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RISK ASSESSMENT FOR INTERNATIONAL CONSTRUCTION PROJECTS

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Abstract

Original scientific paper

International projects are inherently vulnerable to unforeseen and complex risk scenarios. This study aimed to assess and identify the most significant risk factors in international construction projects using the analytic hierarchy process (AHP) methodology. Initially, by employing Meta-analysis, the most significant threats to Afghanistan's construction industry were identified. Based on the findings of the analysis, the AHP method is utilized to determine the relative severity and priority of the risks. According to the findings of the study, security and financial concerns are high-risk, while operational and geographical concerns are low-risk. Afghanistan's lack of integration into international law and the trade system is deemed to pose significant risks. This study contributes to the existing body of knowledge concerning the potential dangers investors face in high-risk construction markets. The study's findings may also help contractors develop "bid or no-bid" strategies for high-risk markets.

Keywords: *International construction, project management, risk assessment, AHP.*

ULUSLARARASI İNŞAAT PROJELERI İÇİN RİSK DEĞERLENDİRMESİ

Özet

Orijinal bilimsel makale

Uluslararası projeler doğası gereği öngörülemeyen ve karmaşık risk senaryolarına maruz kalmaktadır. Bu çalışma, analitik hiyerarşi süreci (AHP) yöntemine dayanarak uluslararası müteahhitlik projelerindeki kritik risk faktörlerini değerlendirmeyi ve tanımlamayı amaçlamıştır. Öncelikle örnek ülke olarak seçilen Afganistan pazarındaki inşaat firmalarının karşı karşıya kaldığı zorlayıcı riskler meta-analiz yöntemi ile belirlenmiştir. Analiz sonucu elde edilen verilere göre AHP yöntemi kullanılarak risklerin öncelikleri ve birbirleri arasındaki önem derecesi tespit edilmiştir. Çalışmanın sonuçları, güvenlik ve finansal kaygıların yüksek, operasyonel ve coğrafi kaygıların ise düşük riskli olduğunu göstermektedir. Afganistan'ın uluslararası hukuka ve ticaret sistemine entegre olmaması yüksek risklerin temel nedeni olarak değerlendirilmektedir. Çalışmanın bulguları, yüksek riskli inşaat pazarlarına yatırım yapma kararı verirken karşılaşılan olası tehditler hakkında mevcut literatüre ve yatırımcılara güncel bilgiler vermektedir. Araştırma sonuçları yüklenicilerin yüksek riskli piyasalar için "teklif verme veya teklif vermeme kararları" stratejileri geliştirmelerine de yardımcı olabilir.

Anahtar Kelimeler: *Uluslararası inşaat, proje yönetimi, risk değerlendirmesi, AHP.*

1 Introduction

The rapid growth of economic globalization, coupled with volatile domestic markets and intensifying competition, has created lucrative opportunities for international contracting firms [1,2,3]. By capitalizing on these opportunities, a growing number of international contracting firms have expanded their operations on the international market to ensure their financial security through an increase in global revenue [4,5]. However, a major issue with this strategy is that international projects are inherently exposed to unpredictable and complex risk scenarios [6,7]. Also, difficulties arise when attempting to implement international projects in countries with a high-risk profile. International construction projects have more complex structures than domestic construction projects [8]. Systematic, exhaustive, and applicable risk management for international construction projects, resulting from the dynamic interaction of country and project-based factors; processes are required to reduce the potential impacts of high-risk and unpredictable problems [9]. When firms enter these countries, they are likely to encounter a high level of uncertainty due to the political and economic stability, the strength of the legal system, and the strength of the host government's relations [10]. Political and economic instability likely prompt western

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contractors to withdraw from these markets in favor of the relatively stable western markets [11]. However, Turkish contracting firms tended to focus on high-risk markets, which were deemed unattractive by western companies [12]. Moreover, the fact that they operate in high-risk international markets, which has contributed to their enviable reputation, makes them especially susceptible to encountering serious risk issues in international construction projects. Therefore, the ability of Turkish contracting firms to avoid and manage these risks is crucial to their success when entering these markets. Afghanistan has been one of the leading markets for Turkish contractors operating in high-risk countries [13]. The Turkish Constructor Association estimated in August 2019 that the total value of projects undertaken by Turkish companies in South Asia and the Far East between 2002 and the third quarter of 2019 exceeded 12.1 billion USD, with Afghanistan accounting for 18.7% of the total [14].

This paper examines risk assessment for international business in Afghanistan from the perspective of Turkish international construction companies, as it is believed that risky markets provide an opportunity to move into emerging markets, and because Turkish companies rank first among foreign companies operating in the contracting business in Afghanistan. Based on the analytic hierarchy process (AHP) method, the purpose of this study is to assess and identify the critical risk factors in international contracting in Afghanistan country.

2 Theoretical Background and Literature Review

Risk is viewed as a factor that causes deviance from predetermined objectives [15]. The PMBOK Guide [16] defines risk as "an uncertain event or condition that, if it occurs, will have a positive or negative impact on the project's objective." The major part of this concept is that the impact of uncertainty on the planned initiative's objectives can be either positive or negative. Due to the fact that the success of international projects depends on country-specific risk factors as well as common risk factors, firms that wish to enter the international market should emphasize risk [17,18].

Entrepreneurs who wish to invest internationally must employ a proactive and comprehensive risk management system and assess the impact of market conditions on their projects. In addition, this system determines competition and profit potential during the planning and bidding phases [19]. Consequently, as a result of the alienation of environmental factors, the excess of uncertainties and the complexity of relations between the countries in which the contractors will invest become more crucial for predicting the risks in international projects.

Numerous studies on the risk assessment of international construction projects [20, 21, 22, 23, 24, 25] have been conducted in this field. Nonetheless, a very small number of studies have been conducted in high-risk markets, as observed. [26,27,28] Specifically for Afghanistan, only one study has been conducted [29].

Risk identification is the first and possibly most important step in the risk management process, as subsequent steps can only be taken in response to identified potential risks [30,31]. Identification and analysis of risks are generally regarded as the most important project management practices, meaning they have the most influence on risk assessment. However, most studies do not focus on risk identification, but rather on risk assessment and mitigation strategies. Risk analysis and response are predicated on predefined risk elements [32]. Decomposition structures, risk registers, risk breakdown structure, brainstorming, nominal group technique, Delphi, historical records, influence diagram checklists, and decision-based support systems are widely used for risk identification [33,34]. Studies of risk assessment have emphasized quantitative evaluation for many years. Firstly, methods of evaluating probability impact (PI) were the most commonly employed in project risk assessment [35]. Cooper et al. [36] and Barnes [37] pioneered the PI method for project cost risks, which has since been improved by adding more criteria to this phase. by Han and Diekmann [38] and Sauli et.al [39], for instance, have utilized a variety of new variables, such as the value of the risk and vulnerability. Second, the Monte Carlo simulation (MCS) method was widely employed in risk assessment. Diekmann [40] and Cioffi and Khamooshi [41] used MCS to assess construction project cost risk estimation. Thirdly, the analytic hierarchy process (AHP) and fuzzy sets were created to enhance the objectivity of subjective decision making [42, 43, 44]. AHP has garnered considerable interest in the construction industry over the past two decades. International construction contracting issues have been described as complex, poorly defined, and uncertain [45]. According to some scholars, there are numerous risk factors associated with building contracts, and the interrelationships between these risk factors are complex and sometimes nonlinear [46]. In order to ensure the success of international construction projects, it is crucial to correctly identify and evaluate potential risks. AHP is an effective method for prioritizing identified risks [47]. This enables decision-makers to use various quantitative parameters to analyze potential options and then select the best option. AHP was frequently favored in the construction industry [48,49,50,51,52] as a result of its inherent ability to deal with specific forms of decision-making. Therefore, it was determined to employ AHP in this study.

3 Research Methodology

This study's research methodology is composed of three distinct phases. The initial step is identifying the risks to be considered. Using a meta-analysis technique, a literature review is conducted in order to identify the country-based risk factors that influence the potential market for international construction projects in Afghanistan. The second step is the categorization of risks through semi-structured interviews. Based on the opinions of experts, they have attempted to eliminate less significant risk factors at this point. As a result of semi-structured interviews with experts, certain risks identified in the literature review were eliminated and the remaining risks were categorized. In the final phase, the evaluated data from the semi-structured interviews are analyzed using the Analytical Hierarchy Process (AHP) to rank and

prioritize the potential challenges for the Afghanistan market. As this study focuses primarily on the international experience and performance of Turkish contractors, these experts took the Turkish contractors' perspectives into account when identifying risk factors. Figure 1 illustrates the problem-structuring model that was developed. The study's findings will then be evaluated and compared to those of prior research.

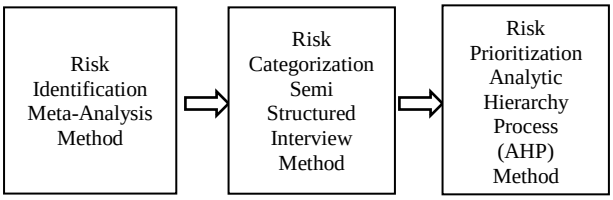

Figure 1. Proposed Research Model.

3.1 Risk Identification with Meta-Analysis

The earlier literature review on identifying risk factors for construction projects is beyond the scope of this paper; for a comprehensive treatment of the topic, the reader is referred to Siraj and Fayek [53]. Because of that in order to assess the risk factors that affect international projects in developing countries, with an emphasis on construction projects in Afghanistan, we opted to focus on empirical literature reviews. With this scope, peer-reviewed journals that have published in the construction management literature within the last 15 years have been analyzed, and research has been conducted using the keywords "international construction risk" and "construction contracting risk." Using a meta-analysis technique, the databases of WoS, Scopus, ASCE, Science Direct, Taylor & Francis, and Emerald publishers were combed between 2005 and 2020 for 76 papers on country-based construction contract risk factors. As a result of the literature review, 36 of the most prominent "country-based" risk factors affecting international contracting in developing nations were selected from the defined publications.

3.2 Risk Categorization with Semi-Structured Interview

Rather than using the current risk breakdown framework for this study, a number of discussions were held with experts in the field of international construction in order to establish the most realistic risk analysis that represents the most frequently encountered problems faced by contractors operating on the global market. Four professionals were consulted for this purpose. With the aid of a semi-structured interview with these experts, the 36 risk factors that were believed to have a measurable impact on the project's success were assessed. Some of the identified sources of risk contained a source compound that was assumed to be better described under one category. The new model contained 24 sources of risk. At the conclusion of this procedure, the primary risk categories and risk occurrences are clarified. The identified risk sources are grouped into six major risk categories, including security, financial, market, geographical, legal, and operational issues. The proposed risk table for international construction projects is shown in Table 1. In the final phase, the logic of the AHP method is explained to the experts, who are then asked to rank the market risk for Afghanistan.

Table 1. Prepared Risk Table on International Construction Projects.

Risk Categories	Uncertainty/Ambiguity
Security Risk	Security/absence of a security system
	Mafia, etc., a multiplicity of power groups
	Shortage of medical facilities
Financial Risk	Unpredictability of Economic Circumstances
	Variability of the Exchange Rate
	Lack of financial resources of the client
	Insufficient Banking System
Market Risk	Difficulties in Material Procurement
	Deficit in Infrastructure
	Variations in Quality Perception
	Insufficient Skilled Subcontractors
	Lack of Corporate Clientele
	Administrative Corporate Weakness Regarding Customers
Geographical Risk	Vulnerability to Natural Disasters
	Climate-Related Adverse Conditions
	Adverse Physical Conditions
Legal Risk	Corruption within the Political Hierarchy (bribery, theft, ethnicdiscrimination)
	Undevelopedness / Unreliability of the Legal System
	Risks Resulting from International Relations Instability
	Restriction on Foreign Corporations and Additional Fees
Operating Risk	Technology-related risk
	Human resource-related issues (capacity risk)
	Risks Arising from Contracts
	Cultural differences

Interviews with experts regarding the country-based risk factors of the construction industry in Afghanistan were compiled based on the experts' personal ideas and experiences, as well as the information obtained at the conclusion of the AHP method. Rather than forming a definitive opinion on the construction industry, the purpose of this study is to provide Turkish contracting firms that are considering working in Afghanistan with a general understanding of the market.

3.3 Risk Prioritization with AHP Process

The method is shaped by three fundamental principles: parsing, comparison, and prioritization synthesis. After determining the objective with AHP, it may be easier to comprehend the decision-making problem by dividing it into sub-problems, creating a hierarchy, and analyzing each sub-problem separately [54]. The AHP factors can be concerned with any viewpoint of the decision-making problems. If it is necessary to compare the n alternative risk elements (A1, A2,…, An) after the creation of the hierarchy, an expert assigns a numerical value aij to each pair of alternatives (Ai,Aj) using the dual combination scale (Table 2).

Table 2. AHP Binary combination Scale [52].

Numeric Values	Description
1	Items are equally important or remains indifferent between them
3	1st item is important or slightly more preferred than 2nd item
5	1st item is more important or more preferred than 2nd item
7	1st item is very important or too much preferred to 2nd item
9	1st item is extremely important or excessively preferred to 2nd item
2, 4, 6, 8	Intermediate values
Opposing values ($1/x$)	If the numeric value of the 1st item compared to the 2nd item is x, then 2nd item in comparison to the 1st item, opposite value to the x will be attributed.

Using a binary comparison, numerical values determine the effects of the items on the element (project success) placed at a higher level. Aijk refers to the K expert's preference (opinion) between Ai and Aj alternatives (risks).

The geometrical mean (1) is determined by calculating and compiling all of the experts' verdicts, and then it is incorporated into the comparison matrix (2).

$$a_{ij=}\sqrt[n]{a_{ij1}Xa_{ij2}X...Xa_{ijn}} \tag{1}$$

$$D=\begin{pmatrix} a_{11} & a_{12}..... & a_{1n} \\ a_{21} & a_{22}..... & a_{2n} \\ ..... & ..... & ..... \\ a_{n1} & a_{n2}.... & a_{nn} \end{pmatrix} \tag{2}$$

D Matrix has a comparison matrix with potentially inconsistent judgments and the following characteristics (3):

$$a_{ij>0;} \quad a_{ij=\frac{1}{a_{ij}}\forall i} \quad \text{where} \quad j=1,2\text{…….}, n \tag{3}$$

D matrix is considered consistent if all the factors satisfy (3) and (4) conditions:

$$a_{ij.}a_{jk=}a_{ik} \text{ ; } \forall \text{ I,j,k where i,j,k=1,2,……,n} \tag{4}$$

Consequently, the alternatives are considered herewith the approach of comparison matrix D by use of the matrix P:

$$P=\begin{pmatrix} p_{11} & p_{12}..... & p_{1n} \\ p_{21} & p_{22}..... & p_{2n} \\ ..... & ..... & ..... \\ p_{n1} & p_{n2}.... & p_{nn} \end{pmatrix} \tag{5}$$

Elements of Matrix P are consistent decisions displayed as weight ratios between the alternatives.

$$Pij = Pi/Pj \quad \text{Where} \quad i, j = 1, 2,…..,n \tag{6}$$

For the vector p, pi is used to represent the alternative weights.

$$p=(p1, p2,....., pn)^T \tag{7}$$

That after arithmetic normalization, the following is the standard layout vector:

$$p=(p^*_1, p^*_2,....., p^*_n)^T \tag{8}$$

Where:

$$p^*_i=\frac{p_i}{\sum_{1}^{n}=0\,pi} \tag{9}$$

Saaty [53] approached the judicial matrix using the maximum value (eigenvalue) technique:

$$D.P=\lambda_{\max P} \tag{10}$$

λmax is regarded as the greatest eigenvalue of the matrix D. If a comparison is conducted with confidence, the inconsistency of matrix D should be less than 10%. In other words, it is crucial to ensure that the number of cases in which condition (4) is not met is less than 10%. According to Saaty [53], the consistency of the judgments can also be calculated using the maximum eigenvalue, which is derived from the eigenvalue and the eigenvector, using the following equation: (11)

Consistency Ratio $$CR=\frac{CI}{RI} \tag{11}$$

Consistency Index $$CI=\frac{\lambda_{\max}-n}{n-1} \tag{12}$$

RC (Random consistency index) is obtained from Table 3.

Table 3. Random Consistency (RC) Index [n = size of opposing matrix) [53].

n	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
RC	0	0	0.58	0.9	1.12	1.24	1.32	1.41	1.45	1.49

After explaining the fundamentals of the AHP method, the risk table developed based on the results of the semi-structured interviews was presented to the experts in order to compare their risk elements and determine their weight by conducting a double comparison. Using 25 distinct binary comparisons, each expert in the AHP process ranked the six distinct groups' risks from important to less important, from one to nine, respectively. Rank of the dimensions is displayed below (see Table 4-7). To determine the reliability of the comparisons, the consistency ratio (CR) of the matrices was determined by calculating the maximum eigenvalue; since all comparison matrices had an inconsistency rate of less than 10%, the comparison is accepted based on the lower inconsistency rate.

Table 4. First Expert Comparison Matrix.

	Security Risk	Legal Risk	Financial Risk	Market Risk	Operating Risk	Geographical Risk
Security Risk	1,000	2,000	3,000	4,000	5,000	6,000
Legal Risk	0,500	1,000	0,800	3,000	2,000	3,000
Financial Risk	0,330	1,250	1,000	5,000	3,000	4,000
Marketing Risk	0,250	0,333	0,200	1,000	3,000	2,000
Operating Risk	0,200	0,500	0,333	0,333	1,000	3,000
Geographical Risk	0,166	0,333	0,250	0,500	0,333	1,000

$$\lambda max = 6{,}43 \xrightarrow{\text{Yields}} \begin{cases} CI=0{,}096 \\ CR=0{,}077<10\% \end{cases}$$

Table 5. Second Expert Comparison Matrix.

	Security Risk	Legal Risk	Financial Risk	Market Risk	Operating Risk	Geographical Risk
Security Risk	1,0000	7,0000	2,0000	3,0000	8,0000	5,0000
Legal Risk	0,1420	1,0000	0,2500	0,1660	2,0000	1,0000
Financial Risk	0,5000	4,0000	1,0000	3,0000	5,0000	4,0000
Market Risk	0,3330	6,0000	0,3330	1,0000	4,0000	5,0000
Operating Risk	0,1250	0,5000	0,2500	0,2000	1,0000	0,3300
Geographical Risk	0,2000	1,0000	0,2500	0,2000	3,0000	1,0000

$$\lambda max = 6{,}516 \xrightarrow{\text{Yields}} \begin{cases} CI=0{,}1034 \\ CR=0{,}083 < 10\% \end{cases}$$

Table 6. Third Expert Comparison Matrix.

	Security Risk	Legal Risk	Financial Risk	Market Risk	Operating Risk	Geographical Risk
Security Risk	1,000	6,000	0,500	3,000	5,000	2,000
Legal Risk	0,166	1,000	0,250	0,500	2,000	2,000
Financial Risk	2,000	4,000	1,000	2,000	5,000	3,000
Market Risk	0,333	2,000	0,500	0,500	4,000	3,000
Operating Risk	0,200	0,500	0,200	0,250	1,000	0,330
Geographical Risk	0,500	0,500	0,333	0,333	3,000	1,000

$$\lambda max = 6{,}406 \xrightarrow{\text{Yields}} \begin{cases} CI=0{,}0812 \\ CR=0{,}06<10\% \end{cases}$$

Table 7. Fourth Expert Comparison Matrix.

	Security Risk	Legal Risk	Financial Risk	Market Risk	Operating Risk	Geographical Risk
Security Risk	1,000	5,000	0,500	3,000	3,000	2,000
Legal Risk	0,200	1,000	0,200	0,500	0,800	0,750
Financial Risk	1,000	4,000	1,000	5,000	3,000	2,000
Market Risk	0,333	2,000	0,200	1,000	2,000	1,500
Operating Risk	0,333	1,250	0,333	0,500	1,000	3,000
Geographical Risk	0,500	1,333	0,500	0,666	0,333	1,000

$$\lambda max = 6{,}369 \xrightarrow{\text{Yields}} \begin{cases} CI=0{,}074 \\ CR=0{,}0059 < 10\% \end{cases}$$

After constructing the comparison matrices and computing the consistency ratios, the Eigenvector tool of each matrix was used to determine the weights of the risk elements. The weight of the risks was calculated using Table 8 and the comparison matrices that were evaluated by the experts. The average volume calculated to reach a consensus among the experts is shown in the final column of Table 8.

Table 8. Significance of Risk Element.

		Severity of Risk Element			
Risk Type	1st Expert	2nd Expert	3rd Expert	4th Expert	Average
Security Risk	0,39	0,29	0,27	0,38	0,33 **1st Rank**
Legal Risk	0,06	0,09	0,07	0,17	0,10 **4th Rank**
Financial Risk	0,25	0,32	0,32	0,22	0,28 **2ndRank**
Market Risk	0,19	0,16	0,12	0,10	0,14 **3rd Rank**
Operating Risk	0,04	0,05	0,12	0,08	0,07 **6th Rank**
Geographical Risk	0,07	0,09	0,10	0,05	0,08 **5th Rank**
Total Risk	1.00	1.00	1.00	1.00	100%

As a result, the risk ranking is obtained on the basis of the average weights of the risk items. The first two risks are security and financial risks, and the last two are operational and geographical risks.

4 Results

4.1 Results of the Semi-Structured Interview

As stated previously, because construction projects are sensitive to internal and external conditions and have a high degree of uncertainty, identifying and ranking potential risks at the beginning of the project is one of the most important steps in international project management. In the semi-structured interview, the experts emphasized the first and most crucial point: Afghanistan has not yet been fully integrated into international law and the international trading system. Consequently, contracting companies' rights are governed solely by local law, which lacks international support. In addition, the country's unstable government creates an important level of unpredictability and danger. There is no established banking or secure money transfer system in Afghanistan. The lack of adequate safety facilities and a secure environment poses significant obstacles to the domestic and international supply of construction materials and equipment. Additionally, experts have identified bureaucratic issues as a challenge. This circumstance makes it difficult to obtain the required permits and documents, authorizations, payments, and temporary and final acceptance. Complexity of the state's organizational structure and the existence of instances of bribery are a further point of vulnerability in the administrative structure. There are very few experienced consultants, architects, and civil engineers working on large modern technology-based projects. Implementing project management, project control, and project delivery continues to present them with significant obstacles. The disparity between the country's calendar and the inefficiency of the labor force has also been raised as a problem for the builders.

4.2 Results of the AHP Application

The risk factors are divided into two main groups based on their relative importance during the AHP evaluation of the study results. Security and financial concerns have been deemed high-risk, whereas operational and geographical concerns have been deemed low risk. Due to the fact that the weights are calculated by comparing the risks in the study, it is important to note that the risks categorized as underestimated may have significant effects on the project and should not be neglected during the risk management process.

The number of participants in the semi-structured interviews and the inconsistencies between the AHP process and the issues raised in the semi-structured interviews revealed that the results were not sufficiently reliable. In the Afghan construction market, the first group of risks (security and finance, which account for 61 percent of the total rate) is without a doubt the most significant.

5 Discussion

When the research findings are discussed with experts, it becomes clear that security and financial risks are essential Afghan market risks, with Afghanistan's lack of integration into international law and trade being the root cause of both risks. These results are consistent with finding of Ghulam and Painting [29]. They discovered the same results in their analysis of significant factors contributing to cost overruns in the Afghan construction industry. When the research findings are analyzed, it becomes evident that security is a significant contributor to financial risk.

6 Conclusion

In conclusion, the safe transportation of construction equipment and materials from the border to the construction site is one of the most pressing concerns if the security risk is examined from a variety of angles. Due to vulnerabilities and difficulties with border entry and exit (custom), the transfer of materials from the border to the construction site may be delayed for two to three weeks or more . Even when a time-cost analysis is conducted, it is possible to conclude that air transport is preferable for small equipment.

The construction site's safety is an additional important cost factor to consider. The budget for construction site security ranges between 10% and 15% of the total project cost, depending on the region in which the project is carried out. Contrary to widespread belief, the majority of construction site attacks are carried out by disgruntled workers or contractors whose contracts have been terminated, and not by the Taliban or other terrorist organizations. At this time, close relationships with local authorities and residents may be more effective than a large number of armed men. When construction workers are selected from the local populace, the security vulnerability will be reduced.

A lack of capacity in the local construction industry, which leads to defects in quality and delays, also affects project delivery and, by extension, financial costs. Local subcontractors can easily find inexpensive labor, but they have a difficult time finding qualified civil engineers and architects. In addition to design flaws and technical deficiencies, the most challenging aspects of working with subcontractors are construction and project management deficiencies.

Despite the fact that foreign companies provide consulting and training assistance, there are numerous debates in the country regarding the number and quality of engineering and architecture schools.

The government bureaucracy is an additional significant issue. Permits for construction are obtained through bilateral relationships or direct communication with local authorities. The key to the success of the project is communication with local executives about the project's success.

Local government engineers and architects have limited knowledge and training in their respective fields. This deficiency causes government officials to be indecisive when it comes to approving and granting permissions, resulting in a pointless extension of the projects.

Considering all of these factors, it was determined that Afghanistan should be viewed as a high-risk investment destination for construction companies.

This study has several limitations and flaws. The research was evaluated solely in the context of Kabul, and some of the findings are based on the opinions and experiences of individual experts. It is not anticipated that the study will produce conclusive findings regarding Afghanistan's general construction market. However, it can be said that this pioneering study will benefit construction companies operating in Afghanistan, and that it will serve as a foundation for future research.

Declaration

The authors declare that the ethics committee approval is not required for this study.

Authors' Contributions

All contributions belong to the authors in this paper.

Competing Interests

The authors declare that they have no competing interests.

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