



**rural development  
& land reform**

Department:  
Rural Development & Land Reform  
**REPUBLIC OF SOUTH AFRICA**

**CHIEF SURVEYOR-GENERAL**

Private Bag X954, PRETORIA, 0001, 2<sup>nd</sup> Floor Rentmeester Building, PRETORIA, 0002 Tel 012 326 8050, Fax 012 326 5640

**REPORT TO THE PORTFLIO COMMITTEE ON THE PROCESSING OF THE  
GEOMATICS PROFESSION BILL (GPB)**

1. The Portfolio Committee at its meeting of 29 January 2013, requested the Department to provide a report on why the GPB was only submitted to Parliament in 2013, whereas the process commenced in 2005.
2. It should be noted that reference to the Bill process in 2005 does **not** pertain to the Geomatics Profession Bill but the SURVEYING PROFESSION BILL (SPB). The SPB was withdrawn subsequent to undergoing its initial processes, after comments received during stakeholder participation necessitated a complete overhaul. This resulted in the formulation of the Geomatics Profession Bill in **2008**.
3. The primary reason for the change was to accommodate **all** sectors of the Geomatics Profession, which substantially comprises (but is not limited to) members of the surveying, geographical information sciences and other related professions/fields. The term Geomatics encompasses a wide spectrum of activities ranging from land surveying , measurement and recording of data pertaining to the surface of the earth, to geospatial positioning, geographic information systems, data storage, etc.
4. The Geomatics Profession Bill commenced in 2008 and was required to be subjected to all the statutory processes, independent of and bearing no reference to the completed processes of the SPB. The GPB was then subjected to the processes of legislative formulation, consultative workshops, stakeholder participation, etc. These processes spanned a period up to the end of 2010.
5. The GPB was submitted to Cabinet in May 2011 for approval to publish for public comment. The Bill was gazetted for public comment in May 2011, whence considerable comment from a wide spectrum of the public was received. These comments necessitated much analysis and research for tangible and comprehensive response by the Office of the Chief Surveyor-General.
6. The GPB was then submitted to Cabinet for approval of its introduction in Parliament in 2012.

Yours faithfully

**MR S B MDUBEKI**  
**ACTING CHIEF SURVEYOR-GENERAL**  
**DATE: 14 FEBRUARY 2013**



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## **REPORT TO THE PORTFOLIO COMMITTEE ON THE PERFORMANCE OF STUDENTS IN THE GEOMATICS PROFESSION**

### **1. PURPOSE**

- 1.1 The purpose of this report is to provide information on the performance of students enrolled in Geomatics in all the Institutions of Higher Learning, to the Portfolio Committee on Rural Development and Land Reform.

### **2. BACKGROUND**

- 2.1 In South Africa, there are currently six institutions of higher learning that offer qualifications in Surveying / Geomatics, namely University of KwaZulu-Natal (UKZN), University of Cape Town (UCT), Tshwane University of Technology (TUT), Mangosuthu University of Technology (MUT), Durban University of Technology (DUT) and Cape Peninsula University of Technology (CPUT). Out of the six institutions only two are offering the four-year Bachelor of Science degree in Land Surveying / Geomatics. Those are UKZN and UCT. The rest offer National Diploma (N.Dip) and Bachelor of Technology (B.Tech) qualifications. The N. Dip is a three- year programme which is currently structured in such a way that a student has to complete two academic years in class and one year in a practical environment at the work place. Upon successful completion of the entire course a student may then graduate to pursue a career as a technician. The B.Tech is a one -year full-time or two-year part-time course post N.Dip qualification, which would empower a technician to graduate to the level of Technologist. The four year B.Sc programme leads to professional registration with Council, whose requirements are successful completion of articles (approx. two years) and passing of board exams set by the Council.
- 2.2 In order to have understanding of the rate of progression of students through the academic programme in pursuit of a career in geomatics, the office of the Chief Surveyor-General requested the pass rate information from all six institutions over a period dating six years back (2006 to 2012). This report would be based on the information received before compilation of the report.

### **3. DEPARTMENT OF RURAL DEVELOPMENT BURSARY SCHEME**

- 3.1 The Departmental bursary scheme was established in 2006 under the Directorate Human Resource Development. At the time of its establishment, the Chief Directorate Surveys and Mapping was offering bursaries at a very low scale. The output from Chief Directorate Surveys and Mapping could not meet the required capacity needed by the Department, hence the establishment of

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the National Bursary Scheme. At the time of its establishment the vacancy rate was high within the Department and staff turn-over was on the rise due to remuneration imbalances between different Government Departments, State Owned Enterprises, private sector and various municipalities. There was therefore a need for aggressive strategy.

- 3.2 During that period student intake at Universities of Higher Learning and Universities of Technology was low to an extent that the University of Cape Town was on the brink of being shut down. The establishment of the scheme boosted the sustainability of the school of surveying in Cape Town. In 2006/07 a Memorandum of Understanding was signed by both the Department of Rural Development and Land Reform (then Land Affairs) and the two Universities to sponsor 20 first year students each year for the next three years, commencing 2007.
- 3.3 The Department awarded a total of 387 bursaries to prospective employees since 2006 to study either a four year B.Sc degree or three year National Diploma in the field of Geomatics/Surveying. Recently we awarded over 5 scholarships to Master of Science students. Since 2006, 190 students have completed their studies in both streams and are all supported by the department to further undertake their articles and permanently appointed in the Department. 22 students were excluded due to poor performance, especially at four year degree level. We currently have 175 prospective employees studying in both streams. The tables below indicate number of graduates since 2007, for both genders.

Row Labels	Female					Female Total
	2008	2009	2010	2011	2012	
<b>African</b>	<b>6</b>	<b>11</b>	<b>19</b>	<b>10</b>	<b>18</b>	<b>64</b>
ND: Carto	2	1				3
ND: Surv	2	9	16	7	14	48
BSc:Geo	2	1	3	3	4	13
<b>Coloured</b>	<b>1</b>				<b>1</b>	<b>2</b>
ND: Carto	1					1
ND: Surv						
BSc:Geo					1	1
<b>White</b>	<b>1</b>	<b>1</b>		<b>1</b>	<b>2</b>	<b>5</b>
BSc:Geo	1	1		1	2	5
<b>Indian</b>	<b>2</b>	<b>1</b>			<b>2</b>	<b>5</b>
ND: Surv		1			1	2
BSc:Geo	2				1	3
<b>Grand Total</b>	<b>10</b>	<b>13</b>	<b>19</b>	<b>11</b>	<b>23</b>	<b>76</b>

Table 1

# REPORT ON THE PERFORMANCE OF STUDENTS IN THE GEOMATICS PROFESSION

Row Labels	Male						Male Total
	2007	2008	2009	2010	2011	2012	
<b>African</b>	5	12	12	34	24	18	105
ND: Carto							
ND: Surv	5	5	8	22	14	10	64
BSc:Geo		7	4	12	10	8	41
<b>Coloured</b>				2	1	1	4
ND: Carto							
ND: Surv				2	1		3
BSc:Geo						1	1
<b>White</b>						2	2
BSc:Geo						2	2
<b>Indian</b>		2	1				3
ND: Surv			1				1
BSc:Geo		2					2
<b>Grand Total</b>	<b>5</b>	<b>14</b>	<b>13</b>	<b>36</b>	<b>25</b>	<b>21</b>	<b>114</b>

Table 2

## 4. PROFESSION'S STATISTICS (2006-2012)

4.1 At the beginning of this period, the profession's statistics were indicating a huge gap in terms of race, gender and age analysis. The profession has over the years been dominated by white males, who made up over 80% of the profession and of which over 30% were over the age of 60. The table below will show that since the introduction of Departmental Bursary, the scheme numbers of technicians and professionals have increased over the last six years. We note that female professional land surveyors have increased from 17 to 37 and survey technicians from 14 to 141. Male Professional Land Surveyors increase by 41 since the inception of the bursary scheme.

Table 3

YEAR	REGISTRATION CATEGORY	FEMALES	MALE	SUB TOTAL
2006	PLS	17	685	702
	PMS		122	122
	PS		20	20
	PS(PH)		5	5
	PS (H)		4	4
	PGP		13	13

# REPORT ON THE PERFORMANCE OF STUDENTS IN THE GEOMATICS PROFESSION

YEAR	REGISTRATION CATEGORY	FEMALES	MALE	SUB TOTAL
	S		231	231
	MS		37	37
	S(PH)		5	5
	G	8	12	20
	ST	14	277	291
	MST		36	36
	GT	68	43	111
	ST(PH)	1	3	4
<b>TOTAL</b>		<b>108</b>	<b>1493</b>	<b>1601</b>

Table 4

YEAR	REGISTRATION CATEGORY	FEMALES	MALE	SUB TOTAL
2012	PLS	37	622	659
	PMS		125	125
	PS	1	41	42
	PS(PH)		6	6
	PS (H)		4	4
	PGP	41	80	121
	S		291	291
	MS	1	30	31
	Ms (Pr.Cert)		18	18
	S(PH)	1	7	8
	G	68	78	146
	ST	141	438	579
	MST		28	28
	GT	131	107	238
ST(PH)	1	3	4	
<b>TOTAL</b>		<b>422</b>	<b>1878</b>	<b>2300</b>

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## 5. PERFORMANCE OF GEOMATICS/SURVEYING STUDENTS (2006 TO 2012)

We have received the requisite information from the five institutions namely University of KZN (only for one year), UCT from late 90's, Mangosuthu University of Technology from 2006 to 2012, Tshwane University of Technology from 2007 to 2012 and Durban University of Technology from 2006 to 2012. It must be noted that we could not get the full performance information due to short notice of the request and that institutions are currently busy with registration. The information is presented as received from institutions. We would be working closely with them in 2013 to have all the outstanding information made available to the Department.

SURVIVE SUBJECTS TO OTHER DEPT	PASSS RATE 2007	PASSS RATE 2008	PASSS RATE 2009	PASSS RATE 2010	PASSS RATE 2011	PASSS RATE 2012
COMPARATIVE SUBJECT FIGURES / COMPILE TABLE FOR FOR SEMESTER 1	80%	81%	78%	78%	78%	83%
COMPARATIVE SUBJECT FIGURES / COMPILE TABLE FOR SEMESTER 2	79%	76%	79%	81%	79%	80%

Table 5: Tshwane University of Technology

The Tshwane University of Technology's information indicates overall performance of the Department in terms of pass rate. It does not indicate how many students passed or excluded in the year. Further information will be requested.

Surveying Pass Rate	
Year	Pass Rate
2006	78.55
2007	80.03
2008	79.68
2009	69.31
2010	67.34
2011	71.81
2012	78.33

Table 7: Mangosuthu University of Technology

Similarly, Mangosuthu University of Technology's information indicate overall performance of the Department in terms of pass rate, it does not indicate how many students pass and excluded in the year. Further information will be requested.

Row Labels	CONT	FEN	LEAV	QUAL	RENN	SCAN	Grand Total
1996				1			1

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2000				8			8
2001				10			10
2002				11			11
2003				13			13
2004				11			11
2005				13	1		14
2006	1			7		1	9
2007	3			14		1	18
2008	3			11	2	3	19
2009	10			8	23	4	45
2010	21			3	13	3	40
2011	19		1	3	12	2	37
2012	28			9	6	2	47
2013		29					29
<b>Grand Total</b>	<b>85</b>	<b>29</b>	<b>1</b>	<b>122</b>	<b>57</b>	<b>16</b>	<b>310</b>
<b>Performance %</b>	<b>30.2%</b>	<b>0.0%</b>	<b>0.4%</b>	<b>43.4%</b>	<b>20.3%</b>	<b>5.7%</b>	<b>100.0%</b>

Table 6: UCT

Information received from University of Cape Town indicates that there is definitely a high exclusion rate at 20.3%, however the success rate is satisfactory at 43.4%. There are many contributing factors to this situation, the major being our education system at previously disadvantaged communities, career orientation, etc. We have since introduced a Survey Officers course in the Department as a foundation phase in surveying and this programme will help prepare officers who are willing to further their studies in Geomatics/Surveying.

MODULE CODE	MODULE NAME	PASS RATE
ENSV1G1	GEOMATICS 1	63%
ENSV2SE	SURVEYING (ENGINEERING)	96%
ENSV2T1	THEORY OF ADJUSTMENTS 1	95%
ENSV2HY	HYDROGRAPHIC SURVEYING	100%
ENSV2CS	CADASTRAL SURVEYING 1	100%
ENSV3PO	PHOTOGRAMMETRY	74%
ENVS316	GIS & REMOTE SENSING	100%
ENSV4TN	LAND TENURE	100%
ENSV4GY	GEODESY	81%
ENSV4RM	RESEARCH METHODOLOGY	83%

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MODULE CODE	MODULE NAME	PASS RATE
ENSV1G2	GEOMATICS 2	95%
ENSV1GM	INTRODUCTION TO GEOMOPHORLOGY	100%
ENSV2SC	SURVEY CAMPS	100%
ENSV2T2	THEORY OF ADJUSTMENTS 2	100%
ENSV3SC	SURVEY CAMPS 3	100%
ENSV3CS	CADASTRAL SURVEYING 2	94%
ENSV3SE	SURVEYING ENGINEERING 2	90%
ENSV3SS	SATELLITE SURVEYING	93%
ENSV4PE	PRECISE ENGINEERING SURVEYING	89%
ENSV4PO	PHOTOGRAMMETRY 2	100%
ENSV3CG	CO-ORD SYS & REMOTE SENSING	100%
ENSV4SP	SURVEYING & MAPPING PROJECT	82%
ENVS211	GEOGRAPHIC INFORMATION SYSTEMS	100%
		GRADUANTS FOR 2012 11

Table 7: University of KZN

The information provided is not conclusive enough. Further information will be requested later this year as stated above.

Year	Qualification	Headcount	Graduates	Grad Rate
2006	B TECH: SURVEYING	11	2	18%
	ND: SURVEYING	111	28	25%
2007	B TECH: SURVEYING	19	2	11%
	ND: SURVEYING	84	16	19%
2008	B TECH: SURVEYING	20	5	25%
	ND: SURVEYING	97	13	13%
2009	B TECH: SURVEYING	24	4	17%
	ND: SURVEYING	107	19	18%



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Year	Qualification	Headcount	Graduates	Grad Rate
2010	B TECH: SURVEYING	20	3	15%
	ND: SURVEYING	112	13	12%
2011	B TECH: SURVEYING	29	3	10%
	ND: SURVEYING	115	17	15%
2012	B TECH: SURVEYING	26	Not Available	Not Available
	ND: SURVEYING	107		

Table : DUT

The information received from the Durban University of Technology is insufficient for a proper analysis of the pass rate and correct comparisons to be done. More relevant information is still to be obtained from the institution. However, the headcount in table 8 above indicates an increase of B Tech enrolments.

### 6. CONCLUSION

In terms of the profession itself this report shows that there is a huge need to increase capacity in the geomatics/surveying industry. This was noticed during the early 2000 when the then Department of Land Affairs was experiencing capacity problems to an extent that the Department employed Professional Land Surveyors over the age of 70 and 80 years of age. Again during that period the staff turnover was on the increase due to salary disparities.

The department had to devise means of increasing this capacity not only for the department but for the country at large. The department went on to sign Memoranda of Understanding with two institutions offering the BSc programme in order to address this shortage. However during that period there were a limited number of matriculants who would meet the entry requirements of Universities whereas more could meet entry requirements for Universities of Technology.

Amongst students who obtained bursaries from the department, most of whom are from rural areas, to some, geomatics / surveying was a whole new concept and there low levels of general knowledge, which contributed to the poor performance at initial stages. Although the success rate is not yet at high levels but there is gradual increase of professionals and technicians and slow progress in numbers of women in all race classes entering the profession. For example by 2006 there only five African female Land Surveyors registered with the South African Council for Professional and Technical Surveyors (PLATO) and in 2012 the number has increased to 16 with close to 30 doing professional training (articles with private land surveyors and the department). However, it is acknowledged that the gap is closing at a slow pace with not so satisfying outputs.

There is an opportunity to monitor the student pass rate at each institution on an ongoing basis in order to put necessary focus on the role that the academia plays in production of qualified persons who would get registered with the council

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such as the proposed Geomatics Profession Council. There is further an opportunity to standardise on the structure of reports that the department would obtain through the Geomatics Council of South Africa as proposed in the bill. In terms of the bill, it would be one of the functions of the Council to ensure and promote a high standard of education and training in the geomatics sector. This would be made possible through the Education and Training Committee established under council.

Yours Faithfully,



**MR SB MDUBEKI**  
**ACTING CHIEF SURVEYOR-GENERAL**  
**DATE: 14 February 2013**