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## COMMON CAUSES OF CONFLICTS IN CONSTRUCTION PROJECTS – COMPARATIVE ANALYSIS OF PROJECTS IN LIBYA AND SERBIA

Elmagdobi M. Elmabrok<sup>1</sup>, Čulić Nikola, Beljaković Dejan<sup>1</sup>, Milajić Aleksandar<sup>1</sup>, Pejičić Goran<sup>1</sup>

<sup>1</sup>*Faculty of Construction Management, University Union Nikola Tesla, Belgrade, Serbia  
e-mail: aleksandar.milajic@gmail.com*

### SUMMARY

Conflicts are one of the most frequent factors that undermine success of construction projects. Therefore, it is important to recognize and predict the most probable causes of disputes that might arise during the project completion in order to make adequate plans and prepare procedures for their prevention and management. This paper provides comparative analysis of causes of conflicts in construction project in Libya and Serbia, performed in order to identify global and local aspects that should be taken into account within the risk analysis and management.

*Key words: construction projects, conflicts, conflict management.*

### INTRODUCTION

Due to their long duration, numerous risks, high cost, uniqueness and involvement of many different parties and participants, construction projects are very complex in terms of project management. The prime objective of all participants is to attain a successful completion of the works, i.e. to construct a building that has been properly planned, designed and built in accordance with plans and specifications within the time and cost originally anticipated by both the owner and the contractor [1,2].

However, complexity, temporary nature of construction projects and their multi-organizational structure make them prone to conflicts [3], especially considering the fact that all participants in a construction project have individual aims that are frequently conflicted [4]. Consequently, successful completion of any construction project strongly depends on cooperation between client, consultant and contractor because every potential obstacle or problem would almost certainly cause delays and serious conflicts between participants that usually lead to further delays and claims[5].

A study on causes of conflicts and disputes in the Hong Kong construction industry carried out by Yates and Hardcastle in 2003 [6] revealed a dramatic increase in conflicts and disputes in construction industries of many countries. A number of authors such as Walker [7], Fenn and Gameson[8], Kumaraswamy [9], have proven that in the field of construction industry conflicts are an inevitable byproduct of the organizational activities.

Both in Libya and Serbia, building projects are rarely completed within the scheduled time, budget and/or desired quality. A pilot survey that included 15 construction projects in Libya and 18 in Serbia between 1998 and 2013. showed that none of the studied projects was completed in accordance with planned schedules and construction costs and that in many cases clients have expressed dissatisfaction considering the quality of works.

The objective of presented study was to identify main causes of conflicts during the construction projects in Libya and Serbia as well as to estimate their frequency and impact on project completion. Comparison of obtained results showed that there are some universal causes of conflicts that are present in construction industry anywhere in the world, but that their frequency and severity can significantly vary depending on local conditions and common practices.

## RESEARCH

Presented research was conducted in two phases. The first stage involved interviews as the qualitative approach. This was adopted because qualitative methods are valuable in identifying key variables in new or underdeveloped areas as is the case of conflicts in building projects. A sample group of prominent clients/financiers, contractors, sub-contractors, designers and consultants in building industry was selected for interview. Participants for the sample group were selected based on criteria that he/she should be engaged in building construction for not less than 5 years and should currently be active in construction industry business in Libya or Serbia. There were 22 participants in Lybia and 20 participants in Serbia (Table 1).

Table 1. Demography of participants

Designation	Participants in interviews		Participants in survey	
	Libya	Serbia	Libya	Serbia
Clients/financiers	3	4	18	21
Contractors	9	6	31	33
Sub-contractors	2	3	8	10
Designers	4	4	25	25
Consultants	4	3	23	24
Total	22	20	105	113

Results obtained in the interviews were grouped into 9 general areas of conflicts (Table 2) and integrated with findings from literature to create a list of more specific causes of conflicts within each category.

The second stage involved a questionnaire survey that was conducted to establish attitudes and preferences of key participants in building projects on the variables established from interviews and literature review so as to determine which variables were most critical and which were not. A five degrees Likert rating system was used. Responses from questionnaires returned were analyzed using SPSS 16.0 in order to draw relevant statistical inferences from the results.

There were 105 participants in Lybia and 113 participants in Serbia (Table 1).In the first part of questionnaire, participants were asked to assess importance of general areas of conflict, while in the second part each area was further divided in several more specific causes of conflict.It can be noted that ranking in both countries is significantly similar, especially considering three highest ranked (i.e. most common) areas of conflict. However, as it will be shown in the reminder of text, rankings of specific sub-categories of each area were significantly different, so it can be concluded that main problems in construction can be considered more or less general, but for finer and more detailed analysis for risk management it is necessary to consider specific aspects of local construction industry.

Table 2. Areas of conflicts

Cause	Libya			Serbia		
	Mean	Std	Rank	Mean	Std	rank
Design errors	3.05	1.58	5	3.78	1.32	4
Unclear specifications	2.65	1.17	7	3.12	1.26	5
Delays in payments	4.25	1.01	1	4.41	1.07	1
Lack of communication	3.65	1.54	4	2.47	1.69	7
Excessive contract variations	4.15	1.12	2	4.14	1.17	3
Differences in evaluation	3.88	1.05	3	4.23	1.12	2
Differing site conditions	2.35	1.20	8	2.35	1.21	8
Project documentation	2.87	1.35	6	2.78	1.54	6
Cultural differences	1.98	1.15	9	1.57	1.04	9

### CAUSES OF CONFLICTS DUE TO THE DESIGN ERRORS

Design errors are one of the crucial areas of conflicts in building projects. The causes for conflicts related to design errors and the rating results are shown in Table 3. For projects in Libya, the first ranked cause of conflicts in this area is hiring a cheap designer instead of a good one. This can be explained by the usual procedure for engaging designers, where the method of selection is mainly based on technical and financial competition. A lowest financial proposal scores the highest mark (100%) and that becomes a benchmark for all other bidders. Combined with technical proposal, this results in possibility of selecting a designer who is cheap but not capable of providing the services to the standard expected. The second ranked cause in this group is inadequate brief, i.e. a document containing the client's requirements that should be considered in design. If the brief is not adequate, the design will not adequately meet client's desires.

Table 3. Causes of conflicts due to the design errors

Cause	Libya			Serbia		
	Mean	Std	Rank	Mean	Std	Rank
Misinterpretation of client's requirements	2.45	1.44	6	3.42	1.24	3
Designer's inexperience	2.70	1.40	4	2.52	1.44	4
Designer's incompetency	2.58	1.36	5	2.58	1.51	5
Insufficient time for design	2.80	1.44	3	1.98	1.47	6
Inaccurate design data	2.37	1.40	7	3.56	1.26	1
Inadequate brief	2.86	1.25	2	3.48	1.29	2
A cheap designer instead of a good one	3.25	1.48	1	1.75	1.38	7

The third ranked cause of design errors is inadequate time for design, usually in cases where contract is concluded before the design is completed. Inexperience of designers and incompetent designers are ranked as the fourth and fifth consecutively. These two causes are closely related since competency in professional work is acquired to a larger extent through experience. Misinterpretation of client's requirements and wrong design data are ranked number six and seven respectively.

In case of construction projects in Serbia, ranking is significantly different and it can be noted that that mean values are separated in three distinct groups. The first three causes of conflict have significantly high scores and are closely related with inadequate communication on relation designer-client. Following two causes are related with designer's inexperience and incompetency. It is interesting that two least significant causes in Serbian construction industry are highly ranked in Libyan, which can be explained by different procedures during the design and contracting process.

## CAUSES OF CONFLICTS DUE TO UNCLEAR SPECIFICATIONS

The results of ranking the causes of conflicts in this area are shown in Table 4. The first ranked cause by the participants from Libya is the use of outdated specifications. Experience has shown that a great number of designers and consultants still use specifications for building materials and measuring building works issued in 1970. These documents contain some materials that are outdated and no longer in use, such as asbestos and cast iron pipes, and do not cover majority of newer building such as gypsum boards, metal sheets roofing tiles, paints, varnishes, etc.

In Serbia, 'cut and paste' tendency is ranked as the most common cause of conflict in this area and the negligence is closely connected with it. From interviews it was noted that some designers do not give sufficient attention when writing specifications and copy specifications from previous projects to suite new projects without sufficient care. Inexperience of specification writer is related with the mentioned causes since a designer with adequate experience and competency will take more care in writing specifications. All presented factors can be considered as important causes of conflicts since the mean values are relatively high.

Table 4. Causes of conflicts in unclear specifications

Cause	Libya			Serbia		
	Mean	Std	Rank	Mean	Std	rank
Negligence	2.65	1.49	6	3.02	1.56	2
Inexperience of a specification author	3.05	1.28	3	2.90	1.74	3
'Cut and paste' tendency	3.48	1.41	2	3.25	1.83	1
Outdated specifications	3.63	1.29	1	2.61	1.22	6
Unusual or complicated project	2.69	1.20	5	2.65	1.58	5
Vested interest	2.69	1.33	4	2.72	1.14	4

## CAUSES OF CONFLICTS RELATED TO DIFFERING SITE CONDITIONS

The causes of conflicts in this area are ranked as shown in Table 5. In Libya, lack of funds was ranked as the first and ignorance on client's side as the second. From interviews it was noted that some clients are not willing to spend money for site investigation because they perceive the risk involved in designing and constructing without proper site investigation not worth the money to be spent for site investigation. Next cause of conflicts is lack of adequate knowledge about the site conditions.

Table 5. Conflicts due to the differing site conditions

Cause	Libya			Serbia		
	Mean	Std	Rank	Mean	Std	rank
Lack of funds	3.13	1.32	1	1.92	1.25	6
Lack of data on site conditions	3.01	1.31	3	3.21	1.34	3
Negligence of a site investigator	2.14	1.19	5	3.25	1.08	2
Superficial investigation of site conditions	2.25	1.04	4	3.28	1.15	1
Wrong interpretation of reports	2.03	0.99	6	2.95	1.01	4
Client's ignorance considering importance of site investigation	3.02	1.36	2	1.85	1.17	7
Lack of necessary permits from authorities	1.64	1.52	7	2.05	0.89	5

Without detailed data, designer will have knowledge only on physical features of the site on and above the ground level only which is not adequate for proper and adequate designing. However, it was noted

from interviews that in this case designers usually take precaution when designing without adequate site investigation by providing design allowances over and above the standard allowances required (the extra allowance some labeled it as "factor of ignorance"). Remaining four causes can be considered to be less important as their mean score values are less than 2.50 the average mean value of rating.

In Serbia, the main three causes of conflicts in this area are all connected with negligence on the side of site investigator, while the fourth one is on the designer’s side. Remaining three causes can be considered as not significant, due to the fact that their mean score values are very low. It is interesting that the highest ranked causes of conflicts in Libya are the lowest ranked in Serbia.

**CAUSES OF CONFLICTS IN DELAY OF PAYMENTS**

Factors causing delay in payments are ranked in Table 6. It can be noted that results in both groups of participants are visibly divided in two same groups of three, although differently ranked within these two groups. From interviews it was noted that in most public institutions the payment process involves so much bureaucracy making it impossible for payments to be done within the time specified in the contracts. Poor financial projection on the client’s side and lack of funds are closely connected. It was noted from interviews in the both groups of participants that some projects start without proper budget and cash flow forecast. Three lower ranked causes are all connected with time needed for evaluating the claims submitted by contractors. Besides that, these may also require from the client to seek additional funds that were not originally budgeted for the project. However, all the six causes have meant score values over 2.50 and therefore all causes can be considered as important causes of conflicts in delay of payments in building projects.

Table 6. Causes of conflicts in delays in payments

Cause	Libya			Serbia		
	Mean	Std	Rank	Mean	Std	rank
Lack of funds	3.57	1.26	3	3.98	1.17	1
Poor financial projection on the client’s side	3.75	1.25	2	3.85	1.25	2
Excessive claims by contractor	2.93	1.34	6	3.18	1.65	4
Bureaucracy	4.12	1.03	1	3.68	1.89	3
Delays in evaluation process	3.29	1.08	4	2.98	1.61	6
Inadquate contract provisions for enforcing timely payments	3.05	1.38	5	3.11	1.58	5

**CAUSES OF CONFLICTS DUE TO BAD COMMUNICATION**

Causes of conflicts in communication are ranked as shown in Table 7. Both groups of participants ranked poor feedback system and negligence as the most common causes of conflicts. Effective communication is a two-way process and when a message is sent to the recipient it is important that he or she acknowledge receiving the message and interpret it correctly. Otherwise, communication is not complete since the receiver may give different meaning to the message. Problems due to negligence may arise when parties included in project do not effectively fulfill their obligation of disseminating information as and when required. Non-adherence of communication procedures and ineffective communication are ranked as third and fourth respectively. The lines of communication on various matters on the project are clearly spelled out and if such links are not followed conflicts are bound to occur. The common means of communication in building projects include meetings, letters, instructions, memorandums, documents like drawings, bills of quantities etc. When such means are not sufficiently used, communication breakdowns among project participants are likely to occur. Lack of communication procedures and deliberate blockage of information were ranked number five and six respectively. All causes have meant standard score values over 2.50 and therefore all are considered to be important factors causing conflicts on communication in building projects.

Table 7. Causes of conflicts in communication

Cause	Libya			Serbia		
	Mean	Std	Rank	Mean	Std	rank
Lack of communication procedures	2.73	1.29	5	2.57	1.26	6
Non-adherence of communication procedures	2.81	1.10	3	2.85	1.69	3
Ineffective means of communication	2.76	1.18	4	2.74	1.97	4
Negligence	2.92	1.43	2	3.17	1.78	1
Poor feedback system	3.29	1.19	1	3.05	1.51	2
Deliberate blocking of communication flow	2.68	1.44	6	2.68	1.04	5

### CAUSES OF CONFLICTS DUE TO EXCESSIVE CONTRACT VARIATIONS

Table 8, shows the ranking of factors causing excessive variations in building projects. It can be noted that ranking is almost identical for the both groups of participants and that all considered factor have relatively high scores. Change of scope of works as a result of changes in client's requirements is ranked as the most common cause of conflicts in this area. When the client's requirements are not adequately covered in the brief and hence not sufficiently considered in the design it is likely that the client will demand the missing requirements to be added at a later stage of the project causing variations of work to the original contract. Change of scope of works as a result of design errors was ranked second cause of conflicts. If such errors are discovered after signing the contract, it can strongly affect planned cost and time and consequently can cause major conflicts. Errors in the drawings, specifications and bills of quantities are closely related and have almost equal scores. Errors in the drawings will affect quantities in the bills of quantities, and changes in the specifications will also have effect on specifications in the bills of quantities. Finding and correcting these errors can have strong impact considering finances and time, thus creating ground for conflicts. Misinterpretation of contract information happens when different parties to the contract assign different meanings on the same information thus causing misunderstandings and disagreements.

Table 8. Causes of conflicts in excessive contract variations

Cause	Libya			Serbia		
	Mean	Std	Rank	Mean	Sstd	rank
Change of scope of works as a result of changes in client's requirements	3.43	1.33	1	3.67	1.47	1
Change of scope of works as a result of design errors	3.03	1.01	2	3.35	1.44	2
Errors in bill of quantities	2.78	1.31	5	2.78	1.41	4
Errors in drawings	2.95	1.18	3	2.85	1.26	3
Errors in specification	2.93	1.24	4	2.75	1.84	5
Misinterpretation of contract information	2.60	1.14	6	2.72	1.78	6

### CAUSES OF CONFLICTS RELATED DUE TO ERRORS IN PROJECT DOCUMENTATION

The causes of conflicts in this area are ranked as shown in Table 9. Inadequate time for preparation of tender documents was ranked as the first by the Libyan engineers. It was noted from interviews that clients often take long time in making decisions but when it comes to implementation, they often give consultants and designers short time to prepare tender documents, which results in urgency and lack of time for checking the documentation. The second and third ranked causes of conflicts are incompetent and inexperienced personnel responsible for preparing tender documents. These two causes are closely related because competency partly is acquired through experience. Low consultancy fee and negligence were ranked fourth and fifth respectively, although are considered less important factors.

In case of Serbia, results of the first three causes are visibly grouped and can be categorized as mistakes and omissions in tender documentation. Remaining two causes can be considered unimportant.

Table 9. Conflicts due to the errors in project documentation

Cause	Libya			Serbia		
	Mean	Std	Rank	Mean	Std	rank
Insufficient time for preparation of tender documents	3.41	1.16	1	1.98	1.35	5
Incompetent personnel for preparation of tender documents	3.28	1.21	2	2.89	1.45	2
Inexperienced personnel for preparation of tender documents	3.07	1.29	3	2.85	1.47	3
Low consultancy fee	2.31	1.44	4	2.05	1.17	4
Negligence	2.23	1.43	5	2.96	1.58	1

### CAUSES OF CONFLICTS RELATED TO DIFFERENCES IN EVALUATION

The ranking of causes of conflicts in this area are shown in Table 10. It can be observed that results are almost equal for the both groups of participants as well as that the first two causes of conflicts are closely connected. It was learned from interviews that contractors often are not honest when preparing their claims. There is a tendency of contractors submitting inflated claims with an assumption that the consultants will assess and bring the claim down to a realistic value. Profit making or loss balancing approach by using inferior items is ranked as the second most important cause of conflicts. From interviews it was noted that some contractors tend to cheat by using inferior and cheaper material contrary to what is in the contract while they still claim the for prices quoted for the items specified in the contract which are higher than the actual cost of the inferior item supplied. The tendency of contractors claiming high prices may happen when new items are introduced in the contract and there is no clear method of pricing provided in the contract. Contractors tend to be opportunistic by inflating the prices and thus leading to disagreements with the consultants and the client. Dubious claims and unclear method of pricing the contract are ranked fourth and fifth cause of conflicts related to evaluation. All five factors as shown in Table 10 have mean score values over 2.50 and therefore all can be considered as crucial causes of conflicts in building projects in both countries.

Table 10. Conflicts related with differences in evaluation

Cause	Libya			Serbia		
	Mean	Std	Rank	Mean	Std	rank
Unclear method of pricing the contract	2.52	1.46	5	2.57	1.52	5
Contractor claiming high prices	2.68	4.22	3	3.05	1.63	3
Dubious claims by contractor	2.58	1.28	4	2.67	1.78	4
Underpricing by consultant or client	3.61	4.83	1	3.27	1.48	2
Using material of inferior quality	3.17	1.33	2	3.58	1.72	1

### CAUSES OF CONFLICTS RELATED WITH CULTURAL DIFFERENCES

Although very interesting from the managerial point of view, conflicts related to cultural differences (Table 11) were found not significantly important by the both groups of participants. This is especially emphasized in results obtained by the participants from Serbia and by the interviews afterwards. Although almost the entire territory of Serbia can be considered multi-ethnic and multi-religious, none of the participants had significantly negative experiences due to the cultural differences. Scores are a little bit higher in Libyan group, but still very low and can be considered as not critical. In the both groups professional culture problems are ranked as the most common cause of conflicts in this

area. This factor relates to the way each field of practice conducts its business. When people from different professions come together to execute a building project, conflicts may arise from their different professional cultural background. Different work norms can be cause of conflicts when each of the participating organizations or firms has its own characteristic work norms and the way of assigning activities, control, rewards and penalties. The third cause of conflicts in this area is language problem and the adversarial industry culture of conflicts was ranked fourth cause. From practice and literature it was found that the construction industry, compared to other branches of industry, is most prone to conflicts.

Table 11. Causes of conflicts due to cultural differences

Cause	Libya			Serbia		
	Mean	Std	Rank	Mean	Std	rank
Language barrier	2.08	1.48	3	1.78	1.48	2
Work norms	2.27	1.18	2	1.45	1.79	4
Professional culture problems	2.41	1.34	1	2.05	1.24	1
Adversarial industry culture	2.07	1.25	4	1.62	1.51	3

## CONCLUSION

Unlike the other types of production where development and manufacture of a given product can be standardised and tested before purchasing, the nature of projects in the construction industry can be described as extremely diverse. Every project is unique and even in case of identical buildings the site conditions for each one can remarkably differ and consequently introduce new challenges and risks. Moreover, construction of a building is a multi-party process that includes numerous specialist groups due to the diversity of skills required and thus maintaining teamwork atmosphere and controlling potential conflicts is of extreme importance. Because of that, it is important to recognize and predict possible causes of disputes in order to prevent delays and to establish efficient procedures for solving conflicts. Presented research was aimed at identifying and evaluating common causes of conflicts in construction projects in Libya and Serbia in order to establish universal grid for successful risk assessment and management. Obtained results and comparative analysis show that main causes of disputes can be considered global but that but that finer and more detailed risk analysis demands considering specific aspects of local construction industry.

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