



RESULTS OF THE 2010 SURVEY OF THE

cidb

CONSTRUCTION INDUSTRY INDICATORS

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1. INTRODUCTION

The Construction Industry Development Board (cidb) Act (Republic of South Africa, 2000) was passed in 2000 to establish a statutory body aimed at driving an integrated construction industry development strategy. This body was necessary as the construction industry plays an indispensable role in the South African economy by providing the physical infrastructure which is fundamental to the country's development. The construction industry operates in a uniquely project-specific and complex environment, combining different investors, clients, contractual arrangements and consulting professions. It impacts directly on communities and the South African public at large, and its improved efficiency and effectiveness will enhance quality, productivity, health, safety, environmental outcomes and value for money. In terms of this act, the cidb 'may develop target and performance indicators related to best practice standards and guidelines and establish mechanisms to monitor their implementation and evaluate their impact'.

Construction Industry Indicators (CIIs) have been developed by the Department of Public Works and the cidb with the assistance of the CSIR (van Huyssteen, van Heerden, Perkins and Gyimah, n.d.: Online) to play a useful role in developing a sustainable industry and to be adopted as a tool for improving performance in the South African construction industry. The CIIs of the cidb rely heavily on international experience and particularly those indicators adopted in the United Kingdom. In the United Kingdom the first Key Performance Indicators (KPIs) were published in 1999 in response to the Rethinking Construction report by Egan (1998). These KPIs had three objectives, namely:

- To provide companies and projects with a simple method of establishing a performance measurement system;
- To provide organisations with a straightforward method of benchmarking their performance against others in the construction industry; and
- To track long term trends in performance, and specifically, to demonstrate whether the construction industry was achieving the targets set out in Rethinking Construction.

(Rethinking Standards in Construction, 2006: 3)

Cost, time and quality are the three basic and most important performance indicators in construction projects followed by others such as safety, functionality and satisfaction (Chan and Ada, 2004: 203-221). Based on the Egan report the Movement for Innovation and Construction Best Practice Programme (CBPP) was formed and is now recognised as a leading organisation involved in the production of KPIs within the industry (Beatham, Anumba and Thorpe, 2004: 93-117). The KPIs launched by the CBPP are: client satisfaction, product and service, profitability, productivity, defects, safety, construction time and construction cost. These KPIs were benchmarked within the

construction industry and have been very successful in introducing many companies to the subject of performance measurement (Beatham et al., 2004: 93-117).

The cidb CIIs measure the performance of the South African construction industry by measuring employer satisfaction with the project milestone dates achieved, construction costs versus tender amount, contractors' performance, agents' (consultants') performance, and the quality of materials used. The contractors' satisfaction is measured by their profitability, the performance of the employer and his agents, the quality of the contract documentation, the management of variation orders and claims, payment delays and the performance of their materials suppliers. The procurement indicators measured are obtained from the agents involved and include contractor performance issues utilised in the adjudication of tenders, the type of procurement procedure used, and the contracting strategy adopted.

The cidb CIIs described above have been captured since 2003, and are currently being captured in partnership with the Department of Quantity Surveying and Construction Management of the University of the Free State. This report is part of a series of annual papers (Marx 2009) presenting the results of this continuous survey project. It is a report on the results of the 2010 survey for projects completed in 2009.

2. METHODOLOGY

A database, with contact particulars of employers, contractors and agents involved in 2807 projects completed in 2009, was compiled. Three separate survey forms were faxed or e-mailed to the contractors, employers and agents of these projects. Their responses were captured in a Microsoft Access database. The average perspectives of the respondents were determined for different project types, employer categories and provinces. All questionnaires made used the scale to measure satisfaction levels as shown in Table 1.

Table 1: Definition of the % satisfaction levels

Dissatisfied			Neither Satisfied nor Dissatisfied				Satisfied		
10	20	30	40	50	60	70	80	90	100

3. SCOPE

The CIIs of the cidb need to evolve from the lessons learned from previous surveys, and are therefore subject to change and refinement. Furthermore, the CIIs used were only mainline indicators. Questions were not asked to pin-point the exact reasons for all problems experienced. The CIIs considered were only the project related indicators. The cidb also measures health and safety and

empowerment progress which are not discussed in this report. Other economic indicators such as production prices, and building plans passed are published elsewhere.

From the 2807 completed projects in the database, the contact particulars of 2807 contractors, 2624 employers and 1520 agents were available. Survey forms were received back from 1053 contractors, 434 employers and 445 agents reflecting response rates of 37,5%, 16,5% and 29,3% respectively.

4. DISCUSSION OF THE CONTRACTORS' SURVEY RESULTS

4.1 Contractor survey response distribution per project type and employer category

Table 2 gives the distribution of the 1053 survey forms received from contractors for projects completed in 2009. The number and percentage of survey forms completed are indicated for different employer categories and project types.

Table 2: Contractor survey response distribution per project type and employer category 2009

Project Type	Total No. of Projects	34	17	5	17	14	7	6	0	% of Total Survey Results
Residential Building	73	41	1	4	20	6	1	-	-	7
Non-residential Building	193	69	27	17	51	16	4	9	-	18
Civil Works	402	112	52	19	64	89	59	6	1	38
Mechanical Works	95	37	5	14	18	6	5	10	-	9
Electrical Works	191	51	82	2	8	25	6	16	1	18
Special Works	99	44	11	1	13	2	2	25	1	10
Not specified	-	-	-	-	-	-	-	-	-	0
Total No. of Projects	1053	354	178	57	174	144	77	66	3	
		Private Sector	Public Corporation e.g. ESKOM, ACSA	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership	Not specified	
		Employer Category								

The majority of responses received came from civil works projects (38%), non-residential building projects (18%) and electrical works projects (18%). The results in this report are presented per project

type and per client category to ensure that the results for other types of projects do not disappear in the average of all projects.

Projects of the private sector (34%), public corporations (17%) and provincial departments (17%) were best represented in the survey. The responses received were well distributed between the different project types as well as between the employer categories. The number of responses received in each category should always be considered when evaluating the results.

4.2 Contractor survey response distribution per contractor financial grade

The contractors are registered with the cidb in different financial grades, indicating their financial capability to complete projects of certain maximum values. The grading is as follows: Grades 1 to 9 correspond with project values of R0,2 million; R0,65 million; R2 million; R4 million; R6,5 million; R13 million; R40 million; R130 million and no limit respectively. Table 3 shows the distribution of the 1053 survey forms received from different financially graded contractors.

Table 3: Contractor survey response distribution per contractor financial grade 2009

% of Projects	1	8	8	12	19	21	13	7	6	5
Total No. of Projects	5	87	88	130	199	225	137	70	65	47
	1	2	3	4	5	6	7	8	9	Not specified
Contractor Financial Grade										

Grade 1 (small) contractors were not targeted in this survey due to the fact that most of them do not possess a facsimile machine or have an e-mail address. Therefore, only 1% of the responses received came from Grade 1 contractors. A well distributed response was received, with the largest response from Grade 5 (19%) and Grade 6 (21%) contractors. Of all the responses received only 5% of the contractors did not provide or did not know their current registration status.

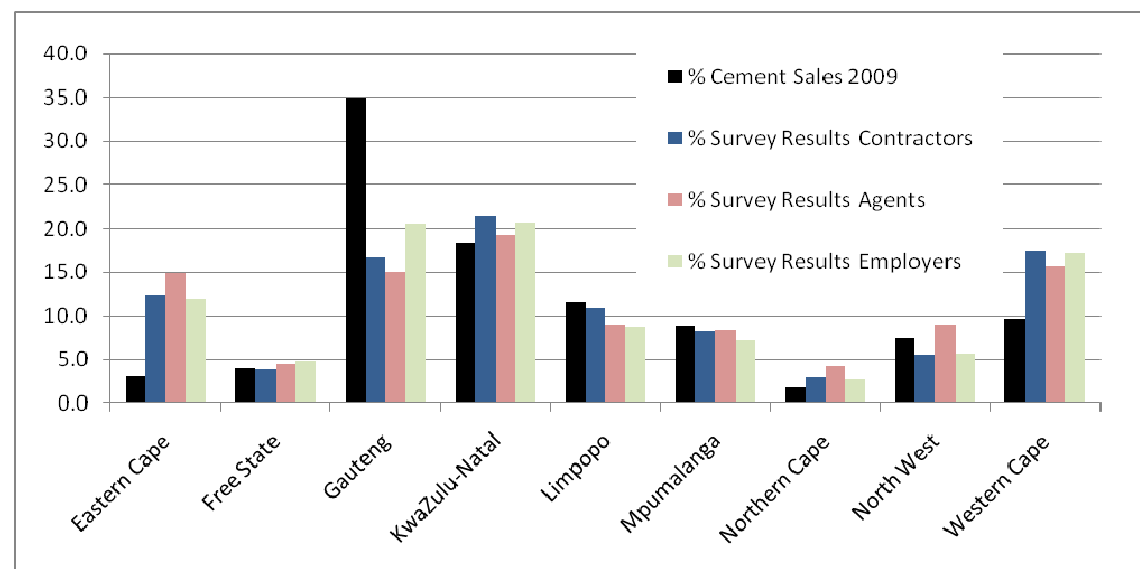
4.3 Contractor survey response distribution per province

It was also important to determine if the responses received were not dominated by those economic regions in the country with the highest construction activities. Table 4 shows the distribution of contractor survey responses received per province. The percentage of responses received for projects completed in each province are indicated. This was compared with the percentage of cement sales in each province. Cement sales can be considered to be one of the indicators of construction activity in a province. Figure 1 shows the correlation between cement sales and the survey responses received, and indicates that the survey results received were not dominated by any one province. Certain results of

this survey are expressed per province to ensure that the situations in less economically active provinces are correctly reflected and do not disappear in the average response received.

Table 4: Contractor survey responses received per province 2009

% of Projects	0	12	4	17	21	11	8	6	3	18
No. of Projects	2	130	41	177	225	115	87	59	33	184
	Not specified	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpumalanga	North West	Northern Cape	Western Cape
	Province									



Source: Cement and Concrete Institute

Figure 1: Correlation between survey responses received and cement sales per province

4.4 Contractor profitability per project type

Table 5 indicates the distribution of contractor profitability for different project types and shows that for 3% of all the projects completed the contractors made a loss.

The project types, with the highest percentage of projects with profitability of more than 15%, were special work (24%) and mechanical work projects (32%).

If the percentage of projects completed with 11-15% and more than 15% profit are combined for each project type, the results show that non-residential building projects were less profitable than all other

project types. This may be due to the complexity of non-residential building projects and the large number of parties involved.

Table 5: Profitability of projects per project type 2009

Profitability	% of Projects in each Project Type						% of all Projects
	Residential Building	Non-residential Building	Civil Work	Mechanical Work	Electrical Work	Special Work	
Loss	6	3	5	3	0	1	3
0 – 5%	29	36	23	18	19	13	24
6 – 10%	27	40	38	34	41	15	36
11 – 15%	21	9	20	13	28	47	21
>15%	17	12	14	32	12	24	16
	Project Type						

Table 6 shows the profitability of contractors per financial grade. It is interesting to note that the group of Grade 2 contractors, who are typically small and less experienced, made a loss on only 5% of their projects. This is the same percentage as the loss performance for Grade 7 contractors and better than the loss performance of Grade 8 (10%) and Grade 9 (8%) contractors. Furthermore, the Grade 2 contractors made a good profit of more than 10% on 57% of all their projects which is better than the performance of any higher financially graded group of contractors.

Table 6: Profitability of contractors per financial grade 2009

Profitability	% of Projects in each Financial Grade								
	2	3	4	5	6	7	8	9	
Loss	5	5	1	-	3	5	10	8	
0 - 5%	21	14	33	9	24	31	39	36	
6 - 10%	17	39	36	46	34	47	27	21	
11 - 15%	42	20	20	27	20	7	14	22	
>15%	15	22	10	18	19	10	10	13	
	Contractor Financial Grade								

There is thus no relationship between profit and the financial grade of a contractor. There should be more emphasis on developing good small contractors, and not only to achieve a higher financial grade, as small contractors can make just as good a profit as their larger and higher graded counterparts.

4.5 Performance of the employer and the employer's agents

The contractors' satisfaction with the employer and agents (consultants) was tested with regard to their overall performance, the quality of the tender documents and specifications, and the management of variation orders and claims. Table 7 shows the results obtained. The best overall employer categories were public private partnerships and public corporations with an average satisfaction level of 86% and 83% followed by provincial departments and regional / district councils each with an average satisfaction level of 78%. The worst overall performance was achieved by the private sector, national departments and metropolitan councils each with an average satisfaction level of 76%. Bearing in mind that a score of 80% means satisfied, the lowest score achieved is of no concern.

Table 7: Contractors' level of satisfaction with the employer's and agent's performance 2009

Performance	Average Satisfaction Level %						
	Employer Overall	76	83	76	78	76	78
Agent Overall	75	81	75	78	77	80	85
Documentation / Specifications	75	83	79	79	77	82	86
Management of VO's	78	80	74	76	74	83	90
Management of claims	77	79	74	74	73	76	90
	Private Sector	Public Corporation	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership
	Employer Category						

The average overall performance of the agents, in the eyes of the contractors, was slightly lower than the performance of the employers for most of the employer categories. The contractors were on average satisfied with the quality of the documentation and specifications provided by the public corporations, regional / district councils and public private partnerships. The other employer categories received a slightly lower score.

The contractors' satisfaction levels for the management of variation orders (VO's) were the lowest for national departments (74%) and metropolitan councils (74%). The national departments, provincial departments and metropolitan councils received the lowest scores of 74%, 74% and 73% respectively for the management of claims.

To determine whether the contractors' financial grade played any role in the evaluation of the performance of the employer bodies and agents, Table 8 was created. It is interesting to note that the higher grade contractors (7 to 9) were less satisfied than the Grade 2 to 6 contractors. The reason may

be that the higher grade contractors are more sophisticated and expect more from their employers and their agents.

Table 8: Contractors' level of satisfaction with the employer's and agent's overall performance per contractor financial grade 2009

Performance	Satisfaction level per Contractor Financial Grade %							
Employer Overall	86	85	87	84	78	71	69	70
Agent Overall	82	81	85	86	80	74	68	66
	2	3	4	5	6	7	8	9
	Contractor Financial Grade							

Table 9 shows the contractors' average levels of satisfaction with the employer bodies in different provinces. The number in brackets indicates the number of responses on which the average satisfaction level was based. The reliability of the data is lower for those employer bodies in provinces where only a few responses were received and this should always be kept in mind.

The national departments that performed satisfactorily were North West [90% (4)], the Northern Cape [90% (3)] and Eastern Cape [81% (11)]. Free State [50% (2)] and Mpumalanga [45% (2)] received the lowest scores. There was a significant reduction in the performance of the Free State and Mpumalanga if the results are compared with the results of the previous year's survey that were [87% (3)] and [75% (6)] respectively.

The provincial departments that performed satisfactorily were Free State [86% (5)], KwaZulu-Natal [83% (29)], Limpopo [90% (18)] and Mpumalanga [80% (20)]. Northern Cape [65% (20)] received the lowest score.

The metropolitan councils that performed satisfactory were in KwaZulu-Natal [85% (25)], Limpopo [84% (5)] and the Western Cape [84% (27)]. North West province received the lowest score [67% (6)].

The regional / district councils that performed satisfactorily were Eastern Cape [84%(14)], Free State [86% (9)], Limpopo [86% (7)], North West [84% (8)] and Western Cape [87% (9)]. Mpumalanga province received the lowest score [45% (2)] that is a significant reduction compared to the result obtained from the previous year's survey [79% (11)].

Table 9: Contractors' level of satisfaction with the employer's overall performance per province 2009

Employer Category	Average Satisfaction Level%								
	Private Sector	81 (28)	82 (5)	76 (82)	85 (79)	85 (36)	77 (29)	79 (19)	74 (5)
Public Corporation	80 (16)	88 (4)	76 (28)	77 (28)	93 (38)	83 (16)	84 (14)	76 (9)	83 (25)
National Department	81 (11)	50 (2)	72 (9)	76 (11)	89 (7)	45 (2)	90 (4)	90 (3)	68 (8)
Provincial Department	77 (32)	86 (5)	74 (18)	83 (29)	90 (18)	80 (20)	71 (7)	65 (2)	74 (42)
Metropolitan Council	71 (24)	56 (10)	71 (34)	85 (25)	84 (5)	79 (8)	67 (6)	72 (5)	84 (27)
Regional / District Council	84 (14)	86 (9)	-	68 (19)	86 (7)	45 (2)	84 (8)	70 (9)	87 (9)
Public Private Partnership	68 (5)	90 (6)	70 (6)	89 (34)	78 (4)	96 (9)	-	-	95 (2)
The value in brackets is the number of projects involved	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpumalanga	North West	Northern Cape	Western Cape
	Province								

4.6 Delays in the start of construction

The contractors were asked whether the employer caused any delays preventing them from starting on site after they provided their guarantees. Table 10 shows that public private partnership employers caused delays at 24% of all their projects while metropolitan councils, national and provincial councils were responsible for delays at 15%, 10% and 10% of all their projects respectively.

Table 10: Employer responsible for delays preventing contractor access to site

Employer Category	% of Projects		
	Yes	No	Not applicable or not answered
Private Sector	9	71	20
Public Corporation	9	85	6
National Department	10	74	16
Provincial Department	10	82	8
Metropolitan Council	15	76	9
Regional/District Council	4	84	12
Public Private Partnership	24	70	6

4.7 Payment delays

The average number of days delay between certification and receipt of contractor payment of interim and final certificates is shown in Table 11.

The different contract documents used for projects had different requirements regarding timeous payment of certificates, but payment within a month was considered to be reasonable. It is of great concern that only 52% of all contractors were paid on time (< 30 days). However, there has been some improvement if this figure is compared with the 42% obtained from the previous annual survey.

With regard to early payment the regional / district councils performed the worst, with payments made within 30 days on only 37% of their projects. The best performing client categories with 64% and 60% of project payments made within a month were public corporations and national departments respectively. The public corporations and national departments both paid their contractors on time on 23% more of their projects compared to the previous survey. On the other hand the metropolitan councils, regional / district councils and public private partnerships performed worse than in the previous year.

Table 11: Days delay between certification and payment 2009

Avg. Days Delay	% of Projects in each Employer Category							% of all Projects
≤ 14	10	15	9	8	6	1	3	9
14 to 30	44	49	51	40	38	36	43	43
30+ to 60	34	27	28	32	41	43	37	34
60+ to 90	6	5	9	14	12	12	3	8
90+ to 120	4	1	1	3	1	1	14	3
120+	2	3	2	3	2	7	-	3
	Private Sector	Public Corporation	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership	
	Project Type							

The worst performing employers were the provincial departments and regional / district councils who paid 20% of their contractors only after 60 days or more. There has been some improvement in the performance of national and provincial departments who respectively paid 3% and 6% of their contractors only after 90 days if it is compared with the 23% result obtained for both from the previous survey.

Contractors refrain from standing up to their contractual right to be paid on time for fear of losing job opportunities in the future. This creates major cash flow problems for contractors and the cidb should communicate this with client bodies.

These payment results are also shown in Table 12 as timeous payment (< 30 days) per employer category in different provinces. The results are disturbing as many employer bodies in various provinces pay only 0 to 30% of their contractors on time.

Table 12: Timeous payment (< 30 days) of contractors per province and employer category 2009

Employer Category	% of Projects where Contractor is paid within 30 days							
	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpumalanga	North West	Northern Cape
Private Sector	61 (28)	60 (5)	42 (81)	46 (78)	72 (36)	66 (29)	37 (19)	0 (5)
Public Corporation	56 (16)	50 (4)	64 (28)	57 (28)	92 (38)	56 (16)	79 (14)	11 (9)
National Department	64 (11)	50 (2)	33 (9)	73 (11)	57 (7)	50 (2)	75 (4)	100 (3)
Provincial Department	38 (32)	60 (5)	28 (18)	69 (29)	50 (18)	45 (20)	43 (7)	0 (2)
Metropolitan Council	34 (24)	40 (10)	38 (34)	52 (25)	80 (5)	63 (8)	67 (6)	0 (5)
Regional / District Council	77 (13)	33 (9)	-	26 (19)	71 (7)	0 (2)	13 (8)	0 (9)
Public Private Partnership	80 (5)	0 (6)	83 (6)	61 (33)	0 (4)	0 (9)	-	-
The value in brackets is the number of projects involved								
	Province							

4.8 Performance of materials suppliers

Contractors were requested to indicate their overall satisfaction level with their materials suppliers, the ability of the suppliers to keep to their quoted / agreed upon delivery schedules and whether the materials delivered on site complied with the specifications. The results are indicated in Table 13.

The materials suppliers for electrical and special work projects received a satisfactory score for their overall performance as well as for their delivery. For all the other project types the score was only slightly less than 80%. The contractors for all project types were satisfied that the materials complied with the specification.

Table 13: Materials suppliers' performance per project type 2009

Contractors' Level of Satisfaction % with the Materials Suppliers for each Project Type						
Overall Performance	79	78	79	78	85	85
Keep to agreed upon Delivery Schedule	78	78	77	78	83	88
Material delivered as per Specification	83	82	82	81	86	85
	Residential Building	Non-residential Building	Civil work	Mechanical Work	Electrical Work	Special Work
	Project type					

The materials suppliers' overall performance was also evaluated in terms of the contractors' financial grade as indicated in Table 14. There is a tendency for the higher financially graded contractors (7 to 9) to be less satisfied with their materials suppliers' performance. Their projects were larger and it is likely that suppliers could not keep up with the larger orders placed. Table 15 shows the materials suppliers' overall performance per province. The Eastern Cape and Western Cape were the provinces with the lowest scores of 76% and 77% respectively, but these scores are of no concern.

Table 14: Materials suppliers' performance per contractor financial grade 2009

Contractors' Level of Satisfaction % with performance of Materials Suppliers per Contractor Financial Grade								
Overall Performance	85	82	86	84	80	78	72	69
	2	3	4	5	6	7	8	9
	Contractor Financial Grade							

Table 15: Contractors' level of satisfaction with the overall performance of materials suppliers per province 2009

Average % Satisfaction								
76	79	79	84	86	80	82	81	77
Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpumalanga	North West	Northern Cape	Western Cape
Province								

5. DISCUSSION OF THE AGENTS' SURVEY RESULTS

5.1 Agent survey response distribution per project type and employer category

Table 16 gives a summary of the survey forms completed by agents. The number of survey forms completed is indicated for different employer categories and project types, with the purpose to

evaluate whether responses were obtained for all types of construction projects and all the different employer bodies.

Table 16 shows that the largest group of responses received were from civil works (47%) and non-residential building projects (23%) and projects of the private sector (23%), provincial departments (16%) and metropolitan councils (33%) were best represented in the survey. The percentage responses received from the different provinces were also correlated with the construction activities, represented by the cement sales in these provinces, to make sure that a well distributed response was obtained. This is shown in Fig. 1 and was found to be the case.

The results are presented per project type and per client category to ensure that the results for less represented project types do not disappear in the average of all projects.

Table 16: Agent survey response distribution per project type and employer category 2009

Project Type	Total No. of projects	23	13	7	16	33	6	2	0	% of Total Survey Results
Residential Building	38	15	-	2	14	7	-	-	-	9
Non-residential Building	100	34	12	13	23	9	3	6	-	23
Civil Works	210	33	26	14	19	97	18	3	-	47
Mechanical Works	40	8	5	1	7	14	4	-	1	9
Electrical Works	42	7	9	2	8	16	-	-	-	9
Special Works	15	6	5	-	-	2	2	-	-	3
Not Specified	-	-	-	-	-	-	-	-	-	0
Total No. of Projects	445	103	57	32	71	145	27	9	1	
		Private sector	Public Corporation e.g. ESKOM, ACSA	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership	Not Specified	
		Employer Category								

5.2 Contract documentation

The agent indicated the form of contract used for their project and if significant amendments were necessary such as mitigation of risk and delegation of responsibility. The results are shown in Table 17.

The JBCC form of contract was most popular for residential (87%), and non-residential (83%) building projects as well as for electrical work contracts (28%). The GCC form of contract was most popular for civil works (85%) and mechanical works (52%) contracts. For electrical works the JBCC (28%), GCC (26%) and NEC (24%) were all popular forms of contract. The FIDIC form of contract was most popular for special work contracts. Table 17 also shows that it was necessary to significantly amend the contracts to suit particular needs especially when the GCC (30%), NEC (50%) and FIDIC (36%) forms of contract were used.

Table 17: Type of contract document used for different project types 2009

Project Type	% Contract Document Type usage for each Project Type					Total
	GCC	NEC	JBCC	FIDIC	OTHER	
Residential Building	10	-	87	-	3	100
Non-residential Building	10	1	83	2	4	100
Civil Works	85	3	2	9	1	100
Mechanical Works	52	3	29	8	8	100
Electrical Works	26	24	28	17	5	100
Special Works	20	13	27	40	-	100
Contract Document Type	GCC	NEC	JBCC	FIDIC	OTHER	
% Projects with Contract Document significantly amended	30	50	17	36	15	

5.3 Contractor performance issues utilised in the adjudication of tenders

Agents were requested to indicate which contractor performance issues were taken into account during the tender adjudication process and the results are indicated in Table 18 for different employer categories.

Table 18: Contractor performance issues used in the adjudication of tenders 2009

Performance Issues	% of Projects in each Employer Category using different Performance Issues						
	Private Sector	Public Corporation e.g. Eskom, ACSA	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership
Financial offer	31	16	17	10	5	11	11
Financial offer and preference	14	23	53	38	54	50	22
Financial offer and quality	21	11	3	12	6	4	34
Financial offer, quality and preference	34	50	27	40	35	35	33
	Employer Category						

Table 18 shows that even the private sector incorporated preference in 48% of all their projects. No longer are price and quality the only issues evaluated and tender allocation based on financial offer,

quality and preference was most popular (34%). Table 18 shows that there were still a large number of projects where financial offer and preference were the only criteria used to allocate tenders. It is alarming that financial offer and preference were the only criteria considered in 53%, 38%, 54% and 50% of projects for national and provincial departments, metropolitan councils and regional/district councils respectively. In other words, the quality i.e. capability, training, performance and track record, of the contractors, were considered as being of no importance to select a contractor to do work for the employer. This political strategy to support and build emerging contractors should be re-evaluated by government.

5.4 Procurement procedures used to solicit tenders

Table 19 shows the procurement procedures used to solicit tenders per employer category. Except for the private sector, open tenders were the most popular procurement procedure followed for all employer categories. In the private sector, negotiated (27%), nominated (28%) and quotations (24%) were all popular procurement procedures. The public private partnerships made mostly use of open tenders (34%), but negotiated, nominated and quotation procedures were also popular and each used for 22% of their projects.

Table 19: Procurement procedures used to solicit tenders 2009

Procurement Procedure	% of Projects in each Employer Category using different Procurement Procedures						
	Private Sector	Public Corporation e.g. ESKOM, ACSA	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership
Negotiated	27	14	-	4	1	-	22
Nominated / Selected	28	18	9	16	4	4	22
Open	15	47	78	67	90	84	34
Qualified	5	7	-	7	1	4	-
Quotation	24	14	13	4	2	8	22
Two Envelope System	1	-	-	-	1	-	-
Two Stage System	-	-	-	2	1	-	-
	Employer Category						

5.5 Contracting strategies adopted

The distribution of contracting strategies adopted by different employer categories is shown in Table 20. The design by employer strategy was most popular for all employer categories with the public private partnership strategy of course only applicable to PPP's.

Table 20: Contracting strategies adopted per employer category 2009

Contracting Strategy	% Projects with Contracting Strategy per Employer Category						
	Design & Build	11	7	3	9	10	4
Develop & Construct	10	9	6	4	7	4	-
Design by Employer	63	75	78	73	76	78	-
Management Contract	10	-	6	4	-	7	-
Construction Management	6	9	7	7	7	4	-
Public Private Partnership	-	-	-	3	-	3	100
	Private Sector	Public Corporation	National Department	Provincial Department	Metropolitan Council	Regional/District Council	Public Private Partnership
	Employer Category						

5.6 Agents' satisfaction with the time allowed for planning

Table 21 shows the agents' satisfaction level with the time allowed by the employer for project planning. Agents were least satisfied (68%) with the national departments for the time they allowed for planning. According to the results received the time allowed for thorough planning and documentation is, generally speaking, not problematic.

Table 21: Agents' satisfaction level with time allowed for planning 2009

% Satisfaction per Employer Category						
78	76	68	75	78	87	82
Private Sector	Public Corporation	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership
Employer Category						

5.7 Deviation from the tender adjudication procedures

Agents were posed the question whether the employer awarded the tender to the responsive tenderer who achieved the best tender score during the tender evaluation process. The tenders were evaluated by the agents according to the employer's own approved tender evaluation procedures. Non-responsive tenders received were ignored. Table 22 shows the percentage of contracts that were not awarded to the responsive tenderer with the best tender evaluation score per employer category and province. The provincial department of Limpopo and Mpumalanga overruled tender recommendations in 54% and 56% of their tenders awarded. The results are disturbing bearing in

mind that it is not based on perceptions of the aggrieved tenderers, but on the knowledge of the independent agents of the employers. This suggests that there may be some form of political intervention, manipulation of results or corrupt / fraudulent practices. The national departments, except in the Limpopo province, performed very well. Table 22 shows in which provinces and for which employer categories tender adjudication practices should be investigated.

Table 22: Contracts not awarded to the tenderer with best tender score per province 2009

Employer Category	% Contracts not awarded to the responsive tenderer with best tenderer score								
	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpumalanga	North West	Northern Cape	Western Cape
Private Sector	8 (13)	33 (3)	26 (29)	32 (22)	25 (8)	33 (9)	25 (12)	40 (5)	18 (11)
Public Corporation	11 (9)	0 (2)	14 (14)	8 (13)	0 (2)	17 (6)	0 (1)	0 (2)	14 (7)
National Department	0 (4)	0 (2)	0 (5)	0 (4)	17 (6)	0 (3)	-	-	0 (7)
Provincial Department	13 (16)	-	0 (1)	8 (13)	54 (13)	56 (9)	25 (4)	25 (4)	13 (8)
Metropolitan Council	14 (14)	8 (12)	4 (25)	26 (23)	25 (8)	0 (6)	5 (20)	0 (3)	3 (31)
Regional / District Council	20 (5)	100 (1)	-	11 (9)	-	33 (3)	0 (2)	0 (3)	0 (4)
Public Private Partnership	0 (3)	-	33 (3)	0 (2)	-	-	-	0 (1)	-
The value in brackets is the number of projects involved									
	Province								

5.8 Payment delays

The average number of days delays between submission of professional fee accounts and receipt of payment is shown in Table 23. The agents' fees were paid within 30 days for only 46% of all projects completed. The provincial departments were the slowest payers with professional fees for 25% of their projects and paid after more than 60 days. Public private partnership employers followed with 22% and metropolitan councils and regional / district councils each followed with 19% of their projects where payments were only made after 60 days or more.

Table 24 shows timeous (< 30 days) payment of agent's fees per province and employer category that can be used to more specifically evaluate the performance of employers. The results are quite disturbing bearing in mind that the employers were in breach of the contracts with their agents. Agents refrain from standing up to their contractual right to be paid on time for fear of losing new project appointments in the future.

Table 23: Payment delay of agents' fees per employer category 2009

Avg. Days Delay	% of Projects with Payment Delay per Employer Category							% of all Projects
	Private Sector	Public Corporation	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership	
≤ 14	22	7	3	6	5	11	11	10
14 to 30	36	47	50	31	31	37	22	36
30+ to 60	32	30	31	38	45	33	45	37
60+ to 90	5	11	10	13	10	8	11	9
90+ to 120	3	3	6	8	6	4	11	5
120+	2	2	0	4	3	7	0	3
Employer Category								

Table 24: Timeous payment (< 30 days) of agents per province and employer category 2009

Employer Category	% of Projects where the agent is paid within 30 days								
	Private Sector	Public Corporation	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership	Eastern Cape	Free State
Private Sector	69 (13)	33 (3)	79 (19)	64 (22)	38 (8)	33 (9)	45 (11)	20 (5)	67 (12)
Public Corporation	67 (9)	100 (2)	71 (14)	46 (13)	67 (3)	33 (6)	100 (1)	50 (2)	14 (7)
National Department	50 (4)	50 (2)	60 (5)	75 (4)	50 (6)	100 (3)	-	100 (1)	14 (7)
Provincial Department	0 (16)	-	0 (1)	46 (13)	73 (15)	40 (10)	0 (4)	0 (4)	63 (8)
Metropolitan Council	33 (15)	33 (12)	44 (25)	17 (23)	38 (8)	17 (6)	38 (21)	33 (3)	47 (32)
Regional / District Council	60 (5)	100 (1)	-	22 (9)	-	33 (3)	50 (2)	67 (3)	75 (4)
Public Private Partnership	0 (3)	-	67 (3)	50 (2)	-	-	-	0 (1)	-
The value in brackets is the number of projects involved	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpumalanga	North West	Northern Cape	Western Cape
Province									

5.9 Agents who tendered for projects

Table 25 shows the percentage of projects per employer category where agents became involved by tendering for work. For metropolitan and regional / district councils the agents tendered for 63% and

56% of all their projects respectively. The low tender percentage for provincial departments (15%) indicates that they still procure professional services by means of a roster system.

Table 25: Agents who tendered for projects per employers category 2009

19	44	31	15	63	56	44
Private sector	Public Corporation e.g. ESKOM, ACSA	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership
Employer Category						

6. DISCUSSION OF THE EMPLOYERS' SURVEY RESULTS

6.1 Employer survey response distribution per project type and employer category

Table 26 provides a summary of the survey forms completed by employers for projects completed in 2009. The number of survey forms completed is indicated for different employer categories and project types.

The table shows that the majority of responses were for civil works (41%) and non-residential building projects (21%). Projects of the private sector (29%), public corporations (20%) and metropolitan councils (25%) were best represented in the survey. The results are presented per project type and per employer category to ensure that the results for less represented project types do not disappear in the average of all projects. The percentage survey results received from each province was also correlated with the construction activities, as represented by cement sales, in the particular province to establish whether the survey captured a well distributed response from all provinces. The result is shown in Fig. 1 and it was found that the survey results were well distributed between provinces.

Table 26: Employer survey response distribution per project type and employer category 2009

Project Type	Total No. of Projects	29	20	5	14	25	5	2	0	% of Total Survey Results
Residential Building	28	17	4	3	2	2	-	-	-	7
Non-residential Building	93	41	19	5	15	8	4	-	1	21
Civil Works	178	30	23	9	29	69	12	6	-	41
Mechanical Works	42	15	7	2	6	8	2	2	-	10
Electrical Works	62	14	26	3	2	14	2	-	1	14
Special Works	30	7	8	1	7	6	1	-	-	7
Not Specified	1	-	-	-	-	1	-	-	-	0
Total No. of Projects	434	124	87	23	61	108	21	8	2	
		Private sector	Public Corporation e.g. ESKOM, ACSA	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership	Not Specified	
		Employer Category								

6.2 Construction commencement milestone dates

Table 27 shows the percentage of projects with the project commencement and completion dates achieved for different project types and employer categories. It is not known whether the reason for a late start was contractors who could not produce their guarantees on time, or employers who did not have the sites ready to hand over to the contractors. Table 27 shows that 96% of all projects started on time and 87% of all projects finished on time. The finish on time date included any normal extension of time allowed for by the contract. Only 79% of the mechanical projects finished on time. This is the project type with the lowest performance. Regional / district council projects had the lowest percentage (76%) that finished on time. It is not known if the reason for late completion is lack of contractor capacity, managerial skills, finances, know-how or perhaps unrealistic construction periods specified by agents or employers.

Table 27: Project start and completion milestone dates 2009

Project Type	Start on Time %	Finish on Time %
Residential Building	96	85
Non-residential Building	95	84
Civil Works	98	90
Mechanical Works	95	79
Electrical Works	94	89
Special Works	100	87
Overall	96	87
Employer Category	Start on Time %	Finish on Time %
Private Sector	95	87
Public Corporation	95	83
National Department	100	91
Provincial Department	97	80
Metropolitan Council	98	93
Regional / District Council	90	76
Public Private Partnership	100	88

6.3 Customer satisfaction

Table 28 shows the average level of employer satisfaction for different project types. These are the performance levels of their agents and contractors and the quality of materials used. Bearing in mind that a score of 80% means satisfied, Table 28 shows that employers were satisfied with the overall performance of their agents, and their contractors and the overall quality of materials used on site. Residential and non-residential building projects received the lowest score (79%) for work defect free at practical completion. Mechanical work projects received the lowest satisfaction level (79%) for the contractor's ability to finish on time. Generally speaking the average satisfaction levels expressed by the employers were high.

Table 29 shows the employers' satisfaction level with the overall performance of the contractors per province. There is an indication of low performance for certain project types in various provinces although the results are in some cases obtained from only a few survey responses.

Table 28: Customer satisfaction 2009

Project Type	Employers' Level of Satisfaction % with						
	Residential Building	81	84	83	84	83	79
Non-residential Building	82	82	81	83	82	79	85
Civil Works	82	83	83	84	83	82	86
Mechanical Works	83	82	79	84	81	82	85
Electrical Works	83	84	84	87	86	84	87
Special Works	87	84	83	85	84	84	87
	Overall performance of Agents	Overall performance of Contractor	Ability of Main Contractor to finish on time	Quality of Completed Work	Main Contractor's Resolution of Defective Work	Work Defect free at Practical Completion	Overall quality of Materials used

Table 29: Employers' level of satisfaction with the overall performance of contractors per province 2009

Project type	Satisfaction Level%								
	Residential Building	60 (1)	80 (1)	84 (5)	83 (7)	95 (2)	-	95 (2)	90 (1)
Non-residential Building	80 (10)	67 (3)	85 (35)	81 (16)	83 (3)	93 (3)	90 (4)	60 (2)	79 (17)
Civil Works	84 (28)	83 (11)	81 (23)	86 (40)	82 (20)	84 (14)	78 (11)	80 (5)	83 (26)
Mechanical Works	95 (6)	100 (1)	75 (8)	84 (10)	-	82 (6)	68 (4)	-	80 (7)
Electrical Works	88 (5)	83 (3)	78 (9)	82 (10)	91 (11)	85 (8)	80 (3)	90 (3)	79 (9)
Specials	90 (2)	90 (2)	79 (8)	80 (7)	90 (2)	-	80 (1)	80 (1)	90 (7)
The value in brackets is the number of projects involved	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpumalanga	North West	Northern Cape	Western Cape
	Province								

6.4 Employers' own capacity

Table 30 shows the percentage of contracts per employer category where agents were not appointed. The national department delegated all their project design work to agents except for 4% of their projects. This indicates that there is nearly no departmental capacity in among others the engineering, architectural and quantity surveyor fields of work. Furthermore, it is quite likely that the remaining 4% projects were projects such as large painting contracts where technical and professional expertise is not required. It is of great concern that role players in the construction industry has to communicate with officials in government departments who have no or very little understanding of the contractual procedures and technical complexities inherent to construction projects.

Table 30: Employer's own capacity per employer category 2009

% of Projects where Agents were not appointed						
3	8	4	11	13	0	13
Private Sector	Public Corporation e.g. ESKOM, ACSA	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership

7. CONCLUSIONS

The main findings of the 2010 survey for projects completed in 2009 were as follows:

- 1) Contractors made a loss on 3% of all projects completed.
- 2) Mechanical work (32%) and special work projects (24%) showed the highest percentage of projects with contractor profit of > 15%.
- 3) There was no relationship between profit and the financial grade of contractors, as small contractors made just as good a profit as the higher graded contractors.
- 4) The overall performance of the majority of employer bodies and agents was just below satisfactory (80%).
- 5) The higher financially graded (7 - 9) contractors were less satisfied with the performance of their employers and agents.
- 6) The contractors were satisfied ($\geq 80\%$) and for some employer categories just below satisfied with the quality of the documentation / specifications received.
- 7) The national departments and metropolitan councils received the lowest score for the management of variation orders (74%). The national and provincial departments received a 74% score for the management of claims with the metropolitan councils the lowest at 73%.
- 8) Only 52% of all contractors were paid on time, within 30 days, with the metropolitan and regional/district councils being the worst performers. This 52% is an improvement on the result of the previous survey (42%).
- 9) Public corporations and national departments improved on timeous payments compared to the previous survey.
- 10) Higher financially graded contractors (7 - 9) were less satisfied with their materials suppliers.
- 11) Agents were least satisfied with the amount of time allowed by national departments (68%) for planning.

- 12) Only 46% of agents were paid on time within 30 days.
- 13) It is of great concern that contractor quality was discarded as being of any importance in 53%, 54% and 50% of tenders allocated for national departments, metropolitan councils and regional/district councils respectively.
- 14) There is a strong indication of political intervention in the tender adjudication procedures of many employer bodies.
- 15) Only 79% of mechanical works projects were finished on time.
- 16) Employer bodies have very little in-house capacity.
- 17) Employers were satisfied with the overall performances of their agents and contractors and the quantity of materials used.

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