RESULTS OF THE 2008 SURVEY OF THE

cidb

CONSTRUCTION INDUSTRY INDICATORS

AND

COMPARISON WITH THE 2005 & 2007 SURVEY RESULTS

MARCH 2009

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INTRODUCTION

The Construction Industry Development Board (cidb) Act (South Africa. Government Gazette, 2000) was passed in 2000 to establish a statutory body aimed at driving an integrated construction industry development strategy. In terms of this act the CIDB 'may develop target and performance indicators related to those best practice standards and guidelines and establish mechanisms to monitor their implementation and evaluate their impact'. Construction Industry Indicators (CII's) have been developed by the Department of Public Works and the CIDB with assistance from the CSIR (van Huyssteen, van Heerden, Perkins, Gyimah: 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 CII's 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 (KPI's) were published in 1999 in response to the *Rethinking Construction* report by Egan (1998). These KPI's 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
- To track long term trends in performance, and specifically, to demonstrate whether the construction industry was achieving the targets set out in *Rethinking Construction*' (Construction excellence in the Built Environment, 2006)

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, 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 KPI's within the industry (Beatham, Anumba, Thorpe, 2004: 93-117). The KPI's launched by the CBPP are: client satisfaction, product and service, profitability, productivity, defects, safety, predictability of time and cost, construction time and construction cost. These KPI's 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 CII's measure the performance of the South African construction industry by measuring client satisfaction with the project milestone dates achieved, construction costs versus budget, contractors' performance, consultants' performance, and the quality of materials used. The contractors' satisfaction is measured by their profitability, the quality of the contract documentation, the efficiency, openness and transparency of the contract adjudication process, the management of variation orders, payment delays and the performance of their materials suppliers. The procurement indicators measured include contractor performance issues, the type of procurement procedure used, and the contracting strategy adopted. Compliance with the cidb's Standard for Uniformity (South Africa. Government Gazette, 2008: 45) intervention regarding allowable forms of contract is also measured.

The cidb CII's measured 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. A summary of the 2007 survey results for projects completed in 2006 has already been published (CIDB, 2007: Online). This is a full report on the results of the 2008 survey for projects completed in 2007. The results of the 2005 and 2007 surveys are also presented with the purpose to make comparisons where possible, but are not discussed in detail.

METHODLOGY

A database, with contact particulars of clients, contractors and consultants involved in projects completed in 2007, was compiled. The contact particulars of contractors were obtained from the cidb's register of contractors. These contractors were requested to provide a list of their projects completed in 2007 including the contact particulars of the client and consultant for each project. These contact details were verified with the relevant clients and consultants, and they in turn were also requested to provide the names of their other projects completed in 2007 together with the contact particulars of the other parties involved. In this way, a database of 2198 completed projects was compiled.

Three separate survey forms were faxed or e-mailed to the contractors, clients and consultants of these projects. Their responses were captured in a Microsoft Access database. The results of the survey are discussed under three separate headings for contractors, consultants and clients.

SCOPE

The CII's of the cidb need to evolve from the lessons learned from previous surveys, and are therefore subject to change and refinement. This is the reason why it is not always possible to compare results with those obtained from previous surveys. The CII's considered in this report are only the project related indicators. The cidb also measures health & safety and empowerment progress which are not discussed in this report. Other economic indicators such as production prices, building plans passed etc. are published elsewhere.

From the 2198 completed projects in the database, 854 survey forms were received back from contractors, 438 from consultants and 280 from clients. The better response received from contractors is probably due to the fact that the contractors have to be registered with the cidb to procure work. In future, consultants will also have to register with the cidb, which may improve their feedback.

DISCUSSION OF THE CONTRACTORS' SURVEY RESULTS

Project type and client category distribution of responses received

Tables 1, 2 & 3 give a summary of the survey forms completed by contractors for projects completed in 2004, 2006 and 2007 respectively. The number of survey forms completed is indicated for different client categories and project types. There has been a significant increase in the number of responses received compared to the previous years.

It is clear from the tables that the majority of responses received came from civil works and non-residential building projects. For projects completed in 2007 the civil, non-residential and electrical projects represent 46%, 16% and 17% of all the responses respectively. The results in this report are therefore 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.

Most responses for 2007 were received from the private sector (37%). Public corporations followed with 18% and provincial departments with 15%. The response received is well distributed between the different project types as well as between the client categories. Although 12 responses were received for public private partnerships it constitutes only 1% of the responses received. The number of responses received in each category should always be considered when evaluating the results. It is important to note that only one survey form was received for a public private partnership project completed in 2006, and the opinion, from a single contractor, can not be considered an average response.

Table 1: Survey responses received for different project types and client categories 2004

Project Type	Total No.	31%	4%	14%	10%	37%	5%	0%	% of Total Survey Results
Residential Building	14	6	1	2	0	5	0	0	5%
Non-residential Building	93	53	3	26	6	4	1	0	32%
Construction Works	181	30	9	11	22	97	12	0	63%
	288	89	13	39	28	106	13	0	**Total No.**
		Private sector	Public Corporation e.g. ESKOM, ACSA	National Department	Provincial Department	Metropolitan Council	Regional/ District Council	Public Private Partnership	
		Client Category 2004							

Table 2: Survey responses received for different project types and client categories 2006

Project Type	Total No.	28%	10%	7%	32%	6%	17%	0%	% of Total Survey Results
Residential Building	15	4	0	0	7	1	2	1	7%
Non-residential Building	68	24	8	7	29	0	0	0	31%
Civil Works	111	24	9	8	24	11	35	0	51%
Mechanical Works	7	4	1	0	2	0	0	0	3%
Electrical Works	6	1	1	0	4	0	0	0	3%
Special Works	11	4	2	1	3	0	1	0	5%
	218	61	21	16	69	12	38	1	**Total No.**
		Private sector	Public Corporation e.g. ESKOM, ACSA	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership	
		Client Category 2006							

Table 3: Survey responses received for different project types and client categories 2007

Project Type	Total No.	37	18	7	15	10	12	1	% of Total Survey Results
Residential Building	48	34	4	1	8	1	0	0	6
Non-residential Building	136	52	23	9	32	7	12	1	16
Civil Works	393	165	26	25	43	54	72	8	46
Mechanical Works	53	12	8	7	14	6	6	0	6
Electrical Works	144	33	64	2	22	15	6	2	17
Special Works	80	22	26	14	11	4	2	1	9
	854	318	151	58	130	87	98	12	**Total No.**
		Private sector	Public Corporation e.g. ESKOM, ACSA	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership	
		Client Category 2007							

Contractor financial grade distribution of responses received

The contractors are registered with the cidb in different financial grades, indicating their financial capability to complete projects of certain values. Tables 4 & 5 show the distribution of survey forms received from different financially graded contractors in terms of project types. For 2007 only 791 of the 854 contractors indicated in Table 3 completed this question. This implies that some contractors who participated may not be registered with the cidb or perhaps do not know their financial status as registered at the CIDB.

Grade 1 (up-coming, 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. However, for projects completed in 2007, 1% of the responses received came from Grade 1 contractors. A well distributed response was received, with the best response from Grade 4 (21%) and Grade 6 (21%) contractors.

Table 4: Survey responses received per project type and contractor financial grading 2006

Project Type	**Total No. of Projects**	0%	7%	10%	25%	19%	13%	14%	6%	6%
Residential Building	14		2	1	4	3		3		1
Non-residential Building	48		2	5	16	12	9	4		
Civil Works	101		4	7	24	15	15	16	10	10
Mechanical Works	3		2					1		
Electrical Works	6			2		3			1	
Special Works	6		2	2	1			1		
Total No. of Projects	**178**	0	12	17	45	33	24	25	11	11
		1	2	3	4	5	6	7	8	9
		Contractor Financial Grade 2006								

Table 5: Survey responses received per project type and contractor financial grading 2007

Project Type	**Total No. of Projects**	1%	8%	7%	21%	12%	21%	13%	7%	10%
Residential Building	43	0	0	2	16	5	6	7	2	5
Non-residential Building	126	2	3	5	37	17	30	15	6	11
Civil Works	371	3	18	18	74	36	85	62	29	46
Mechanical Works	50	0	12	2	4	3	17	5	1	6
Electrical Works	131	0	20	18	32	19	21	8	12	1
Special Works	70	0	10	10	4	18	6	6	3	13
Total No. of Projects	**791**	5	63	55	167	98	165	103	53	82
		1	2	3	4	5	6	7	8	9
		Contractor Financial Grade 2007								

Contractor profitability for different project types

Tables 6, 7 & 8 indicate the distribution of contractor profitability for different project types for projects completed in 2004, 2006 and 2007 respectively. Table 8 shows that for projects completed in 2007 the largest percentage of projects showing losses were for residential building projects (14%), while the best contractor profit (>10%) was achieved on 55% of all mechanical projects.

The project types, with the highest percentage of projects with profitability of 6% and more were mechanical (98%), special (86%) and electrical works (77%).

Table 8 further shows that a loss was made on 4% of all the projects completed in 2007. The contract price adjustment provisions (CPAP) used for payment certificates during construction, provide for reimbursement for cost fluctuations on an average basis. The Haylett and Baxter formula methods of contract price adjustment are normally used for building and civil engineering projects respectively. In both these methods, it is assumed that 15% of a tendered rate is profit and the escalation of costs is based on the remaining 85% of the value of work completed. Table 8 shows that only 29% of all the projects were completed with a profit margin larger than 10%. The majority of contractors do not achieve this high 15% profit margin and therefore, the CPA provisions used are not sufficient to cover the contractor's rising costs.

Table 6: Profitability of projects for different project types 2004

Profitability	**% of Projects in each Project Type**			**% of all Projects**
Loss	0	0	0	0
0 - 5%	71	64	85	78
6 - 10%	29	36	15	22
> 10%	0	0	0	0
2004	Residential Building	Non-residential Building	Construction Work	

Table 7: Profitability of projects for different project types 2006

Profitability	**% of Projects in each Project Type**						**% of all Projects**
Loss	0	3	5	17	0	0	4
0 - 5%	33	20	32	33	0	0	26
6 - 10%	40	40	34	17	67	64	38
> 10%	27	37	29	33	33	36	32
2006	Residential Building	Non-residential Building	Civil Work	Mechanical Work	Electrical Work	Special Work	

Table 8: Profitability of projects for different project types 2007

Profitability	**% of Projects in each Project Type**						**% of all Projects**
Loss	14	6	5	0	1	3	4
0 – 5%	23	23	32	2	22	11	25
6 – 10%	48	54	36	43	38	55	42
> 10%	15	17	27	55	39	31	29
2007	Residential Building	Non-residential Building	Civil Work	Mechanical Work	Electrical Work	Special Work	

Tables 9 & 10 show the profitability of contractors per financial grade, for projects completed in 2006 and 2007 respectively.

Table 9: Profitability of contractors per financial grade 2006

Profitability	% of Projects in each financial grade							
Loss	-	-	5	-	4	8	-	-
1 – 5%	18	30	16	24	29	32	64	36
6 – 10%	27	41	59	37	13	40	27	46
> 10%	55	29	20	39	54	20	9	18
	2	3	4	5	6	7	8	9
	Contractor financial grade							

Table 10 shows that Grade 8 & 9 contractors were the best performers who made more than 10% profit on 49% and 48% of all their projects respectively. However, these same grade contractors were also the worst performers who made a loss on 11% of their other projects. Ninety-three percent of all projects completed by Grade 2 contractors achieved a profitability of 6% and more, while the same profit is only achieved on 76% of the projects of Grade 8 and 9 contractors. There is no relationship between profit and the financial grade of a contractor.

Table 10: Profitability of contractors per financial grade 2007

Profitability	% of Projects in each financial grade							
Loss	2	2	1	7	4	2	11	11
1 - 5%	5	13	45	21	36	20	13	13
6 - 10%	49	56	36	40	39	59	27	28
> 10%	44	29	18	32	21	19	49	48
	2	3	4	5	6	7	8	9
	Contractor financial grade							

Performance of the client or the client's consultants

The contractors' satisfaction with the client or client's representative (consultant) was tested with regard to overall performance, the quality of the tender documents and specification, efficiency, openness and transparency of contract procurement/adjudication processes followed, and management of variation orders. Tables 11 & 12 show the results obtained for projects completed in 2006 and 2007 respectively. The best overall client category for 2007 was the regional / district councils, with an average satisfaction level of 80% followed by national departments with 78%. The worst overall performance was achieved by public private partnerships, with a satisfaction level of 74%. Except for provincial departments, the overall performance of client bodies improved from 2006 to 2007.

The average satisfaction levels for the quality of documentation, specifications, procurement processes and management of variation orders were high.

Table 11: Contractors' Level of Satisfaction with the Client or Client's Representatives' Performance 2006

Satisfaction level %							
Overall	73	72	74	80	74	79	100
Documentation / Specifications	83	78	84	83	88	88	100
Procurement / Adjudication	83	90	82	84	89	88	100
Management of VO's	77	73	66	82	87	88	100
2006	Private Sector	Public Corporation	National Department	Provincial Department	Metropolitan Council	Regional/ District Council	Public Private Partnership

Table 12: Contractors' Level of Satisfaction with the Client or Client's Representatives' Performance 2007

Satisfaction level %							
Overall	76	77	78	77	77	80	74
Documentation / Specifications	76	76	79	80	76	81	76
Procurement / Adjudication	79	76	80	80	76	78	76
Management of VO's	75	72	75	73	76	77	76
2007	Private Sector	Public Corporation	National Department	Provincial Department	Metropolitan Council	Regional/ District Council	Public Private Partnership

Table 13: Contractors' Level of Satisfaction with the Client or Client's Representatives' Performance 2006

Satisfaction level per financial grade %								
Overall	85	88	78	82	74	71	60	73
Documentation / Specifications	85	89	81	82	85	73	60	69
Procurement / Adjudication	86	85	80	84	81	76	83	74
Management of VO's	86	82	79	82	70	63	65	66
2006	2	3	4	5	6	7	8	9
	Contractor financial grade							

Table 14: Contractors' Level of Satisfaction with the Client or Client's Representatives' Performance 2007

Satisfaction level per financial grade %								
Overall	85	81	80	81	75	76	71	67
Documentation / Specifications	86	80	79	81	77	78	68	71
Procurement / Adjudication	86	80	80	81	77	78	71	73
Management of VO's	84	76	76	78	75	75	65	61
2007	2	3	4	5	6	7	8	9
	Contractor financial grade							

The worst satisfaction level was obtained for the management of variation orders by public corporations (72%), and provincial departments (73%). There has been an improvement in the performance of national departments to manage VO's if the 2007 results (75%) are compared with the 2006 results (66%). However, the performance of provincial departments, metropolitan as well as regional / district councils were 9 to 11 percentage points lower for the management of VO's if the 2007 results are compared with the 2006 results. Note that the 100% satisfaction level with public private partnership clients for projects completed in 2006 was obtained from only one project.

To determine whether the contractors' financial grade plays any role in the evaluation of the performance of the client bodies, Tables 13 & 14 were also created. It is interesting to note that higher grade contractors (6 to 9) are less satisfied with the different client bodies than the Grade 2 to 5 contractors. In particular, the Grade 9 contractors gave the client bodies a score of only 61% for the management of variation orders in 2007.

Payment delays

The average number of days delay between certification and receipt of payment of interim and final certificates is shown in Tables 15, 16 & 17 for projects completed in 2004, 2006 and 2007 respectively.

Table 15: Days delay between certification and payment 2004

Avg. Days Delay	% of Projects in each Client Category							% of all Projects
≤ 14	5	15	5	18	54	0	-	24
14 to 30	45	31	28	50	21	46	-	33
30+ to 60	19	31	41	32	25	54	-	28
60+ to 90	0	15	0	0	0	0	-	1
90+ to 120	0	0	5	0	0	0	-	1
120+	31	8	21	0	0	0	-	13
2004	Private Sector	Public Corporation	National Department	Provincial Department	Metropolitan Council	Regional/ District Council	Public Private Partnership	

There was a decrease from 24% to 9% in the number of all projects where payments were made quickly within 14 days, if the 2004 results are compared with the 2007 results. In 2007 the private sector clients were the worst early payers, with payments made within 30 days on only 35% of their projects. The best performing client categories with 59% and 56% of project payments made within a month were the public private partnerships and provincial departments respectively. The percentage of projects with payments that took more than 30 days increased from 2004 to 2007 from 43% to 56%. In 2007 the contractors for 20% of all public corporation projects and 21% of all private sector and provincial department projects were only paid after 60 days. There is an encouraging reduction in the percentage of payments done later than 120 days from 13% to 3% if the 2004 and 2007 projects are compared. It is of great concern that only 44% of all contractors in 2007 were paid on time within 30 days. 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 cash flow problems for contractors and the cidb should communicate this with client bodies.

Table 16: Days delay between certification and payment 2006

Avg. Days Delay	% of Projects in each Client Category							% of all Projects
≤ 14	16	0	19	15	25	30	0	17
14 to 30	36	57	37	42	42	33	0	40
30+ to 60	31	29	25	22	33	31	100	28
60+ to 90	15	9	13	10	0	3	0	9
90+ to 120	0	0	6	4	0	0	0	2
120+	2	5	0	7	0	3	0	4
2006	Private Sector	Public Corporation	National Department	Provincial Department	Metropolitan Council	Regional/ District Council	Public Private Partnership	

Table 17: Days delay between certification and payment 2007

Avg. Days Delay	% of Projects in each Client Category							% of all Projects
≤ 14	7	10	9	13	3	7	42	9
14 to 30	28	32	40	43	40	47	17	35
30+ to 60	44	38	38	23	44	36	33	38
60+ to 90	16	12	7	13	12	5	0	13
90+ to 120	2	3	3	3	0	3	0	2
120+	3	5	3	5	1	2	8	3
2007	Private Sector	Public Corporation	National Department	Provincial Department	Metropolitan Council	Regional/ District Council	Public Private Partnership	

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 Tables 18, 19 & 20 for the projects completed in 2004, 2006 and 2007 respectively. For projects completed in 2007, Table 20 shows that the best overall performance of materials suppliers was achieved for electrical (82%), special (80%) and mechanical works (79%) projects. The lowest performance (74%) was experienced at residential buildings projects. The best performance for delivery and delivered as per specification was also experienced for electrical, special and mechanical works projects. Delivery as per agreed delivery schedule achieved the lowest score of 72% for residential building projects.

Table 18: Materials suppliers' performance 2004

Contractors' Level of Satisfaction with the Materials Suppliers for each Project Type			
Overall Performance	68%	66%	73%
2004	Residential Building	Non-residential Building	Construction Work

The low satisfaction level (65%) for materials delivered on time for mechanical projects in 2006 improved to 79% in 2007.

Table 19: Materials suppliers' performance 2006

Contractors' Level of Satisfaction with the Materials Suppliers for each Project Type						
Overall Performance	75%	77%	76%	77%	85%	81%
Keep to agreed upon Delivery Schedule	74%	81%	86%	65%	100%	86%
Material delivered as per Specification	92%	81%	86%	87%	100%	88%
2006	Residential Building	Non-residential Building	Civil Work	Mechanical Work	Electrical Work	Special Work

Table 20: Materials suppliers' performance 2007

Contractors' Level of Satisfaction with the Materials Suppliers for each Project Type						
Overall Performance	74	78	76	79	82	80
Keep to agreed upon Delivery Schedule	72	75	75	79	81	79
Material delivered as per Specification	82	82	79	85	88	84
2007	Residential Building	Non-residential Building	Civil Work	Mechanical Work	Electrical Work	Special Work

The materials suppliers' data was also evaluated in terms of the contractors' financial grade as indicated in Tables 21 & 22 for projects completed in 2006 and 2007 respectively. There is a tendency for the higher financial grade contractors to be less satisfied with their materials suppliers' performance. Table 22 shows that the problem experienced is not with the quality (specification) of the materials but with the delivery capacity of the suppliers. Their projects are larger and it is likely that suppliers can not keep up with the larger orders placed.

Table 21: Materials suppliers' performance 2006

Contractors' Level of Satisfaction with the Materials Suppliers for each contractor financial grade								
Overall Performance	83	83	80	81	83	61	59	79
Keep to agreed upon Delivery Schedule	86	80	79	80	80	61	56	76
Material delivered as per Specification	88	87	82	85	87	75	79	82
2006	2	3	4	5	6	7	8	9
	Contractor financial grade							

Table 22: Materials suppliers' performance 2007

Contractors' Level of Satisfaction with the Materials Suppliers for each contractor financial grade								
Overall Performance	84	78	80	78	77	77	73	75
Keep to agreed upon Delivery Schedule	84	78	79	76	75	74	70	73
Material delivered as per Specification	86	85	84	83	80	80	79	80
2007	2	3	4	5	6	7	8	9
	Contractor financial grade							

DISCUSSION OF THE CONSULTANTS' SURVEY RESULTS

Project type and client category distribution of responses received

Tables 23, 24 & 25 give a summary of the survey forms completed by consultants for projects completed in 2004, 2006 and 2007 respectively.

Table 23: Consultant Survey responses received for different project types and client categories 2004

Project Type	Total No.	42%	4%	18%	6%	24%	6%	0%	% of Total Survey Results
Residential Building	12	6	0	2	0	4	0	0	4%
Non-residential Building	132	91	4	24	8	5	0	0	42%
Civil Works	171	34	8	30	12	67	20	0	54%
Mechanical Works	0	0	0	0	0	0	0	0	0%
Electrical Works	0	0	0	0	0	0	0	0	0%
Special Works	0	0	0	0	0	0	0	0	0%
	315	131	12	56	20	76	20	0	**Total No.**
		Private sector	Public Corporation e.g. ESKOM, ACSA	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership	
		Client Category 2004							

The number of survey forms completed is indicated for different client categories and project types. There has been a significant increase in the number of responses received for projects completed in 2007 compared to the previous survey.

It is clear from the tables that the majority of responses received were from civil works and non-residential building projects. For projects completed in 2007, civil and non-residential projects represent 47% and 21% of all responses respectively. The results in this report are therefore presented per project type and per client category to ensure that the results for other project types do not disappear in the average of all projects.

Table 24: Consultant Survey responses received for different project types and client categories 2006

Project Type	Total No.	16%	7%	5%	35%	11%	25%	1%	% of Total Survey Results
Residential Building	10	6	0	0	2	1	1	0	6%
Non-residential Building	49	8	4	2	29	2	3	1	32%
Civil Works	84	9	7	4	19	13	32	0	55%
Mechanical Works	6	1	0	1	2	0	2	0	4%
Electrical Works	1	1	0	0	0	0	0	0	1%
Special Works	3	0	0	1	1	1	0	0	2%
	153	25	11	8	53	17	38	1	**Total No.**
		Private sector	Public Corporation e.g. ESKOM, ACSA	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership	
		Client Category 2006							

Table 25: Consultant Survey responses received for different project types and client categories 2007

Project Type	Total No.	36%	13%	5%	16%	11%	17%	2%	% of Total Survey Results
Residential Building	31	27	2	-	-	1	-	1	7%
Non-residential Building	90	35	7	9	30	3	3	3	21%
Civil Works	207	58	28	7	22	36	54	2	47%
Mechanical Works	29	6	1	2	6	2	12	-	7%
Electrical Works	66	27	18	1	9	4	6	1	15%
Special Works	15	6	3	3	2	1	-	-	3%
	438	159	59	22	39	47	75	7	**Total No.**
		Private sector	Public Corporation e.g. ESKOM, ACSA	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership	
		Client Category 2007							

For projects completed in 2007 most responses were received for private sector projects (36%) and regional district council projects (17%), followed by provincial department projects (16%). It is important to note that only one survey form was received for a public private partnership project in 2006 and the opinion, from a single consultant, can not be considered an average response.

Type of contract document used

Tables 26 & 27 show the distribution of the type of contract document used for each project type for projects completed in 2006 and 2007 respectively.

Table 26: Type of contract document used for different project types 2006

Project Type	% Contract Document Type usage for each Project Type					Total
Residential Building	33%	-	56%	-	11%	100%
Non-residential Building	10%	2%	69%	-	19%	100%
Civil Works	64%	-	1%	11%	24%	100%
Mechanical Works	33%	-	33%	17%	17%	100%
Electrical Works	-	-	-	-	100%	100%
Special Works	-	-	100%	-	-	100%
Contract Document Type	GCC 2004	NEC	JBCC 2000	FIDIC 1999	OTHER	
% Projects with Contract Document significantly amended	17%	-	23%	33%	16%	

Table 27: Type of contract document used for different project types 2007

Project Type	% Contract Document Type usage for each Project Type					Total
Residential Building	13%	-	71%	-	16%	100%
Non-residential Building	12%	5%	70%	-	13%	100%
Civil Works	65%	3%	3%	6%	23%	100%
Mechanical Works	7%	3%	21%	31%	38%	100%
Electrical Works	28%	32%	16%	3%	21%	100%
Special Works	27%	7%	13%	13%	40%	100%
Contract Document Type	GCC 2004	NEC	JBCC 2000	FIDIC 1999	OTHER	
% Projects with Contract Document significantly amended	20%	12%	21%	24%	24%	

It is clear from Table 27 that the GCC 2004 was the most popular contract form for civil projects (65%) while the JBCC 2000 contract, which is a building contract, was the most widely used for residential (71%) and non-residential building projects (70%). For mechanical works contracts both the FIDIC 1999 and other contract forms were popular. The NEC contract form was most popular for electrical projects (32%), followed by GCC 2004 (28%). For special works projects, the GCC 2004 (27%) and other contract forms (40%) were most popular.

Table 27 also indicates that the conditions of contract for 20% of all GCC 2004 contracts were significantly amended with issues such as the mitigation of risk and delegation of responsibility. Similarly, 12% of NEC, 21% of JBCC 2000 and 24% of FIDIC 1999 contracts were also significantly amended.

Contractor performance issues utilised in the adjudication of tenders

Consultants were requested to indicate which contractor performance issues were taken into account during the tender adjudication process and the results are indicated for different client categories in Tables 28, 29 and 30, for projects completed in 2004, 2006 and 2007 respectively.

Table 28: Contractor performance issues used in the adjudication of tenders 2004

Performance Issues	% of Projects in each Client Category using different Performance Issues					
Financial offer	9%	4%	17%	5%	11%	-
Financial offer & preference	9%	10%	11%	14%	17%	-
Financial offer & quality	18%	2%	5%	52%	33%	-
Financial offer, quality & preference	64%	84%	67%	29%	39%	-
	Public Corporation e.g. ESKOM, ACSA	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership
	Public Sector Client Category 2004					

Table 29: Contractor performance issues used in the adjudication of tenders 2006

Performance Issues	% of Projects in each Client Category using different Performance Issues					
Financial offer	9%	0%	6%	6%	9%	0%
Financial offer & preference	45%	33%	33%	63%	34%	0%
Financial offer, quality & preference	46%	67%	61%	31%%	57%	100%
	Public Corporation e.g. ESKOM, ACSA	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership
	Public Sector Client Category 2006					

Table 30: Contractor performance issues used in the adjudication of tenders 2007

Performance Issues	% of Projects in each Client Category using different Performance Issues						
Financial offer	34%	5%	18%	9%	2%	4%	43%
Financial offer & preference	20%	18%	27%	50%	49%	59%	-
Financial offer & quality	22%	42%	9%	6%	6%	4%	-
Financial offer, quality & preference	24%	35%	46%	35%	43%	33%	57%
	Private Sector	Public Corporation e.g. ESKOM, ACSA	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership
	Client Category 2007						

Table 30 shows that in 2007 even the private sector incorporated preference in 44% of all their projects completed in 2007. No longer are price and quality the only issues evaluated. However, tender allocation based on financial offer only was still most popular (34%).

If the results for 2007 are compared with 2004 it is clear that there has been a reduction in the number of public sector projects awarded on price only. However, it is very strange that there has been an increase from 4% to 18% of national departments projects where the financial offer was the only criteria considered.

Table 30 shows that there was still a large number of projects completed in 2007, where financial offer and preference were the only criteria used to allocate tenders. It is alarming that contractor quality was discarded as being of any importance in 50%, 49% and 59% of projects for provincial departments, metropolitan councils and regional/district councils respectively. This is so, as financial offer and preference were the only criteria considered for these projects.

It would be interesting if the survey could also determine whether the consultants' tender recommendations were actually followed in the allocation of tenders.

Procurement procedures used to solicit tenders

Tables 31, 32 & 33 show the distribution of procurement procedures used to solicit tenders for different client categories, for projects completed in 2004, 2006 and 2007 respectively.

Table 31: Procurement procedures used to solicit tenders 2004

Procurement Procedure	% of Projects in each Client Category using different Procurement Procedures					
Negotiated	-	9%	10%	8%	10%	-
Nominated / Selected	-	2%	-	17%	-	-
Open	78%	89%	80%	69%	75%	-
Qualified	22%	-	10%	4%	15%	-
Quotation	-	-	-	2%	-	-
Two Envelope System	-	-	-	-	-	-
Two Stage System	-	-	-	-	-	-
	Public Corporation e.g. ESKOM, ACSA	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership
	Public Sector Client Category 2004					

Table 32: Procurement procedures used to solicit tenders 2006

Procurement Procedure	% of Projects in each Client Category using different Procurement Procedures					
Negotiated	-	-	-	-	3%	-
Nominated / Selected	9%	17%	2%	6%	-	-
Open	73%	83%	90%	88%	94%	-
Qualified	-	-	6%	-	-	100%
Quotation	18%	-	2%	6%	-	-
Two Envelope System	-	-	-	-	-	-
Two Stage System	-	-	-	-	3%	-
	Public Corporation e.g. ESKOM, ACSA	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership
	Public Sector Client Category 2006					

Table 33: Procurement procedures used to solicit tenders 2007

Procurement Procedure	% of Projects in each Client Category using different Procurement Procedures						
Negotiated	33%	7%	14%	2%	2%	-	29%
Nominated / Selected	28%	14%	-	6%	5%	-	-
Open	21%	30%	82%	79%	87%	97%	57%
Qualified	6%	39%	4%	4%	-	3%	-
Quotation	11%	10%	-	9%	2%	-	14%
Two Envelope System	1%	-	-	-	2%	-	-
Two Stage System	-	-	-	-	2%	-	-
	Private Sector	Public Corporation e.g. ESKOM, ACSA	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership
	Client Category 2007						

Table 33, for projects completed in 2007, shows that open tenders were the most popular tender procurement procedure followed for all client categories except for public corporations and the public sector. The quotation procedure used by client bodies is likely only utilised for very small tenders. In the private sector, the negotiated (33%) and nominated/selected (28%) procedures were most popular. Public corporations favoured pre-qualification on 39% of their projects. The two envelope and two stage procurement systems were not popular for any client category.

Contracting strategy adopted

The distribution of contracting strategies adopted by different client categories is shown in Tables 34, 35 & 36.

Table 34: Contracting strategies adopted for different client categories 2004

Contracting Strategy	% Projects with Contracting Strategy for different Client Categories						
Design & Build	33%	11%	27%	16%	59%	33%	-
Develop & Construct	14%	11%	27%	21%	4%	17%	-
Design by Employer	25%	45%	36%	32%	15%	33%	-
Management Contract	17%	22%	6%	10%	15%	11%	-
Construction Management	10%	11%	4%	21%	4%	6%	-
PPP	1%	-	-	-	3%	-	-
2004	Private Sector	Public Corporation	National Department	Provincial Department	Metropolitan Council	Regional/ District Council	Public Private Partnership
	Client Category						

Table 35: Contracting strategies adopted for different client categories 2006

Contracting Strategy	% Projects with Contracting Strategy for different Client Categories						
Design & Build	24%	9%	13%	4%	7%	8%	-
Develop & Construct	-	9%	12%	29%	13%	3%	-
Design by Employer	64%	73%	63%	58%	73%	76%	-
Management Contract	4%	-	-	2%	7%	8%	-
Construction Management	4%	9%	-	3%	-	3%	100%
PPP	4%	-	12%	4%	-	2%	-
2006	Private Sector	Public Corporation	National Department	Provincial Department	Metropolitan Council	Regional/ District Council	Public Private Partnership
	Client Category						

Table 36: Contracting strategies adopted for different client categories 2007

Contracting Strategy	% Projects with Contracting Strategy for different Client Categories						
Design & Build	14%	9%	14%	6%	4%	1%	-
Develop & Construct	7%	34%	-	3%	2%	11%	-
Design by Employer	73%	54%	64%	76%	87%	81%	-
Management Contract	3%	3%	9%	4%	-	3%	-
Construction Management	3%	-	4%	9%	7%	3%	-
PPP	-	-	9%	2%	-	1%	100%
2007	Private Sector	Public Corporation	National Department	Provincial Department	Metropolitan Council	Regional/ District Council	Public Private Partnership
	Client Category						

In 2007 the design by employer strategy was most popular for all client categories with the PPP strategy only applicable to public private partnerships. Except for the design by employer strategy, public corporations also made use of the develop and construct strategy on 34% of their projects.

Payment delays

The average number of days delay between submission of professional fee accounts and receipt of payment is shown in Tables 37, 38 & 39, for projects completed in 2004, 2006 and 2007

respectively. The consultants' fees were paid within 30 days for only 45% to 51% of all projects completed between 2004 and 2007.

In 2007 the provincial and national departments were the slowest payers of fees with fees only paid after more than 60 days on 30% and 22% of all their projects respectively.

This is followed by the regional/district councils and public private partnership client categories where the consultants were only paid after 3 months on 14% of all their projects. On 14% of all public private partnership projects the consultants were only paid 4 months after submission of fee accounts. The tendency for late payment of consultants has grown if the 2007 results are compared with the 2006 results.

Table 37: Payment delay of consultant's fees for different client categories 2004

Avg. Days Delay	% of Projects with Payment Delay per Client Category							% of all Projects
≤ 14	31	17	-	22	4	-	-	16
14 to 30	40	25	15	-	37	10	-	31
30+ to 60	28	58	65	45	56	74	-	46
60+ to 90	-	-	10	22	3	16	-	5
90+ to 120	-	-	10	11	-	-	-	2
120+	1	-	-	-	-	-	-	0
2004	Private Sector	Public Corporation	National Department	Provincial Department	Metropolitan Council	Regional/ District Council	Public Private Partnership	

Table 38: Payment delay of consultant's fees for different client categories 2006

Avg. Days Delay	% of Projects with Payment Delay per Client Category							% of all Projects
≤ 14	14	10	29	4	-	14	-	9
14 to 30	27	60	14	42	73	35	100	42
30+ to 60	50	30	43	40	27	43	-	40
60+ to 90	5	-	14	10	-	3	-	5
90+ to 120	-	-	-	2	-	-	-	1
120+	4	-	-	2	-	5	-	3
2006	Private Sector	Public Corporation	National Department	Provincial Department	Metropolitan Council	Regional/ District Council	Public Private Partnership	

Table 39: Payment delay of consultant's fees for different client categories 2007

Avg. Days Delay	% of Projects with Payment Delay per Client Category							% of all Projects
≤ 14	9%	10%	14%	9%	7%	7%	14%	9%
14 to 30	38%	43%	32%	23%	44%	36%	29%	36%
30+ to 60	45%	45%	32%	38%	42%	43%	43%	42%
60+ to 90	1%	2%	14%	10%	2%	9%	-	5%
90+ to 120	2%	-	4%	14%	5%	-	-	4%
120+	5%	-	4%	6%	-	5%	14%	4%
2007	Private Sector	Public Corporation	National Department	Provincial Department	Metropolitan Council	Regional/ District Council	Public Private Partnership	

DISCUSSION OF THE CLIENTS' SURVEY RESULTS

Project type and client category distribution of responses received

Tables 37, 38 & 39 give a summary of the survey forms completed by clients for projects completed in 2004, 2006 and 2007 respectively. The number of survey forms completed is indicated for different client categories and project types. There has been an increase in the number of responses received since the previous survey and particularly for the residential, mechanical, electrical and special works project types.

It is clear from the tables that the majority of responses were for civil works and non-residential building projects. For projects completed in 2007, the civil and non-residential projects represent 39% and 20% of all responses respectively. The results in this report are therefore presented per project type and per client category to ensure that the results for other project types do not disappear in the average of all projects.

Table 39 for projects completed in 2007, shows that responses for projects from the private sector represented 35% of all responses for projects completed in 2007, followed by public corporations (26%) and metropolitan councils (14%).

Table 37: Survey responses received for different project types and client categories 2004

Project Type	Total No.	24%	5%	15%	6%	43%	6%	1%	% of Total Survey Results
Residential Building	8	4	0	1	1	2	0	0	3%
Non-residential Building	89	43	4	28	8	5	0	1	30%
Construction Works	198	25	11	14	9	121	18	0	67%
	295	72	15	43	18	128	18	1	**Total No.**
		Private sector	Public Corporation e.g. ESKOM, ACSA	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership	
		Client Category 2004							

Table 38: Survey responses received for different project types and client categories 2006

Project Type	Total No.	11%	20%	4%	38%	7%	18%	2%	% of Total Survey Results
Residential Building	4	0	1	0	0	0	3	0	4%
Non-residential Building	34	1	2	2	25	0	3	1	30%
Civil Works	57	4	16	2	13	8	14	0	50%
Mechanical Works	10	6	2	0	1	0	0	1	9%
Electrical Works	2	0	1	1	0	0	0	0	2%
Special Works	6	1	1	0	4	0	0	0	5%
	113	12	23	5	43	8	20	2	**Total No.**
		Private sector	Public Corporation e.g. ESKOM, ACSA	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership	
		Client Category 2006							

Table 39: Survey responses received for different project types and client categories 2007

Project Type	Total No.	35 %	26%	7%	10%	14%	7%	1%	% of Total Survey Results
Residential Building	16	11	0	0	0	5	0	0	6%
Non-residential Building	55	29	11	3	8	1	2	1	20%
Civil Works	110	35	24	6	8	22	13	2	39%
Mechanical Works	21	8	3	0	5	2	3	0	7%
Electrical Works	47	5	24	9	2	6	1	0	17%
Special Works	31	11	11	2	5	2	0	0	11%
	280	99	73	20	28	38	19	3	**Total No.**
		Private sector	Public Corporation e.g. ESKOM, ACSA	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership	
		Client Category 2007							

Construction commencement milestone dates

Tables 40, 41 & 42 show the actual project commencement and completion times achieved for projects completed in 2004, 2006 and 2007 respectively.

It is alarming that there was a dramatic decrease from 86% to 65% of all projects starting on time if the 2004 and 2006 results are compared. It is not known whether the reason was contractors who could not produce their guarantees on time, or the clients who did not have the sites ready to hand over to the contractors. However, the results of projects started on time picked up again to 95% of all projects completed in 2007.

Table 40: Project start & completion milestone dates 2004

Project Type	Start on time	Finish on time
Residential Building	86%	71%
Non-residential Building	81%	77%
Construction Work	89%	81%
Overall 2004	**86%**	**80%**

Table 41 shows that only 34% of all projects completed in 2006 were completed on time with 0% residential building projects and only 25% of civil projects completed on time. It is alarming that there was a dramatic decrease from 80% to 34% of all projects completed on time, if the 2004 and 2006 results are compared. It is not known if the reason for this is lack of contractor capacity, managerial skills, finances, know-how or perhaps unrealistic construction periods specified by consultants or clients. However, this figure picked up again to 85% of all projects that were finished on time in 2007.

Table 41: Project start & completion milestone dates 2006

Project Type	Start on time	Finish on time
Residential Building	100%	0%
Non-residential Building	51%	42%
Civil Works	71%	25%
Mechanical Works	50%	50%
Special Works	100%	67%
Overall 2006	**65%**	**34%**

Table 42 shows that the worst performing project type in 2007 was residential buildings with only 75% of all projects that were finished on time.

Table 42: Project start & completion milestone dates 2007

Project Type	Start on time	Finish on time
Residential Building	100%	75%
Non-residential Building	96%	80%
Civil Works	95%	86%
Mechanical Works	95%	91%
Electrical Works	96%	85%
Special Works	94%	90%
Overall 2007	**95%**	**85%**

Construction cost overspending

Tables 43, 44 & 45 show the construction cost overspending for projects completed in 2004, 2006 & 2007 respectively. The percentage overspending (+) was calculated as follows. The sum of the tender values of all projects of a specific project type, and for a specific client category was calculated. In a similar way the sum of the practical completion values of this group of projects was calculated. The total overspending of the group was expressed as a percentage of the total tender value of the particular group of projects.

Table 45 shows that for projects completed in 2007 the national departments overspent 16% on non-residential projects, 41,9% on civil works, and 22,6% on electrical works projects. This overspending is much higher than in the previous year. The provincial departments also experienced large overspending on non-residential building projects (23,6%) and mechanical works projects (38,9%).

Table 43: Project construction cost overspending 2004

Project Type	% Overspending in terms of tender value of total group						
Residential Building	1,6%	-	14,6%	0%	0%	-	-
Non-residential Building	0%	-0,8%	-1,5%	8,1%	-3,4%	-	0%
Construction Works	-0,6%	1,1%	0,1%	5,9%	4,4%	6,6%	-
2004	Private sector	Public Corporation e.g. ESKOM, ACSA	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership

Table 44: Project construction cost overspending 2006

Project Type	% Overspending in terms of tender value of total group						
Residential Building	1,8%	-4,1%	-	-	-	14,1%	-
Non-residential Building	0,2%	4,3%	-1,2%	12,2%	-	21,2%	0,0%
Civil Works	31,9%	7,0%	0%	11,2%	-1,1%	-2,3%	-
Mechanical Works	-2,5%	-	-	2,9%	-	-	-
Electrical Works	-	5,6%	-	-	-	-	-
Special Works	1,0%	-12,1%	2,4%	-2,1%	-	-	-
2006	Private sector	Public Corporation e.g. ESKOM, ACSA	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership

Table 45 further shows that the larger amount of overspending in the private sector occurs mainly for civil works projects (17,7%). For public corporations it occurs mainly for mechanical works (14,8%) and electrical work projects (17,7%).

Table 45: Project construction cost overspending 2007

Project Type	% Overspending in terms of tender value of total group						
Residential Building	7,1%	-	-	-	0%	-	-
Non-residential Building	5,1%	3,4%	16%	23,6%	0%	0%	0%
Civil Works	17,7%	4,0%	41,9%	-1,4%	5,4%	-0,5%	1,7%
Mechanical Works	5,2%	14,8%	-	38,9%	-9,4%	6,7%	-
Electrical Works	-0,6%	17,7%	22,6%	4,3%	-8,9%	0%	-
Special Works	-0,8%	0,6%	5,6%	12,4%	-4,0%	-	-
2007	Private sector	Public Corporation e.g. ESKOM, ACSA	National Department	Provincial Department	Metropolitan Council	Regional / District Council	Public Private Partnership

There are many factors that may contribute to this overspending such as bad planning, incorrect measurement of work, unforeseen conditions on site, and a change in the scope of the works.

Customer satisfaction

Tables 46 & 47 show the average level of client satisfaction for different project types for projects completed in 2006 and 2007 respectively. These are the performance levels of the consultants and contractors and the quality of materials used.

Table 46 shows that for projects completed in 2006 the civil works projects received the lowest score throughout, ranging from 73% to 79% for all performance levels monitored.

Table 47 shows that for projects completed in 2007 the non-residential building projects received the lowest score throughout, ranging from 73% to 81%. It further shows that contractors on special work projects performed the best.

The satisfaction levels expressed by the clients are generally high and no dissatisfaction is indicated.

Table 46: Customer satisfaction 2006

Project Type	Clients' Level of Satisfaction with						
Residential Building	92%	80%	-	80%	80%	80%	-
Non-residential Building	80%	83%	82%	83%	83%	84%	83%
Civil Works	73%	75%	73%	73%	77%	76%	79%
Mechanical Works	87%	90%	90%	90%	90%	80%	90%
Electrical Works	80%	80%	-	80%	-	-	80%
Special Works	89%	89%	90%	88%	83%	80%	85%
2006	Overall performance of Consultants	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 47: Customer satisfaction 2007

Project Type	Clients' Level of Satisfaction with						
Residential Building	83%	77%	73%	79%	79%	71%	81%
Non-residential Building	78%	75%	73%	76%	74%	69%	81%
Civil Works	84%	81%	79%	82%	80%	80%	84%
Mechanical Works	86%	83%	84%	84%	81%	80%	86%
Electrical Works	80%	81%	81%	84%	81%	82%	86%
Special Works	82%	85%	86%	87%	86%	83%	88%
2007	Overall performance of Consultants	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

SUMMARY AND CONCLUSIONS

The cidb CII's measure the performance of the South African construction industry by measuring client satisfaction with the project milestone dates achieved, construction costs versus budget, contractors' performance, consultants' performance, and the quality of materials used. The contractors' satisfaction is measured by their profitability, the quality of the contract documentation, the efficiency, openness and transparency of the contract adjudication process, the management of variation orders, payment delays, and the performance of their materials suppliers. The procurement indicators measured include contractor performance issues, the type of procurement procedure used, and the contracting strategy adopted. Compliance with the cidb's Standard for Uniformity intervention regarding allowable forms of contract is also measured.

Three separate survey forms were faxed or e-mailed to the contractors, clients and consultants of projects completed in 2007. Their responses were captured in a Microsoft Access database. The results of the survey are discussed under three separate headings for contractors, consultants and clients.

The CII's focus on critical aspects of project outputs or outcomes. The systematic use of CII's is essential, as the value of CII's is almost completely derived from their consistent use over a number of projects and years. Data collection must be as simple as possible and a large sample size is required to reduce the impact of project specific variables.

The main findings of the 2008 survey for projects completed in 2007 are as follows:

1) Residential building projects show the highest percentage (14%) of contractor losses.
2) Mechanical Works projects show the highest percentage (55%) of projects with contractor profit > 10%.
3) There is no relationship between profit and the financial grade of contractors.
4) The contract price adjustment provisions, used to compensate contractors for rising costs, are not sufficient due to low profit margins.
5) Except for provincial departments the overall performance of client bodies improved from 2006 to 2007, but for all client bodies the performance regarding documentation, procurement and management of variation orders is lower. Management of variation orders achieved the lowest score.
6) The higher financial grade (>6) contractors are less satisfied with the performance of different client bodies.
7) Only 44% of all contractors are paid on time within 30 days.
8) Contractors gave materials delivery for residential building projects the lowest score.

9) Higher financial grade contractors are less satisfied with the delivery capabilities of their materials suppliers.
10) Contractor quality is regarded as being of less importance in the adjudication process of provincial departments, metropolitan councils and regional / district councils.
11) Only 45% of consultants are paid on time within 30 days.
12) There has been a dramatic increase in the percentage of projects completed on time if the 2006 results (34%) are compared with the projects completed in 2007 (85%).
13) Clients are, on average and generally speaking, satisfied with their consultants and contractors, and their performance on non-residential building projects received the lowest score throughout.

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