The Most Influential Factor on the Stumble and Failure of the governmental Projects

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ABSTRACT

The governmental projects are considers the prevailing in Iraq, as most of the projects implemented by the Government, the major role played by governmental projects in the provision of services to citizens and improve the economic situation in the country in general, in addition to the huge number of these projects implemented by the governmental organizations and the large failure rates of it , and because of the fact that these projects are stumbled before they reach the stage of failure, The aim of this research to identify the main factors for the stumble projects in addition to identifying the most influential factor on the causes and consequences of it , like (cost overruns , time overruns , delay and scope creep) , the most influential factors have been identified through the questionnaire of thirty three (director manager, project manager and engineer) in the governmental organizations who has extensive experience in project implementation . The factors (political situation, the security and the deteriorating economic, financial efficiency is good for the employer, the contractor and low-budget experience, poor design and lack of efficient manpower and resources) of the most important factors that lead to stumble projects.

Keywords: stumble projects, cost overruns, time overruns, and scope creep.

العوامل الاكثر تاثيرا على تعثر وفشل المشاريع الحكومية

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الخلاصة

تعتبر المشاريع الحكومية هي السائدة في العراق ، حيث ان اغلب المشاريع تنفذها الحكومة تقريبا ، و للدور الكبير الذي تلعبه المشاريع الحكومية في تقديم الخدمات للمواطنين و تحسين الوضع الاقتصادي في البلد بشكل عام ، اضافة الى العدد الهائل من هذه المشاريع و التي تنفذها مختلف المنظمات الحكومية و نسب الفشل الكبيرة فيها و بسبب كون هذه المشاريع تكون متعثرة قبل ان تصل الى مرحلة الفشل ,كان الهدف من هذا البحث تحديد العوامل الرئيسية لتعثر المشاريع اضافة الى تحديد العوامل الاكثر تاثيرا على اسبابه و نتائجه , مثل (زيادة الكلفة , زيادة الزمن , التاخير و زحف نطاق المشروع), العوامل الاكثر تاثيرا قدد حددت عن طريق الاستبيان لثلاثة و ثلاثين (مدير قسم ، مدير مشروع و مهندس) في المنظمات الحكومية ممن لديه خبرة واسعة في تنفيذ المشاريع و استخدمت طريقة دلفي في هذا الاستبيان كانت عوامل (الوضع السياسي ، الامني و الاقتصادي المتدهور ، الكفاءة المالية غير الجيدة لصاحب العمل ، ميزانية المقاول و خبرته المنخفضة ، ضعف التصميم و قلة الايدي العاملة الكفوءة و الموارد) من اهم العوامل التي تؤدي الى تعثر المشاريع .

الكلمات الرئيسية :تعثر المشاريع, زيادة الكلفة , زيادة الزمن و انحراف نطاق المشروع .

1. INTRODUCTION

Despite well-known research findings and in spite of decades of individual and team expertise of project management, Despite rapid development of membership of professional bodies for managing projects and despite an increase in the quantity of the project active in the industry, Project outcomes continues disappoint the stakeholders , the project would be consider troubled when it is heading towards fail. The troubled project can be defined as the project that the difference between what is expected and what is accomplished exceeds acceptable the tolerance limits, pushing into courses that will inevitably lead to its failure. Whether a troubled project ultimately succeeds or fails depends on the effectiveness of the actions taken to recover the project. Before these actions can be taken, however, organizations need to be able to recognize problems and prepare to take appropriate corrective measures. **Fisher , 2004** , Identified indicators of troubled projects as :

1- Contract work got off to a very slow start.
2- Equipment ordering has fallen far behind schedule.
3- Subcontracted work is being falling behind schedule or assigned late.
4- The owner- information / furnished equipment is arriving incomplete or late.
5- The numerous alleged changes are not negotiated or agreed-upon.
6- Cash liquidity problems of the contractor and/or owner.
7- Continues substantial changes in the project from the owner. **Cleland, 1983**, found that the main causes of troubled projects may come from the following sources:

1. The requirements: imprecise, Continuous Scope Changes, contradictory, lack of priority, lack of agreement, ambiguous and Unclear.
2. The resources: resource conflicts, Lack of resources, Inadequate, turnover of key resources and poor planning.
3. The timetable: overly optimistic, Too tight, and unrealistic.
4. Planning: missing items, insufficient details, poor estimates, Based on insufficient data.
5. Risks: not managed, unidentified or assumed. .

The most important results that obtain at the arrival to troubled phase of the project is the (cost overrun, time overrun, delay and change or creep the scope) , In this research, an identification of the main factors for these results In addition to determining the most influential on the Stumble governmental projects.

2. COST OVERRUN

The Poor cost performance in construction project was a very common problem worldwide lead to a significant amount of cost overrun. Which requires identification of the major contributors of this overrun and to highlight the efficient ways to control it? Cost overrun was defined as excess of the actual cost over budget.

Flyvbjerg et al., 2003. Studied 258 projects in 20 countries and found that the cost escalation was a very common practice and happens in nine out of 10 projects with 28% higher than forecast costs in average. They concluded that the average cost escalation in Europe was 25.7%, in North America 23.6% and in the other geographical areas was 64.6%, they also found that the cost performance in construction projects has not improved over time .the World Bank also indicate that about 63% of the 1778 construction projects financed by it, was faced a poor performance with an average of 40% overrun in budget, **Ameh et al. ,2010. and Zujo et al., 2010**.

In Ghana, the proportion of projects exceeded the original project was 75% of cost, while; only 25% were completed within budget, **Frimpong et al., 2003**. Another investigation of 29 showed that the contracted price overruns were noted at 17 (58.62%) of the projects with a maximum contracted price overrun of 29.16% ,**Zujo et al., 2010.** the major causes of excessive cost overruns in developing countries were ,the poor contractor management, poor technical performances, material procurement, monthly payment difficulties and escalation of material prices . **Frimpong et al.,2003 and Lee ,2008,** examined the problems of cost overrun in Korean social overhead capital projects. he study 161 completed projects , and found that the causes of cost overruns were (the project costs unreasonable estimation and adjustment, delays during construction, changes in scope and no practical use of the earned value). The cash flow and financial difficulties faced by contractors were, contractor's poor site management and supervision, incorrect planning and scheduling, shortage of site workers, inadequate contractor experience , whereas, the changes in the project scope and frequent design changes are the least affecting factors on construction cost , **Sriprasert ,2000. and Memon et al., 2010.** The main affecting causes of cost overrun in Kuwait were: owners' lack of experience, owners' financial constraints, and changing orders, **Koushki et al., 2005.** The roject complexity, inaccurate material estimating, and inflationary increases in material cost were the main causes of cost overrun in Indonesian construction projects, **Kaming et al., 1997.** The conflict among project participants, non-existence of cooperation, presence of poor project specific attributes and ignorance and lack of knowledge, were most factors affecting the cost overrun of construction projects in India , **Iyer et al., 2008.**

3. TIME OVERRUNS

The Time overruns was defined as the time extension beyond planned completion dates .Time overrun has become a major one of the most concern in construction projects worldwide, it is currently a common problem in many projects leading to a considerable losses to the project parties. The Loss of time in construction projects influences drastically on project success and the time performance is the most important indicator of the project success **Olawale. Y.A and M. Sun, 2010.**

the infrastructure projects in India ,experience a time overrun of up to 500% of the original estimated time, **Pai and Bharath ,2013.** in Malaysia , only 20.5% of the public projects and about 33.35% of the private sector projects were completed within original estimated time , **Endut et. al. ,2009.** The , (poor site management and supervision, ineffective project planning and scheduling, inadequate contractor experience, late delivery of materials, design changes by owner during construction, unreliable subcontractors, change orders, unqualified/inexperienced workers, delay in performing inspection and testing, delay in site delivery, slowness indecision making, delay in progress payments, delay in approving design documents , poor communication and coordination) are the time overrun major factors in turkey, **Gündüz et. al. ,2012.** the major factors of time overrun in Egypt are " ineffective planning and scheduling, poor site management and supervision, variation orders/changes, difficulties in financing project by contractor, type of project bidding and award, low productivity level of labors, effects of subsurface conditions, delays in sub-contractors work, shortage of construction materials, and unqualified workforce" , **Marzouk and El-Rasas ,2014.** lack of tower materials in the local markets, unrealistic clients requirements, delays of payments certificates, scope changes, poor workmanship, delay in design work, uncompromising attitudes between parties, unethical behavior of contractors to achieve high profits and poor site management, are the top ten factors of time overrun in Ghana, **Danso and Antwi ,2012. Doloi et al., 2012,** mentioned that the "poor site coordination, inefficient

site management, lack of commitment, improper planning, lack of clarity in project scope, lack of communication, substandard contract, architects' reluctance for change and rework, poor labor productivity, slow decision from owner" were the main causes of time overrun in India. **Sweis et al., 2008**, investigated time overrun issue in Jordan , and found that " poor planning and scheduling, financial difficulties faced by the contractor, incompetent technical staff assigned to the project, shortage of manpower and too many change orders from owner , **Sanni and Hashim ,2013**., investigated the construction projects in Nigeria , They found that the major factors of time overrun are unstable market condition, engagement of inexperienced staff, improper contract document, complexity of the project, lack of research and innovation, choice of procurement method and unstable government regulations ".

4. DELAY

Delay means the failure to complete project in the budgeted cost & targeted time as agreed in contract. Delay occurrence is may concurrently with other delays and all of them will impact the project completion date. Many projects are experience extensive delays thereby exceed initial time and cost estimates. Construction delay considered to be one of the adverse events in the construction industry, it has an adverse effect on the project success in terms of quality, cost and time. The delays are always very expensive to all parties in projects, it will result in slows the growth of construction sector, claims, total desertion, much difficult for feasibility and clash. Delays and cost overruns reduce the available economic resources efficiency, reduce competitiveness of the economy and limit the growth potential, Singh **R., 2010**. Rearrangement, rescheduling and cost overrun, arbitration, disputes and litigation, were the main delay factors as sited by **Mohamad M. R. ,2010. Kaming et al.,1997**, exploited questionnaire survey for delay factors in Indonesian high-rise construction projects , they found that "inadequate planning, poor labor productivity, design changes, inaccuracy of materials estimate and materials shortage are the first five causes of delays". **Koushki et al. ,2005,** identified estimates of the factors of time delays, the three main causes of delays are owners' lack of experience, owners' financial constraints, and changing orders. a factors like "lack of proper co-ordination, delay due to subcontractors, inadequate planning, poor administration, poor communication, shortage of technical staff and deficiency in construction activities may affect the project. Considering these factors, the main causes of construction delays of projects in the developing world. **Table 1.** reviews the delay factors extracted from some studies.

5. SCOPE CREEP

Poor scope management and control was a very common reason for projects failure. the leading cause of project failure is Scope Creep , according to 2010 Global Survey, "the top 10 Obstacles of Project Success", It is very common in project management to get a scope changes, **Winch ,2002,** stated that "the scope identifies the core requirements of services, and any additionally desirable services and any constraints upon service delivery as regulatory requirements, or latest date for availability, is scope creep , it mean "the project work gradual expansion without any acknowledgement or formal acceptance of their associated schedule impacts, costs or other effects." Also ,it is "process of adding work and requirements, step by step, till the final project completely different from the original one and the schedule and

original cost estimates have become unworkable s and meaningless, and Also , refers to the scope change that happens slowly and unofficially, without make any change in dates or making adjustments to the budget.” . **The Project Management Institute, 2008** , defined scope creep as adding functionality and features without addressing the resources, costs, and time effects. This occurs when the scope is poorly controlled, documented and/or defined. It is risk is that the project drifts further far away from its initial objectives and leading to higher costs and delays. In particular, misinterpretations and misunderstandings between stakeholders on facility design have significant impact on the construction ,**Knight and Fayek, 2002.** .**Bresnen and Haslam ,1991**, reported that 40% of projects having budget overruns was due to scope creep or design variations. Clients often don't fully understand their requirements at project start. The iterative process used to determine their needs requires that the project requirements be changed, which allows the client to achieve what they want exactly, this, in turn, lead to increased client satisfaction with the project results, that change process is called “creep.”. Scope creep may cause by the internal and external changes, including:

1- Platform changes (e.g. car or truck)
2- Environment changes.
3- Customer requirement changes.
4- poor understanding of the customer requirements prior to the project scope definition & contract signing, **Abramovid, 2000.** The scope creep is may cause by Misinterpretation of what is contained in project Statement of Work, contract, or scope, this misinterpretation may be caused by:
1- Wide variation in task size
2- Mixing special instructions, specs, approvals, and tasks
3- Wide variation in work description details
4- No chronological, structure or pattern order
5- Using imprecise language ("approximately", "optimum", "nearly", etc.)
6- Failing to get third party review, **Harold Kerzner, 2009.** Scope creep can be because of: weak Project Manager, poorly described project objectives, poor change control, triggering of risks, bad communication, etc.

6. RESEARCH METHODOLOGY

After determining the research problem, a study of a number of data governmental projects was done, in addition to field visits to part of these projects to stand on the implementation of these projects actually, and hold direct meetings with department managers directly involved in the implementation of and contracting of the projects, The research sample consist of a heads of departments in addition to 33 engineer has a wide experience to the implementation of government projects in general and governorate projects particularly . Questionnaire consists of two parts, the first information about the sample and the second part included factors relating to the results above in addition to the factors that have been extracted from the literature and the factors that have been obtained from the direct meetings and a study of projects data. Three rounds of Delphi method were used, in each round the respondents have been asked to determine the most influential factor on the (cost overrun, time overrun, delay

and change or creep the scope) , with a scale consists of four degrees of importance (most important: 1 and unimportant: 4) .

6.1 Respondents Background: The sample included a number of head of departments, project managers and engineers who have an experience in the area of government construction sector**, Table 2.** Show the Respondents Background.

6.2 Identification of Influential Factors

6.2.1 Cost overrun factors: these factors lead to a cost overrun in the project, that the allocated budget of the project will be insufficient, **Table 3** shows the cost overrun factors.

6.2.2 Time overrun factors: it's the factors that lead to make an extension un the project deadline, which mean additional cost, additional administrative work and delay in the province of services to the building users **, Table 4** shows the cost time factors.

6.2.3 Delay factors: these factors are the factors that lead to delay in all its type , material delay , time delay , payment delay etc**. Table 5** shows the delay factors.

6.2.4 Scope creep factors: here, the factors will affect all the above problems (cost overrun, time overrun and delay)**, Table 6** shows the scope creep factors.

6.2 Analysis of the Results

The most influential factors on the main results (cost overrun, time overrun, delay and change or creep the scope),(in each round , factor that gets a mean of (3) or more is one of the most influential factors, **Divakar,2009**, take mean of 2.5 from 4 point scale (0.625) ,while **Ayob,2013.,** take mean of 4 from 5 point scale (0.8) , in this study the ratio was (0.6) which mean get a best result) were obtained through the third round as follows ,

1. Cost overrun: The most influential factor on cost overrun, are shown in **Table 7.**

2. Time overrun: The most influential factor on time overrun, are shown in **Table 8.**

3. Delay: The most influential factor on delay, are shown in **Table 9.**

4. Scope creep: The most influential factor on scope creep, are shown in **Table 10.**

7. CONCLUSION

1- Through the study of projects and direct meetings with a number of heads of departments and data engineers, Show that there is a weakness and a clear imbalance in project management and in scientific knowledge in this area and lack of its practicality.

2- despite the significant benefits gained by any organization through the application of the principles and the basics of construction project management.

3- Search results also showed that there are factors that have an effective impact on the performance of projects, which require attention, planning and control in order to prevent the failure of projects .

4- There are factors that have a common effect on the failure of the project in general and on a clear defect in particular areas.

5- Results show that the most of the factors were a managerial factors, thus, it could be controlled and minimized by improve the managerial skills in the construction organizations by conducting workshops and proper trainings.

8. RECOMMENDATION

In order to get successful projects has to be attention to the the following:

1- The use of the principles and the basics of project management construction in addition to the full knowledge of all the requirements.

2- Attention to training and development for all individuals working in governmental organizations.

3- Ensure existence of an efficient comprehensive administrative system for monitoring, follow-up and controlling of projects in addition to build an extensive and comprehensive database for all projects data.

4- Pay attention to the external circumstances surrounding project implementation to take advantage of the positive aspects and to prevent or minimize the negative effects on projects .

5- Attention to the feasibility studies in addition to the full identification of all project users' requirements in general and the project in particular.

6- Contracting with companies sober for design and engineering consultancy.

7- Attention to the issue of classification of contractors to contract with reputable and high-efficiency companies.

8- Attention to planning, scheduling, follow-up, control and monitoring of work in all phases of the project.

9- Attention to operating and maintenance cost and attention to it to reduce the operating costs.

10- Planning and ongoing communication with all government departments to coordinate with them in the implementation of projects.

11- Ensure that there is adequate funding and optimal use of resources at the stage of feasibility studies in order to prevent obstruction of work on the project later.

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Table 1. Delay factors.

Item	Study	Delay Factors
1	**Assaf et al., 1995**	-Slow preparation and approval of shop drawings -Delays in payments to contractors -Changes in design/design error -Shortage of labor supply -Poor workmanship
2	**Kaming et al. ,1997**	-design changes -inadequate planning, -Productivity, -poor labor -Resource shortages.
3	**Al-Momani.,2000**	-weather -user changes - factors related to designer -economic conditions -late deliveries, -site conditions -increase in quantity.
4	**Assaf and Al-Hejji, 2006**	-Ineffective planning and scheduling -Delay in progress payment -Change orders -Shortage of labor -Contractor difficulties in financing
5	**Tommy et al.,2006**	-Client variation -Inadequate contractor resources - Unforeseen ground conditions -Poor site management and supervision -slow co-ordination and seeking of approval -Inexperienced contractor
6	**Sweis et al.,2007**	-contractor Poor planning and scheduling -Shortage of manpower -Contractor financial difficulties -Too many change orders by the owner
7	**Saleh et al., 2009.**	-Slow decision making -Financial issues -Shortage of supply -Shortage of material -Improper planning -Lack of effective communication -Design errors
8	**Wei K. S. 2010.**	-change orders by owner during construction -Delays in sub-contractors work -Poor communication and coordination -Late in revising and approving design documents

Table 2. Respondent's background.

Respondents	Frequency (percentage) %
Gender	
Male	80
Female	20
	100
Type of respondents position	
1. Project Manager	34
2. Architecture	21
3. Engineer	15
4. Consultant	12
5. department manager	18
Educational attainment	
B.Sc.	66.5
High diploma	21
M.Sc.	9
Ph.D.	3.5
Working experience	
6-10 years	15
11-15 years	30
16-20 years	25
Above 20 years	30
Engineering Specialization	
Civil	51.5
Mechanic	18
Electric	18
Architectural	12.5

Table 3. Respondents' answers on cost overrun factors.

Item	Cost overrun factors	Importance degree (%)			
		1	2	3	4
1	Shortage of manpower	2.5	23.5	40	31
2	Change orders by client	23	39	26	12
3	Inaccurate quantity	6.5	13	46.5	31
4	Increase in labor cost	0	15.5	44.5	36.5
5	Project complexity	4	19	43	29
6	Client’s late contract award	13	22	33	26
7	Shortage of skilled labor	5.5	28	33.5	23.5
8	Inaccurate material estimates	7.5	29.5	34.5	26
9	Increase in material cost	29.5	37	9.5	21
10	incapable inspectors	4	25	29.5	34.5
11	late design works	7.5	25.5	27	33.5
12	late approval	31.5	25.5	19	10
13	late inspection	14	28	31	27
14	inappropriate design	19	18	32	31
15		30	15.5	42.5	5.5

	design changes				
16	changes in management ways	6.5	30.5	40	17
17	high competition in bids	11.5	27	39	21
18	late issuing of approval documents	6.5	23.5	40	27
19	postponement of project	8	21.5	42	25.5
20	late submission of nominated materials	6	35	36	14
21	late documentation	17	35	27.5	11
22	delay in commencement	7.5	27.5	27.5	29
23	late land hand-over	8	31.5	30.5	29
24	resource management	15	29	31	21
25	undefined scope of working	12	35	32.5	18
26	internal administrative problems	30.5	38	10.5	19
27	unreasonable project cost frame	12	21.5	36	25
28	delays in decision making	32.5	15.5	42.5	7.5
29	poor communication between parties	15	23	38	24
30	Incomplete drawings	22	30	19	29
31	lack of equipment efficiency	24	21	24	31
32	rework from poor workmanship	19	16	31	34
33	natural disaster	11	34	32	23
34	weather condition	21	21	31	27
35	Inflation	19	32	24	25
36	stoppages	24	34	25	17
37	exchange rate fluctuation	17	14	42	27
38	financial status of owner	31	45	17	7
39	financial status of contractor	38	40	5	17
40	payments delay	41	38	9	12

Table 4. Respondents' answers on time overrun factors.

Item	Time overrun factors	Importance degree (%)			
		1	2	3	4
1	Unforeseen site conditions	14	21	34	31
2	Failure of equipment	12	16	38	34
3	Materials price regulations	11	24	42	23
4	Interference by owner in construction operation	11	21	31	37
5	Shortage of materials	19	12	44	25
6	Shortage of equipment	24	17	25	34
7	Slow response by the consultants	35	39	9	17
8	Financial constraints faced by owner	26	45	7	22
9	Incompetent technical staff	11	27	39	21
10	Difficulties in obtaining work permits	11	22	40	27
11	Poor qualification of consultants	11	22	38	31
12	Poor planning and scheduling	41	17	20	22
13	Improper technical study by the contractor	21	14	42	23
14	Delay in the approval of contractor submissions	25	44	12	19
15	Shortage of technical professionals in the	17	21	21	41

	contracting organization				
16	Slow decision making from owner	10	27	28	35
17	Delays in contractors claims settlements	11	39	22	28
18	Delays by the contractor payments to subcontractors	8	37	21	34
19	Ineffective quality control by the contractor	9	28	51	12
20	Modification in material specifications	12	21	22	45
21	Shortage of manpower	6	15	42	35
22	Laws and Regulatory Framework	22	30	33	15
23	Lack of communication between parties	22	27	29	22
24	Lack of coordination between parties	10	27	28	35
25	Accidents on site	11	39	22	28
26	Unforeseen ground condition	30	9	23	38
27	Effect of weather	18	35	23	24
28	Shortage of site workers	9	29	29	33
29	labor productivity	21	17	21	41
30	External conditions affecting the project	41	38	12	9
31	Insufficient Numbers of equipment	10	27	38	25
32	Late delivery of materials and equipment	11	22	39	28
33	Fluctuation of prices of materials	38	30	22	10
34	Mistakes during construction	24	45	22	9
35	Incompetent subcontractors	38	28	22	12
36	Poor site management and supervision	10	17	38	35
37	Lack of experience	44	30	4	22
38	Incomplete design at the time of tender	10	27	28	35
39	Delay Preparation and approval of drawings	11	39	22	28
40	Mistakes and Errors in design	33	45	8	14
41	Frequent design changes	14	23	36	25.5
42	Unrealistic contract duration and requirements	14	25	30.5	25
43	Delay in inspection and approval of completed work	4.5	25	33	31.5
44	Delay in materials delivery	18	25.5	31.5	25

Table 5. Respondents' answers on Delay factors.

Item	Delay factors	Importance degree (%)			
		1	2	3	4
Owner Related Delay Factors					
1	Lack in experience	3	22	35	20
2	Misunderstandings in technical dealing with vendors & contractors	12	27	46	17
3	Suspension of work due to owner	4	33	41	22
4	Coordination between the parties is not appropriate work	20	38	8	34
5	Lack of communication & co-ordination	11	34	25	30
6	delays in payments of completed work	15	45	25	15
7	changes by owner during construction	19	44	17	20

8	Late revising & approving relevant documents by owner	7	32	37	24
Consultant Related Delay Factors					
9	Inadequate site information given to consultant	10	27	28	35
10	Conflicts of consultant with design engineer	11	39	22	28
11	Complexity of project design faced by consultant	8	37	21	34
12	Communication barriers faced by consultant	9	28	51	12
13	Difficulties in receiving payments from agencies faced by consultant	12	21	22	45
14	Conflicts between consultant & contractor	6	15	42	35
15	Delay in handover of site to contractor	15	24	19	42
16	changes in specification during construction by consultant	6	41	29	24
17	Inflexibility of consultant	12	26	33	29
Contractor Related Delay Factors					
18	Lack of experience of contractor	25	31	32	12
19	Contractor's slowness in preparation of documents & material samples	9.5	37	29.5	21
20	Poor managerial skills in contractor	4	25	29.5	34.5
21	Poor understanding of accounting & financing project	7.5	25.5	27	33.5
22	Compatibility of contractor with new software's	10	25.5	19	31.5
23	Is contractor compatible with new technology	13	23.5	32.5	28
24	Rework in construction faced by contractor	9.5	37	29.5	21
25	Conflicts with sub-contractor	4	25	29.5	34.5
26	Contractor's Poor site management & supervision	35	24	27	14
27	Contractor's slowness in site mobilization	14	23	36	25
28	Contractor's inadequate planning & scheduling	14	25	30.5	25
29	Material Related Delay Factors				
30	Untimely delivery	3	2.5	23.5	40
31	Materials not in right place when needed	2.5	12	23.5	39
32	Escalation of material prices	3	6.5	13	46.5
33	Material damage in storage	3.5	0	15.5	44.5
34	Poor Material management	5	4	19	43
35	Slow process of material selection	6	13	22	33
36	Changes in quality of material	9.5	5.5	28	33.5
37	Frequently unexpected modifications in specification of material during construction	2.5	7.5	30	34
38	Contractor Financial difficulties	30	35	25	10
Project Related Delay Factors					
39	Accidents on site	14	23	36	25.5
40	Inaccurate cost estimates	14	25	30.5	25
41	Changes in site topography after design	4.5	25	33	31.5
42	Insufficient data collections & survey	11.5	25.5	31.5	25
43	Unforeseen ground conditions	20	15.5	30.5	29.5

44	Changes in site conditions	15.5	17	28	19.5
45	The security situation economic and political	45	35	12	8
46	External Related Delay Factors	12	13	33	42
47	Changes in government regulation & laws	7	14	42	37
48	The diversity of projects implemented	12	48	30	10
49	Weakness in experience of project manager and his team	22	50	21	7

Table 6. Respondents' answers on scope creep factors.

Item	Scope creep factors	Importance degree (%)			
		1	2	3	4
1	Involving the users only in later stages	3	2.5	23.5	40
2	Management failure in managing user expectations	2.5	12	23.5	39
3	Underestimating the complexity of the problem	3	6.5	13	46.5
4	Insufficient Requirements Analysis	3.5	0	15.5	44.5
5	Modification of rules	5	4	19	43
6	Uncertainty in technology	6	13	22	33
7	No recognition of interfacing processes	9.5	5.5	28	33.5
8	Inaccurately defined processes	2.5	7.5	29.5	34.5
9	Client/user disagreement	8	38	22	32
10	Stakeholder multiplicity	27	41	22	10
11	Change in market conditions	32	29	34	5
12	Feature creep	12	39	27	22
13	Flexibility	9	24	32	35
14	Interfaces not defined	10	39	34	17
15	Bad relation with client	7	14	51	28
16	Not enough time to understand client’s needs	35	46	17	2
17	No stakeholder involvement	41	35	13	11
18	Wrong people defining scope	47	31	25	7
19	Ambiguous requirements	14	27	35	24
20	Requirements not clearly defined	9	33	41	17
21	Learning	12	25	29	34
22	Conflict in different government agencies interests	17	31	35	17
23	absence of scope management and control	22	39	32	7
24	Bad management of project changes	14	45	22	19
25	data was not enough to define the scope	10	29	30	31
26	Intervention by Government officials and politicians	7	31	47	15
27	Delay in project execution	22	29	37	12
28	Ignorance of key stakeholders	12	35	13	40

Table 7. The most influential Cost overrun factors.

Item	Cost overrun factor	mean	SD	rank
1	payments delay	3.74	1.025	1
2	financial status of contractor	3.67	.879	2
3	financial status of owner	3.51	.654	3
4	internal administrative problems	3.49	.971	4
5	design changes	3.42	.612	5
6	Increase in material cost	3.38	1.154	6
7	Change orders by client	3.2	1.023	7
8	late approval	3.15	1.087	8
9	delays in decision making	3.12	.754	9
10	Stoppages	3.04	.915	10

Table 8. The most influential time overruns factors.

Item	Time overrun factor	mean	SD	rank
1	External conditions affecting the project	3.84	0.874	1
2	Mistakes and Errors in design	3.67	0.987	2
3	Lack of experience	3.61	1.023	3
4	Incompetent subcontractors	3.54	1.412	4
5	Mistakes during construction	3.5	1.023	5
6	Fluctuation of prices of materials	3.48	0.871	6
7	Slow response by the consultants	3.3	0.612	7
8	Financial constraints faced by owner	3.25	1.067	8
9	Poor planning and scheduling	3.22	0.624	9
10	Delay in the approval of contractor submissions	3.17	1.029	10
11	Laws and Regulatory Framework	3.08	1.011	11
12	Lack of communication between parties	3.08	1.049	12
13	Unforeseen ground condition	3.03	0.698	13

Table 9. The most influential delay factors.

Item	Delay factor	mean	SD	rank
1	The security ,economic and political situation	3.50	1.022	1
2	Contractor's Poor site management & supervision	3.39	0.790	2
3	Contractor Financial difficulties	3.27	1.134	3
4	changes by owner during construction	3.24	0.767	4
5	delays in payments of completed work	3.2	0.785	5
6	Lack of experience of contractor	3.17	0.887	6
7	Inaccurate cost estimates	3.12	.845	7
8	Weakness in the experience of the project manager and his team	3.09	1.060	8
9	Coordination between the parties is not appropriate work	3.06	.712	9
10	The diversity of projects implemented	3.04	1.060	10

Table 10. The most influential scope creep factors.

Item	Scope creep factor	mean	SD	rank
1	Wrong people defining scope	3.69	0.790	1
2	No stakeholder involvement	3.66	1.134	2
3	Not enough time to understand client's needs	3.57	0.767	3
4	Change in market conditions	3.48	0.848	4
5	Stakeholder multiplicity	3.3	0.678	5
6	Conflict in different government agencies interests	3.22	0.581	6
7	Delay in project execution	3.18	1.060	7
8	absence of scope management and control	3.1	1.119	8
9	Bad management of project changes	3.03	0.741	9

Table 11. The most influential factors on the Stumble and Failure, its weight and rank.

Item	Factors	Factors group	Weight %	rank
1	External conditions affecting the project	all	16.4	1
2	Financial constraints faced by owner	All	12.4	2
3	financial status of contractor	All	12.08	3
4	The diversity of projects implemented	All	10.4	4
5	Lack of communication between parties	All	9.7	5
6	design changes	All	8.5	6
7	Contractor's Poor site management and supervision	All	8.3	7
8	delays in payments of completed work	All	8.27	8
9	Lack of experience of contractor	All	7	9
10	delays in decision making	All	7	10
11	Slow response by the consultants	All		11