" The Role of FIDIC in Enhancing Project Performance and Minimizing Disputes in EPC Contracts: An Analysis of Dispute Resolution via Settlement Deeds"

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ABSTRACT

In the development process, the construction sector is inherently complex, involving various parties such as the project owner, contractor, subcontractor, building material suppliers, and consultants. Consequently, disputes frequently arise in construction projects. These disputes may stem from differences in interpretation, disagreements in project execution, or issues related to contractual terms. This paper discusses the most suitable contractual method for power plant projects that refer to FIDIC standards and presents a case study of contractual issues in an EPC Power Plant contract. It also outlines a resolution method in accordance with Indonesian legal practice through a settlement deed known as deed van dading, as an effort to resolve contractual disputes before proceeding to adjudicative stages such as arbitration or litigation.

Keywords: FIDIC, Construction Contract, Dispute, Deed van Dading

1. INTRODUCTION

1.1 Background

The construction industry is a highly complex sector that involves numerous parties and cross-disciplinary activities. In its implementation, disputes often arise, sometimes escalating into legal conflicts. Therefore, the use of internationally standardized contract documents such as FIDIC offers a solution for creating a clear and measurable contractual structure. Nevertheless, the implementation of FIDIC in Indonesia continues to face several challenges, particularly in adapting to the national legal system and local practices.

The construction sector inherently involves various stakeholders, including project owners, contractors, subcontractors, material suppliers, and consultants. This complexity often leads to disputes arising from differences in interpretation, disagreements during project execution, or contract-related issues.

Disputes in construction contracts may arise due to several factors related to project execution, contract conditions, or the relationships between the involved parties. Some common types of disputes in construction contracts include:

1. Delay in Project Completion
   Delays occur when the contractor fails to complete the work within the agreed contractual timeframe. Consequences may include penalties, operational disruptions, or even contract termination.
2. Substandard Work Quality
   When the contractor fails to meet the technical specifications or standards outlined in the contract, it may result in the need for repairs or replacements, incurring additional costs and project losses. Resolutions often involve assessments by third parties or technical experts.
3. Payment Issues
   Delays in payments by the procuring party often stem from changes in funding sources during project execution. This can disrupt the contractor’s cash flow and slow down project progress.
4. Changes in Scope of Work (Change Orders)
   Unagreed changes in the scope of work, whether initiated by the client or the contractor, may lead to additional costs, delays, or scheduling issues.

5. Material Procurement Issues

   Problems may arise when the contractor delays in ordering materials or when suppliers experience production overloads. These issues typically cause project delays and increased costs.

6. Design Errors or Inaccurate Calculations

   Inaccurate designs or calculation errors from the employer's side can disrupt project implementation and result in extra costs for corrections or revisions.

7. Disputes Related to Warranties and Guarantees

   Occur when the contractor fails to fulfill warranty obligations for completed work.

8. Environmental and Permit Issues

   Arise due to problems with obtaining environmental or other regulatory permits necessary for the project. These issues may cause delays or temporary project suspension until the required permits are obtained.

9. Force Majeure

   Extraordinary events such as natural disasters, pandemics, or other unforeseen occurrences may hinder contract execution, potentially leading to delays or termination without liability, depending on the contract provisions.

10. Disputes Over Maintenance Obligations

    Emerge when disagreements occur regarding maintenance or operational responsibilities after the project has been completed and handed over

1.2 Research Objectives

This study aims to optimize FIDIC-based contractual provisions to enhance performance and prevent disputes in construction projects by aligning them with prevailing regulations in Indonesia and reducing the risk of conflicts among parties.

More specifically, the objectives of this research are to:

1. Analyze key provisions in FIDIC contracts that influence the performance of construction projects.
2. Identify the challenges in implementing FIDIC contracts within the context of Indonesian law and construction practices.

3. Evaluate the role of FIDIC in the effective prevention and resolution of construction disputes.
4. Formulate strategies to optimize the use of FIDIC provisions so they align with project characteristics and the national legal system.
5. Provide practical recommendations for project stakeholders and policymakers to improve project performance and minimize disputes through adaptive application of FIDIC.

2. RESEARCH METHODOLOGY

This study employs a qualitative approach using normative-juridical methods and case studies. Data were collected through literature reviews and analysis of project contracts utilizing FIDIC, focusing on their influence on project performance and potential field conflicts.

The research followed several key steps:

1. Literature Review

   The study began with a review of books, journal articles, FIDIC standards, and legal references related to construction contracts. This review aimed to build a theoretical foundation on the concepts of special conditions, project performance, and conflict management in the construction sector.

2. Contract Document Analysis

   Selected examples of FIDIC-based contract documents, which had been adapted with special conditions, were analyzed to identify patterns, best practices, and potential issues arising from the drafting of such clauses.

3. Data Analysis

   The collected data were analyzed thematically to explore the relationships between the design of special conditions, project performance outcomes, and the dynamics between contractual parties. Triangulation techniques were also employed to enhance the validity of the findings.

Through this methodology, the research aims to provide a comprehensive and practical understanding of the importance of drafting appropriate special conditions to support the success of construction projects.

3. DISCUSSION AND RESEARCH FINDING

3.1. Discussion

3.1.1. The Importance of Selecting a FIDIC Contract That Matches the Project Characteristics

The potential for contractual problems in construction projects largely depends on the complexity of the responsibilities assigned to the contractor or service provider. This complexity is reflected in the type of contract used. Referring to FIDIC, there are several types of contracts available to meet the varying needs of projects with different levels of complexity, risk, and responsibility. The appropriate type of contract should be selected based on the specific characteristics of the project, including who is responsible for the design, the extent of the employer's involvement, and the overall scale of the project. The main types of FIDIC contracts include:

1. Construction Contract (Red Book)
   In this contract type, the design is provided by the employer or an appointed consultant. The contractor is only responsible for carrying out the construction work according to the provided design. This contract is typically used for straightforward projects such as roads, buildings, and basic infrastructure. Its main advantage is the high degree of control retained by the employer over the project design. However, the employer also bears the risk of any design-related errors.
2. Plant and Design-Build Contract (Yellow Book)
   Under this type, the contractor is responsible for both the design and the execution of the work. The employer provides only the output specifications, and the contractor handles both the design and construction. This type is preferred by employers seeking a single point of responsibility and is commonly used for complex mechanical, electrical, or civil engineering works. The main risk related to design and execution is borne by the contractor.

3. Turnkey Contract / EPC (Silver Book)

   This contract places full responsibility on the contractor for design, construction, and delivery of the project in a ready-to-use condition. The employer's involvement in the design process is minimal, limited to providing initial specifications. This contract provides certainty for the employer as the contractor bears nearly all project risks, including unforeseen conditions or changes in specification. It is commonly used for large-scale projects such as power plants or industrial facilities.

4. Short Form of Contract (Green Book)

   Designed for small, simple projects with low contract value and short execution periods. The contract structure is simplified with concise terms and conditions, making it suitable for less complex projects.

5. MDB Harmonised Edition (Pink Book)

   A special version of the Red Book adapted for projects funded by Multilateral Development Banks (e.g., World Bank). This version incorporates additional requirements to comply with financing standards, which may increase contractual complexity.

6. Design, Build, and Operate Contract (Gold Book)

   This contract integrates design, construction, and operation within a single agreement. The contractor is responsible not only for delivering the project but also for operating it for a specified period. It is ideal for projects requiring long-term operational performance, such as urban water treatment facilities. It requires contractors with both construction and operational expertise.

7. Consultancy Agreement (White Book)

   Intended for procuring professional consulting services, this contract governs the relationship between the employer and the consultant for design services, site supervision, QA/QC oversight, and project management. It clearly defines the responsibilities and expectations in technical consultancy projects.

. Given the wide variety of projects involving both domestic and international contractors, the success of a construction project heavily depends on selecting a contract type that matches its complexity. Proper contract selection can reduce the risk of disputes and enable resolution through appropriate mechanisms and stages in accordance with the agreed terms.

3.1.2. Special Conditions and Their Impact on Project Performance

The adjustment of special conditions to align with local regulations has proven to be a critical factor in avoiding contract invalidation or legal violations. FIDIC contracts that are adopted without proper localization often become sources of additional legal complications.

Well-drafted special conditions have a positive impact on several aspects of project performance, including:

- Execution Speed: Clear provisions facilitate faster decision-making processes, especially regarding work variations, payments, and dispute resolution.
- Quality of Cooperation: Transparent terms help build mutual trust between parties, reducing emotionally driven or personal conflicts.
- On-site Productivity: Reduced administrative disputes and clear work instructions directly contribute to smoother physical implementation on site.

Conversely, ambiguous or biased clauses may lead to dissatisfaction, lower team morale, and ultimately delay project progress.

3.1.3. Implementation of the EPC Contract and Example of Encountered Issues

In this case study, the project under development is a coal-fired power plant (PLTU) located on one of the islands in Indonesia. Following the signing of the contract between the employer and the EPC contractor, a kick-off meeting was held, and the project site was officially handed over as the basis for commencing work. The EPC contractor began mobilizing resources to ensure that all project requirements were ready, starting with site preparation, including the development of preliminary infrastructure such as access roads, site offices, storage facilities, and delivery of essential construction equipment.

As the contract follows an EPC (Engineering, Procurement, and Construction) scheme, the contractor is obligated to carry out and submit the detailed design to be used as the basis for material procurement and technical drawings for construction execution. During the engineering phase, the contractor conducted a re-check survey and structural calculations to obtain approval from the employer, ensuring that the design complied with the technical specifications set out in the contract.

During this engineering process, the contractor began encountering contractual issues. One of their responsibilities was to thoroughly examine field conditions and compare them against the agreed design criteria, including conducting engineering calculations to guarantee the quality and safety of the project. In this case, the EPC contractor discovered a significant issue during the geotechnical survey of the designated project site: the area was located on a geological fault line.

The contractor immediately reported this finding to the project owner. However, the owner was skeptical and sought a second opinion by appointing an independent team of academic experts to evaluate the contractor's report. The independent study confirmed that the site indeed lay on a fault line, located on an island with a karst soil structure. Although the surface appeared solid with limestone rock, deep subsurface faults posed serious risks. Constructing a power plant on such land could lead to potential structural failure either during construction or over time due to loading stresses.

Following the engineering report, the EPC contractor proposed several design and load optimization strategies to make the project viable. However, the recalculated results failed to meet technical standards and requirements. The independent expert team recommended alternative types of power generation—such as a solar power plant (PLTS) or a diesel power plant (PLTD)—which have lighter structural demands more suited to the geological conditions. Nevertheless, these alternatives significantly diverged from the original contract, which specified the construction of a coal-fired power plant (PLTU), and would require a comprehensive re-evaluation. This would ultimately render the project inconsistent with the original tender and contractual documents.

3.1.4. Preventive Legal Protection

In response to the encountered issue, the Employer and the EPC Contractor entered into negotiations to determine the future of the contract. After considering both contractual and technical aspects, it was concluded that the construction of the coal-fired power plant (PLTU) could not proceed. Both parties were required to examine the contractual provisions relating to the matter. Since the project contract was based on FIDIC standards, specifically the FIDIC Silver Book (Conditions of Contract for EPC/Turnkey Projects), the rights and obligations of each party were clearly defined within the contract clauses.

Under the Silver Book, dispute resolution procedures during construction are governed by Clause 20: Employer's and Contractor's Claims, which outlines the process for submitting claims by either party during project execution. The first step is the submission of a Notice of Claim by the aggrieved party to the other, in writing, accompanied by supporting documents including the calculation of the claimed compensation. The claim must be reviewed by the Engineer, and the opposing party is required to respond within a specified time frame.

On this basis, the EPC Contractor submitted a claim for all costs incurred and formally requested clarification on the future of the PLTU construction project. If the matter cannot be resolved through negotiation, Clause 21: Disputes and Arbitration applies. This clause stipulates that the issue may be referred to the Dispute Avoidance/Adjudication Board (DAAB), whose decision is temporarily binding, or ultimately to arbitration, should amicable resolution fail.

The relevant provision for obtaining a DAAB decision is detailed in Sub-Clause 21.4: Obtaining DAAB's Decision, which sets forth the timeline and procedure for securing a decision from the Board. Both parties are required to comply with the DAAB decision unless and until the dispute is finally resolved through arbitration.

Further, the applicable arbitration process is governed by Sub-Clause 21.6: Arbitration, which refers the matter to ICC arbitration, should either party disagree with the DAAB's determination or should negotiations break down entirely. This process ensures that a final and binding resolution can be reached.

3.1.5. Repressive Legal Protection

In the FIDIC Silver Book (Conditions of Contract for EPC/Turnkey Projects), Clause 1: General Provisions, particularly Sub-Clause 1.4: Law and Language, stipulates that the contract shall be governed by the law applicable in the designated jurisdiction as specified in the Particular Conditions. In this case, the applicable law is the law of the Republic of Indonesia, as the project is located within its territory. This legal framework serves as the basis for interpreting and executing the contract.

In light of the situation and after considering all technical, contractual, and risk-related aspects, the Employer issued an official letter ordering the suspension of all project-related activities

and invited the EPC Contractor to a meeting to discuss the contractual implications. The Employer proposed a peaceful settlement, meaning that both parties agreed to enter into negotiations regarding the continuation or termination of the project.

In Indonesia, the concept of settlement is governed under Article 1851 of the Indonesian Civil Code (KUH Perdata), which provides the legal basis for a written peace agreement, known as a “Deed of Settlement” (Deed van Dading). Article 1851 defines a settlement as an agreement in which, through mutual concessions, parties either resolve an ongoing dispute or prevent a potential legal dispute, provided it is made in writing. The deed serves as a legally binding instrument and a formal resolution recognized by Indonesian law.

Drafting the content of such a deed is not a straightforward task, as both the Employer and the EPC Contractor are at a disadvantage due to the project’s inability to proceed. Both parties must carefully examine their respective rights and obligations as set out in the contract. A critical contractual issue arises in EPC/Turnkey projects, where the Contractor is responsible for design. This raises a legal question: when a project cannot proceed because the design cannot be implemented at the designated site, who bears the liability? This is particularly complex given that the project was still within the engineering phase, which falls under the Contractor’s responsibility. Another key legal principle is that a contract should not only be interpreted during the procurement phase but also throughout the construction period. Therefore, when a dispute arises during negotiation or execution, interpretation must refer to and be based on the contract as a whole. If, upon comprehensive interpretation, discrepancies are discovered, such inconsistencies may give rise to claims. It is essential for both parties to understand each other’s responsibilities and the challenges encountered so that the resulting agreement is fair and considerate. This mutual understanding increases the likelihood of reaching a consensual settlement that serves the objective of maintaining peace and avoiding prolonged legal disputes.

3.2. Research Results

3.2.1. Understanding in Analyzing Contracts

Important aspects that both employers and contractors must possess during the negotiation of construction contract issues include:

1. A Good Understanding of the Contract Content and Objectives.

   The project owner must have a clear understanding of what is desired in the project, their responsibilities as the owner, the specifications, the available budget, and the timeframe required for decision-making. Meanwhile, the contractor must understand the project goals and be ready to offer realistic solutions regarding budget, time, and resources.

2. Complete Documentation.

   Both parties must possess documents that serve as evidence to identify the root of the problem and as a justifiable basis for any claims submitted.

3. Cost and Price Negotiation Skills.

   To ensure fairness in the claims submitted, all costs incurred must be transparently and realistically presented in the proposals.

4. Effective Time Management.

   Both parties must have realistic time estimates for project completion.

5. Risk Management.

   Both parties must understand the potential impacts of risks that may arise and have mitigation plans in place to control those risks.

6. Effective Communication Skills.

   Both parties must be able to maintain open communication and discuss any issues that may arise.

7. Sustainability and Compliance with Regulations.

   Both parties must be aware of applicable regulations and adopt them in every agreement made or signed.

3.2.2. Specific Provisions for Resolving Disputes

In a settlement deed (deed van dading), there are essential contents or clauses that must be included for the deed to be legally valid and to reflect the agreement between the parties. At a minimum, the following elements should be included in

the deed van dading:

1. Identification of the Disputing Parties. Contains the names, identification numbers (such as national ID or other legal documents), addresses, and capacities of the parties who will sign the deed.
2. Background of the Dispute. Describes the facts underlying the dispute, including the cause, the object of the dispute, and the legal basis used by each party.
3. Purpose and Intent of the Settlement. Affirms that the purpose of this deed is to resolve the dispute amicably, and confirms both parties' agreement to end the conflict without proceeding to further legal action.
4. Statement of Agreement. Details the agreements reached by the parties, such as the contractor’s obligations, payment arrangements by one party, or technical resolutions related to the project.
5. Implementation Provisions. Specifies deadlines for fulfilling the agreed obligations and outlines the technical mechanisms for completing work or payments.
6. Dispute Waiver Clause. Declares that the dispute is considered resolved upon signing the deed, and that neither party will file further lawsuits or claims related to this matter in the future.
7. Sanctions for Breach of Agreement. Explains the legal sanctions or consequences if one party fails to fulfill their agreed obligations under the deed.
8. Choice of Law and Dispute Resolution. Determines the applicable legal framework (Indonesian law) and the institution responsible for resolving any new disputes that may arise.
9. Legalization Costs. Specifies which party will bear the cost of drafting and legalizing the deed (usually shared equally).
10. Closing Statement. Confirms that the deed was made voluntarily, without coercion from any party, and is legally binding.

11. Signatures and Legalization. Includes the signatures of the parties involved, witnesses, and the notary who legalizes the deed.

4. CONCLUSION

4.1 Summary

1. In drafting construction contracts—especially for construction projects it is advisable to use the FIDIC (Fédération Internationale des Ingénieurs-Conseils) standard as a basis. This is because the success of a project is partly determined by choosing the right type of contract, one that matches the complexity characteristics of the project. By doing so, potential construction disputes can be resolved properly through established methods and stages.
2. For power plant projects, the recommended contract types are the Plant and Design-Build Contract (Yellow Book) or the Turnkey Contract / EPC (Silver Book). These two types of contracts are considered highly suitable, taking into account available resources in terms of knowledge, experience, and project completion time. Additionally, they present lower risks for the users of goods and services (project owners).
3. Amicable dispute resolution for contractual conflicts in power plant projects can be pursued through a deed of settlement (deed van dading), as this type of agreement is legally recognized under Indonesian law and is in accordance with Article 1851 of the Indonesian Civil Code (KUHPerdata).
4. In drafting a deed van dading, the parties involved should have a strong understanding of the contract and possess effective communication skills.

4.2 Recommendations

1. The drafting of specific provisions should not involve only legal consultants, but also technical practitioners, project management experts, and stakeholders who understand the operational conditions on-site. Through cross-disciplinary

collaboration, the resulting provisions will be more practical, fair, and aligned with the real needs of the project.

2. Every project operates within a different legal and social framework. Specific provisions should be developed with consideration for local regulations, industry standards, and cultural practices to avoid legal non-compliance and on-site conflicts.
3. The language used in specific provisions must be clear, concise, and consistent. Avoid ambiguous terms that may lead to multiple interpretations in the future. Well-written contracts should anticipate potential differences in understanding between the parties.

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