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TENDERING FOR PROFESSIONAL SERVICES: BOTH SIDES OF THE COIN

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Abstract

The consulting engineering fraternity in South Africa has since 2006 become increasingly subjected to competitive tendering for projects required by organs of state. In the roads sector, the South African National Roads Agency Limited (Sanral) introduced its own evaluation system for procurement under the new prescripts. The changes demanded of client and service provider alike have been onerous, or so it has been stated at many informal gatherings. The actual impact on the industry has never been formally researched. This paper analyses Sanral's data as well as information elicited from surveys among consultants, contractors and Sanral staff in order to understand the impact that competitive tendering has had on this unique sector over the last five years.

1 INTRODUCTION

The introduction of a tendering system to procure professional services in 2006 by the South African National Roads Agency Ltd. (Sanral) provoked fierce debate on the topic during social gatherings and informal discussions within the roads and pavement industry in South Africa. Although the topic has been much discussed, by late 2010, no study or publication on the impact and perception of this could be found in scientific literature in Southern Africa.

This paper presents the findings of a study into the possible impact the tendering process for professional services has had on the consulting engineering industry, with particular focus on the roads and pavement sector. The findings of the paper are based on data collected from Sanral and surveys conducted within the roads and pavement sector of the industry.

2 SCOPE OF PAPER

Due to the size of the consulting engineering industry as well as the number of employers, (both private and public) that have implemented a tendering process for professional services, the scope of this paper was reduced to the roads and pavement sector mainly concerned with Sanral projects . A wider study that includes other sectors of the consulting engineering industry, as well as other employers, would require a much broader and intensive research project. Sanral was chosen as the subject of this study for the following reasons:

- it maintains good records on past and present projects;

10th CONFERENCE ON ASPHALT PAVEMENTS FOR SOUTHERN AFRICA

- the tendering system was implemented over a very short period of time, making it possible to determine a change in trends of some indicators over a short period of time; and
- Sanral provided the largest market share for roads and pavement related professional services to consulting engineers in Southern Africa.

It is important to note that although the majority of findings in this paper were drawn from the result of surveys conducted in the industry, they cannot necessarily be seen as pure scientific research. For example, no formal system was implemented to measure or audit the quality of documentation before and after the tendering process, and the findings were based on the results from the surveys. . Although the eventual sample size from returned questionnaires is disappointingly small, it is sufficient to draw trends and conclusions.

3 BACKGROUND

Traditionally, professional services in South Africa were procured by means of a panel system while fees were based on government gazetted rates. Until recently some professional services appointments appeared to still be procured in this way, mainly by local councils and provinces.

In 2003, the National Treasury of South Africa published practice note 3 of 2003: Appointment of Consultants (National Treasury, 2003) that provided guidelines on how government and government parastatals should procure the services of consultants. The word consultant includes those who only provide professional engineering services.

Sanral similarly followed the panel system when it commenced operations in April 1998, but with modifications to make it more inclusive and distributive over a wider coverage of practising consultants and continued to do so until 2005, when it devised its own tender system and implemented it in 2006 for the majority of its professional engineering services requirements. Under the revised system consulting engineers tender for design and construction supervision work needed on Sanral projects. Since 2006 Sanral has awarded more than 200 projects to consulting engineers using its procurement process.

4 PROCUREMENT MECHANISMS FOR PROFESSIONAL SERVICES

Tendering for professional services is not unique to Southern Africa. Internationally for example, there are several funding agencies that make finance available to developing countries, the most well known being the World Bank and the African Development Bank (ADB) in Africa. Regionally, the Development Bank of Southern African (DBSA) fulfils a similar function. Each funding agency procures for goods and services according to its own system. Generally, these systems require tenderers to provide proof of experience to undertake the projects being funded and show their technical understanding of how they can be delivered. Evaluated on their submissions a threshold quality score must be achieved before their time and cost proposals or lump sum prices are opened. In other words a two envelope system applies except if selection is based only on quality, in which case the highest ranked

10th CONFERENCE ON ASPHALT PAVEMENTS FOR SOUTHERN AFRICA

tenderer in terms of quality (or technical competency) is invited to negotiate its proposal and subsequent contract. If the project is based on quality and cost the technical and financial scores are adjusted by specified weightings and the highest ranked tenderer is invited to negotiate its technical and financial proposals. If a project calls for selection on a fixed budget basis, the tenderer with the highest scoring technical offer within the budget is invited to negotiations, and if selection is based on least cost then the tenderer with the lowest cost proposal is selected from those that passed the minimum technical score.

Several characteristics can be identified:

- International funding agencies apply selection according to defined criteria that use technical (i.e. quality) and financial considerations as their basis.
- A combination of finance and technical scores according to specified weightings determines who is preferred when the project relies on quality and cost criteria.
- The preferred tenderer is invited to enter into negotiations to conclude technical and financial terms before a contract is awarded.

Nationally, all arms of government (i.e. at national, provincial and municipal level) are obliged to procure goods and services in terms of the various statutes governing procurement. A brief analysis or summary of the relevant statutes follows below; but first it is necessary to look at the benefits of procurement by tender.

5 WHY TENDER

The built environment profession (including contractors) attracts a special type of individual. Collectively it represents a highly skilled and technically resourced section of society without whom the infrastructure needed to sustain society and its economy could not be built or maintained. Harnessing these skills by government is critical to achieving its development goals nationally and enhances its ability to compete effectively in the global market. Professional service providers (i.e. engineering consultants) ply their trade by offering their services as a value add to those who have the financial capacity and desire or need to provide infrastructure, but not the technical resources to ensure appropriate design and efficient delivery.

The above comments are as applicable today as yesterday. But in yesteryears professionals could, initially not advertise their services and work was by appointment from those who knew of their capabilities. New companies found it difficult to compete with established companies even though they could provide at least an equal service and usually more cost effectively.

The larger and regular employers used a pool or panel of established companies occasionally added to by offshoots from within the pool or as a result of hard marketing. Such employers, who were usually government, provincial or municipal departments, remunerated for services rendered according to their own unique formulaic system and government gazetted tariffs. Annual adjustments were negotiated by the very members of the industry who were already entrenched so widening the mistrust between those who were in and those who wanted to be in.

10th CONFERENCE ON ASPHALT PAVEMENTS FOR SOUTHERN AFRICA

Employers did not necessarily receive value for money especially as the number of capable but under-utilised practitioners grew. It could even be said that the independence of advice meted out was becoming questionable.

In summary, the wait-for-an-appointment, or panel, system had in-built inefficiencies. Cost value was suspect. Independence of the service provider was becoming suspect and the appropriate or most fit-for-purpose design was not always assured.

A competitive tendering system (where technical and finance aspects are the central pillars of the competition) can provide the cure. The tender process needs to ensure competition for reasonable compensation without sacrificing continued attraction into the professions and continued development of the professions. (Paraphrased from CIDB publication *Best Practice Guideline #A7: The procurement of professional services – December 2007* (CIDB, 2007)). It can also be said that tendering competitively should not sacrifice quality that hitherto has been a hallmark of the engineering profession in South Africa.

Thus, by tendering for their services, employers can be assured of getting a competitive price for their project designs. In other words they should be more certain of receiving value for money. Whether an employer receives better value technically will depend on an individual employer's own technical competence and the integrity of the tenderer; the greater it is the less reliance that needs to be placed on a tenderer's technical submission for a project design.

6 INTRODUCTION IN SOUTH-AFRICA

Given the perceived and known problems with the old wait-for-an-appointment system, the status quo could not long survive in the climate of change and development being driven by government after 1994. In fact, interpreting the direction the new government has dictated was not uniformly understood by all departments with the result that tendering for professional services within the South African context has become somewhat complex.

The overarching statute that guides all legislation in South Africa is the Constitution Act (108 of 1996), section 217 of which states that when organs of state "*contract for goods and services, it must do so in accordance with a system which is fair, equitable, transparent, competitive and cost effective.*" The constitution further obligates that national legislation must prescribe a framework within which a policy is created to ensure procurement of goods and services compliant with the principles of fairness, equitably, transparency, competitiveness and cost-efficiency. These five principles become the basis of all subsequent legislation making up the framework. The overall process of procurement of goods and services using government funds goes by the name of supply chain management.

Creating legislation carries the presumption that there is an integration of the whole even though more than one department of government can be the source for drafting and promulgation purposes. Thus it is that National Treasury (NT), the Department of Trade and Industry (DTI) and the Department of Public works (DPW) have all created legislation dealing with supply chain management policy relating to the procurement of goods and services. Respectively, and chronologically, the most influential have been the following;

10th CONFERENCE ON ASPHALT PAVEMENTS FOR SOUTHERN AFRICA

- Public Finance Management Act (PFMA) act 29 of 1999 through NT;
- Preferential Procurement Policy Framework Act (PPPFA) act 5 of 2000 through NT; and
- Construction Industry Development Board Act (CIDB) act 38 of 2000 through DPW.

The above acts are not by any means the only acts. For example, the Broad-Based Black Economic Empowerment Act (or BBBEE being act 53 of 2003 through DTI) gives more uniformity to the policy of preference through a strategy called a balanced scorecard calculated according to published Codes of Practice for specific economic sectors. For the purposes of this paper those listed above have caused the most impact within the study industry and form the basis of all procurement policies created by organs of states.

Each of the above acts is essentially brief in nature setting out the skeleton of the policy to be followed and fleshed out later by drafting and promulgating regulations that give body to the terms of the respective acts. In addition, each department issues circulars, guides, practice notes and instructions so as to provide integration of the whole. But, with so many different drafters, it is unsurprising that the overall system is complex and subject to different interpretations by those obligated to carry out their prescripts.

In 2005, two important publications were issued by DPW. The first was the Standard for Uniformity in Construction Procurement (CIDB, 2005a) and the other a best practice guideline for the procurement of professional services (CIDB, 2005b). Both became compulsory activities for organs of state and Sanral began to apply them from early 2006 for the procurement of goods and services, firstly for construction tenders followed several months later for engineering services.

7 PROCESS OF TENDERING POST 1998

Since 1998 Sanral had applied its procurement system for engineering services according to its historically inherited, but tried and tested, method of appointing on time-based and percentage fee scales that were published annually. This was the same system that many state departments applied and the tariff scales were, in fact, gazetted annually by government. Each department had created their own formulaic variations on the central theme of annually published government scales.

The Sanral system did not provide to the appointed service provider a detailed scope of works. The system itself develops the scope of works by allowing the appointed service provider to proceed through defined stages to undertake an assessment of the data, conduct a feasibility study, and develop appropriate preliminary and detailed designs. The final stage was monitoring the construction works. Basically, it was a cradle to grave service for which each defined stage attracted a given percentage fee based on the actual construction cost of the project. For those projects where the initial scope was difficult to define, this system worked very well.

However, acknowledging the faults inherent in the wait-for-an appointment system, and understanding the direction government was taking, all appointments after 1998

10th CONFERENCE ON ASPHALT PAVEMENTS FOR SOUTHERN AFRICA

coupled established and experienced consulting engineering companies with those who were emerging, or with those who were established and competent but previously excluded for whatever reason. Particular emphasis was placed on giving appointments to engineering companies that had previously been excluded because of racial discrimination. The intention was that the skills of the larger and established companies would be used to mentor and nurture the emerging companies.

This revised appointment system was applied over the following 7 years with varying degrees of success. Resistance to the revision was noticeable by some who did not share the vision of change and charges of intimidation and deteriorating professionalism can be levelled at both sides of the divide. However, it was considered successful overall and several emerging companies were appointed on their own cognisance without any enforced joint venture partners later on. However, in order to spread the work and increase mentorship some joint ventures of up to 4 companies were created. These were often unwieldy with lines of responsibility blurred and even unfairly compensated as appropriate distribution of work load and responsibility became impossible to implement or enforce. It also became increasingly difficult to spread the Sanral budget allocation among the proliferation of small emerging engineering companies that fragmented from the previous body collect.

In short, the changes wrought by CIDB and other legislation were welcomed by Sanral.

8 SANRAL PROCESS OF TENDERING SINCE 2006

Reacting to the legislated changes Sanral adopted twin actions. The first was to convert its existing standard agreement for engineering services into the CIDB format contained in its standard for uniformity of the procurement process. Included in this first action was the application of the CIDB general conditions of contract, suitably modified to take account of its own specific needs. The second action was in recognition of the need to assess or evaluate tenders that were partly based on what the PPPFA terms functionality without defining it, and what CIDB calls quality and for which a definition is given. In the CIDB standard for uniformity this aspect of the process is called the technical proposal.

Already several evaluation methods were known to be in use or proposed. The most common was for a committee to assess a tenderer's response to requests to provide a technical assessment of how the project should be designed. Each assessor scored each technical proposal and an average score awarded. Sanral felt this was not an appropriate system. Firstly, it relied on a subjective assessment from each assessor and elimination of subjectivity was considered to be intrinsic to its own evaluation system. Secondly, it was felt that development of the scope of work should become part of the competitive financial evaluation and not part of the quality or functionality evaluation.

During 2005 Sanral devised its own evaluation system relying on specific fields that would define a tenderer's ability to undertake the envisioned project. Each field carried a weighting. Tenderers had to submit returnable forms that provided to the assessing committee evidence of the technical and management capabilities of the key personnel proposed to undertake the project. Essentially, these are curricula

10th CONFERENCE ON ASPHALT PAVEMENTS FOR SOUTHERN AFRICA

vitae of the candidates proposed in the key positions. Other returnable forms provided evidence of a tendering company's internal systems on staff development, quality assurance, project support and compliance with occupational health and safety requirements. Once developed this evaluation system was tested for similarity to other systems and, most importantly, whether the assessors could do their work consistently and objectively.

Sanral is convinced its evaluation system is consistently applied and in a totally objective manner. That is not to say subjectivity is totally absent. But it only comes into play when it becomes necessary to look at the accuracy of the returnable forms submitted and even then, the same thorough examination of accuracy is applied to each of the tenderers in contention for an award.

Regrettably, it is during such closer examinations that misleading information has been discovered, leading to steps being implemented to exclude several tenderers from the process over the last five years.

9 CHANGING THE SYSTEM

It should never be assumed that an existing and functioning system should not be changed. However, change should not be considered lightly and reasons to do so must be by necessity. For example, the information gathered from this paper may give justification to make adjustments or to engage with industry to consider adjustments. Another example of necessity is the recent ruling in a case that went to the high court.

In the case of *Sizabonke Civils t/a Pilcon Projects v Zululand District Municipality and Others* (case number 10878/2009) the KwaZulu-Natal High Court made it absolutely clear that an award has to be made on price and preference and that the price component cannot be diluted in any way. In other words, the Sanral (and CIDB published) method of merging technical criteria points with financial points has been declared unacceptable because the PPPFA regulations were drafted ultra vires to the terms of the act. This gives a hierarchical order to legislation drafting and creates a nightmare for client bodies doing their utmost to abide by the various statutes that regulate their systems.

The ruling has caused Sanral to revise its system and become more compliant. But suffice it to say that the changes do not impact on the study generated by this paper. Rather what the ruling says about the procurement system is that in the South African context of developing the previously disadvantaged, change can be expected.

10 EFFECT AND IMPACT ON INDUSTRY

10.1 Methodology

An attempt was made to quantify the possible impact and effect the introduction of the tendering process had on the consulting engineering sector. The varying complexity of road infrastructure projects makes it difficult to precisely categorise projects into specific classes and clear borders that distinguish projects from each other cannot always be defined. However, an attempt to achieve this has been made

10th CONFERENCE ON ASPHALT PAVEMENTS FOR SOUTHERN AFRICA

in this research.

For the purpose of this paper, projects were divided into three categories. Special type projects, such as community involvement projects, concessions and projects where the bulk of the scope are not within the construction environment, have been excluded from the study. Projects where the engineering input required is considered to be low and the Gauteng Freeway Improvement Programme (GFIP) projects, where the engineering inputs were of such high, complex and compressed restraints were also excluded from the study. The three categories are:

- Periodic maintenance that requires a low to medium engineering input. This type includes reseal, repair and reseal and asphalt overlay projects where little to no additional structural capacity or improvements to the road geometry are included. The scope of works for these projects is generally well defined before the procurement of professional services commences.
- Road rehabilitation and pavement strengthening that require a medium to high level of engineering input. These include projects with significant pavement rehabilitation and/or strengthening as well as possible improvements to the road geometry. The scope of works for these projects is less easily defined, but selection of appropriate options to be considered during the design process is possible, even desirable.
- Improvement projects that generally require a high level of engineering input. These projects often include preliminary design, multi disciplines (e.g. electrical, structures, hydrology, etc.) and often require intimate client liaison as the scope is generally not well defined and needs to be developed on a continuous basis during the design process.

Data and information on 131 projects from the above categories, awarded under the tender process between May 2006 and late 2010, were analysed. In addition, surveys among professionals in the consulting engineering environment, contracting environment and Sanral project engineers were conducted over a period of six weeks in early 2011. The surveys were collected anonymous with the assistance of Consulting Engineers South Africa (CESA) and contained more than 100 questions in total. Four different surveys were conducted among the following:

- Consulting engineering companies that generally provide professional services to Sanral. Each company was required to submit one collective response per company. (19 responses);
- Engineering professionals in the consulting environment. Individuals who are actively involved in the design and delivery of SANRAL Sanral projects, either as project managers or contract administrators.(25 responses);
- Contractors (7 responses); and
- Sanral project engineers (17 responses).

For the purpose of this study, only tenders submitted in the roads and pavement sector of the industry and only tenders for professional engineering services were

10th CONFERENCE ON ASPHALT PAVEMENTS FOR SOUTHERN AFRICA

included. Construction tenders and tenders for work other than in the road and pavement sector are not included.

10.2 Compiling and submission of Sanral tenders

Since 2006, more than 200 projects were procured by Sanral using its competitive tender system. A total of 131 of these projects, from across the Sanral regions, were included in this study which comprised:

- 60 Periodic maintenance projects;
- 44 Rehabilitation and pavement strengthening projects; and
- 25 Improvement projects.

The total value of the professional services included in this study was approximately R 1 billion.

The average number of tenders and proposals submitted per consultant per year to all clients in Southern Africa for professional services on road and pavement related projects, including those submitted to Sanral are presented in Table 1.

Table 1:. Average number of tenders and proposals submitted per consultant per year between 2000 and 2010.

	All clients			Sanral		
	Periodic Maintenance	Rehabilitation	Improvement	Periodic Maintenance	Rehabilitation	Improvement
2000 - 2005	7	7	6	2*	2*	2*
2006 - 2007	12	12	12	6	6	6
2008 - 2010	20	21	20	12	12	12

* These were tenders submitted late 2005, which were the first called for professional services by Sanral. All these were only awarded in 2006.

On average, Sanral tenders made up more than 50% of the total tenders in the road and pavement sector submitted by consultants in South Africa between 2008 and 2010.

The average time, in man hours, required and the average cost to complete a typical non-Sanral and Sanral tender are presented in Table 2.

10th CONFERENCE ON ASPHALT PAVEMENTS FOR SOUTHERN AFRICA

Table 2: Average man hours required and average cost to complete a typical non-Sanral and Sanral tender per consultant.

	Non-Sanral tender		Sanral	
	Time (man hours)	Cost Rand	Time (Man hours)	Cost
Periodic maintenance	32	R 17 500 (R 547 / hour)	68	R36 000 (R 529 / hour)
Rehabilitation and strengthening	45	R 26 500 (R 589 / hour)	78	R 43 500 (R 558 / hour)
Improvement	68	R 42 000 (R 618 / hour)	88	R 53 000 (R502 / hour)

Tenders for periodic maintenance take twice as long to complete for Sanral tenders than for other clients. Improvement and rehabilitation projects require an additional 30 % and 73% of time respectively. This could be because the amount of information required in a typical Sanral tender is more detailed and the fact that the difference in the process between periodic maintenance, rehabilitation and improvement projects is more defined in Sanral tenders.

The total number of tenders received for each SANRAL region and type of project are presented in Table 3.

Table 3: Average number of tenderers per tender for Sanral professional services tenders between 2006 and 2010

	Eastern region	Northern Region	Southern region	Western Region	Sanral average
Periodic maintenance	15	17	11	17	16
Rehabilitation and strengthening	16	18	14	12	15
Improvement	12	16	-	13	13

The average number of tenderers per tender is similar per region, with only slightly lower submissions in the Southern Region than elsewhere.

Considering the average cost and amount of time required per tender (from Table 2), as well as the average number of tenderers per tender (from Table 3), the average time spent and cost to the consulting industry can be estimated for each tender called. This is presented in Table 4.

Table 4: Average total time and cost to the industry per Sanral tender called.

	Average man hours	Average cost
Periodic maintenance	1 050 (6 man months)	R 560 000
Rehabilitation and strengthening	1 200 (7 man months)	R 660 000
Improvement	1 100 (6.5 man months)	R 660 000

Considering these average costs per tender and the number of tenders submitted per year, between 2008 and 2010, on average R 6,5 million per year was spent on completing periodic maintenance tenders, R 8 million on the completion of rehabilitation tenders and R 6 million on the completion of improvement project tenders for Sanral projects only. This amounts to an approximate figure of around R 20 million per year, between 2008 and 2010, spent by the industry on tendering for professional services on Sanral projects only. This figure is comparatively small when compared to the annual turnover of the consulting engineering industry in South Africa (CESA, 2010).

The high number of tenderers that submit tenders per tender called between 2008 and 2010 resulted in an average of 17 man-years of professional time being spent per year on preparing and submitting Sanral tenders only. The question arises whether the industry can afford this, given the shortage of engineering professionals in South Africa. Conversely, if exclusionary measures are introduced then the concepts of fairness and equity may become compromised

10.3 Success of tenders submitted

The success rate of an award from Sanral tenders varied considerably between firms. Some firms reported a hit rate as low as 1:3 or better. About 40% of the respondents reported a hit rate of 1:25 or worse. On average, the hit rate reported for non-Sanral tenders is in the order of 1:15 across the 3 project categories, with an average rate of 1:20 for Sanral tenders.

At an average success rate of 1:20, it basically means that a consulting firm will spend on average about R 700 000 on tendering for periodic maintenance tenders before submitting a successful tender. This amount increases to R 850 000 for rehabilitation projects and R 1 million for improvement projects.

Most consulting engineering firms indicated that entering into a joint venture adds little value to a Sanral tender and the majority of firms preferred to tender alone. A total of 92% respondents indicated that periodic maintenance tenders are more successful without joint venture partners, while 75% of respondents have better success with rehabilitation and improvement projects when tendered alone.

10th CONFERENCE ON ASPHALT PAVEMENTS FOR SOUTHERN AFRICA

A comparison of the tendered prices with the estimated fee value based on Government Gazette fee scales of the 131 projects was conducted and the results presented in Table 5. The awarded price excludes VAT, while the estimated fee value was based on the estimated or actual construction value of each project. For periodic maintenance projects and rehabilitation projects that require medium engineering input, the fee, including disbursements, was estimated as 15% of the construction value. For improvement projects and rehabilitation projects that require a high level of engineering input, the fee was estimated at 18% of the construction value, which compare well with historic information on fee based projects.

Table 5: Comparison between awarded price and fee price

	Tendered price as percentage of Government Gazette fee	Number of projects in analysis
Periodic maintenance	77.1 %	59
Rehabilitation and Strengthening	52.5 %	43
Improvement	31.6 %	25

On average, professional services on periodic maintenance projects were offered at 77 % of the conventional fee rates. Similarly, rehabilitation projects were offered on average at half the conventional fees. Improvement projects are tendered on average at a third of conventional fees.

Table 6 provides an analysis of engineering services costs on a typical rehabilitation project with a construction value of R 200 million and 24 month construction period. A comparison is drawn between fees that would have been earned using traditional Government Gazette calculated fees and fees from the average of actual tendered rates.

Table 6: Comparison of engineering time and fees between fee based projects and tendered projects. (Approximate figures)

	Design	Supervision	Disbursements during Supervision	Total
Fee scales	R 7 000 000	R 3 500 000	R 25 000 000	R 35 500 000
	11 000 man hours for design ⁽¹⁾	146 man hours per month ⁽²⁾	R 1 041 667 per month ⁽³⁾	
Tendered at 52 %	R 1 900 000	R 950 000	R 15 610 000	R 18 460 000
	2800 man hours for design ⁽¹⁾	39 man hours per month ⁽²⁾	R 651 000 per month ⁽⁴⁾	
	28 % of time for design	27 % of time for Contract administration and technical assistance		

⁽¹⁾ based on R 600/hr average rate

10th CONFERENCE ON ASPHALT PAVEMENTS FOR SOUTHERN AFRICA

- (2) based on R750/hr average rate (Contract administration, technical queries and support)
- (3) Site staff, laboratories, surveyors, site travel, etc.
- (4) Site disbursements without mark-up and/or handling fee.

The figures presented above are only an example and will vary per project depending on the scope of the project and engineering input required. Site disbursements can generally only be reduced to a certain level and this is usually being done by eliminating any mark-ups or allowances for head office overheads in administering these disbursements.

In the example above the disbursements were reduced by about 60% of the original value. A value of R 1.9 million then remains for the design, including disbursements such as testing, travel, printing, etc. If a value of R 200 000 for these disbursements is assumed, approximately 2 800 man hours at an average rate of R 600/hr remains to conduct the design. This is roughly a quarter of the time originally available to conduct the same design under a fee based appointment.

During the construction supervision phase, a value of R 950 000 remains to conduct the contract administration duties, including disbursements. If disbursements were assumed to be R 10 000 per month, about 35 hours per month remains for contract administration duties as well as ad hoc technical assistance that may be required by other head office professionals.

It is however important to note that by spending 25 % of the original time, does not mean a similar reduction in quality can be expected. Better planning and increased efficiency should also be taken into account. However, the example above does raise the question whether the previous fee scales, and/or prices offered via competitive tender are realistic, sustainable and of public interest for the provision of a public asset. A corollary to this finding is the doubt that clients received value for their money when appointing under the previous panel/fee system.

10.4 Delivery: Design and Documentation

The introduction of tendering for Sanral projects had little effect on the age of project managers responsible for the design stage of these projects. Figure 1 illustrates the difference in the age of project managers since 2000, with little change noticeable since the introduction of the tender process. An expected migration toward cheaper and younger project managers does, therefore, not appear to have taken place.

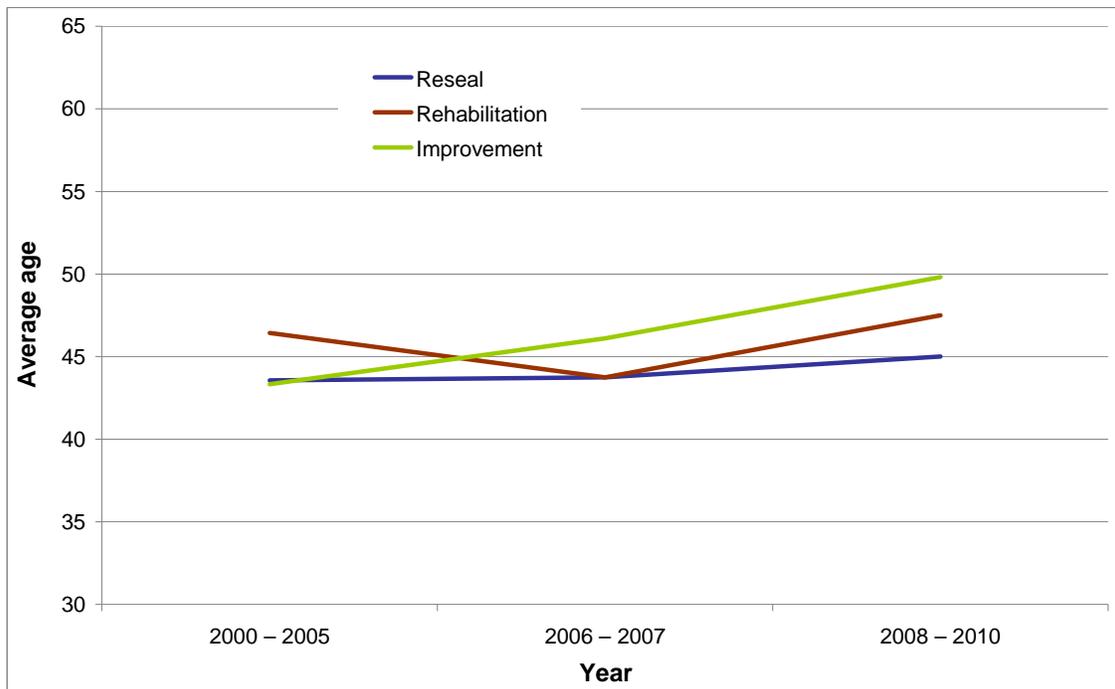


Figure 1. Average age of Project Managers on typical Sanral projects.

60% of all respondents (consultants and SANRAL project engineers) were of the opinion that the quality of design reports deteriorated since the implementation of the tendering system. The majority of Sanral project engineers (53%) were of the opinion that there was no change in the quality of design reports.

The quality of tender documentation and drawings showed a similar trend as above, with 62 % of the opinion that the quality of drawings and contract documentation deteriorated. Of the contractors surveyed, 67% reported an increase in errors in contract documentation that may result in a difference in interpretation and/or pricing during the tender process, or that may result in a dispute or claim during construction. A similar increase in non-critical items, such as spelling mistakes, incorrect page numbers, etc. have also been reported . This apparent reduction in quality can directly be attributed to the reduced time spent by consultants in the preparation and checking of these documents.

10.5 Delivery: Construction Supervision

The impact of the Sanral tendering system on the average age of contract administrators, resident engineers and material technicians was considered to be secondary and changes were most probably driven by other market forces. Figure 2 presents the average age of the contract administrator, resident engineer and materials engineer between 2000 and 2010.

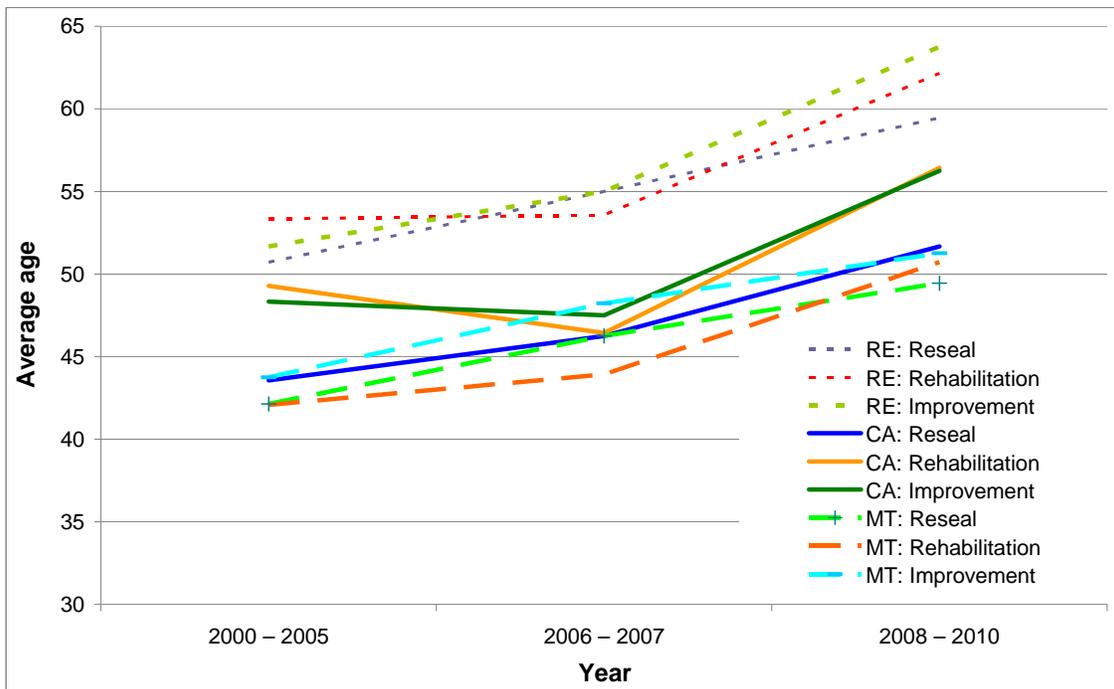


Figure 2: Average age of contract administrators, resident engineers and materials engineers between 2000 and 2010

From the age of these key personnel, it appears that the tender process did not dilute the experience in the contract administration and site supervision roles and that these functions are still being conducted by senior personnel with good experience. A migration to cheaper more junior staff has not yet occurred.

The data does however indicate that the average age of the contract administrator, resident engineers and materials technicians increase at the same rate as the reporting period (i.e. ten year average age increase over ten years). This indicates that it is likely that the same people fulfilled these positions over the past ten years, with minimum new younger entrants. This is also confirmed in studies by Lawless (2007) in the broader civil engineering industry.

According to the survey, the introduction of the tender process did have a significant impact on the number of hours spent by professionals on site during construction. The average hours spent on site by the engineer has reduced by 50 % between fee based projects and tendered projects. The involvement of other ad hoc technical personnel which are not full time site staff has also reduced by 46% between fee projects and tendered projects. These are presented in Table 7.

Table 7: Average time spent on site by the engineer and other technical support professionals

	Average monthly hours spent on site by the engineer		Average monthly hours spent on site by other technical support professionals	
	Fee projects	Tendered projects	Fee projects	Tendered projects
Periodic maintenance	19	12	12	8
Rehabilitation	24	15	18	13
Improvement	25	19	21	14

Of the contractors surveyed, 50% indicated that they experienced less involvement of the engineer on tendered projects than on fee projects. 93 % of the consultants indicated that they are of the opinion that site supervision was adequate on fee based projects, while only 33 % indicated that site supervision was adequate on tendered projects. Of all the consultants, contractors and Sanral project engineers surveyed, 57% were of the opinion that the quality of site supervision on tendered projects is poorer than on fee based projects.

Most of Sanral project engineers were of the opinion that tendered projects do not provide more opportunities for claims or disputes, while 67 % of the contractors surveyed believed the contrary: that tendered projects provided more opportunities for claims and disputes during construction.

10.6 Training and staff.

Historically, construction projects were fertile ground for the in-service training of young professionals, and many of the current experienced professionals in the industry spent months on projects during the early stages of their careers. In many cases these young professionals were seconded to a project without recovering the expenses associated with it from the client.

The in-service training of upcoming professionals was also done on an informal basis, where they were taken along to site meetings, discussions with clients, and inspections on site in order to learn from more experienced senior professionals. The costs associated with this in-service training were usually allocated to the project, but not recouped from the client because a training component was built into the fee formula. Competitive tendering makes this type of training increasingly difficult and the provisions available in Sanral tenders are often not fully utilised nor sufficient to satisfy this demand.

Table 8 compares the average number of trainees on Sanral projects on fee projects (i.e. seconded by consultants to these projects for at least three months) and tendered projects.

Table 8: Average number of trainees on traditional fee projects and tendered projects

	Professional staff		Non-professional staff	
	Fee projects	Tendered projects	Fee projects	Tendered projects
Periodic maintenance	1.9	0.8	1.2	0.7
Rehabilitation	2.4	0.5	1.8	0.8
Improvement	2.4	1.2	1.9	1

Note: Professional staff includes engineers, technicians and technologists

Non-professional staff includes all other staff

Of the consulting engineering companies surveyed, 67% indicated a reduction in in-service training in the roads and pavement sector as a direct result of the tendering process.

A negative impact on employee morale due to the tendering process was reported by all the consulting firms surveyed, (60% of the individuals that participated indicated that at one stage or the other they considered leaving the industry as a result of the tendering process). A total of 7 companies indicated they have experienced staff turnover or loss as a direct result of the tendering process.

10.7 General

All the consulting firms that participated indicated a reduction in project profitability and turnover in the transport sector of their business as a result of the tendering process, while 86% reported a reduction in total company turnover. Opinions on whether the tendering system for professional services has been beneficial to the consulting engineering industry are presented in Table 9

Table 9: Opinion on whether tendering system has been beneficial for consulting industry

	Consultants	Contractors	SANRAL Project Engineers	Total
Beneficial	19.0%	66.0%	18.8%	22.5%
Not beneficial	81.0%	34.0%	81.2%	77.5%

Most consultants (67%) did not regard the tendering system as it is currently as sustainable and that some changes to the system are required.

Table 10 presents an opinion whether the tendering system for professional services should be abolished.

Table 10: Opinion on whether tendering system should be abolished

10th CONFERENCE ON ASPHALT PAVEMENTS FOR SOUTHERN AFRICA

Abolish tendering:	Consultants	Contractors	SANRAL Project Engineers	Total
Yes	63.0%	0.0%	23.5%	39.0%
No	37.0%	100.0%	76.5%	61.0%

Most of the information collected paints a gloomy picture of the impact of the tendering process on the road and pavement sector of the consulting industry, but that could be due several reasons:

- 1. The fact that the industry has not yet managed to adapt to the new system.
- 2. There could be too many players in the industry and some consolidation is necessary. There are indications that this is commencing to happen naturally, but it is most likely due to other market forces than the Sanral tendering system.
- 3. The individuals and companies that participated in the survey still have negative sentiments toward the tender process and are more likely to report negative information than positive information.

11 CONCLUSIONS

The issue that was raised consistently by all parties is the reduction in quality being experienced in deliverables. In the survey consultants admit that quality is suffering as a result of reduced rates, while contractors and to some degree, Sanral project engineers confirmed it. It seems apparent that a variation on the existing pricing structure is required in order to avoid discounted prices that will have a negative effect on the quality of deliverables. Many of the indicators presented in this study also pointed to a reduction in the quality of work delivered since the implementation of the tendering system. The pricing system further provides no or little incentive to engage in value engineering solutions, with consultants only willing to provide what has been specified and priced for.

A further concern raised by the industry, and reported in this paper, is the time required and cost to submit tenders. A mechanism such as pre-qualification to reduce the number of tenderers per tender should be investigated, as it is questionable whether the industry, particularly smaller players, can sustain the cost of tendering over the medium and long term.

Comments received from consulting firms indicate that the system appears to be biased toward larger firms, while firms with less or no Sanral experience are not provided an opportunity to enter the Sanral market share as a result of the way the technical scoring is structured.

The scope of works and associated schedules in the professional services tender documentation have been reported to require improvement. There appears to be some difference between regions in the way Sanral address and accommodate changes in scope of works during the design and construction phases Consultants

10th CONFERENCE ON ASPHALT PAVEMENTS FOR SOUTHERN AFRICA

and project engineers indicated that the scope of work needs to be more clearly defined. Although the requirements of the deliverables of professional services are well covered in the Sanral procedural manual (Sanral, 2003), consultants appear not to be familiar with these requirements.

In-service training for young professionals has been reduced and the current tendering system provides little opportunity to accommodate this.

Competitive tendering for professional services is common practice internationally and having been introduced as the norm in Southern Africa will become increasingly better understood. Sanral is currently paving the way in this process and although their initial system may not be perfect, it is transparent and fair to a large extent. A number of issues, some identified in this paper, need to be addressed in order to improve the system to achieve the objectives of the Constitution of South Africa, in that it should be fair, equitable, transparent, competitive and cost effective. Any such improvements and changes should be considered within the framework of the legislation at the time.

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