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**CANTITATIVE COMPARISON OF RESPONSIBILITIES' AND RISKS' DISTRIBUTION
BETWEEN TURKISH GENERAL CONDITIONS OF CONSTRUCTION AND FIDIC RED BOOK
GENERAL CONDITIONS**

ABSTRACT

In this study, the distribution of liabilities and risks in Turkish General Conditions of Construction (GCC) which is mandatory to use for construction projects in Turkey and in FIDIC Red Book General Conditions of Contract which are type contract texts commonly used in international construction projects have been compared in the origin for the effects over the project cost. The effect of the liabilities of employer, contractor and engineer and the effects of general arrangements over the project cost have been analyzed. The liabilities over the engineer that have been saddled in FIDIC Red Book by the technical consultancy institution that is not available in Turkish General Conditions of Construction have been analyzed. According to the findings of the study, it has been understood that the liabilities and risks (66.7% of the whole part) assumed by a construction company which is active in public affairs in Turkey is much higher than the FIDIC basis international construction projects (46.4% of the whole part).

Keywords: Turkish General Conditions of Construction (GCC), FIDIC Red Book General Conditions of Contract, Turkish Contractors Association, Liability, Construction Risks

**YAPIM İŞLERİ GENEL ŞARTNAMESİ VE FIDIC KIRMIZI KİTAP İNŞAAT İŞLERİ
GENEL ŞARTNAMESİNDEKİ RİSK VE SORUMLULUK DAĞILIMLARININ KANTİTATİF
KARŞILAŞTIRILMASI**

ÖZET

Bu çalışmada uluslararası inşaat projelerinde yaygınlıkla kullanılan tip sözleşme metinlerinden FIDIC Kırmızı Kitap Genel Şartları'ndaki ve Türkiye'de kamu inşaat projelerinde kullanılması zorunlu olan Yapım İşleri Genel Şartnamesi'ndeki (YİĞŞ) sorumluluk ve risklerin dağılımı, proje maliyetine etkileri orijininde karşılaştırılmıştır. Yapım İşleri Genel Şartnamesi'nde bulunmayan teknik müşavirlik müessesesinin FIDIC Kırmızı kitapta mühendise hangi sorumlulukları verdiği incelenmiştir. Çalışma bulgularına göre, Türkiye'de kamu taahhüt işlerinde çalışan bir inşaat firmasının yüklendiği sorumluluk ve risklerin (bütünün %66,7'si), FIDIC esaslı uluslararası yapım projelerine göre (bütünün %46,4'ü) önemli miktarda yüksek olduğu anlaşılmıştır.

Anahtar Kelimeler: Yapım İşleri Genel Şartnamesi (YİĞŞ), FIDIC Kırmızı Kitap İnşaat İşleri Genel Şartnamesi, Türkiye Müteahhitler Birliği, Sorumluluk, İnşaat Riskleri

1. INTRODUCTION (GİRİŞ)

Construction contracts are one of the most important tools in the construction sector. They define the various aspects, obligations and relations between each party that are necessary to reach a common expected goal. They contribute to successful completion of projects. Turkish construction companies have successfully completed many projects in domestic and international venues and gained important experience in this respect; however, they still encounter problems in application (Sertyeşilışık, 2007).

The developing conditions of the globalization world, shows its effect upon the construction sector as each day passes. In this respect, today's contractor firms are putting their signature to bigger projects, and have been opening up business abroad. The contractor firms in Turkey which were previously taking jobs only from the Middle East and the Arab countries are now finding job opportunities from Russia, the European Countries and the United States of America, and, they have become very successful. With the changing conditions and the increase in competition, being successful becomes the basic purpose for the contractor firms. The belief that successful projects can be fulfilled with successful agreements is gradually increasing. In this respect, the growing importance of construction agreements has become noticeable (Daşdelen, 2006).

Nowadays, the liability and risk distributions of the construction contracts direct total costs of a high quality construction project and have a great effect over all relations in between the parties. The liabilities and the management of the contract are directly related with each other and this relation has a vital effect over the management of the project and management of the contract. The possibilities of having a better performance in the evaluation of the contract strategies and risks should be considered depending on the liability distribution in between the contract parties of construction sector.

The reality of how are risks have been evaluated directly effect the final total cost. In this approach it is beneficial to evaluate the contract risks under two main headings as; risks of application and risks of cost. Employer should follow one out of two roads against the risks which have been transferred to him / her by the contract; he/she will either transfer these risks by taking out an insurance policy or directly pass it on to the costs. At this point, the ratio of fault in the calculation of the financial compensation of the risks has a vital importance.

In the preparation of a bid to make; it is required to include the degree of need to be awarded for the mentioned job, the level of the technical complexity of the design and construction methods, the availability for negotiation, the matters of selected contract type and the design jobs have been completed in the requested quality or not (Hartman 1999).

During construction process, there are three main participants, owner, contractor and architects/engineers. Subcontractors, suppliers, manufacturers, consultants, test and inspection agencies and authorities having jurisdiction (AHJs) are the others during the construction process. The relations between all the participants and their roles and responsibilities differ depending on project delivery methods (Taşoluk, 2006).

In the research namely "Construction Contracts: The Cost of Mistrust", it has been mentioned that the costs defined by the contracting companies change (increase) in a range between 8% and 20% of the total amount of the job after the conditions of the construction have been evaluated. The most important criteria in this

increase have been specified as; the business and commercial relationships in between the employer and the contractor, conditions depending on the property of the job, the type of the contract and the preparation style of the contract (Zaghloul and Hartman, 2003).

In Turkey, the government which is the biggest employer in the contracting sector is the sole determinant over the legal procedure to be applied during the construction business. Due to the troubles faced in the past experience (such as contractors who have made lots of preparations and have received their money then disappeared or applied for liquidation, etc.), it has been found reasonable, to a certain point, severe conditions to be applied but regarding all of the contractors as a potential criminal causes serious application problems. Considering construction contracts, this situation causes an important risk (Eight Five Year Improvement Plan, 2001).

The 4734 numbered Code of Public Procurement and 4735 numbered Code of Public Procurement Contracts which have been in force at year of 2001, Turnkey Lump Sum Type Construction contract, Unit Price Basis Type Construction Contract and Turkish General Conditions of Construction (GCC); have established the regulations arranging all activities of the covenanters who perform business for public during the process starting from the preparation of the tender until the final acceptance. It is required to perfectly know these documents forming basis for all studies from tender risk analysis to contract management for construction works and to analyze them. It is vital important to determine one by one the liabilities and risks for every activities to realize and complete a successful construction project. (Uğur et al., 2006 a,b; Uğur and Erdal 2008).

"The variation of sector tendencies against construction risks in USA" which has been determined by the studies of American Society of Civil Engineers (ASCE) that have been performed at 1979 and 1995 have been shown in Table 1 (ASCE, 1995).

As can be understood from the Table 1, the inflation risks from which both parties have liabilities at 1979 have been transferred to the Contractor at 1995; the risks of delays in payments and changes in work amount have been transferred to Contractor. Risk over employer about natural disaster has been decreased and the risks caused from the delays in solutions of disputes have been shared in between the employer and the contractor at 1995. So it has been understood that according to the latest trends, the liabilities and risks have not only been transferred to the contractor in Turkey but also in international platform.

In the *"Risk Management in Construction Sector and the Effect over the Quality"* study, it has been determined that Turkish construction companies do not have a systematic risk management understanding, they do not know risk analysis techniques, they perceive the risk concept as a problem which is faced just in application phase and they prepare a bid file by including additional period and cost values. Data have shown that risks faced in construction sector have a great effect over the period, cost, efficiency and quality (İncir, 2003).

Table 1. American society of civil engineers' (ASCE) changes of liabilities on construction risks
(Tablo 1. Amerikan inşaat mühendisleri birliği, inşaat risklerindeki değişiklikler)

Contract Risks	ASCE	
	1979	1995
Supply of workmanship, material and equipment	Contractor	Contractor
Workforce disputes	Contractor	Contractor
Efficiency of workforce and equipment	Contractor	Contractor
Coordination related with sub contractors	x	x
Accidents / safety precautions	Contractor	Contractor
High Quality Production / quality assurance	Contractor	Contractor
Correctness of work schedules	x	x
Material faults	Contractor	Contractor
Variable area conditions	Employer	Employer
Adverse weather conditions	x	x
Inflation	Both	Contractor
Delays in payments	Employer	Contractor
Strike	x	x
Approval and required permissions	Employer	Employer
Changes in work amount	Employer	Contractor
Changes in design / bad design	Employer	Employer
Natural disasters	Employer	Indefinite
War / Rebellion situations	x	x
Increases in length	x	x
Arrival to site	Employer	Employer
Delays caused by third persons	Both	Indefinite
Delays in solutions of disputes	Employer	Both
Researches and tests	x	x
Ecological damages	Employer	x
Taxes	Employer	x
Legal Changes	Employer	Employer
Bureaucratic delays	x	x
Unforeseen costs	x	x

In Sertyeşilışık's study, case wise analysis of the responses to her questionnaire revealed the critical clauses which have to be carefully drafted. These clauses are:

- Delayed drawings or instructions,
- Right of access to the site,
- Permits,
- Licenses or approvals,
- Determinations,
- Sufficiency of the accepted contract amount,
- Unforeseeable physical conditions,
- Commencement, delays and suspension clauses in general,
- Commencement of works,
- Time for completion,
- Extension of time for completion,
- Delays caused by authorities,
- Rate of progress,

- Delay damages,
- Suspension of work,
- Consequences of suspension,
- Extension of defects notification period,
- Adjustments for changes in cost,
- Delayed payment and discharge (sertyeşilişik, 2007).

In the case of Turkey, although the tendering system adopted in Turkey is not in accordance with the provisions of FIDIC Contracts' clauses, many Turkish Contractors are experienced with the template as a result of making business abroad and taking part in projects that are financed by overseas investors (Sevin, 2003).

2. RESEARCH SIGNIFICANCE (ÇALISMANIN ÖNEMİ)

In this study it has been searched how the liabilities and risks which are available in GCC of Ministry of Public Works and FIDIC Red Book General Conditions of Contract have been distributed among the employer and the contractor; who have more liability and assume risk that affect the bid and tender prices and so directly the cost of the construction. Over GCC, a liability share list has been formed to show schematically the share of the liabilities in between the employer and the contractor, a questionnaire has been conducted over 46 contracting companies from Turkish Contractors Association (TMB) with 140 members and these 46 companies have given points in between 1 and 10 for every item. At the end of scoring, total of 542.32 points have been distributed as 361.45 and 180.88 respectively among the contractor and the employer and the percentage of these points have been respectively 66.7% and 33.3%. The graphical display of these data has been given at Figure 1.

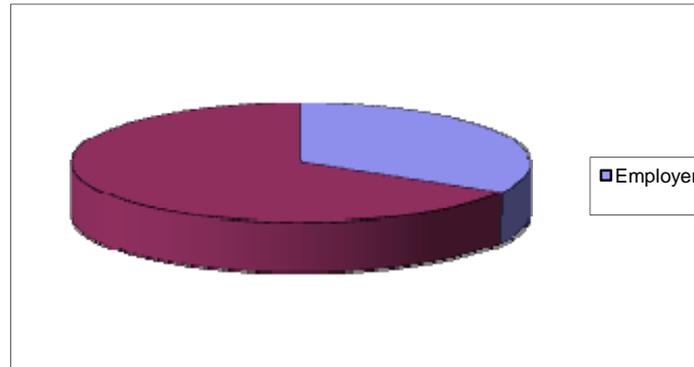


Figure 1. Distribution of liabilities/risks in Turkish General Conditions of Construction

(Şekil 1. Yapım İşleri Genel Şartnamesi'nde sorumluluk ve risklerin dağılımı)

From here, it can be understood that at GCC, the liabilities and risks which are transferred to contractor are bigger part of the available ones and the employer is subjected to a lower level risk. It has been determined that the risks which are faced by Contractor in Turkey are much more than the risks which are faced by the employer.

3. APPLICATION (UYGULAMA)

Whenever the points given for every element have been ordered from large to small, the first 15 important matters have been specified as in Table 2.

Table 2. The impact rank by importance on cost issues in Turkish general conditions of construction
 (Tablo 2. Yapım işleri genel şartnamesi maliyet esaslı değerlendirme puanları)

Item no	Content	Avg. Point
6a	Delivery of the job site	8.28
12b	Preparation (or having these to be prepared) of application project in the awarded jobs over the preliminary or final project due to natural disaster or for the jobs that the final project should be revised due to the land or ground requirements	7.94
30a	Completion of the job on the date specified in the contract and the job to be ready for the final acceptance	7.61
48a	Termination of the job under the condition that the contractor can not fulfill the requirements according to the tender document or can not complete the job within specified time period	7.50
9b	To take out an insurance policy for all kinds of tools, materials, preparations, work and service machines, vehicles, facilities in the job site and the completed parts of the job against risks such as natural disaster, theft, sabotage (all risk insurance)	7.33
12i	Preparation of as-built drawings and delivery of the originals to the administration	7.22
13a	Performance of the jobs under the contract in accordance with the application projects	7.17
15b	The Contractor to perform the assumed job in completely accordance with the projects, contract and specifications, rules of art and science	7.11
18a	Considering the work sections and completion dates and annual payment amounts; detailed work schedules in which the work items, groups of works, monthly manufacturing and work amounts, preparations, annual payment sections and distribution of these over months to be delivered to the administration	6.94
20b	In order to complete the work within the period specified in the contract, to keep available adequate amount of material and worker at all times	6.78
27	Risks which are not possible to have insurance such as risks due to war, mobilization, rebellion, civil war and similar events and due to radiations caused by a nuclear fuel and risks caused as a result of the precautions taken against these problems and risks arisen from the completed sections of the job received and used by the administration	6.67
30b	Due to the situations caused by the administration, delays in jobs of which the liability is not over the contractor	6.61
40a	Preparation of progress reports	6.44
40c	In order to prepare the final accounts and final progress report and in order to perform required measurements and other related services, to put adequate amount of workers and employees under the order of the construction auditor as free of charge	6.17
48b	Termination if it is determined that the contractor performs forbidden actions or behaviors	6.06

From here, it can be seen that the following items are the most important matters effecting the costs; Item 6.a the delivery of the job site to contractor, Item 12.b preparation (or having these to be prepared) of application project in the awarded jobs over the preliminary or final project due to natural disaster or for the jobs that the final project should be revised due to the land or ground requirements, Item 30.a completion of the job on the date specified in the contract and the job to be ready for the final acceptance and Item 48.a termination of the job under the condition that the contractor can not fulfill the requirements according to the tender document or can not complete the job within specified time period.

At the end of this ordering, the following 5 items have been determined as being important last five liabilities that have less direct effect over the costs; Item 35.a providing a certificate to every hired worker, employee and technical staff including their names and surnames, date of hiring, salary to be paid and the date to pay the mentioned salary, Item 6.b to keep the stakes and benchmarks until the end of the job and to hammer the axial stakes which have been used for earth works to their original places according to the length cross section, Item 7.a expenses to transport the materials, tools and machinery to the new job site and to transport the site building and facilities which have been set up in the former site area (if available) to the new site area and to set up them, Item 28.g expenses for three copies of photo films to take at the required times showing different stages of the job, Item 35.b to check if there is any person who has not been paid by the contractor or the subcontractor and if there is, to provide these payments from the contractor progress payment after the payrolls have been requested from the contractor or the subcontractor. The results of Reliability Analysis of these data are attached to the Appendix.

At the second part of the study, the distribution of the liabilities and the risks available in FIDIC General Conditions of Contract among the engineer and the contractor has been analyzed. By a second questionnaire that has been conducted over the same TMB member construction companies which are active in international platform, it has been searched how the liabilities and risks which directly affect the cost of the construction and the tender and bid prices have been distributed among the engineer and the contractor and what are these matters. According to the findings, it has been found out that the contractor is under greater risk in FIDIC General Conditions of Contract. The distribution of liability and risk has been respectively 46.4%, 14.1% and 39.5% for contractor, engineer and employer. This situation has been graphically shown in Figure 2.

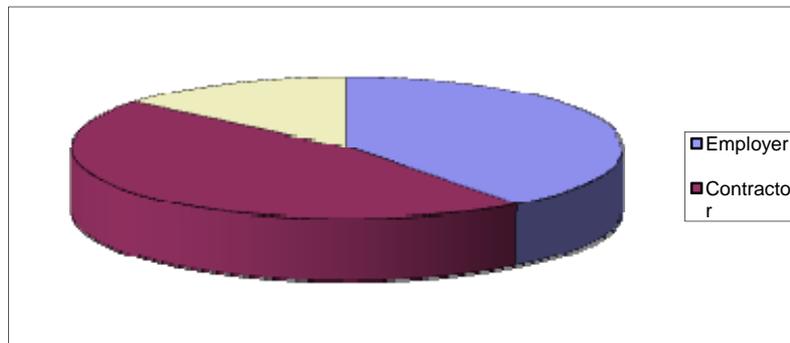


Figure 2. Distribution of Liabilities/Risks in FIDIC Red Book
(Şekil 2. FIDIC Kırmızı Kitap'ta sorumluluk ve risklerin dağılımı)

According to this study, the matters FIDIC General Conditions of Contract which have greater effect over the costs have been given in Table 3.

Table 3. The impact rank by importance on cost issues in FIDIC red book

(Tablo 3. FIDIC maliyet konusunun öneminin etki sıralaması)

Item no	Content	Avg. Point
11.1.a	Provision of the hydrologic and soil related information and giving these information to the contractor	8.13
42.1	Providing job site possession to the contractor	7.75
8.2	Convenience, stability and safety of all working and constructing methods applied in job site	7.38
11.1.c	Seeing job site and having all related information about the job site	7.31
20.4.a	War, battle, invasion, enemy actions	7.25
20.4.b	revolt, devolution, rebellion, military or grabber government, civil war	7.19
20.4.c	Ionizing radiation at which the nuclear fuel is the source and radioactivity poisoning	7.00
20.4.h	Abnormal motions of natural powers	6.94
6.4	Delay in the provision of drawings and instructions to the contractor	6.75
11.1.b	Interpretation of hydraulic and soil related information	6.63
12.2	Except the climatic conditions, facing with unforeseen physical barriers or conditions	6.50
17.1.a	Making application in accordance with primary points, lines and grades	6.31

At the end of this ordering, the following 6 items have been determined as being important last six liabilities that have less direct effect over the costs; Item 37.1. "to provide help and ease in entrance of the engineer in the job site and to perform inspection at job site", Item 37.2.a. "Right to perform inspection and test over the related material and fixed assets", Item 37.2.b. "If these materials are manufactured in workshops or places other than the workshops and places of the contractor, to get necessary permissions for the engineer to perform related inspections and tests at these locations", Item 38.1.a. "The engineer to analyze the locations over which the roof will be placed and never be seen in the future and to make necessary measurements", Item 38.1.b. "To provide all kinds of help to the engineer in analyzing the foundations and to give instruction to cover them up" and Item 40.2. "Performing determination after stoppage".

In the third part of the study, the graphical evaluations which have been prepared by Local Government Task Force have been taken as basis and a similar figure has been established for GCC in order to make a better comparison. The important criteria, manual available in Guide of Standard Construction Contracts which have been prepared by Local Government Task Force in order to underline the key characters in construction contracts have been shown in Figure 3 (Local Government Task Force 2003).

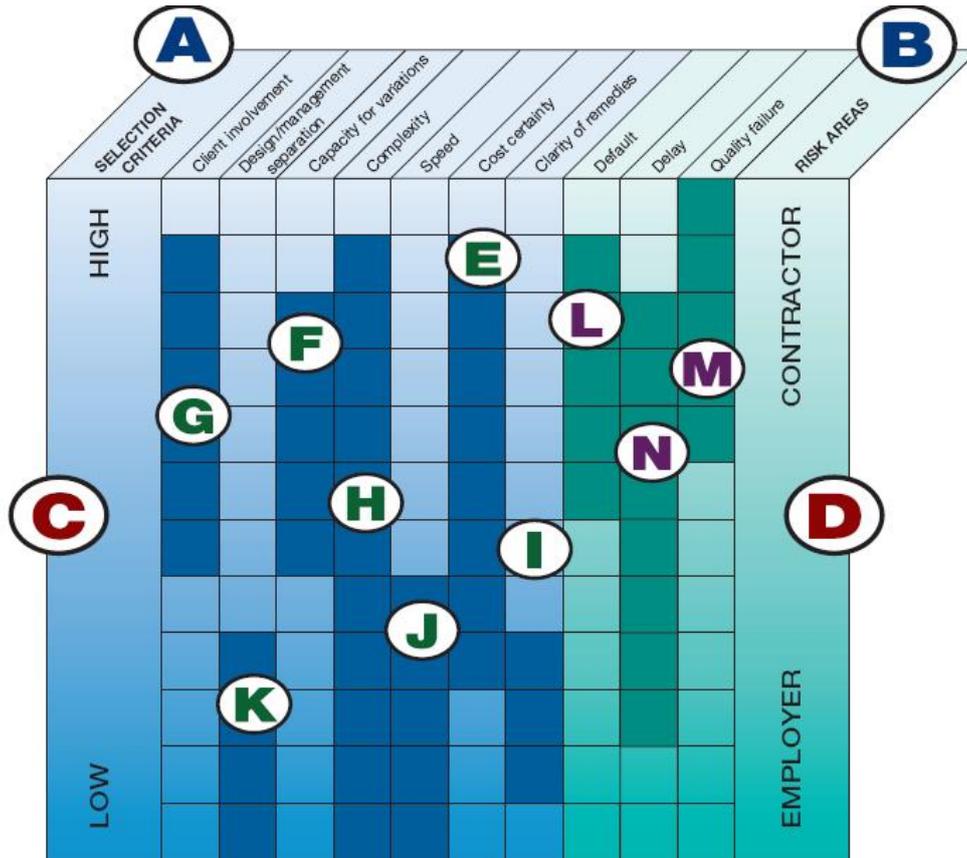


Figure 3. Local Government Task Force, Construction contract outlining key
(Şekil 3. Local Government Task Force, İnşaat sözleşmesi değerlendirme anahtarı)

In this outlining;

A Selection Criteria (blue)

The blue area of the matrix covers six key criteria to consider when selecting a contract form.

B Risk Areas (green)

The green area of the matrix covers three key risk areas to consider when selecting a contract form.

C High/Low

The scale for reading the "characteristics" bars for each key criterion.

Indicates high/low capacity for accommodating each criterion. The bars indicate the range which can be achieved and within which a level can be selected for a specific contract.

D Contractor/Employer

The scale for reading the "allocation" bars for each key risk area. Indicates where each risk is allocated. The bars indicate the range over which the risk can be allocated for a specific contact.

In this example :

E Cost certainty

This can be used to achieve moderate to reasonably high price certainty.

F Capacity for variations

This enables a moderately high capacity for managing variations.

G Client involvement

That it can enable a moderate to high level of Client involvement in the management of the project.

H Speed

Low to moderate speed of implementation from design to completion.

I Clarity of remedies

Low clarity = relatively difficult to trace contractual remedies.

J Complexity

Ability to be applied to projects covering a wide range of complexity.

K Design/management separation

That the project designers and the managers of the contract are the same or very closely related. There is low separation of design and management.

L Default

The Contractor bears the main risk for default under the Contract .

M Quality failure

The Contractor bears the main risk for failure of construction quality.

N Delay

The Contractor bears the main risk for delay under the Contract.

The evaluation which has been performed by Local Government Task Force for FIDIC Conditions of Contract has been given in Figure 4.

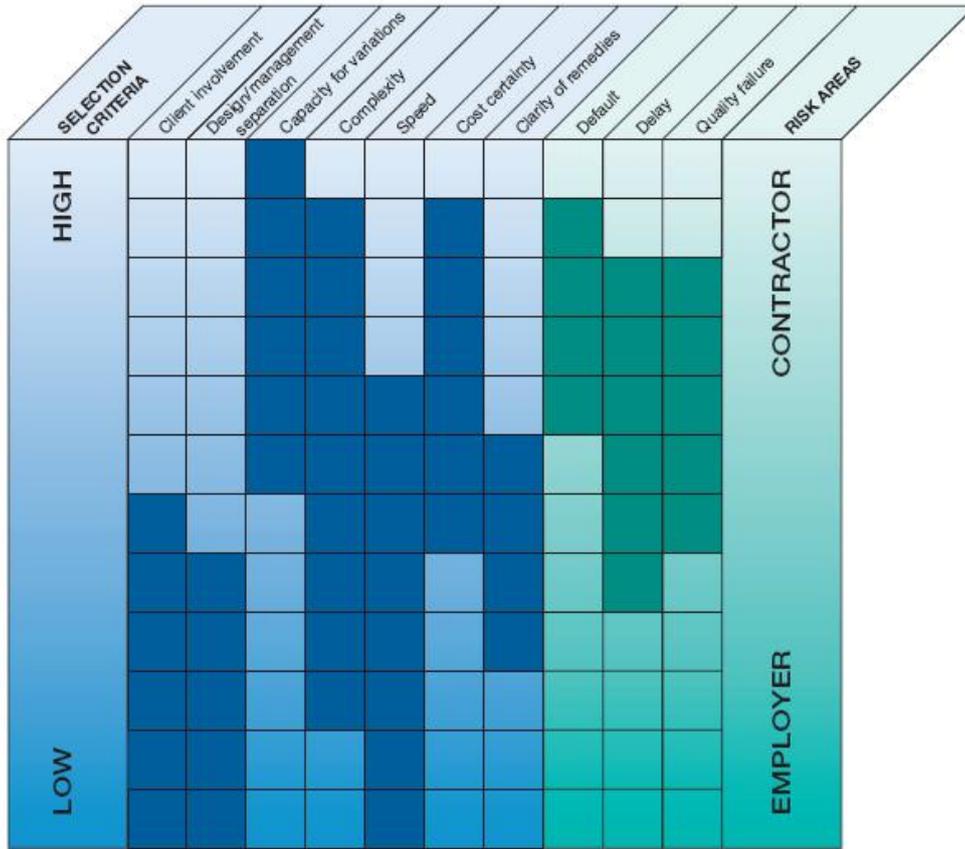


Figure 4. FIDIC conditions of contract (Red Book) outlining (Şekil 4. FIDIC kırmızı kitap inşaat işleri genel şartnamesi değerlendirmesi)

The evaluation which has been performed for GCC with a similar approach has been presented in Figure 5.

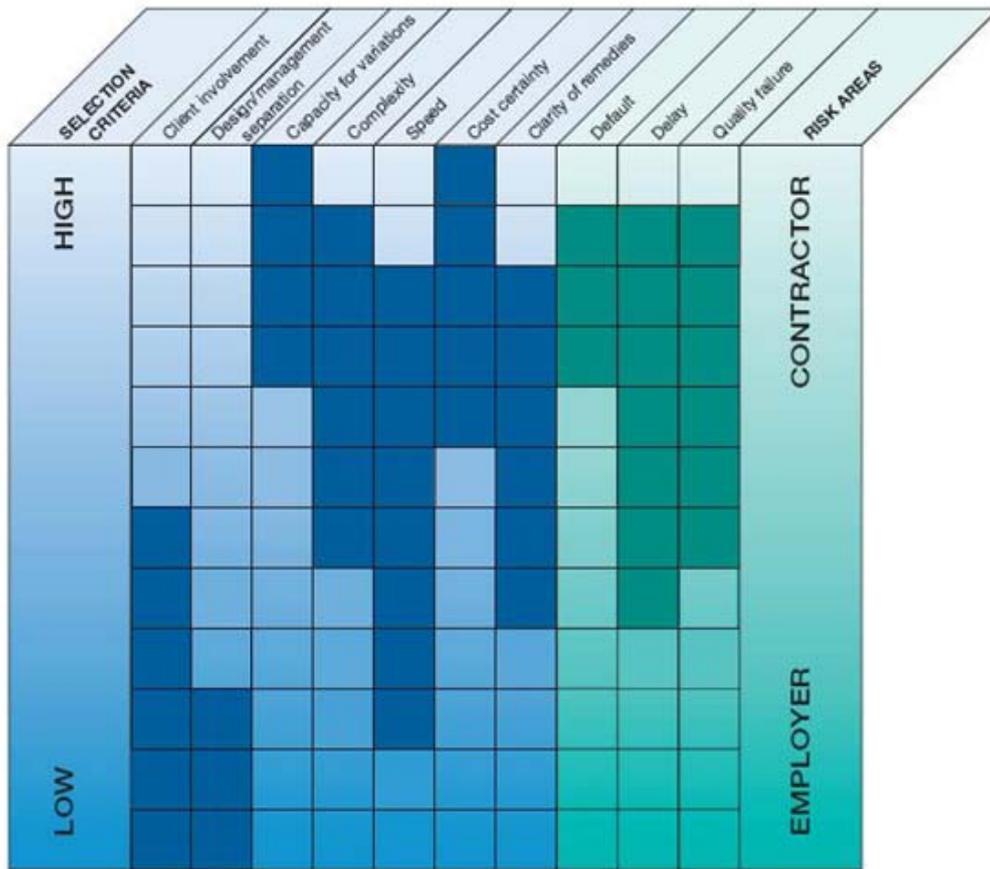


Figure 5. Turkish general conditions of construction (GCC) outlining
 (Şekil 5. Yapım işleri genel şartnamesi değerlendirmesi)

From it can be understood that client involvement in GCC has a higher value than in FIDIC Red Book and design / management separation in GCC has a lower value than in FIDIC Red Book; lower possibility is provided to the contractor for capacity for variations matter. Contractor has a wider space about complexity matter and employer has a wider space about speed matter. Contractor has more liabilities and risks about Cost certainty matter and a risk increase against contractor is being observed in clarity of remedies by employer sided regulations support. In Default and delay matters, there is a similar arrangement and in quality failure matter, more liability has been transferred over the employer.

At Turkish public construction projects, engineer is present only for the requirement to get credit from an international institution and there is no technical consultancy assistance for construction investment made by using public resources. The technical staff of the investing state organizations assume similar responsibilities and this means that a decision maker who is possibly unilateral and who is expected to be objective to be in charge.

At the final part of the study, the liabilities of the engineer have been specified in FIDIC Conditions of Contract (Red Book) and these liabilities have been shown in Table 4.

Table 4. Engineer's liabilities in FIDIC conditions of contract (Red Book)
(Tablo 4. FIDIC kırmızı kitap inşaat işleri genel şartnamesi'nde mühendis'in sorumlulukları)

Item no and Topic	Liability	Employer	Engineer	Contractor	Explanation
6.3. To stop progress	Giving the required drawings and instructions to the contractor		x		
6.4. Delay in drawings and delay fee	Delay in provision of the required drawings and instructions to the contractor		x		If ever the contractor is delayed due to such a reason, the engineer extends contract period and makes increase over the contract price
7.1. Supplementary drawings and instructions	Giving the . Supplementary drawings and instructions to the contractor		x		
16.2. Objection freedom of engineer	Requesting the staff available in job site to be removed from the job		x		
37.2. Inspection and tests	Right to make inspection and test over the related materials and fixed assets		x		
37.4. Rejection	Rejection of the materials and fixed assets		x		
42.2. Not being able to give possession to the contractor	Time extension and cost addition over the contract price by the reason of not being able to give the job site possession to the contractor		x	x	
49.4. The Contractor not to be able to fulfill the requirements	In fault recovery, to meet the cost of hiring other persons from the contractor		x		If ever the contractor can not fulfill such an instruction on time
56.1. The jobs to be measured	Determination of the values of the jobs by measurement		x		
60.2. Monthly payments	Allowing employer in monthly salaries		x		Within 28 days after the progress report is given
60.3. Payment of holding Money	Allowing the half of the holding money to be paid to the contractor whenever a provisional acceptance certificate is prepared for whole part of the job		x		
	Whenever the final acceptance period is over, allowing the		x		

	second half of the holding money to be paid to the contractor				
	If there is left any job to be completed by the contractor, to keep the left holding money corresponding to uncompleted part of the job until the job is fully completed		x		
60.8. Final acceptance	To give the final acceptance to the employer		x		Within 28 days following the final progress report and receiving of the certificate of receipt
62.1. Certificate of final acceptance	To sign the final acceptance certificate and to submit the original to the employer and to forward the copy to the contractor		x		Unless this transaction is completed, the contract is not accepted as completed
63.2. Evaluation performed in the date when the contract is terminated	Determination and approval of the amount earned by the contractor and accrued to the contractor		x		After the employer is in the job site and terminate the contract
	Determination and allowing the prices of the fully or partially used materials, contractor hardware and provisional jobs		x		
67.1. Decree of the engineer	Authority to apply in the dispute cases in between employer and the contractor		x		
70.1. Decrease or increase in cost	Related with increases or decreases in workmanship and / or material costs and cost of the job, adding or subtracting the amounts specified in the 2 nd part of the contract to / from the contract price		x	x	
70.2. Next regulations	If there are cost increases due to changes in regulations, determination of these increases and making necessary arrangements to reflect these increases over the contract price		x		

As can be understood from the aforementioned table, the engineer who assumes liability together with the employer in "Item 42.2 Not being able to give possession to the contractor" and "Item 70.1 Decrease or increase in cost" matters is completely liable in all

other matters available in the table. In GCC, all of the liabilities of the engineer is over the employer.

4. FINDINGS (BULGULAR)

After two scoring studies which have been performed for Turkish General Conditions of Construction and FIDIC Red Book, General Conditions of Contract have been evaluated together; it has been understood that the liability and risk assumed by a construction company which is active in public contracts in Turkey (66.7% of the whole part) is much higher comparing with the FIDIC basis abroad construction projects (46.4% of the whole part) In addition to that reality, the liabilities and risks (33.3% of the whole part) assumed by the employer (ie. government) according to the General Conditions of Construction are less than the liabilities and risks (39.5% of the whole part) assumed by the employer in FIDIC basis projects. Whenever these data are taken as basis, it is thought that Turkish construction companies try to direct to abroad construction jobs instead in Turkey due to this reason.

Besides these findings, it is useful to analyze the liability and risk distributions in subcontracting agreements which are performed in between the contractor and the subcontractor. Such a scientific research is currently continued and some more time is required for the research results to be clarified; but according to the primary evaluations, it has been understood that the contractors have tendency to transfer most part of the risks over the subcontractors. While the contractors are complaining about the unique type and severe conditioned contracts which are imposed by the Administrations over them, it is being thought not to perform the same applications over the subcontractors.

In the construction contracts, it is an undeniable reality for the contractors to seriously evaluate and apply the option of taking risk in addition to the current ones against the risk rejection and risk objectivity options which are densely applied by the contractors. In a case where the risk is higher, the earnings will be higher but this case does not change truth of losses being higher also. In this case, giving up the proposal is an option to be seriously evaluated by the contractors.

It is required to well know and seriously analyze the GCC of Ministry of Public Works And Settlement which forms the basis of all studies from tender risk analysis to construction works contract management in public construction projects in Turkey and FIDIC Red Book which is widely used in international construction projects. It has a vital importance to determine and analyze one by one all of the liabilities and risks per each one of the activities for a better realization and completion of a construction project.

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Appendix: Results of Reliability Analysis With SPSS

Case Processing Summary

		N	%
Cases	Valid	46	100.0
	Excluded ^a	0	.0
	Total	46	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.751	.754	15

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Inter-Item Correlation	.170	-.275	.950	1.226	-3.451	.102	15

The covariance matrix is calculated and used in the analysis.

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
S6a	97.6087	72.199	.671	.698	.709
S12b	97.9565	68.665	.786	.827	.694
S30a	98.2826	69.318	.740	.929	.698
S48a	98.3696	70.416	.727	.947	.701
S9b	98.5217	69.322	.741	.909	.698
S12i	98.6739	71.647	.619	.767	.711
S13a	98.7174	70.874	.582	.838	.712
S15b	98.7826	87.463	-.069	.397	.774
S18a	98.9565	84.043	.034	.333	.772
S20b	99.1087	76.632	.399	.740	.733
S27	99.2174	89.952	-.171	.161	.786
S30b	99.2826	81.407	.204	.658	.751
S40a	99.4565	84.476	.050	.271	.766
S40c	99.7174	81.318	.162	.383	.757
S48b	99.8261	84.458	.071	.684	.761

ANOVA^a

	Sum of Squares	df	Mean Square	F	Sig
Between People	262.164	45	5.826		
Within People					
Between Items	253.977	14	18.141	12.499	.000
Residual	914.423	630	1.451		
Total	1168.400	644	1.814		
Total	1430.564	689	2.076		

Grand Mean = 7.0594

- a. The covariance matrix is calculated and used in the analysis.