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Contractual Governance for Dispute Resolution and Construction Sustainability: Case Studies from China

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Abstract: Disputes may disturb construction projects and stakeholders, and they may cause tremendous losses that hinder the sustainable development of construction. Therefore, contractual governance is significant in construction projects as a crucial method of dispute management. However, the interrelation of contract and dispute management has not been studied theoretically and comprehensively. In this regard, this paper aimed to propose a framework for dispute governance, including governance structures (GSs), governance mechanisms (GMs) and an additional conceptual model, by using a literature analysis method. The results suggest that dispute structures based on owner-centered (OC), owner- and supervisor-decentralized (OSD) and additional independent representatives (AIRs) are often used. Each kind of GS can be applied in a specified project. On the other hand, we considered that GSs could be divided into an external GS and an internal GS, which played different roles in motivation mechanisms. In addition, a conceptual model was developed through literature analysis. Case studies were presented to investigate the relationship between the GS and GM. Then, specified GMs were identified from case studies of Chinese construction contracts. Current research can provide valuable information allowing for contract drafters and managers to realize the sustainable development of projects.

Keywords: literature analysis method; construction sustainability; governance structure; governance mechanism; conceptual model; contractual governance

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1. Introduction

Conflict situations are common dilemmas in construction projects that may lead to disputes among parties [1]. People cannot neglect the negative influence and consequences of this phenomenon. Claims usually lead to a dispute regarding project delays and cost overruns [2,3]. The dispute arises and adversely affects the project performance due to poor communication and cooperation. More seriously, the construction project will fail due to inefficient dispute management. Project delays or even failures cause negative impacts on sustainable development of stakeholders, human resources, projects, industries and governments [4]. Disputes make it difficult for stakeholders to cooperate sustainably without the promising ability to meet their needs [5]. The development of human resources relies on organizational development and personal training [4]; however, project suspension makes it unsustainable. Project management is not only limited to its traditional success criteria, but also has a broad view of sustainability [6]. A project's quality may be damaged by disputes that endanger continued construction after it begins. Overall, arising disputes are not good for the sustainable development of stakeholders and projects. From a broader perspective, local economic development slows down when disruptions occur frequently in construction projects, which in turn affects the sustainable development of the region. The construction industry may ensure social sustainability by engaging, training and doing business [7] on the basis of project completion on schedule. Low-level development of the industry makes it difficult to achieve industrial upgrades, and the strategic objectives of

the government cannot be fulfilled either. Therefore, inevitable disputes must be handled properly. In China today, many construction projects are also affected by unresolved disputes, and as such, Chinese projects need to allocate unnecessary costs, time and resources to conflict management and dispute resolution [8,9].

The conceptual notation of project governance is defined as project transactions. This term refers to the three factors of asset specificity, uncertainty and frequency [10,11]. It is thought that project management, as an integral part of social science, could be researched in governance theory. In the project management context, dispute management can also be studied using governance theory. Acharya et al. [12] claimed that conflict and dispute were two different notions, and that a dispute was the result of conflict after escalation. It was believed that a dispute was the external manifestation of conflict, while a claim was a disagreement directly leading to a dispute. The authors developed a continuum model based on conflict, claims and disputes to demonstrate the evolution of these notions [12]. For a project manager, conflict governance should be embedded in project management practices to avoid disputes in the early stages. The project governance method consists of contractual and relational governance, which should be studied in depth to mitigate project disputes [13]. However, contractual governance is relatively rigid compared to relationship governance, and disputes can be easily controlled. Contractual governance relies on clause drafting in the construction contracts. The content and formulation of clauses, as well as the logic and structure of a contract, have an unneglectable influence on the completeness of the contract. The contract drafter should be cautious of contract completeness when drafting a clause. The construction industry has realized the importance of dispute governance in projects, which is relatively effective in construction contracts. Contractual governance for disputes (CGD) mainly depends on clauses in three dimensions [14]:

- Clause specificity. A specified clause defines the roles and responsibilities that each party should assume [15].When the stakeholders have a high level of opportunism, a specified clause acts as a proactive approach to avoid disputes.
- Contractual obligatoriness. Contractual obligatoriness constrains each party [16]; through it, each party is forced to abide by the contract clause, reducing the incidence of opportunistic behaviors.
- Contingency adaptability. This refers to the contractual adaptability when a contingency occurs, leading stakeholders into a dispute. Adaptability means a flexible space for dispute negotiation according to the contract while disputants negotiate [17].

Nowadays, in China, specified clauses refer to dispute governance in construction contracts. However, the governance structure and mechanism for dispute resolution are not theoretically cognitive, especially when the interplay of GSs and GMs in the dispute is not clear. This paper attempts to reveal a dispute governance principle and discuss a possible way to handle disputes. The performances of the project and stakeholders are improved by managing disputes so that construction sustainability can be achieved. In Sections 4 and 5, the characteristics of the identified GS and GM are discussed in detail. In Section 6, the GS and GM are examined through a local case study. The contribution of the GS study helped the participants with a specified role in dispute management, while the GM studies discussed the "why" and "how" in handling the dispute. Based on the mentioned findings, researchers and practitioners could design the proper GS and GM for new project management tasks. It is noted that a clause for dispute management in the contract drafted from the view of the GS and GM was generally more effective than from other perspectives. In Section 7, a conceptual model depicts the interplay of GS and GM to clarify the working mechanism. To some extent, the working mechanism was effective, depending on the GS and its corresponding GM.

2. Literature Review

2.1. Dispute and Construction Sustainability

Conflict is evitable in project management, which probably causes a negative effect on the project [18]. The conflict escalates to a dispute if it is not managed correctly [19]. Re-

searchers have contributed a noticeable amount of literature on the dispute in construction. Jones [20] argued that disputes were attributed to management, communication, economics and other fields. Some studies suggested that disputes could be viewed as a class or conflict that should be resolved [21]. Construction disputes could also be considered as the opposition to objectives, interests or even values [22–24]. Fenn et al. [25] and Acharya et al. [8] postulated that disputes were associated with distinct justiciable issues. Today, a dispute is explained in a new connotation that can be classified into three types: task event, relation event and process event [26,27]. In addition, some studies mentioned that disputes might originate from contracts and relationships [28–30].

The specified causes of disputes relevant to project management are complex and vary. For example, time and project scheduling are commonplace and worldwide causes of disputes [31–34]. Cost overruns generally led by the disputes adversely impact parties [2,35]. Besides, variations in the construction projects often disturb contractors [36–40]. Payment is an important material support for parties and projects. Delays or inadequate payment threatens the parties' interest and projects, which ultimately results in disputes [32,36,39]. Some of the literature emphasized other causes of disputes, such as uncertainty [40], culture [41] and the natural environment [42].

Due to the special status of the disputes, the investigation of dispute management plays a critical role in project management study. Dispute management influences not only the performance of a project, but also the interests of stakeholders. Researchers and project practitioners have focused on the study of dispute management for many years. Alternative dispute resolution (ADR) implies different coping resolution methods and has gained popularity as an ideal method to manage disputes [43]. Common options for managing dispute include arbitration [44], adjudication [45], mediation [46], negotiation [47,48], dispute resolution advisor systems [49], dispute review boards [50] and mini trials [51]. ADR has wide application in theoretical research [52–54] in solving many practical problems. Another hot topic is the dispute review board (DRB). Harmon [55] and Thompson et al. [56] suggested that DRBs could effectively manage construction disputes. It was reported that from 1975 to 2001, the number of projects under DRBs increased, indicating that DRBs became popular during that period in the U.S. [19]. Today, DRBs still dominate the organization structure for dealing with disputes in Western countries. Referring to the specified method, the multiattribute utility technique [57], multilayer perception neural network model [58], the K-nearest neighbor(KNN) pattern-classification-based knowledge-sharing model [59], the graph model [60], or other methods are adopted to manage practical disputes. With the development of technology, new theoretical models and ideas will be brought into dispute research, improving the development of project management.

Various dispute management evaluations are proposed for the effectiveness of dispute management practices. Much literature has analyzed dispute management effectiveness from two aspects: stakeholders [61,62] and projects. The effect of dispute management is generally described as a success [63] or a failure. So, dispute management evaluation becomes crucial for managers. The engineer ought to adjust the management method dynamically to reach the dispute management goal. Table 1 summarizes the background of the dispute research in the literature.

On the other hand, construction sustainability has gained worldwide attention from a long-term perspective. One reference reviewed the assessment indicators and taxonomy for social sustainability for construction projects [4]. Many indicators and taxonomy were discussed, and a social sustainability framework was contributed [4]. The project and its management were successfully implemented as major indicators enabling the creation of social sustainability [64]. The construction industry, with its long-term evolved culture and customs, enables sustainability [65]. It needs culture and traditional customs to cooperate spontaneously. For local governments, regulations and incentives are adopted to promote the sustainability development of the construction industry [66].The disputes lead to the project's suspension, and the performance cannot be fulfilled. Construction sustainability

development is of course out of the question. Overall, a causal relationship exists objectively between disputes and sustainability whether for a project or construction industry.

Table 1. Overview of disputes in construction projects.

Identification of Construction Disputes and Their Management	Reference
1 Conceptual cognition of dispute	
1.1 Conflict after escalation	[19]
1.2 Viewed as a class	[21]
1.3 Opposition of objectives, conflict of interests or even values	[22–24]
1.4 Result of justification	[12,25]
2 Sources of dispute	
2.1 Task event, relation event and process event	[26,27]
2.2 Contract and relationship issue	[32–34]
2.3 Time or schedule overrun	[31–34]
2.4 Cost overrun	[2,35]
2.5 Variation in construction project	[36–38]
2.6 Payment not on time or inadequate	[32,36,39]
2.7 Uncertainty in construction project	[40]
2.8 Culture of project team	[41]
2.9 Natural environment change	[42]
3 Dispute management	
3.1 Alternative dispute resolution, including arbitration, adjudication, mediation, negotiation, dispute resolution advisor systems, dispute review boards and mini trials	[44–51]
3.2 Dispute review board and application in practice	[55,56]
3.3 Theoretical model in research	[57–60]
3.4 Evaluation of dispute management	[61–63]

2.2. Contractual Governance for Construction Projects

Governance is the engagement of actors in transactions that requires them to control the transaction, protecting the interests to share the benefits [67]. In a construction context, Poppo and Zenger [15] suggested that the specified clauses of a contract, so-called "contractual governance", could reduce the risk and resolve unforeseeable outcomes. Contractual governance is the dominant form, preventing opportunism behavior. Governance structure and governance mechanisms constitute the framework of the contractual governance. Ho et al. suggested a series of GS strategies and tactics in construction joint ventures [68]. Afterwards, Lin and Song [69] analyzed the impacts of GS strategies on the performance of joint ventures. In addition, the GS has a big impact on projects from other aspects. Transaction cost economics [70], corporate social responsibility and risk management [71] are all involved in GS as a basic foundation of a contract. On the other hand, the GM as a soft operation environment is indispensable for contract governance. The project manager attaches great importance to the GM mainly for its strategic role. Wang et al. [72] argued that there was interplay between GMs, namely trust, control and megaproject governance. The trust repair mechanism is an important variable that surely influences the decisions of contractors and subcontractors [73]. In general, the project's success depends on effective governance mechanisms [74].

Some existing, available studies have focused on the disputes and contractual governance, covering basic problems and practical application. However, there is still a gap, and their interplay is unclear. Few studies have concentrated on the association of the disputes and contractual governance. In light of this research situation, investigating the mechanism between these two is worth discussing further. To bridge the gap, this study attempted to investigate the contracts and summarize some common specified GSs and

GMs in Chinese construction contracts in order to verify the conceptual model proposed by the literature analysis method for disputes and contractual governance. To clarify, the governance principle lays the foundation for project success and long-term development. Construction sustainable development can be realized by handling disputes properly, which is the subject of this research.

3. Research Methodology

The completeness of contracts for dispute governance depends on clause drafting. The contract clients are unconscious about what GSs and GMs are, and they just make sure that construction disputes can be governed by a contract. In light of this, it is necessary to study governance theory for disputes to aid construction policy makers.

This study investigated the GS and GM for construction disputes through a case study. A case study is a methodology that explains the "why" and "how" for a phenomenon worth exploring [75]. In addition, multiple cases could strengthen the robustness of research conclusions instead of a single case [76]. The multiple in-depth case study (MICS) method was adopted to explore the research objectives of this paper.

The research idea of this manuscript includes proposing a framework of GS, GM and a conceptual model through a literature analysis method that is widely used at home and abroad [77].Contract clauses, which are the main form of contract, define rights and obligations of each party. GSs for disputes are relatively explicit in clauses compared to clauses related to GMs. It is noted that GM study is much more difficult than GS study [68]. The MICS method was adopted to study the GS and GM by analyzing and comparing clauses of contracts. The conceptual model was verified based on cases provided for contract drafters. The methodology of this research is shown in Figure 1.

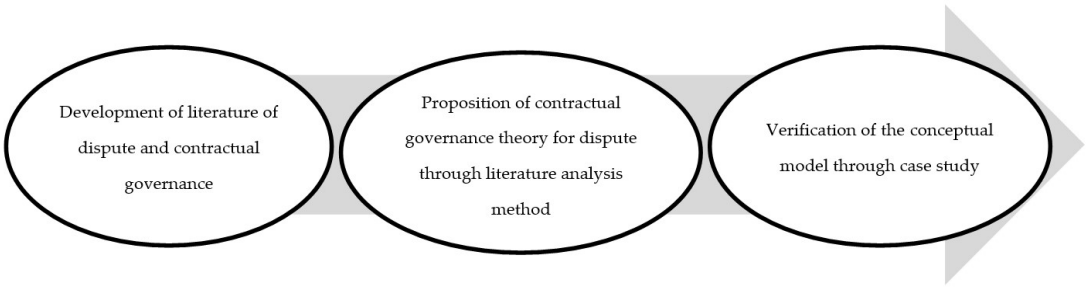

Figure 1. General methodology of this research.

4. Governance Structure

Governance structure defines the organizational structure and stakeholders' role in a construction project. Organizational structure is the foundation of project operation. Effective organizational structure could improve the performance of the project [78]. When a dispute occurs, a preset organizational structure provides a basic framework for dispute management. The parties involved in the dispute can negotiate with each other based on the organization structure. Therefore, the design of the organization structure is the first step of project management. Miller and Hobbs [79] stressed that a suitable organizational structure was the foundation of project governance.

Stakeholders' roles are another aspect of GS that define each stakeholder's rights and obligations. Every stakeholder has his own responsibilities. Project failure is often attributed to failing to fulfill his promise [80]. Different stakeholders have different roles in various stages and situations in some complex or mega projects [81]. Dispute management depends on stakeholders with specified roles despite trivial matters. Another important factor affecting GS is the external environment, including the market environment and government regulation. It is common to see the GS influenced by the local market environment. The local construction market has customs for determining the GS of a project. The local government has a similar affection for GS to the construction market [82].

In the Chinese construction market, GS for disputes has its characteristics compared to the international market because of cultural differences [41]. In other words, GS for disputes considers the Chinese market and plans a suitable GS for Chinese construction projects. In recent years, construction managers have gradually realized the importance of dispute management. Various GSs for dispute governance have been gradually adopted and applied in projects for efficiency. From the owners' perspective, there are often GSs adopted from OC, OSD and AIR methodologies [83]. Each kind of GS has its own characteristics that are suitable for specified projects. The OC governance structure is widely applied in small projects and private projects or projects without a bidding process. The owner-centered type is rarely used in the modern construction market. The OSD governance structure is the most widely used, and this kind of GS also has the advantage of solving disputes within the team. The owner and supervisor are responsible for administrative coordination and professional affairs, respectively, with clear working boundaries and scope. The effectiveness is preferable, and the cost can be accepted. AIRs mean an independent third party that participates in dispute coordination. The most famous independent party is arbitrary and plays an important role in dispute coordination. AIRs as a supplementary form of GS are sometimes essential. The disadvantages of AIRs, including their high cost and time-consuming nature, are notable. Table 2 outlines the investigation of the proposed GSs.

Table 2. The investigation of the proposed GSs.

Governance Structure	Project Feature	The Third Party	Cost	Time
OC	Small, private, without bidding	NO	Low	Fast
OSD	Large	NO	Medium	Medium
AIR	Large	Yes	Relatively high	Consuming

In Western countries, governance structure for disputes generally refers to a dispute review board (DRB). DRBs are nonadversarial and temporary organizations preventing or solving disputes [59]. In the United States, DRBs are a success for solving disputes mainly because of their ability to reduce the price of projects [84]. Since then, the DRB has been gradually introduced into the Chinese construction market. Some contractual clauses relating to DRBs are emerging today to guarantee the completeness of dispute governance.

5. Governance Mechanism

The governance mechanism helps in system operation. As motivation for the system, GM planning plays a key role in project governance. The GM planning is a success if the system works smoothly to achieve the intended target. In contrast, if the system does not work, this can be partly attributed to an unsuccessful GM. In this regard, the client should perform an in-depth evaluation of current data for available projects and seek a proper GM. For a system, the GM is usually divided into an internal GM and an external GM in terms of different motivations. The internal governance mechanism (IGM) refers to the GM working in the system while the external governance mechanism (EGM) refers to external factors influencing the system [85]. Simply put, the IGM indicates how a system works while the EGM explains why it works. Almutairi and Quttainah [86] discussed the IGM and EGM of legislation in Kuwait and considered culture and market conditions as main factors. Furthermore, IGMs and EGMs are also applied in economy and finance research [85,87].

For dispute governance, IGM and EGM design for contract clauses should address the following items:

- How can the dispute be managed?
- Why should this be done?
- What roles should participants play?

To answer the above questions, a conceptual model is required to demonstrate the internal logical relationship of the IGM and EGM (Figure 2). Establishing a conceptual model can lead to a deeper understanding of the essence of the problem. The model exhibits the difference and connection between the IGM and EGM in jointly promoting dispute management. Decision makers can draft contracts with the help of a conceptual model, ensuring project completion.

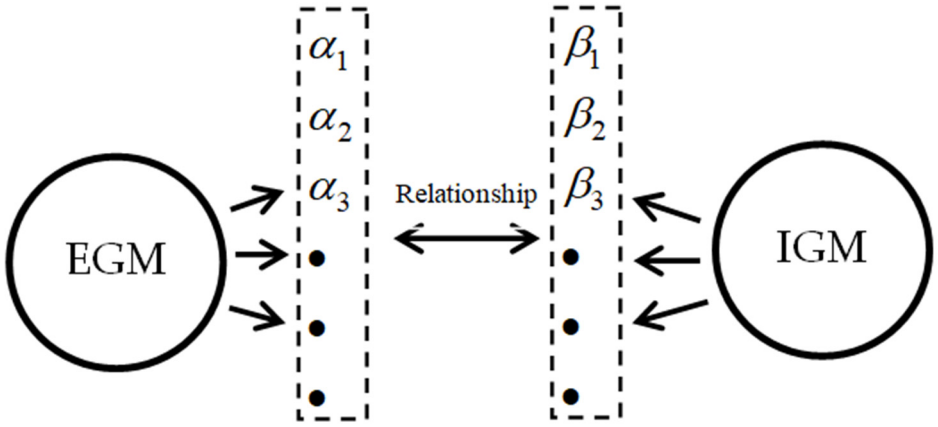

Figure 2. Model f. Conceptual model for the relationship of EGM and IGM.

6. Case Selection and Data Collection

The construction contract with dispute clauses is relatively common in contract series. The cases used in this study were selected from nearly 260 Chinese contracts between 2000 and 2020. The data were collected from most developing provinces, from building, transportation, coastal engineering, water conservancy projects and so on. However, not all the contracts satisfied the requirements of this study. Most contracts with few related contents were abandoned. Some projects with smaller and less influence were dismissed as well. In terms of rationality and effectiveness, six cases of rest contracts with relatively detailed dispute clauses were selected. It was found that the contracts had relatively complete sections regarding dispute governance with abundant information available. The cases covering multiple areas represented the current situation regarding dispute management in engineering. In addition, the selection of six cases was not random but rather took into account delivery and category in China. These cases were located in five provinces, Zhejiang, Guangxi, Hubei, Liaoning and Shandong, reflecting the current construction dispute situation in China.

The following six cases are outlined by an overview of the project, followed by a description of the project profiles:

- Case A. Lujiaba Community Construction in Huzhou, Zhejiang Province.
- Case B. Feiheshan Campus of Tiantai Primary School and Feiheshan Kindergarten Constructionin Taizhou, Zhejiang Province.
- Case C. Cangwu-Zhaoping Expressway in Guangxi Zhuang Autonomous Region.
- Case D. Weifang-Rizhao Expressway in Shandong Province.
- Case E. Hubei Communication Technical College New Campus Construction, Hubei Province.
- Case F. Culture Center of Coastal Economic Zone and Infrastructure Construction in Panjin, Liaoning Province.

The types of cases varied, and their locations were distributed in relatively developed regions in China. In this research, we selected various types of projects, including house building, expressway construction and infrastructure cases, which guarantee feasibility and reliability of this research. Table 3 presents a list of information about the location, types and parties of the contract and cost for each case.

Table 3. Overview of the selected cases.

Project	Location	Type	Owner	Contractor	Duration	Cost (CNY Million)
Case 1	Zhejiang	Building	Huzhou Estern Urban Construction Co., Ltd.	HG-ECG Co., Ltd.	Ten months	40
Case 2	Zhejiang	Building	Tiantai Bu. of Edu.	ZICIG Co., Ltd.	Two years	121
Case 3	Guangxi	Expressway	Guangxi Transport Department	ZIC Expressway Co., Ltd.	Four years	1600
Case 4	Shandong	Expressway	Shandong Transport Department	Shandong Expressway Group Co., Ltd.	Three years	10,800
Case 5	Hubei	Building	Hubei Communication Technical College	WH-TSC Co., Ltd.	Eight months	86
Case 6	Liaoning	Building and infrastructure	Panjin key public project construction management office	China Construction 6th Eng. Bu. Co., Ltd.	Six months	200

7. Findings and Discussion

7.1. Governance Structure for Disputes in Contracts

The cases reflect the prevalence of dispute governance in the Chinese construction market. By reviewing the contracts, it was found that they had very similar content on disputes. There were clauses on dispute management covering GSs to GMs in these contracts. From analyzing the contracts, the investigations of GS for six cases are outlined in Table 4. For research convenience, six construction contracts corresponding to six projects are labeled as C1 to C6.

Table 4. Review of GSs for disputes in six cases.

Contract Number	Signing Time	Governance Structure Type	DRB	Dispute Coordination Fee	Arbitrary	Litigation
C1	2016	OSD	Yes	Yes	Yes	Yes
C2	2018	OSD	Yes	No	No	Yes
C3	2021	AIR	Yes	Yes	No	Yes
C4	2011	–	No	No	Yes	Yes
C5	2015	–	No	No	Yes	Yes
C6	2015	OSD	Yes	No	Yes	Yes

As shown in Table 4, the governance structure is changing with the market development. About 50% of all contracts were characterized as OSD, i.e., C1, C2 and C6. Only C3, signed in 2021, pointed out the dependent third party could participate in coordination. The remaining two contracts, signed in 2011 and 2015, had no information about personnel composition or a DRB. From the case studies, it can be seen that the personnel composition for dispute management is gaining more attention than before. For DRBs, all DRB settings were present except for C4 and C5. DRBs are becoming more attractive due to their effectiveness in handling disputes. It was found that a dispute coordination fee as a new item has come into practice. A coordination fee for DRBs is an extra expenditure for stakeholders. In addition, it was noticeable that one-third of contracts did not mention arbitration as a way of managing disputes. The litigation as a final option for managing disputes was addressed by all the contracts, implying its authority in China.

7.2. Governance Mechanism for Disputes in Contracts

A perfect governance mechanism is the motivation basis for project operation. Thus, exploring GMs promotes the completeness of the contract. Undoubtedly, there is great significance in studying GMs for disputes in contract clauses. As a part of project governance, GMs for disputes are similar to project governance theories. GMs of trust and institutional

support (TIS) [88] and coordination and handling (CH) [89] have been investigated and applied in construction projects. However, specified GMs still need to be deliberately arranged according to their functions. The disputes governed by external mechanisms of project performance assessment (PPA), project member assessment (PMA), dispute assessment and penalty (DAP) and reputation and credit assessment for employment (RCAE) are universal in contract clauses. Internal GMs, including dispute autonomy and transfer (DAT), core member decision (CMD), whole-process governance (WPG) and governance method and objective (GMO) should also be considered in clause drafting. These GMs could be found vaguely in the selected contracts (Table 5).

Table 5. GMs for the disputes in cases and their features.

Governance Mechanism	Types	Feature/Content	Clause Description
PPA	External	Pressure	• The contractor should take liability for breach of contract due to project delay (C1, C2, C3, C4, C5, C6). • The contractor is funded by the owner only if the milestone in project progress is achieved (C1). • The performance of project company is affected by one indicator of dispute management performances: public satisfaction (C2, C3) and ecological conflict (C3).
PMA	External	Pressure	• The manager is responsible for the project performance (C1). • Project members' income is a function of performance influenced by public satisfaction (C2, C6) and ecological conflict (C3).
DAP	External	Pressure	• The evaluation and satisfaction of disputes for the bureau and actual users (C2, C5). • The satisfaction of dispute management for user, client and resident along the expressway (C3, C4).
RCAE	External	Competition	• The partner with a good reputation has no unsettled disputes (C2). • Cooperators ought not to be on the blacklist (C6).
DAT(CH)	Internal	Path	• The contractor can seek help from arbitration or litigation if there is disagreement regarding the decision made by the DRB (C1, C4, C5, C6). • The parties have the rights to hand the disputes over to the local court provided that the disputes cannot be solved by the DRB (C2, C3).
CMD(TIS)	Internal	Decision-making	• The members of the DRB are determined (C1, C2, C3, C6).
WPG	Internal	phase	• The dispute management program is working over the entire course of the project (C1, C2, C3, C4, C5, C6).
GMO	Internal	Method and objective	• The plans and programs for handling disputes in the construction and operation period are distinct (C2). • The project cannot be suspended during dispute coordination. Otherwise, the contractor will be punished for contract-breaching behavior (C3, C5). • Generally satisfied is the lowest goal of dispute coordination evaluation (C4).

PPA as an external motivation for projects was discussed in nearly all the contracts. Public and ecological disputes can lead to project suspension. PMA plays a similar role to PPA, and DAP prevents troublemakers that arouse disputes. The satisfaction indicator is very low if the disputes are not solved properly. So, the penalty mechanism can be regarded as one of the GMs for dispute resolutions. Many clauses of contracts more or less refer to satisfaction. In RCAE, only C2 and C6 contain employment matters, especially blacklist matter mentioned in C6. PPA, PMA and DAP are all featured as pressure motivation whereas RCAE is competition-driven. For internal GMs, DAT is similar to CH, which has been studied by authors already. It tells us who is in charge of disputes and how to transfer responsibility. Most contracts resort to arbitration if organizations fail to handle disputes. CMD, regarded as a DRB, can be considered institutional support for dispute

management. The WPG mechanism, of course, existed in all contracts in the light of the advocacy of whole-process management in China. The contracts about GMOs were not visible, but rather just vaguely related to dispute management methods and objectives in the dispute chapter.

7.3. Discussion and Conceptual Model for Dispute Governance

GS for disputes is determined by the project and social environment. GS is the basis for dispute coordination. Therefore, planning a proper GS is critical for successful dispute governance [78]. GM as an incentive mechanism motivates the operation of dispute management. Several GMs are discussed above in Table 5. It seems that the selected GMs should be determined by the planning GM. The GM can operate smoothly given the perfect GS. To some extent, planning GMs may not be applicable to other GSs. In a word, GSs have a one-to-one relationship with GMs. Li et al. [82] stressed that a practical governance framework could improve project performance, which was applicable to dispute management as well. Furthermore, it has been shown that the EGM explains why a dispute should be handled and the IGM explains "how" [86]. The MICS has instructed the relationship between EGM and IGM. In addition, governance structure is determined by the project overview, which is the operational skeleton for GMs. The selected GS, together with a proper GM, constitutes a conceptual model for dispute governance. Project success and sustainability are only possibly realized. In brief, a conceptual model based on cases is suggested as shown in Figure 3.

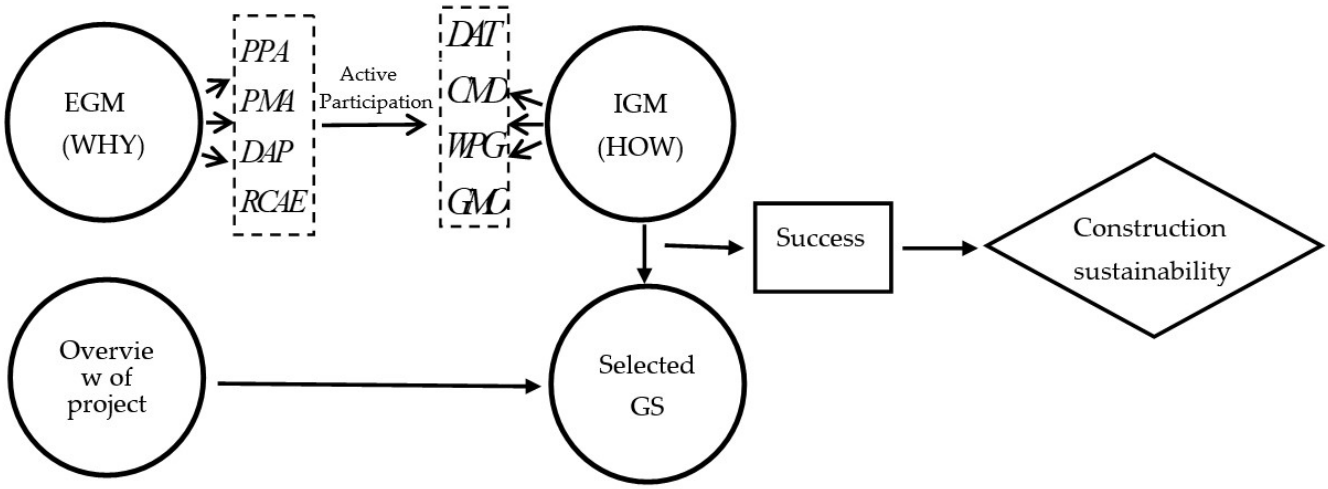

Figure 3. Conceptual model for dispute governance based on case study.

As seen from the MICS, many GMs are applied in contracts, and good results have been achieved. According to statistics reported, there were hundreds of conflicts and disputes arising in these projects, and DRBs resolved nearly all disputes. The rare disputes were transferred to arbitration, or even to litigation, but were resolved successfully with the efforts of all parties. There was evidence that the project sustainability could be significantly improved provided that the disputes were better managed via contractual governance. It was also seen that the governance framework was successful for six cases under Chinese national conditions.

8. Conclusions and Future Directions

As construction disputes have adverse effects on projects, professionals may encounter dispute problems in construction projects. This paper proposes a dispute governance framework for the project including a conceptual model proved by a MICS of six cases. This study provides dispute governing methods for contract clients so as to improve governance level and construction sustainability.

This paper began with a review of dispute and contractual governance in the literature. Then, GSs for dispute governance, including OC, OSD and AIRs, forming a DRB, were discussed. Correspondingly, GMs were divided into external GMs and internal GMs according to their function. Furthermore, a conceptual model investigated the relationship between the GS and GM and discussed their interplay through literature analysis. This model suggested a basic framework of dispute governance. Through a case study, the conceptual model was verified for the current Chinese conditions. This study investigated the existing literature on governance theory from the perspective of GSs and GMs for construction projects. Moreover, it handled the disputes in practice. It proved that correct dispute management contributes to project success, and the achievement of social sustainability is impressive for the selected cases. The current research enhances the understanding of dispute governance theory. Despite its contributions, this paper also has limitations, like any other paper. GSs and GMs may not be adequate but are popular in the current Chinese market. An empirical study is needed to fully explain some hypotheses, which is the following research plan.

In the future, empirical studies in this field will be considered. The interplay of GMs and the performance of projects will also be studied. Other urgent and significant topics of study will be on the agenda soon.

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