorb them to participate in project management as far as possible. However, those secondary stakeholders who do not involved in the project deals formally have a complicated relationship with construction project. They may adopt behaviors of collaboration and support or threat and

Serial number.	The hydropower station stakeholders.	Project management results.	Conclusion.
one.	The energy development Co., LTD.	<ul style="list-style-type: none"> <li>The investment has been controlled within the contract price;</li> <li>Two machine sets has generated electricity on 28 September 2006;</li> <li>The project function and quality are very good.</li> </ul>	Accomplishment.
two.	The government's functional departments.	<ul style="list-style-type: none"> <li>The local residents' life has improved;</li> </ul>	Accomplishment.
three.	Residents around the hydropower station area.	<ul style="list-style-type: none"> <li>The living standard has improved;</li> </ul>	Accomplishment.
four.	Construction project management Co., LTD.	<ul style="list-style-type: none"> <li>The company's benefits have increased;</li> <li>It has improved all staff's work efficiency;</li> <li>The company has gained highly acceptance from social sectors.</li> </ul>	Accomplishment.
five.	The hydropower station project management team.	<ul style="list-style-type: none"> <li>The average wage income has increased by 20%;</li> <li>The work environment is good;</li> </ul>	Accomplishment.
six.	The BJ water department.	<ul style="list-style-type: none"> <li>The company's benefits have increased;</li> <li>They have gained acceptance from contractor and relevant units.</li> </ul>	Accomplishment.
seven.	The second GD hydropower bureau.	<ul style="list-style-type: none"> <li>The company's benefits have increased;</li> <li>They have gained acceptance from contractor and relevant units.</li> </ul>	Accomplishment.
eight.	The PH company.	<ul style="list-style-type: none"> <li>The company's benefits have increased;</li> <li>They have gained acceptance from contractor and relevant units.</li> </ul>	Accomplishment.
nine.	The supervision company.	<ul style="list-style-type: none"> <li>The company's benefits have increased;</li> <li>The project's quality is good.</li> </ul>	Accomplishment.
ten.	The GZ dam monitoring center.	<ul style="list-style-type: none"> <li>The company's benefits have increased;</li> <li>The project's quality is good.</li> </ul>	Accomplishment.
eleven.	The water quality monitoring station.	<ul style="list-style-type: none"> <li>The project has been constructed safely;</li> <li>The project's quality is good.</li> </ul>	Accomplishment.
twelve.	The first DF Cement plant.	<ul style="list-style-type: none"> <li>The company's benefits have increased.</li> </ul>	Accomplishment.

Fig. 62.5 Results of hydropower stakeholders management

limit in different situations. According to the different benefits of each stakeholder, people can adjust the specific management strategy to each stakeholder, at the same time notice to make overall plans and take all factors into consideration.

### 62.5.3 Management Results

Through the Luojiaohe hydropower station project management's stakeholders management practice, we can analyze the stakeholders and the benefit relationship among the stakeholders. Figure 62.5 lists the results of stakeholders management of the Luojiaohe hydropower station.

## 62.6 Conclusions

The success of Luojiaohe hydropower station construction project shows that if we use stakeholder theory to analyze construction project stakeholder systematically, it has great significance to improve the satisfaction of stakeholders, realize the overall benefit of project, and guarantee the project's smooth implementation.



The past construction project management practice experience proves that the construction project is hard to realize the project goals without stakeholders' support, without knowing stakeholders' roles and responsibilities and without cooperation among stakeholders. The construction project involves many stakeholders, and their relationship is complicated. The construction project is a synthesis of multi-stakeholders. The construction project stakeholders management is an important way to solve project's interests' conflicts, realize the maximization of the interests. Using scientific and reasonable project stakeholders management can promote construction project's success.

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