Priorities for Addressing South Africa's Education and Training Crisis

A Review commissioned by the National Planning Commission

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Contents

1. Introduction

South Africa's education and training system has undergone massive changes since the student uprising of 1976, including rapid expansion and a reorganisation of the institutional landscape in all three sectors: schools, further education and training, and higher education. Expenditure on education has risen from R43 billion in the 2000/01 financial year to a budgeted R189,5 billion in 2011/12. At the school level, this has resulted in much more equitable per capita expenditure on learners and learner/educator ratios, as well as a substantial and increasing proportion (60% in 2011) of schools providing free education. Across all levels of the system participation rates have increased substantially.

However, the draft World Bank report *Closing the Skills and Technology Gaps in South Africa* (World Bank, in press) notes that in the labour market differences in pay based on educational level have increased, and concludes that to a large extent these trends are fueled by a persistent human capital gap that prevents the country from making greater progress in reducing poverty, inequality, and exclusion, and that South Africa is foregoing significant economic growth due to the weaknesses of its education system. The large majority of recent surveys by government and private agencies, local or international (OECD, 2010; World Economic Forum et al , 2010), agree with this conclusion, and we will not make the case anew here. A diagnosis of the country's educational ills also enjoys high levels of concurrence, and the present review will give the briefest recap of these arguments, and focus mainly on ways of addressing the current problems.

Before turning to a situation analysis of the provision of education and training, and the possible technical solutions to the crisis which manifests in all three main sectors, we discuss the politico-cultural milieu that permeates society and the public service in particular at the present time, since these conditions enable and constrain the possibilities for renewal and reform.

2. Cultural climate

First, it is informative to explore the psychopathy of the citizenry revealed in national mortality trends for the last 15 years. These are shocking in the steepness of their gradients: annual deaths nearly doubled from 383 000 in 1997 to over 600 000 in 2007 (Harrison, 2009; Friedman and Coovadia, 2011). By far the largest single cause of death is AIDS, more than 4.5 times more frequent than the next most common cause, which is interpersonal violence, followed by tuberculosis and preventable childhood diseases (all of which can be linked to AIDS), and traffic injury. In other words, the overwhelmingly largest number of deaths are self inflicted by the population through pathological forms of behavior: unsafe sex, reckless driving, poor parenting and very high levels of intoxication and violence. The burden of death falls most heavily on the young: between 1997 and 2007 the mortality rate in the 30-34 age cohort trebled, while deaths among children under 5 doubled: at the end of the decade each stood at 60 000 pa.

Largely as a result of the AIDS epidemic, more than 2 million school-going children live with only one or no parents, around 17% of the cohort.

Table 1: Orphans at school

	Father deceased	Mother deceased	Both deceased	Total
2008	1 033 686	627 589	481 994	2 143 269

2009	1 037 790	623 764	498 716	2 160 270

Source: Department of Basic Education 2010a

Of the 10 584 learners who died in 2008, the cause of death for the majority was illness (66%), followed by accident (24%), with suicide (5%) and violence and homicide (6%) minor causes (Department of Basic Education, 2011).

What kind of society slaughters its children with such abandon? The democratic government cannot be held responsible for AIDS, nor for the self destructive behavior of the citizenry. But, in contrast to significant progress made, for example, in improving under-five mortality rates by comparator countries such as Brazil, Mexico, India and Thailand over the last two decades, South Africa has managed little positive change (Shishana, 2011). Whatever the psychological explanation for its causes may be, the roots of South Africa's psychopathy must lie in large measure in a century and a half of war and subjugation, and the destabilising influence on families of migrant labour, greatly exacerbated at the present time by the exponential acceleration of urbanisation from both within and without the county's borders.

The most urgent questions facing the country concern the way out of the current 'transition trough'. In particular, it is important to understand how the social climate manifests itself in the education terrain if we are to have any prospect of arresting its destructive effects. As we shall see below, South Africa's schooling system shows particular features which set it apart – in terms of level of cognitive development, work ethic and educator practices – from other countries in comparable states of development. These practices are every bit as destructive to learning and consequently to the life chances of the country's children, as the reckless personal behaviour of adults described above is to their health. Chief among these patterns is the professional behaviour of teachers, principals and officials in large parts of the school system.

In most western countries professional teacher bodies coexist with unions, although the former are generally smaller and less influential. South Africa has a number of such teacher organisations, but the terrain is dominated by the South African Democratic Teachers' Union (SADTU), which was formed in 1989 with the primary purposes of supporting the mass democratic movement to bring down apartheid and to gain equal employment opportunities for black teachers. This tradition of militancy and overt political activity continues today.

We illustrate the point by describing the illegal protest action mounted by SADTU in Soweto in June 2009. This is an important example, since it is the only one which has been systematically recorded (Zengele, 2009; Fleisch, 2010), and illustrates the kinds of incidents which commonly occur in many schools, districts and provinces throughout the country. Although the latter are generally much smaller in scale and less obtrusive to the public eye than this particular Soweto event, it is common knowledge that teachers frequently disrupt schooling for meetings, bar district officials and principals from entering classrooms, 'suspend' district officials whose decisions they don't agree with, and the like. However, the event we describe below is also considerably smaller in scale and more restricted in duration than both the 2007 month-long illegal national teacher strike – prelude to the 5-yearly meeting of the ruling African National Congress in Polokwane in 2007 and the downfall of President Mbeki – and the 2010 national strike by an estimated 1 million public sector workers, both of which were accompanied by widespread violence and intimidation.

In the first two weeks of June 2009, the Soweto regional structure of SADTU embarked on a stay-away to protest against the appointment of school managers by the local district office. In the process, hundreds of teachers missed more than two weeks of work, thousands of school children, including learners in the final years of secondary school, missed their mid-year examinations, a number of principals and teachers were assaulted, and many more were intimidated. The mood is captured by SADTU spokesperson, Ronald Nyathi when he warned that schools found operating the next day would be 'disciplined': "tell us if there is a principal at a school and we will remove them. Some people will lose their cars. Some people will be admitted to hospital" (Sowetan, 2009). Further, the SADTU leaders reassured the teachers at a meeting that they should not be concerned about the 'no work no pay' rule as the education directors who were responsible for monitoring the strike were supportive of the union action.

Fleisch (2010) notes that, while the union paid considerable attention to the procedural legalities associated with the educator appointment processes, they showed little concern about compliance with many other aspects of the legal framework, such as damage to state property, absence from work without good reason, inciting other personnel, intimidating, and in some cases assaulting, fellow employees and learners, preventing other employees from exercising their rights, and refusing to obey a legal restraining order obtained by the provincial MEC for Education. It would be hard to imagine behaviour which is more antithetical to the ideal of professional comportment.

It seems that the district did not always follow procedure either and this provided a gap for union action. Unions exploit bad practice in the bureaucracy. The specific issue around which the Soweto strike of 2009 consolidated – the promotion of teachers and other officials – fuels widespread public perception that union activity is primarily about advancing the authority and benefit of its members. Under these conditions a principle function of unions, political parties, party factions, and other groupings of convenience is to act as patronage networks which distribute opportunity to their members. In interviews with teachers and union officials, Zengele (2009) reveals that principal posts in schools are considered as 'open for deployment' by SADTU.

Tendencies to opportunistic practices by teacher unions illustrated by the Soweto strike of 2009 are not confined to education: as von Holdt (2010) has observed in the health sector the mechanisms which drive the public service are not the ethics of service delivery, but of class formation, accompanied by ambiguity towards expertise because of the implication of expert knowledge in the ideology and technical apparatus of colonialism. It appears that these features are characteristic of the large majority of government sectors (Butler, 2010).

But the battle for civil service positions is but the first step in class formation, and the intensity of the battle is explained by the richness of rewards available once the desired positions are achieved. It seems that occupying key positions in the supply management chain is an open door to self enrichment for many. News of corrupt activities in government appear daily: for example, in his report to parliament on 30 March 2011, the head of the Special Investigating Unit (SIU), Willie Hofmeyr, laid out the current state of investigations pursued by his unit. Among findings too numerous to detail here, Hofmeyr noted that the SIU is investigating the entire procurement chain in the Department of Public Works, and in particular, the 'deeply flawed' procurement process around the building or refurbishment of 33 police stations; the discovery that at least half of all projects undertaken by the Department of Human Settlements are suspect, with some contractors

even being paid for houses that do not exist; 'serious criminality' involved in the awarding of R2.4 billion in South African Broadcasting corporation (SABC) contracts to businesses in which 10 employees held interests; extensive corruption in a number of metros and smaller local authorities, including serious problems in all 23 municipalities in the North West Province; and widespread irregularities in the Department of Land Affairs (Mail & Guardian, 2011).

In this headlong rush to enrichment service delivery is a minor consideration. In the education sector at least, this is by no means a homogenous phenomenon in all provinces, districts, schools and colleges, but in large parts of the state system it would appear that the main beneficiaries of tax investment in education are members of the civil service, with little trickling down to the population by way of services.

Under the conditions of social disintegration such as South Africa finds itself in, educational institutions have a doubly important role in socialising young citizens and teaching them the values and skills needed to act independently and in community with others. Yet our schools and colleges are failing to perform these functions, and it is here that we must start to build a modern, prosperous and equitable state. Technical solutions to the crisis in the civil service are unlikely, on their own, to have a profound effect under present conditions: the social climate needs to be addressed too, and this is a political matter that must be solved in the political domain.

3. Overview of the education and training system

The country's education and training system consists of three interlinked parts: schools, the post-school sector, and higher education. A diagram of the National Qualification Framework (NQF) at its broadest level (Figure 1) shows these divisions, together with the relevant Quality Council responsible for sectoral quality assurance under the new legislation governing the NQF promulgated in 2008.

Figure 1: South Africa's Education and Training System

<table>
<tr><td rowspan="3">NQF level</td><td>Authority</td><td colspan="2">Ministry of Higher Education and Training</td><td colspan="2">Ministry of Basic Education</td></tr>
<tr><td>Sector</td><td>Higher Education</td><td>Post-school</td><td colspan="2">Schools</td></tr>
<tr><td>Quality Council</td><td>Council for Higher Education</td><td>Quality Council for Trades and Occupations</td><td colspan="2">Umalusi</td></tr>
<tr><td colspan="2">1</td><td></td><td rowspan="6">National Occupational Awards
National Occupational Certificates (Level determined per SAQA level descriptors)</td><td rowspan="4">General Education and Training: Grades R-9 (proposed GEC); GETC for adults
Further Education and Training: NSC, NC(V), NASCA</td><td rowspan="4">B
A
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C</td></tr>
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<tr><td colspan="2">4</td><td></td></tr>
<tr><td colspan="2">5</td><td>Higher Certificate</td><td colspan="2">Post-school qualifications</td></tr>
<tr><td colspan="2">6</td><td>Diploma</td><td colspan="2"></td></tr>
<tr><td colspan="2">7</td><td>Bachelor's degree</td><td colspan="2"></td></tr>
</table>

8	Bachelor Hons; Postgraduate Diploma		
9	Masters		
10	Doctorate		

Over the last decade, enrolment in the school system increased by 3%, much of it at secondary level following the implementation of age-by-grade regulations and restrictions on repetition levels. Enrolment in the reception year, Grade R, increased by 212% over this period. As a percentage of Grade 1 enrolment, the number of children in Grade R increased from 26% in 2000 to 63% in 2010. While this represents a substantial improvement, just over a third of children still entered Grade 1 in 2010 without having attended a reception year. Further Education and Training (FET) college enrolment increased by about 19% over this decade and higher education enrolment by 37%.

Table 2: Enrolment by level, 2000 – 2010

	2000	2005	2010	% Increase
Public & independent schools	**11 826 996**	**12 150 354**	**12 203 039**	**3%**
Grade R	226 631	405 197	707 203	212%
Grades 1-7	7 527 895	7 314 449	7 024 368	-7%
Grades 8-12	4 072 470	4 430 708	4 471 468	10%
Further & higher education	1 046 311	1 217 404	1 357 870	**30%**
FET colleges	436 180	479 932	520 235	19%
Higher education	610 131	737 472	837 635	37%

Source: Detailed figures taken from later sections of this report

The overall shape of the South Africa's Education and Training (E&T) system is that, in contrast to developed systems which have a pyramidal shape with university enrolments constituting the smallest peak, South Africa's pyramid is inverted and distorted. First, many more students are enrolled in higher education than in FET colleges: for every 100 students enrolled in FET there are 161 enrolled in higher education, which is the inverse of what happens in well functioning systems. Second, enrolments in FET colleges and technical high schools combined constitute only 20 percent of total enrolments at upper secondary level. This is comparable to overall averages in Africa (20%), and Latin America (18%), but well below those in East Asia (35%) and Europe (48%).

We turn now to a more detailed examination of each of the three main components comprising the education and training system: schools, the post-school sector, and higher education.

4. Schooling

4.1 Finance

This section draws in particular from the Macro Indicator Report (Department of Basic Education, 2011a). Spending on education as a percentage of total public expenditure has decreased steadily since 1996/97, with an acceleration in the decrease after 2000/01, and a levelling out after 2005/06. In 2009/10, 17.7% of total public expenditure was allocated to education. The decrease is more a result of substantial increases in other areas of spending such as social grants rather than a fall in the priority accorded to education.

Since 2006, the poorest three quintiles of schools have been classified as "no-fee schools". These schools do not charge fees, but receive a weighted share of non-personnel funding to compensate for this loss of income. According to van der Berg et al (2011), non-personnel spending is redistributive: public spending on the poorest fifth of schools is roughly six times higher than spending on the richest fifth of schools. Although non-personnel funding received by schools is pro-poor, schools in more affluent communities remain better resourced due to the practice of charging school fees.

The percentage that education makes up of the total budget for each province ranges from 36% in the Western Cape to 47% in the Eastern Cape and Limpopo. The percentage is affected by the overall wealth of the province, with wealthier provinces being able to allocate relatively high absolute amounts for education even while allocating more than average to other areas.

There was a steady increase in per capita expenditure, increasing in nominal terms from R5 875 in 2005/06 to R7 826 in 2009/10, reflecting the introduction of the no-fee policy in 2007/08, and the expansion of this policy over time in terms of the number of schools and learners covered. Early childhood development has been highlighted as a national priority and as a result per capita public expenditure on Grade R for children enrolled in sites attached to public schools has expanded substantially. Between 2007/08 and 2009/10, the nominal amount allocated per Grade R child enrolled in sites at public schools more than doubled. Nevertheless, the amount allocated to Grade R learners in 2009/10 was less than half the per capita allocation for primary and secondary learners of R7 826.

The major part of the provincial budgets is spent on personnel, making up 76.4% of the combined provincial budget expenditure in 2009/10, down from 91.0% in 1998/99. The drop in personnel expenditure has meant that an increasing proportion of the budget has been made available for non-personnel expenditure such as capital expenditure, the provision of goods and services such as learning and teaching support materials, and the ongoing running expenses of schools.

The private sector has for many years been concerned about the poor functionality of the public health and education systems, and has made additional money available for improvement programmes. It is estimated that current expenditure from this source totals some R1.3 billion annually, a small sum compared to the national budget, but one which is entirely discretionary. The largest proportion is allocated to education, where it is generally channelled through NGOs as service providers to schools, provinces and the national departments. There is a general disappointment among business leaders that this corporate social investment spending seems to have had negligible systemic impact.

4.2 General Education: Grades R-9

4.2.1 Access

With a participation rate of 95% for children aged 6-15, South Africa is on a par with, or even above, what is considered to be a feasible target for participation in education, especially for a developing country. The expansion of Grade R and the lowering of the age of admission to Grade 1 resulted in a substantial improvement in access to education for 5-and 6- year olds. By 2009, 78% of 5-year olds and 95% of 6-year olds were enrolled in an educational institution. The participation rate of children who are of compulsory school-going age is extremely high, with almost 99% of children aged 7 to 15 enrolled in educational institutions in 2009.

4.2.2 Quality

The details of the very poor performance of the country's primary school system in terms of learner test scores *viz a viz* those of comparator countries has been exhaustively described elsewhere (see Taylor et al, 2008 for a summary), and is so well known that we will not repeat the historical analysis here. The bad news is that things are not getting better: the latest results from the SACMEQ III[1] exercise conducted in 2007 again places South Africa in the bottom half of the 15 African country sample in Grade 6 maths and reading (Spaull, 2011).

4.2.3 Equity

With respect to gender equality the country has an excellent record: access to schooling in South Africa has been achieved equally for male and female children. However, the efficiency with which learners move through the system is problematic, particularly for male learners, who repeat more than female learners, and drop out without completing their schooling in greater numbers than their female counterparts.

With respect to poverty, gross inequities of performance stand out across the system, with poorer children receiving significantly inferior schooling than their more affluent peers. As Spaull (2011) notes, this further disadvantages the poor in the labour-market and entrenches their poverty. Breaking down the SACMEQ III results by socio-economic status (SES) quartile, Spaull shows that for the wealthiest 25% of students, South Africa ranks 4th out of 15 for reading[2]. However, when ranked by the performance of the poorest 25% of students, South Africa ranks 14th out of 15 for reading. For maths the figures are 6th out of 15 for wealthy students, and 12th out of 15 for poor students. To put this in perspective, the average 'poor' South African student performs *worse* at reading than the average 'poor' Malawian or Mozambican student. This is in spite of the fact that the average 'poor' South African student is significantly wealthier than the average 'poor' Malawian or Mozambican student. Van der Berg et al (2011) point out that among South African students, only the most

[1] Southern and Eastern African Consortium for Monitoring Education Quality, a consortium of 15 African countries coordinated by UNESCO.

[2] This itself is a noteworthy finding, showing that even the wealthiest quartile of SA schools is outperformed by the Seychelles and Mauritius, which is to be expected given the higher SES of these island nations, but also by Tanzania, which, along with Malawi, has the lowest SES rating in the sample (Hungi et al, 2010).

affluent learners (the top 20%) generally perform above the 15 country average score on the SACMEQ tests.

Clearly the South African primary school system is significantly underperforming relative to its regional counterparts given its large relative advantage in material resources. South Africa is still a tale of two school sub-systems (van der Berg et al, 2011; Spaull, 2011): one which is functional, wealthy, and able to educate students; the other being poor, dysfunctional, and unable to equip students with the necessary numeracy and literacy skills they should be acquiring in primary school. This inequality of school provision has consequences for the labour market, poverty and hereditary poverty. This pattern has strong racial overtones: residents of poor and predominantly black neighbourhoods frequently attend schools with a lack of discipline, weak management and few competent teachers.

4.3 Further Education and Training

4.3.1 The National Senior Certificate (NSC)

South Africa now fares relatively well by international comparison in terms of educational attainment, at least up until Grade 11 (van der Berg et al, 2011): the rate of completion of Grade 12 is, however, rather low by international comparison. Increasing the rate of Grade 12 completion from about 40% to 50% would put South Africa on a par with Thailand, for example. According to van der Berg et al (2011), further increases may, in fact, not be desirable, especially if this would involve lowering the standard of the matric examination. Even in developed countries the secondary school completion rate generally does not approach 100%. For the United States, the United Kingdom and Japan the secondary school completion rates are 77%, 87% and 93% respectively.

Regarding outputs from the school system, the annual publication of the NSC results is an event which always meets with much public breastbeating, recriminations and accusations of falling standards. This is an ill-directed debate and the DBE and Umalusi, the quality assurance body for FET, need to take leadership in directing the discussion along more productive lines. First, the obsession of the public debate with the NSC pass rate is not only misleading but encourages counterproductive gaming practices, and it is clear that widespread gaming led to large increases in the pass rate in the years 1999-2003 (Taylor, N., 2009a). When a school's reputation rests on a single number, principals are tempted to tweak the figures, even if this results in prejudicing their own learners in the long term. There is evidence that the pass rate improvements in 2010 are at least partly attributable to moving higher risk candidates to part time registration (which does not contribute to the pass rate), and moving to easier subjects at the expense of maths, science and accounting (Department of Basic Education, 2011b).

A second way of manipulating pass rates is to screen learners at the end of Grade 11, and there is evidence that this is happening on a large scale, with substantial falloff in school enrolment between Grades 11 and 12 across the country, as reflected in the table below.

Table 3: Number of learners in ordinary schools by Grade, 2008-2010

	Gr 8	Gr 9	Gr 10	Gr 11	Gr 12	Decline G8-11 (%)	Decline G11-12 (%)
2008	926 603	902 656	1 076 527	902 752	595 216	16.2	34.1
2009	991 093	926 531	1 017 341	881 661	602 278	2.6	31.7
2010	1 001 180	1 009 327	1 039 762	841 815	579 384	3.9	31.2

Source: Snap Survey 2008 to 2010; Question 107, written reply, National Assembly. Issued by Parliament, 10/3/2011

Most strikingly, nearly one-third of the Grade 11 cohort does not make it to Grade 12. Grade 11 is an illogical point at which to exit the school system. While it is true that some of the Grade 11 learners leaving high schools will be transferring to FET colleges or entering the labour market, the end of Grade 9 or 10 would be more logical points at which to do so, and the huge drop at the end of Grade 11 is indicative that something else is happening.

Regarding the quality of the NSC, it is instructive to examine two indicators of systemic quality, although there are others that could be used. First, the numbers of matriculants obtaining a Bachelor level pass increased by 22 000 (26%) in 2008, 2 423 (2%) in 2009 and 16 674 (15%) in 2010. These are students who qualify to apply for Bachelor registration, as distinct from those who may register for Diplomas or Certificates, or who pass without qualifying for tertiary studies.

Table 4: Matriculants qualifying for Bachelor entrance

Year	Number	Increase	Per cent increase
2007	85 000		
2008	107 274	22 274	26.2
2009	109 697	2 423	2.3
2010	126 371	16 674	15.2

Source: Department of Basic Education, 2011b

The rapid spike in Bachelor level passes is not necessarily a positive development, considering the difficulties experienced by the universities over the last two years with large increases in numbers of ill prepared first year entrants. A better view of quality is given by the numbers registering for and passing mathematics, and here there is a real problem.

Table 5: Numbers writing and passing mathematics, 2008-2010

	Candidates			Passed ≥ 30%			Passed ≥ 40%		
	2008	**2009**	**2010**	**2008**	**2009**	**2010**	**2008**	**2009**	**2010**
Numbers	298 921	282 699	263 034	136 503	133 505	124 749	89 788	78 784	81 277
Increase 08 to 10			-35 887			-8 756			-8 511

Source: Department of Basic Education, 2011b. (The report does not give passes at ≥ 50%, which would be a better indicator, given that the universities set this as a criterion for entry into science and most professions).

Nearly 36 000 fewer candidates registered to write maths in 2010 compared with 2008, and nearly 9 000 fewer passed. This indicates that principals are directing students away from maths towards maths literacy. This practice dramatically narrows student options for further study. Seen in this light, it is clear that the increases in Bachelor level passes in the last three years are largely in the humanities, with fewer students qualifying to enter science and the professional fields of study.

South Africa's schooling crisis manifests itself at the end of high school in the low proportion of young citizens entering tertiary education, particularly in areas of scarce skills. Top priority should therefore be given to:

- Improving throughput rates in the FET phase (Grades 10 to 12);
- Directing learners who leave the system at the end of Grade 9 into more constructive options in the FET college sector and the workplace;

- Increasing the number of NSC passes by improving the quality of school management and instruction; and
- Improving the quality of passes. The key to quality lies not only in increasing numbers taking mathematics and science, but also in improving the standards of teaching and learning in these subjects, and even more important, in the languages and in the language of instruction in particular.

These are the targets that schools and provincial departments of education should be setting themselves. The country's single-minded focus on pass rates frustrates these goals, to the great detriment of the life chances of individual students and of national development.

4.3.2 The National Certificate (Vocational) (NC(V))

Grades 10-12 constitute the Further Education and Training (FET) course of study offered by schools, leading to the National Senior Certificate (NSC). The National Certificate (Vocational) (NC(V)) is designed as a parallel track to the NSC, and is offered by the colleges. It is a specialised course of study designed to prepare students for occupation-specific training. The NSC, in contrast, prepares students for higher education (HE). The NC(V) is not an occupationally specific course of study, but a general course which includes language, mathematics and a number of pre-vocational subjects grouped into 11 occupationally oriented tracks (engineering, business studies, agriculture, commerce, etc).

Unfortunately, most students who take the NC(V) already have the NSC, and this situation not only shows an inefficient use of public institutions, but also fails to exploit the opportunities for labour market specialisation offered by the current system. The fault lies not so much in the institutional and curricular design of the FET system spanning schools and colleges, but in the way it is currently utilised. We make recommendations regarding the better use of the system in section 4.5 below, and return to a more detailed discussion of the NC(V) and other programmes offered by the FET colleges in section 6.

4.3.3 Adult Education

A network of public adult learning centres (PALCs) provides second chance learning opportunities for significant numbers of adults.

Table 6: Provision of adult education

Year	No. learners	No. institutions	No. educators
2005	269 140	17 181	2 278
2008	290 618	19 454	2 482
2009	297 900	15 657	2 395

Source: Department of Basic Education, 2010b

No details are given as to how many of these learners achieve any form of certification, nor at which levels these programmes are offered. Umalusi quality assures the General Education and Training Certificate (GETC), which is at level 1 of the NQF, and notes with concern the absence of a core curriculum and the absence of a standardised approach to curriculum and assessment across provinces (Umalusi, 2009a). Umalusi recommends a move away from the concept of adult *basic* education to an expanded system of adult education which forms a continuum, providing adult learners with increased opportunities for moving vertically from basic literacy through to a level 4

qualification, or moving horizontally into vocational programmes (Umalusi, 2009b), an arrangement supported by others (Cloete, 2009).

4.4 Explanatory factors for the underperformance of schools

Much has been written about the home-, school- and classroom-level factors associated with learner performance (most recently by van der Berg et al, 2011), and in this area too we will provide only a brief summary of the standout factors before moving on to discussing possible paths towards improving the sector.

Poverty

As we have already said, poverty has devastating effects on children's life chances, and nowhere is this more strongly felt than in schooling. The mechanism for this reproductive effect of schools is the covariation between lack of home support, the poverty of the community, the level of school resources and the expertise of principals and teachers. Van der Berg et al (2011) observe that the effects of the community and the combined socio-economic status of schools are more pronounced than the individual-level effect of socio-economic status. In other words, the individual child's socio-economic background matters less for her performance than the area she lives in and the school she attends.

Well run schools can effect a very significant improvement in the life chances of poor children. For example, when controlling for student and school SES, African language students in historically white schools enjoy a considerable performance advantage over those in historically black schools (Taylor and Yu, 2009). This difference is statistically significant and large, especially so in the case of numeracy. Van der Berg et al (2011) conclude that although achievement is strongly connected with student SES, much of this connection has to do with the effectiveness of schools in which students are located. Given that primary schooling forms the foundation for all further education and training, the overwhelming challenge for the entire system is to improve the quality of basic education provided to poor children.

Systemic restructuring

According to Crouch and Vinjevold (2006), the roots of the poor quality of South Africa's schools lie in the rapid expansion of the system. Between 1970 and 1995, large numbers of poor quality institutions were established, while the training capacity of the higher education system and the management capacity of the civil service have both consistently remained below the levels required to improve the effectiveness of the majority of the country's schools. These effects were exacerbated under the massive reorganisation of the teacher training system, the FET college sector, and the educational bureaucracy since 1994. The problem of systemic inefficiency continues in the absence of strategic leadership and management weaknesses across the sector. Provinces continue to be plagued by problems of poor planning, misallocation and underspending of budgets. (Taylor et al, 2008: 48-49).

Preschool

From his analysis of the SACMEQ III data, Spaull (2011) notes that on average we do see a benefit in attending pre-school: if a child has attended at least a year of pre-school education this is associated with higher achievement in Grade 6. Additional years of pre-school over and above the first year, however, do not appear to yield much further benefit. These findings confirm the importance of government's current programme of expanding Grade R provision to include all children.

Teacher subject knowledge

The last few years has seen the accumulation of evidence to indicate that the majority of South African teachers know little more about the subjects which they teach than the curriculum expects of their children, and that some teachers know considerably less than this (Taylor, N., 2009b). In his analysis of the SACMEQ III results, Spaull (2011) notes that the subject tests given to teachers were comparable to those taken by the learners, but that the average teacher scores in both the reading and mathematics tests were mediocre. Furthermore, while teacher knowledge was lower in poor schools than in richer schools, it made little difference to learner performance. Spaull seems tempted to conclude that time should rather be spent on training teachers to convey the subject better than on teaching them subject knowledge. This would be the wrong policy conclusion.

The SACMEQ III results concerning a lack of correlation between teacher knowledge and learner scores is a common finding even in developed countries, where teacher knowledge, as measured by relatively simple tests correlates only weakly, at best, with the performance of their learners (Hill et al, 2005). However, more complex tests, which Hill and her colleagues describe as assessing what they call 'content knowledge for teaching – math' (CKT-M), were found to be a significant predictor of student gain scores in math. In fact, proficiency on these tests proved to be the strongest teacher-level predictor of learner gain scores, exhibiting more of an effect than teacher background variables and average time spent on mathematics instruction each day. The authors conclude that efforts to improve teachers' math knowledge through content-focused professional development and preservice programmes will improve student achievement. This work shows that, in order to be effective, a teacher needs to have a deep understanding of the principles of the subject discipline, and that different degrees of a relatively shallow understanding have no marked association with the performance of their learners.

Despite their poor subject knowledge, the large majority of South African educators are considered to be appropriately qualified, as indicated by possession of a Senior Certificate and a minimum of three years of appropriate training. Educator qualifications have increased dramatically in the last two decades: in 1990 only 53% of educators were appropriately qualified; by 2008 this had increased to 94.4% (Department of Education, 2009). This increase in the proportion of teachers reaching qualified status is in stark contrast to the absence of any discernible improvement in learner performance in the same period, a striking case of qualification inflation. These considerations reveal a sharp distinction between qualifications and competence, a point to which we will return below.

Time management

The inefficient use of time is a prominent feature of many South African schools, occurring at three levels: getting to school, getting to class, and covering the curriculum efficiently when in class. These practices point the way for principals to exercise stronger leadership in directing schools towards the more effective use of time in delivering the curriculum. An analysis of data collected from principals and teachers during the SACMEQ II study revealed high levels of teacher absenteeism and late-coming, as reported by principals (van der Berg and Louw, 2006). This problem is particularly widespread in the four lowest quintiles of the system, where 97%–100% of principals reported it as a problem. A substantial proportion of schools (26%) in the most affluent quintile reported experiencing the same problem.

Leave, and in particular the abuse of sick leave by teachers, offers another gap for teachers to spend less time at school. Teachers are entitled to 36 days sick leave over a three year cycle, and it seems that teachers have come to see this leave as an entitlement which must be taken, rather than as a generous service benefit in case of serious illness. A recent study by the HSRC (Reddy et al, 2010) found that the public school system has a leave rate somewhere between 10 and 20%, the wide margin of error indicating poor data systems for monitoring teacher leave. This is in contrast to a rate closer to 5-6% in developed countries. The HSRC study estimates that over three quarters of leave is of one or two days duration, and therefore does not require a doctor's certificate; the way in which this leave is abused is clearly shown by the incidence of leave for Mondays and Fridays being twice that of Tuesdays and Thursdays, respectively.

Furthermore, when they are at school, it seems that many South African teachers spend less than half their time in class and teaching. This finding was identified by Chisholm et al (2005), who, through a national survey verified by case studies in 10 schools, concluded that:

- Teachers worked an average of 41 hours per week, out of an expected minimum of 43.
- In all, 41% of this time was spent on teaching, which translated to 3.4 hours a day;
- Fourteen percent was devoted to planning and preparation, and
- Fourteen percent was spent on assessment, evaluation, writing reports and record keeping.

In contrast to this generally very lax picture, the two studies on poor South African schools that perform well in the matric exams by Malcolm et al (2000) and Christie et al (2007) found that, without exception, time was a highly valued commodity in successful institutions: not only was punctuality observed during the school day, but additional teaching time was created outside of normal hours. Ensuring the effective use of time in any institution is essentially a leadership responsibility, and it appears from the available evidence that it is a responsibility that the large majority of South African principals are simply unable to rise to.

Classroom practice

What happens in the classroom, while shaped by the class background of learners, has a very profound influence on childrens' learning and consequently on their life chances. Many of the problems observed in South African classrooms are clearly rooted in the poor knowledge resources of teachers. These links are perhaps most obviously manifest in the judgment of teachers when assessing the performance of their learners. For example, van der Berg et al (2011) found that foundation phase teachers in the Western Cape were in general very optimistic about whether their learners were at the right level: more than 80% of teachers indicated that at least three-quarters of their classes could perform at the appropriate standard at the end of the grade in both home language literacy and in numeracy. These optimistic expectations are in sharp contrast to the poor performance of their learners on the annual provincial assessment tasks. The poor knowledge judgment of teachers is accompanied by very slow pacing of curriculum delivery, and low levels of coverage and of cognitive demand relative to curriculum specifications (Reeves and Muller, 2005).

Another well-documented feature of the South African school system is that a very strong verbal culture dominates classrooms, with the teacher doing most of the talking and learners doing very little talking, reading and writing. For example, through an examination of learner writing performed

over the year, the National School Effectiveness Study[3] concluded that nearly one-third of Grade 5 children do no writing whatsoever of paragraph length over the entire year; and only 7% perform writing of this type at least twice a quarter. (Taylor, S., 2011).

Table 7: Learner writing of paragraph length, Grade 5 (number of exercises over the year)

	None	1-2	3-9	>10	Unspec
Number of classes	85	70	88	19	23
Percentage	29.8	24.6	30.9	6.7	8.1

Source: Taylor, S, 2011

There are two issues concerning reading and writing that require attention: getting books to schools and promoting their use in classrooms. On the first issue, a comprehensive audit of all learner materials for the teaching of Grade 6 mathematics in 22 randomly selected primary schools in Gauteng found that only two had sufficient books to provide individual copies to all Grade 6 children, and that *half* of the schools had only a teacher's copy of the book (Fleisch et al, 2011). These schools were selected so as to represent quintile 1-4 schools in Gauteng, and the implication of the audit findings is that half the learners in the majority of schools in the province never get to handle a maths textbook, let alone work from it for extended periods.

Van der Berg et al (2011) found that the SACMEQ data reveals a strong association between learner performance and access to textbooks, confirming earlier findings in this regard. The good news is that the DBE has begun the production and distribution of workbooks in language and maths for distribution to all Grade 1-6 children in quintiles 1-3, and that distribution commenced in 2011. This move is bound to make books far more accessible to all learners. Whether the distribution of workbooks intended to supplement textbooks will lead to an increase in reading and writing is not a foregone conclusion, and teachers will require at least some training on the use of the materials.

Instructional Leadership

Another important management dimension is the responsibility of the principal and her team to ensure not only that teachers are in class and teaching during school hours, but also that teachers cover the curriculum effectively when they are in class. Unfortunately, the majority of South African principals do not understand their responsibilities regarding this latter function, the main business of the school. Hoadley and Ward (2009) surveyed 200 schools in the Eastern Cape and Western Cape to investigate school management practices. They found that the majority of principals described their main activities as administration and disciplining learners. This is in contrast to the conclusion of the international literature that school managers should focus on the task of "instructional leadership", a set of systems which propel teaching and learning in the school (Leithwood et al, 2004).

In a study commissioned by the Ministry of Education in 2007, Christie et al reviewed a sample of 18 secondary schools serving poor communities which succeeded in achieving good Senior Certificate results. The study concluded that all these schools:

- were focussed on their central tasks of teaching and learning with a sense of responsibility, purpose and commitment;
- carried out their tasks with competence and confidence;

[3] The NSES is a 3 year panel which followed a nationally representative random sample of children, commencing with Grade 3 in 2007, and ending with the cohort at Grade 5 level in 2009.

- had organisational cultures that supported a work ethic, expected achievement and acknowledged success;
- had strong internal accountability systems in place that enabled them to meet the demands of external accountability, evidenced most particularly in terms of Senior Certificate achievement (Christie et al, 2007:5).

A study commissioned by the Presidency in 2009 (Taylor et al, 2010) confirmed these conclusions, and underlined the importance of inspirational leadership and technical management with respect to time management, curriculum coverage, book procurement and deployment, and assessment. These studies indicate that, with the right school leadership a great deal more can be achieved within the current system; that the majority of teachers are only too happy to throw off the lackadaisical culture which characterizes most schools, and to work long hours for the reward of seeing their learners achieving above average performance. But the question remains: how can these excellent practices be generalized throughout the system?

Concluding comment

The central problematic of South Africa's dysfunctional school system is a dysfunctional civil service. Certainly there are excellent government departments and other organs of state, and within the education system there are outstanding district offices and schools, and some provinces function more effectively than others. But the system as a whole is sluggish, ill disciplined and lacking initiative.

4.5 Government interventions aimed at improving the quality and equity of schooling

A great many projects have been initiated over the years in an attempt to improve the quality of school functionality, teaching and learning. It must be admitted that, while additional resources have been transferred to poor schools through these programmes (such as QIDSUP[4]), systemic effects have been negligible. Following the national elections of 2009, government has undertaken a great deal of strategising within and across ministries. The first fruit of this work was announced following the cabinet lekgotla of 20-22 January 2010, where government adopted *12 Outcomes* to guide their work, the first of which is to improve the quality of basic education (The Presidency, 2010). (see Appendix 2 for the full list).

The first step taken by the Department of Basic Education to implement the *12 Outcomes*, and *Outcome 1* (Improved quality of basic education) in particular, was to adopt *Schooling 2025*, described as a long term plan for the basic education sector which will allow for the monitoring of progress against a set of measurable indicators covering all aspects of basic education including enrolment and retention of learners, teachers, infrastructure, school funding, learner well-being and school safety, mass literacy and educational quality. (Department of Basic Education, 2010c).

The Ministry of Basic Education has also published its *Delivery Agreement and Action Plan* (Department of Basic Education, 2011b) which has 27 goals focusing on improving the quality of learner test scores in Grades 1-9, increasing access to FET provision beyond Grade 9, improving the quality of teaching, resource provision, funding, and school supervision and support. These are all important goals and we do not wish to exhaust the reader by discussing them in detail: we confine our comment to brief observations concerning potential bottlenecks to achieving these goals. The

[4] Quality Improvement , Development, Support and Upliftment Programme

Minister of Basic Education is likely to encounter problems in implementing her plans in four main areas.

4.5.1 Management and supervision

Quite how the DBE will achieve the goal of *ensuring* that basic management processes are followed in all schools in order to create a functional school environment (Goal 22), and of improving the frequency and quality of the monitoring and support services provided by district offices to schools (Goal 27) under the forces that presently structure appointments and promotions in many schools, districts and provincial education departments is open to question. Not only is the appointment of teachers in many parts of the country subject to union regulation, but it appears that promotion posts are considered by the unions to be 'open for deployment', and that unions use a variety of informal procedures to influence this process. The result is widespread nepotism, which is destructive in two ways. First, it results in inappropriate people being appointed to positions for which they are ill equipped: under these conditions institutional dysfunctionality becomes the norm. Second, and far more important, opportunity through channels of patronage signals that expertise is irrelevant, and its development and deployment is not the way to get ahead; instead, the livelihood of teachers and principals depends on the cultivation of networks held together by unions and political and civic associations. In Abbott's terms, mechanical forms of organisation currently overwhelm professionalism and dominate processes of institutionalization (Abbott,1988, 324). Belonging to the clan is more important than using one's expertise to maintain the mutually dependent networks which hold together a modern society. Moving teachers, and the civil service in general, from pre-modern forms of organisation to a more professional way of working is one of the greatest challenges facing the country at the present time. It is very doubtful whether bureaucratic processes on their own will do that trick: making a shift of this magnitude will require some form of pact between the unions and government.

The Minister of Basic Education announced in Parliament that she intends to hold principals and deputies accountable for the performance of their schools through performance agreements, and that she hoped to implement the system from January 2012 (Phakathi, 2011). At the same time, a performance appraisal system for circuit managers and other 'office-based educators' would be key to ensuring that they are assessing the work of principals rigorously. SADTU has kicked for touch on the issue, responding that, since implementation of a performance appraisal system would constitute a change in teachers' conditions of work, it will need to be discussed in the Education Labour Relations Council.

4.5.2 Building an accountability culture in schools

Government has indicated that it wants to hold schools accountable for the performance of their learners. But the choice of instrument for assessing learner performance is crucial. The Annual National Assessment (ANA) exercise to be administered in all schools at Grades 3, 6 and 9 in mathematics and language, which is what government seems to be pinning its hopes on, is not suitable for this purpose. Since it is administered and marked by the teachers themselves, it is an excellent instrument to assist teachers to understand the standard required by the curriculum, to see in detail the problems faced by each learner, and to measure the effectiveness of their own teaching methods.

However, the ANA is not suitable for regulating an accountability regime of even moderately high-stakes. The reasons for this are obvious: without very extensive training on use of the instruments,

teachers will apply a wide variety of practices in administering and marking the tests, resulting in low reliability in comparing results from one class to the next. Rises and falls in test scores from one year to the next could be due to a different teacher applying different standards, and not to any differences in learning. More significantly, when the stakes increase by loading test results with consequences, teachers have been known to cheat: for example, Jacob and Levitt (2003) have shown that at very significant numbers of Chicago teachers read the answers out to their children when administering state-wide tests, the results of which, in part, determined their salaries. Ravitch, formerly a staunch advocate of strong accountability measures, is convinced not only that these and other gaming practices are widespread across the US, but that they are leading to 'the destruction of the great American school system' (Ravitch, 2010).

A more suitable instrument for regulating accountability would be the kind of province-wide population testing undertaken by the Western Cape Education Department since 2002 and experimented with by the Gauteng Department of Education since 2007. These tests are administered and scored by a neutral service provider. The process is not so good for assisting teaching and learning because the teachers don't see their individual learner responses, and feedback is indirect and delayed. However, such externally administered tests do ensure that scores can be reliably compared across time and between institutions. Administered annually, they provide a very powerful resource for assessing the progress of every child, school, district, and the province as a whole, as well as tracking teacher performance, and delineating trends for different SES and historical fractions of the population.

At the top end of the high school, an exclusive focus on the National Senior Certificate on pass rates provides perverse incentives to game the system, to the detriment of students. A mix of indicators for assessing the worth of NSC outputs should balance considerations of quality, opportunity and efficiency.

4.5.3 Teacher training

Teacher education is a joint responsibility of the Ministries of Basic Education and of Higher Education and Training. Following an unfavourable review of a number of initial teacher education programmes offered by universities by the Higher Education Quality Council (Council on Higher Education, 2010), the two departments issued an Integrated Strategic Planning Framework for Teacher Education and Development for South Africa 2011-2025 (Department of Basic Education and Department of Higher Education and Training, 2011). The Framework is aimed at training professionally oriented teachers; in particular it announces a scheme to significantly improve the theoretical and practical competence of the beginning teacher, and to improve the in-school, on-the-job component of initial teacher training. It provides a coherent vision, covering the recruitment of potential teachers, the preparation of new teachers, induction into the world of work, and career-long (continuing) professional learning and development. Coupled with the Funza Lushaka bursary scheme, the Framework is likely to have a positive influence on the quality of new teachers entering the system.

However, amid many calculations showing that South Africa is not producing enough teachers, it remains difficult for many newly qualified teachers to get jobs. This is probably largely a result of the agreement with unions that recruits for vacant posts need to be taken from existing union lists. This

is a major problem, since it frustrates young job seekers who have probably been better trained than many of their older peers, and in any case are a better long term investment for the system.

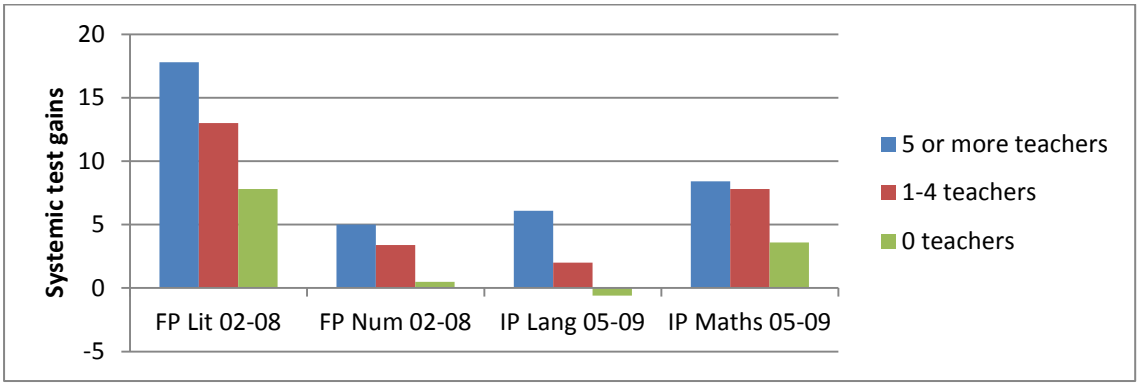
With respect to in-service training of existing teachers, in July 2010 the DBE, in announcing the release of the Integrated Strategic Planning Framework, admitted that the R1.1bn available annually for teacher in-service training was not optimally used (Blaine, 2010a), but conceded that it had not yet decided how to design more effective training. The provinces have been pouring money into in-service training for teachers over the last decade, leading to a massive growth industry of Accelerated Certificates of Education (ACE) offered by universities. However, the quality of these programmes has been questioned by the Council on Higher Education (CHE). It its Report on the National Review of Academic and Professional Programmes in Education, the CHE had this to say:

> "... HEIs end up paying insufficient attention to the ACE Mathematics, and indeed to other ACEs, because the ACE is perceived as the lowest of their priorities. ... The most vulnerable students in the institution then come to be the recipients of the minimal amount of attention, time and support that the institution can provide.
>
> It could be said that the HEIs are meeting the requirements for fulfilling he ACE's purpose only formally and in a spirit of compliance rather than substantially.
>
> The absence of a sustained plan that addresses the continuum of learning that is required, and in particular that addresses poor subject specialisation knowledge, is perhaps the greatest weakness of the ACE programmes".
>
> (Council on Higher Education, 2010:135)

The Council on Higher Education report concludes by holding provinces responsible for this situation: " [This situation is] largely caused by the provinces' demands for teachers who are nominally upgraded and certified." (Council on Higher Education, 2010:136).

The only in-service training model with proven impact is the one adopted by the Cape Teaching and Leadership Institute (CTLI) in the Western Cape (De Chaisemartin, 2011), by the science centre Scibono in Gauteng, and by the Maths, Science and Technology Education College (MASTEC) in Limpopo. The essence of the CTLI, Scibono and MASTEC models of teacher in-service training is that the courses are presented in 2 blocks over the year of fortnight-long residential programmes. Teachers spend the day in class, and then work together on assignments after hours, building professional networks that are maintained when they go back to their schools. The province pays for substitute teachers in the home classes of trainees. Teachers live in a total training environment for 2 weeks twice a year, and it would seem obvious that training of such intensity and duration will have a far more profound effect on teachers' knowledge and practice than the kind of afternoon/weekend/holiday workshops which characterise most inset programmes. This is demonstrated by the impact of the training: for example, evidence of the effects of CTLI training on learner performance is summarised in the following graph:

Figure 2: Comparison of gains on WC provincial tests, according to the number of teachers per school trained at CTLI between 2002-2009



Source: De Chaisemartin, 2011

The trends are clear: the greater the number of teachers from any one school attending CTLI training over the years, the greater the gain scores exhibited by the school on the provincial Grade 3 and 6 Literacy and Numeracy tests. The effects are statistically significant, and very substantial for foundation phase (FP) literacy and intermediate phase (IP) maths, and smaller but still substantial and significant for FP numeracy and IP language. This is demonstrably a far more effective model of in-service training than either the ubiquitous workshop format, or the ACE programmes.

4.5.4 Improving access to further and higher education

Much has been written about the poor quality of the school system, and how this greatly disadvantages particularly poor children in making progress with post-school education and training. In addition, there is a structural problem in the school system which fails to direct learners towards courses of study which are likely to maximise their natural talent. The first choice for most children is to get an academic NSC through a conventional high school, proceed to university and be trained as a professional. This is a laudable aim and an important source of developmental energy for any nation which is attempting to become more highly industrialised. Unfortunately, many drop out along the way, both because their schools are unable to provide the learning they require, or because they would be more suited to follow the college-based NC(V) track from Grade 10.

For a number of years the DBE (and its predecessor the Department of Education) has been talking about instituting a certificate (the General Certificate of Education (GCE); see Figure 1) at the end of Grade 9. This would be a good move, serving two purposes. First, it would provide a quality filter for the senior phase, and a target to which schools, learners and their families can aspire. Second, the GCE would be a valuable filter for directing children either towards the NC(V) or the NSC, whichever is more appropriate to the aptitudes and inclinations of the learner. This is where the important but poorly provided differentiated post-secondary system begins. Currently, the majority of learners who take the NC(V) have already passed the NSC: such inefficiencies could be avoided if the aptitudes of learners were assessed in Grade 9, providing information for directing them toward the track which best suited their talents and inclinations.

5. Higher education

5.1 Higher education and development

> "Higher education is now recognized as key to delivering the knowledge requirements for development. Research has suggested a strong association between higher education participation rates and levels of development, and that high levels of education are essential to the design and production of new technologies, for a country's innovative capacity and for the development of civil society.
>
> This has persuaded many countries – including rapidly developing nations such as China and India – to put knowledge and innovation policies, and higher education, at the core of their development strategies. The ability of developing countries to absorb, use and modify technology developed mainly in high-income countries will drive more rapid transition to higher levels of development and standards of living".
>
> (Cloete et al, 2011:xv).

The functions of Higher Education

Cloete et al's (2011) four-fold classification of national HE systems can be condensed into two main types:

The university as instrumental to national development: The role of universities is to produce educated civil servants and professionals. Knowledge produced at the university is considered important for national development – especially for the improvement of healthcare, strengthening agricultural production, and supporting small business development.

The university as engine of development: This notion assumes that knowledge plays a central role in national development – in relation to improving healthcare and agricultural production, but also in relation to innovations in the private sector, especially in areas such as information and communication technology, biotechnology and engineering. Within this notion the university is seen as a core institution in the national development model.

According to the theoretical framework adopted by the Higher Education Research and Advocacy Network in Africa (HERANA) research programme (Cloete et al, 2011), three interrelated factors need to be in place in order for universities to make a sustainable contribution to national development: agreement amongst the major actors (a pact) concerning the role of universities in development; the strength of the academic core capacity in universities; and coordination of and connectedness between the policies and activities of government, universities and external groupings.

Consensus on the national development model

Most countries that have made rapid and sustained economic progress have staged nationwide knowledge economy-inspired programmes of change. Such programmes have been pragmatic and country-specific, yet all have promoted trust and social cohesion around a knowledge economy programme. The HERANA project set out to assess the extent to which a consensus exists in eight African national systems, including SA, and concluded that:

- The most striking finding is the lack of clarity and agreement about a development model (except for Mauritius) and the role of higher education in development at both national and institutional levels.
- None of the eight countries has a development model per se, although Mauritius is moving in that direction, being the only country that states upfront that knowledge drives economic growth. For the other countries, knowledge is not yet considered to be key to economic development.
- At the national level in most of the countries, the dominant expectation from higher education is an instrumental role.

Coordination and connectedness

In order to achieve the ideal of HE as the engine of development, coordination of the system is required through structured forms of interaction, both within government and between government, institutions and social actors (private sector, unions); in other words, harmonisation of the knowledge policies and implementation activities of different government departments (particularly departments of education, science and technology), research councils, as well as those responsible for economic development and planning.

An enduring problem in many of the countries investigated, and in many other systems internationally, is the absence of cooperation between departments of education and science and technology. In SA this certainly was a problem between the departments of Labour and Education prior to the 2009 government. It remains to be seen whether the new Department of Higher Education and Training (DHET) is better able to coordinate its programmes with those of the Departments of Science and Technology (DST) and Basic Education (DBE), while also linking with the plans of the Departments of Economic Development (DED), Trade and Industry (DTI), and of course, the Treasury. Progress so far has not been encouraging, with no discernable links, for example, between the very ambitious innovation plans of the DST (2010) and the pipeline plans of the DHET (2011), a point which we shall elaborate below.

In South Africa, the institutional structures for the coordination of economic and education policy now exist in the National Planning Commission and the *Human Resource Development Strategy for South Africa,* while the *Accelerated and Shared Growth Initiative for South Africa* and *Industrial Policy Action Plan* have also taken up the need for coordination between the two sectors.

The academic core

Based on the assumption that it is the academic capacity of a university that equips the institution to fulfil its functions, the HERANA project set out to assess the academic strength of the 8 African universities in its sample. A combination of input and output indicators were formulated for this purpose. Overall conclusions of the project are that:

- The knowledge production output variables of the academic cores are not strong enough to enable universities to make a sustainable contribution to development.
- None of the universities in the HERANA group seem to be moving significantly from their traditional undergraduate teaching role to a strong academic core that can contribute to new knowledge production and hence to development.
- The most serious challenges to strengthening the academic core are the lack of research funds and low knowledge production (Ph.D graduates and peer-reviewed publications).

With these general considerations in mind, we now turn to look at the performance of the sector in more detail.

5.2 Performance of the South African HE system

The South African higher education policy framework has three institutional types:

(a) **Universities** which offer basic formative degrees such as Bachelor of Arts (BA)and Bachelor of Science (BSc) and professional undergraduate degrees such as BSc Engineering (BSc Eng) and Bachelor of Medicine (MBChB). At postgraduate level the universities offer honours degrees and a range of masters and doctoral degrees. Universities also offer a limited number of undergraduate diplomas and certificates as well as postgraduate diplomas and certificates;

(b) **Universities of technology** which offer mainly vocational or career-focused undergraduate diplomas and BTech degrees which serve as capping qualifications for diploma graduates. Universities of technology also offer a limited number of masters and doctoral programmes;

(c) **Comprehensive universities** which offer programmes typical of universities as well as programmes typical of universities of technology.

In the public higher education landscape there are currently 11 universities, six universities of technology and six comprehensive universities. It is important to note the absence in the public sector of a range of colleges offering post-school courses, a characteristic of most mature higher education systems. In South Africa the private sector is active in this terrain, but not much is known about the extent and range of this activity.

5.2.1 Participation

Statistics in this section are largely derived from Shepphard (personal communication, 2011). Substantial headcount growth has been achieved in the past decade. In 2000, the number of students enrolled in the South African public higher education system stood at approximately 557 000, and in 2009, headcounts at 838 000 had already exceeded the target of 816 000 set in the *Ministerial Statement on Student Enrolment Planning* (Department of Education, 2007).

Table 8: Headcount enrolments in South African universities by qualification level, 2000-09 (000)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Growth pa
First-time entering undergraduates	109	121	132	137	146	135	140	152	152	165	4.7%
Total undergraduate	456	491	518	548	597	601	608	625	653	684	4.6%
Total postgraduate	88	95	105	114	124	115	111	110	119	129	4.3%
TOTAL	**557**	**605**	**643**	**684**	**744**	**735**	**741**	**761**	**799**	**838**	**4.7%**

Source: Charles Sheppard, personal communication, 2011

At 17%, South Africa's participation rate[5] is significantly lower than that for comparable middle-income countries, although it is much higher than the average of 6% for sub-Saharan African countries. The World Economic Forum's Africa Competitiveness Report of 2011 (World Economic Forum et a, 2011) classifies eight African countries and three successful developed countries according to their 'stage of development'. In the first stage, the economy is 'factor-driven' and countries compete based on their factor endowments: primarily unskilled labour and natural

[5] Enrolment as a proportion of the 20-24 year old cohort.

resources. As wages rise with advancing development, countries move into the 'efficiency-driven' stage of development, when they must begin to develop more efficient production processes and increase product quality. At this point, competitiveness is increasingly driven by higher education and training, amongst other things. Finally, as countries move into the 'innovation-driven' stage, they compete through innovation, producing new and different goods by combining sophisticated production processes with a high-skill workforce, research and innovation.

Table 9: Comparison of HE participation rates and GDP per capita

Country	Stage of development (2009–2010)	GDP per capita (PPP, USD) 2007	HDI Ranking (2007)	Gross tertiary education enrolment rate (2008)	Overall global competitiveness ranking (2010–2011)
Ghana	Stage 1: Factor-driven	1 334	152	6.2	114
Kenya		1 542	147	4.1	106
Mozambique		802	172	1.5	131
Tanzania		1 208	151	1.5	113
Uganda		1 059	157	3.7	118
Botswana	Transition from 1 to 2	13 604	125	7.6	76
Mauritius	Stage 2: Efficiency-driven	11 296	81	25.9	55
South Africa		9 757	129	15.44	54
Finland	Stage 3: Innovation-driven	34 526	12	94.4	7
South Korea		24 801	26	98.1	22
United States		45 592	13	82.9	4

Source: World economic Forum et al, 2011

While the relationship between economic development and HE participation is a reciprocal one, the figures above present a cogent case for pushing the supply side of this interaction by significantly expanding HE participation. Currently, participation appears to be growing slowly:

Table 10: Participation rate, 2007-2016

Year	Actual 2007	Actual 2008	Actual 2009	Prelim 2010	Projected 2011*	Projected 2012*	Projected 2013*	Projected 2016*
HE headcount enrolment	761259	799893	838250	894074	908684	944643	983471	1067776
20-24 year old mid-year population estimates	4726110	4820527	4920962	5025328	5079280	5131668	5181863	5338879
Gross participation rate as defined by UNESCO	16.1%	16.6%	17.0%	17.8%	17.9%	18.4%	19.0%	20.0%

* Assuming a cohort growth rate of 1% pa.
Source: Charles Sheppard presentation to NPC Seminar, 28 April 2011; 2016 projection calculated from Sheppard's data.

The National Plan for Higher Education (Department of Education, 2001) set a goal of 20% participation by 2016. In order to reach this target, the school system would have to produce an additional 173 702 matriculants qualified to enter HE from the 2010 figure, an increase of 19%. The bottleneck to reaching the 2016 target will undoubtedly be the ability of the school system to meet

this challenge, rather than the ability of the universities to absorb these numbers, although that will be difficult enough in itself, and require very considerable additional funding.

However, on the issue of expanding university enrolments, the Council on Higher Education notes:

> It is clear that, as long as the current undergraduate performance patterns continue, increasing the intake is not in itself an efficient means of increasing graduate output. Given the small pool of adequately-prepared candidates, increasing the intake will result in increasing the proportion of less-prepared students in the sector. Unless there are changes in the educational process, this will mean at best perpetuating, or more likely worsening, the negative aspects of the current performance patterns. This has implications for further investment in higher education. 'More-of-the-same' funding, focusing on enrolment growth rather than improving the educational process, is unlikely to produce optimal returns. It follows that improving graduate output depends primarily on improving the performance patterns.
>
> Council on Higher Education, 2007: 21

The CHE position marks one end of a debate which has not properly started, but which presents government with an important decision: to expand numbers at the input end, or to improve the output by increasing internal efficiency of the system. It is a debate which is central to future policy developments in both the HE and post-schooling sectors. With respect to the former, the issues come into clearer focus in the discussion on throughput rates in section 5.2.2 below.

As with all indicators, participation rates vary greatly by race:

Table 11: Gross higher education participation rates by race for 2004 to 2008

	2004	2005	2006	2007	2008
African	12%	13%	12%	12%	13%
Coloured	12%	12%	13%	13%	13%
Indian	50%	50%	50%	49%	45%
White	64%	61%	59%	57%	56%

Source: Stumpf, 2010: 31

Encouragingly, growth has been fastest among students disadvantaged under apartheid, with African numbers growing by an average of 6.2% pa and whites by only 1.1%.

Table 12: Head count enrolments by race, 2000-09 (000)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Growth pa
African	318	353	377	403	454	447	451	477	515	548	6.2%
Coloured	30	33	38	42	46	46	49	49	52	55	6.9%
Indian	40	43	48	52	54	55	55	53	52	54	3.4%
White	163	173	179	185	189	186	185	180	178	179	1.1%
TOTAL	**551**	**603**	**641**	**682**	**743**	**734**	**739**	**759**	**797**	**836**	**4.7%**

Source: Charles Sheppard, personal communication, 2011

These differential rates of growth by race group has led to African students now constituting a two-thirds majority, a remarkable turnaround since 1990 when they made up only 32% of all students in HE.

Table 13: Proportion of head count enrolments by race, 2000-09 (%)

	% of total population	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
African	79,3%	58%	59%	59%	59%	61%	61%	61%	63%	65%	66%
Coloured	9,0%	5%	5%	6%	6%	6%	6%	7%	6%	6%	7%
Indian	2,6%	7%	7%	7%	8%	7%	7%	7%	7%	7%	6%
White	9,1%	30%	29%	28%	27%	25%	25%	25%	24%	22%	21%
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Source: Charles Sheppard, personal communication, 2011

In terms of gender equity, the trends have been in favour of women students, numbers of which have grown faster than men, with women now outnumbering men in the ratio 56:44.

Table 14: Headcount enrolments by gender, 2000-09 (000)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Growth pa
Female	289	321	345	366	404	401	409	422	451	478	5.7%
Male	266	283	299	318	341	334	333	338	349	360	3.4%
TOTAL	555	605	643	684	744	735	741	761	799	838	**4.7%**

Source: Charles Sheppard, personal communication, year

In terms of enrolments by field of study there have also been encouraging developments, with student numbers in the scarce skill areas of science, engineering and technology (SET), business and management, and education growing faster than those in the humanities.

Table 15: Headcount enrolments by field of study, 2000-09 (000)

Field of study	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Growth pa
Science, engineering, technology	161	166	172	190	202	211	212	215	225	237	4.40%
Business/management	139	182	197	211	237	214	223	229	235	236	6.10%
Education	72	94	101	100	112	106	98	106	125	137	7.50%
Other humanities	184	163	174	183	193	204	208	211	215	227	2.40%
TOTAL	555	605	643	684	745	735	741	761	799	838	4.70%

Source: Charles Sheppard, personal communication, 2011

This growth has resulted in the relative proportions of students in the major fields of study approaching the targets set by government for 2010. The 2001 National Plan for Higher Education proposed to tilt the balance of enrolments towards the sciences, engineering and technology, and to a lesser extent towards business and commerce, while reducing the predominance of the social sciences and humanities (Department of Education, 2001). Enrolment targets over the decade were set at 30% for science, engineering and technology, 30% for business/management, and 40% for the humanities and social sciences, including education (Department of Education, 2001).

Table 16: Proportion of headcount enrolments by major field of study, 2000-09

	2000	2009	Targets 2010
Science, engineering, technology	29%	28%	30%
Business/management	25%	28%	33%
Education	13%	16%	37%
Other humanities	33%	27%	

Source: Charles Sheppard, personal communication, 2011

On the negative side, Kraak (2011) points out that there has been a decrease in enrolments in the Universities of Technology, resulting in a decreasing capacity to produce technically skilled person-

power at the intermediate to high skill levels, which of course is a major problem for the SA economy and for ramping up to higher levels of added-value production. Of particular concern, Africans are generally least well-represented in the research-orientated universities. This has implications for growth in postgraduate studies and research, and for the next generation of academics.

5.2.2 Qualifications awarded and throughput

The numbers of qualifications awarded have grown marginally faster than headcount enrolments (6% against 4.7%), indicating that graduation rates are improving. However, postgraduate qualifications have declined as a proportion of the total, from 27% in 2000 to 25% in 2009.

Table 17: Graduates by qualification type, 2000-09 (000)

Qualification type	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Growth pa
Undergraduate diplomas	25.4	29.5	32.4	35.2	37.8	39.2	42.4	43.4	46.1	51.6	8%
Undergraduate degrees	38.9	36.0	36.9	40.1	45.8	48.4	51.3	52.3	54.6	57.2	4%
Total undergraduate	64.3	65.5	69.3	75.3	83.6	87.6	93.7	95.7	100.7	108.8	**6%**
Postgraduate to masters level	17.0	18.7	20.0	21.9	24.5	23.2	22.0	22.1	23.9	26.6	5%
Masters	6.1	6.5	6.9	7.5	7.9	8.0	7.9	7.5	7.5	8.1	3%
Doctors	1.0	0.9	1.0	1.0	1.1	1.2	1.1	1.3	1.2	1.4	4%
TOTAL	88.3	91.6	97.2	105.6	117.1	120.1	124.7	126.6	133.2	144.9	**6%**

Source: Charles Sheppard, personal communication, 2011

African graduates as a percentage of total graduates decreased from 58% in 2000 to 53% in 2008. This is indicative of low success and graduation rates for African students, although they are improving. The qualifications awarded to Coloureds as a percentage increased from 5% in 2000 to 7% in 2008. Indian graduates also increased from 6% in 2000 to 7% in 2008. White graduates increased as a percentage of total graduates from 35% in 2000 to 42% in 2008. The percentage of female graduates increased from 56% in 2000 to 58% in 2004 and to 60% in 2008.

Graduation rates are defined as the percentage of students in a programme that graduate in a particular year as a percentage of the students enrolled in the programme in the same year. The following table indicates that rates are improving very slowly for undergraduate qualifications, but appear to be declining at postgraduate level; in both cases graduation rates remain unacceptably low.

Table 18: Graduates as a percentage of headcount enrolments

Qualification type	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Total undergraduate	14%	13%	13%	14%	14%	15%	15%	15%	15%	16%
Postgraduate to masters level	34%	35%	35%	35%	35%	38%	38%	37%	36%	36%
Masters	19%	19%	18%	17%	17%	18%	18%	18%	18%	19%
Doctors	15%	13%	13%	13%	12%	13%	11%	13%	12%	13%
TOTAL	**16%**	**15%**	**15%**	**15%**	**16%**	**16%**	**17%**	**17%**	**17%**	**17%**

Source: Charles Sheppard, personal communication, 2011

The low graduation rate nationally is highly influenced by the low graduation rate of the University of South Africa (UNISA), the country's largest institution by far, which had a graduation rate of 9% in 2008. Between 2000 and 2008, graduation rates for the major fields of study changed as follows: science, engineering and technology increased from 15% to 18%; business and management

sciences decreased from 15% to 14%; education increased from 23% to 24%; and other humanities and social sciences remained at 16%.

Scott and Fisher (in press) quote the Department of Education as calculating that, of the 120 000 undergraduates who entered higher education for the first time in 2000, 30% dropped out at the end of their first year of study and half of the cohort dropped out before completing their degrees. Only 22% of the total cohort had graduated at the end of their third or fourth year of their study. The remaining 28% were still studying in 2003, but would not qualify in that year. The following table shows how few students graduate in the minimum time:

Table 19: Graduated in regulation time (3 years) - general academic first B-degrees, excluding Unisa

Field of study	*Black*	*White*	*All*
Business/Management	11%	43%	24%
Life and Physical Sciences	11%	35%	21%
Mathematical Sciences	13%	33%	24%
Social Sciences	14%	43%	29%
Languages	13%	52%	28%

Source: Scott and Fisher, in press

In terms of race, graduation rates over the 2000 to 2008 period increased as follows: African – 15% to 16%; Coloured – 15% to 17%; Indian – 16% to 17%; and, White – 21% to 22%. The graduation rate of females remained at 18%, whilst the graduation rate of males increased from 15% to 16% over the period 2000 to 2008.

5.2.3 Staff

In the period 2000 to 2009, total permanent staff grew by an average of 1.6% pa, with professional staff growing by 2% pa and non-professional staff by 1.3%. This is much lower than the growth in both headcount enrolments and qualifications awarded, indicating that the efficiency of the sector has improved in the last decade. Regarding qualifications, 35% of professional staff have doctoral degrees and 34% have masters. These qualifications are growing very slowly, with the number of staff with doctorates growing by only 2.5% pa, and those with masters by 3.7%.

In 2007, 37% of staff in public higher education were African, up from 33% in 2004; 44% of staff were White in 2007, down from 48% in 2004 (Council on Higher Education, 2009). While the change is slow, it is not insignificant, given the difficulties of sourcing staff. Between 2004 and 2007, almost 6 500 additional African staff were employed at the public universities, an increase of some 13.5%. Regarding academic appointments, the racial imbalance is pronounced, with Whites continuing to fill most of the academic posts at all levels, while Africans and Coloureds are underrepresented at all levels.

Scott and Fisher (in press) stress that the ability to attract and retain academic staff, together with the replacement of an aging, predominantly white professoriate and research community, is a matter of growing concern, cited by Higher Education South Africa in 2009 as one of the main challenges facing higher education. The slow growth in postgraduate enrolments and qualifications

awarded does not auger well for staffing the universities in general and for changing the demographic profile of staff in particular. One of the highest priorities for the sector must be to substantially increase enrolments and graduation rates at the postgraduate level, particularly for African students and women. This is the pool from which future academic staff will be drawn, and it is also the pool supplying high level research capacity to the commercial and professional sectors.

5.2.4 Knowledge production and innovation

On the output side, the number of published papers by staff has been growing at an average of 5.6% pa, while doctoral graduates have been growing at 4% pa, and research masters graduates by 4.9%. The ratio of permanent staff members to research outputs has grown rapidly in terms of the number of publications produced, moderately in terms of research masters graduates, but very slowly in the numbers of doctoral graduates.

Table 20: Ratios of research outputs to permanent academic staff members, 2000-09

Research output	2000	2009
Publication units	39%	56%
Research masters graduates	19%	26%
Doctoral graduates	7%	8%

Source: Charles Sheppard, personal communication, 2011

For Kraak (2011) the results make it clear that incentives to increase research outputs set in place in 2005 are working. However, South Africa is still performing way below the output of equivalent countries across the globe. While SA improved the ratio of full time equivalent (FTE) researchers per 1 000 employed from 1.2 in 2000 to 1.9 in 2007, this is still slower than, for example, China, with an increase from 1.0 to 1.9, and way behind the OECD countries' rate of around 7. Scott and Fisher (in press) agree, pointing out that, while there has been only a slight increase in South Africa's output of scientific publications since 1994, its overall share of global output declined from a peak of 0.7% in 1987 to 0.48% in 2003. By contrast, comparator countries such as Brazil, Taiwan, South Korea, and India, starting from a lower base, have overtaken South Africa.

The Department of Science and Technology (DST) has planned a very significant scaling up of graduate and research outputs in order to drive an ambitious programme of research, development and innovation in five so-called 'grand challenge' areas (Department of Science and Technology, 2010). Targets include: economic growth attributable to technical progress increasing from 10% in 2002 to 30%; a doubling in the global share of research outputs from 0.5% in 2002 to 1%; and high- to medium-technology exports as a percentage of all exports increasing from 30% in 2002 to 66%.

As Kaplan (2008: 115) observes, 'Achieving these goals would clearly represent a very significant expansion of the system and sharp reversal of the trend of South Africa's declining comparative global performance.' Amongst the enabling conditions that would have to be met, the percentage of school leavers with exemption in mathematics and science would need to increase from 3.4% to 9%; the number of Ph.D graduates per annum would need to increase from 963 in 2002 to 2,200; the gross availability of SET graduates to the economy would need to increase from 235,438 in 2002 to 450,000; and the number of full-time equivalent researchers would need to rise from 8,708 in 2002 to 20,000. In simple terms, on any of the above indicators, there is no sign that higher education is beginning to respond at scale to the demands for higher level skills, increased graduate and post-graduate outputs, and research.

A prominent DST initiative is its SA Research Chairs Inititative (SARChI), through which the department currently funds 92 research chairs. The Minister recently announced a plan to increase this to 154 chairs by 2012/2013, at a cost of R428m pa (Pandor, 2011). With each chair supervising an average of 8-10 postgraduate students (well above the national average of three) and publishing at a rate well above the national average, SARChI is adding very significantly to the country's research capacity and output.

5.2.5 Variation within the HE system

Five of the general universities dominate university research production in South Africa. Together, the Universities of Cape Town, Pretoria, Witwatersrand, Kwa-Zulu Natal and Stellenbosch accounted for nearly 65% of all research publication units in 2006-8, while the six Universities of Technology combined accounted for only 3%. The five leading research universities likewise accounted for 57% of all Ph.Ds, while the Universities of Technology accounted for just 3% (Scott and Fisher, in press). Amongst the general universities, for example, the Universities of Cape Town and Stellenbosch had an average research output value for 2006-08 of over two units per academic staff member, while two other general universities had values of below 0,5. Amongst the comprehensive universities, some were close to the DHET norm of 1, whilst the lowest performing institution had an output of only 0,04. Similarly, amongst Universities of Technology, values ranged between 0,3 and 0,03 for the period (Scott and Fisher, in press).

Not only do SA universities vary with respect to their research output, but in addition, large quality disparities occur across the sector. A tracer study by Cosser et al (2010), which followed both graduates and those who did not complete their HE programmes from seven higher education institutions (UFH, UN, Pentech, PtaTech, SU, UWC, and Wits)[6] shows that the non-completion rates at historically White institutions (37%) are close to half of those for historically Black institutions (HBIs) (62%) (Bhorat, Mayet and Visser, 2010). No doubt these figures reflect the fact that the HBIs, many situated in rural areas, continue to draw their students from predominantly low socio economic status families who attend poor performing schools.

Cosser et al's (2010) tracer study also found differential labour market absorption of graduates by race. Thus, 92% of White graduates find employment within six months of graduating and a further 7% find employment within a year. In contrast, only 56% of Africans are employed within 6 months, a further 18% and 19% find work within one and two years, respectively, while 7% remain unemployed after two years (Moleke, 2010). Bhorat, Mayet and Visser (2010) detect the presence of three factors in structuring these effects:

- Course of study: rates of absorption decrease from health sciences, humanities, education, natural and mathematical sciences, engineering and other applied sciences, business/commerce and social science and applied humanities;
- Institutional: unemployment rates increase from SU, Wits, PtaTech, UWC, Pentech, UN, UFH;
- Discrimination by employers or some other factor not accounted for in the study.

Two main points emerge from this discussion: quality needs to be improved more at some institutions (predictably those which serve poorer students), while it seems anomalous that all institutions should be subject to the same expectations regarding, for example, research outputs.

[6] University of Fort Hare, University of Natal, Cape Peninsula University of Technology, Pretoria University of Technology, Stellenbosch University, University of the Western Cape and University of the Witwatersrand.

This latter point leads to a great unresolved issue in the sector, that of institutional differentiation, which we take up under section 5.3.2 below.

5.2.6 Funding

Student funding is a factor which has the potential to improve both access and success rates. Cosser et al's tracer study indicates that, of the seven institutions studied, the main reason for non-completion given by former students at all but the two historically White institutions (Wits and SU), was financial difficulty. The authors conclude that "student poverty is the most important issue to be addressed if the student dropout rate is to be remedied." (Letseka, Breier and Visser, 2010:39).

Against this background, the Ministerial Commission on the National Student Financial Aid Scheme (NSFAS) recommends:

- Progressively providing free higher education to undergraduate level for students from poor and working class communities;
- Providing student loans on favourable terms to higher education students from lower middle income families;
- Providing fully subsidised bursaries for all National Certificate (Vocational) (NC(V)) students at FET colleges; and
    - All institutions which admit students who receive National Student Financial Aid Scheme (NSFAS) funding should place these students in appropriate academic support programmes.

(Department of Higher Education and Training, 2010c)

However, current indications are not positive: according to the NSFAS review report, only 19% of NSFAS-supported students have graduated thus far. More significantly, 'Of the 67 percent of NSFAS students who are no longer studying, … 72 percent have either dropped out or have not completed their studies' (Department of Higher Education and Training, 2010c: 69). This represents a poor return on the major investment in student support, and indicates the NSFAS is contributing to increasing participation but not to increasing successful participation.

5.2.7 Private higher education

In 2008, private HE institutions enrolled 75 916 students, which made up 9.6% of the total (Frank Thompson, personal communication, year). A total of 87 institutions accounted for these students.

Table 21: Private HE provision

Student numbers	Number of institutions
>5000	3
1500-4999	8
500- 1499	18
100-499	38
<100	20
Total	**87**

Source: Frank Thompson, personal communication, 2011.

Business studies are the most common courses offered, with 35 institutions enrolling students in this area, followed by philosophy andtTheology (24), Arts (22), information science (17), health sciences (17), communication studies and journalism (14). However, the private HE sector is not well documented in terms of fields of study, student demography and potential for growth. It needs to be studied in more detail if it is to play a significant part in expanding the HE sector.

5.3 New Policy: the Revised Strategic Plan of DHET

The terrain of HE took a significant new turn with the establishment of the Ministry of Higher Education and Training in 2009, placing HE and skills development under one political and administrative roof for the first time. Of the *12 Outcomes* announced by the Cabinet in January 2010 to drive government planning over the next 15 years, *Outcome 5* relates most closely to the mandate of the Ministry of Higher Education and Training.

Outcome 5: A skilled and capable workforce to support an inclusive growth path.

The Revised Strategic Plan of the Department (Department of Higher Education and Training, 2010a) announces that the DHET has adopted five outputs for *Outcome 5*: establishing a skills planning mechanism, **i**ncreasing access to programmes leading to intermediate and high level learning, to occupationally-directed programmes in needed areas, to high level occupationally-directed programmes, and increasing research, development and innovation in human capital for a growing knowledge economy.

The Strat Plan recognises five broad challenges in the university sector: student success (throughput), the quality of teaching and learning, differentiation of the system, knowledge production and student access. We discuss these in turn, combining the first two.

5.3.1 Success and quality

Within the medium term expenditure framework for the 5 years commencing 2009/10, the Strat Plan sets a target of improving both access and success by 20% by 2014. These are modest enough targets on the face of it, and in fact current trends indicate that the access target should be met. However, there are strong signs that the increased numbers admitted into universities since the advent of the new NSC curriculum in 2008 have been bought at the expense of quality.

The DHET plan recognises that the poor performance of the schooling system is a major systemic constraint to success in the university system, but offers little in terms of what can be done at university level to increase internal efficiency. Scott and Fisher (in press) recommend that a flexible undergraduate curriculum framework be permitted to develop, which would enable all institutions to deal more effectively with underprepared students. A flexible framework would create the opportunity to provide the additional curriculum space needed to realistically address the students' educational backgrounds. Such a framework, recognised in the funding formula, would include the four-year degree, modularisation of courses, and foundation programmes to address knowledge deficiencies. The problem with this proposal is that the research evidence for the impact of foundation programmes is thin, providing space for opposition to these approaches within the universities, where they are seen as 'add-ons' that have little effect on student success (Kraak, 2011). Another objection is that if a flexible approach were adopted there would effectively be two streams within universities – a predominantly African stream doing four-year degrees and a predominantly minority stream on three-year programmes – and any institution would feel uncomfortable with this situation.

There is no doubt that the long term solution to poor throughput in the tertiary sector is to improve the quality of our schools. But is there nothing that can be done in the interim to ease the path of students whose schooling was poor? Since the system already pays for 4 or 5 years to achieve each

3-year degree (disregarding for the moment the 50% of students who drop out), it seems that it would not cost a great deal to experiment with extended programmes, provided such experiments are carefully evaluated in terms of costs and benefits, and includes trying out a range of options, such as college/university partnerships aimed at improving the university-readiness of underprepared students. Centrally funded campus experiments should be directed to improving throughput rates of high risk students.

5.3.2 Differentiation

The differentiation debate in the university sub-system is a long-standing one that has not been concluded. A Higher Education South Africa (HESA) report, *Pathways to a diverse and effective South African Higher Education System* (HESA, 2009:36-7), expressed support for '…the principle of a differentiated higher education system as such a system, in theory at least, makes different development trajectories for higher education institutions possible'. The report argued in favour of '…a system of progressive self differentiation based on varying institutional visions and missions accompanied by policies and processes that enable institutions to make meaningful progress in their distinctive developmental trajectories'.Scott and Fisher (in press) suggest that the notion of differentiation can be viewed from at least three perspectives.

First there is the perspective of history. This is the view that predominates in the DHET Strat Plan, which describes universities as being differentiated by an 'uneasy resolution of institutional type, but a more profound differentiation is the ongoing legacy of differential resource allocations under apartheid' (Department of Higher Education and Training, 2010a:38). This legacy remains differentiation by effectiveness, by geographical location, by research output, by the number of academic staff with doctorates, by student success, by leadership capacity of institutions, and by market capacity to select more high-performing students. The plan recommends that the funding regime be reviewed to promote a differentiation that will steer the system towards meeting a diverse set of goals in a manner that is just and equitable.

Second, differentiation occurs by institutional mission, with some universities setting out to be primarily research institutions, with others, to a considerable extent by default through lack of research capacity, focusing largely on teaching. It is from this perspective that a study by the Academy of Science for South Africa (ASSAf) into barriers to increasing Ph.D productivity in the country recommended that government classifies certain universities as 'research universities' and gives them the resources needed to expand their Ph.D programmes (ASSAf, 2010).

Which brings us to the third way of directing the system toward differentiation: incentivising evolutionary change. The ASSAf proposal to tie funding for research to institutional classification would seem to be an unnecessarily rigid way of doing things, in contrast to the DST's strategy of funding research excellence wherever it exists through its research chairs initiative. The DST programme builds on existing strengths, clustering postgraduate students around centres led by world class researchers. Research centres can arise under the most adverse conditions, such as in the Agricultural and Rural Development Research Institute (ARDRI) at the University of Fort Hare. It is true that they are more likely to occur in urban centres at one of the long established campuses, but that after all is where the population is moving to, and international experience tells us that no country has thoroughly modernised without urbanisation (Commission on Growth and

Development, 2010). This approach is what the HESA report (2009) calls 'progressive self differentiation'.

Scott and Fisher (in press) make the point that currently the HE funding formula encourages mission convergence across a diverse set of institutions: for example, universities of technology, which should be focusing on teaching technologists and technicians, are incentivised to supervise Ph.Ds and to produce research publications to the same extent that the academic institutions are. The funding formula will need to find a balance between building infrastructure and human capacity on the rural campuses on one hand, and channelling resources to the strong institutions to expand their intake and increase their research outputs on the other. It should recognise that producing highly skilled technical workers requires dedicated teaching unencumbered by demands to produce research papers, while high quality research and postgraduate supervision requires relief from an onerous teaching load.

5.3.3 Knowledge production and relevance

The DHET Strat Plan presses all the right buttons with respect to the knowledge production function of the universities, starting from the fact that universities are the primary loci of knowledge production for the country, and that if SA is to build academic capacity for the future and boost the research and development capacity needed for high growth, the system must focus on high-quality graduate training and expand post-graduate studies and research. Pointing to uneven performance in knowledge production across universities, the Strat Plan emphasises the urgency of dealing with equity issues in the participation of knowledge production, and recommends that urgent strategies be developed to regenerate and enlarge the pool of productive researchers, with a focus on representativity.

If there is a criticism of the Strat Plan, it is perhaps that insufficient attention is given to the implications of adopting the 'engines of development' perspective on HE and its role in fast-track development. Fast growing economies give priority to the top end of HE, incentivising high quality research, technology adaptation and innovation. These are necessary conditions for finding competitive advantage, and hence of rapid growth, be this in financial services, computers, manufacturing, mining, engineering and construction, biotechnology or agriculture. The draft World Bank report on SA highlights the strategic importance of technology in South Africa's development agenda (World Bank, in press), noting that, given the country's traditional reliance on natural resources and the lack of significant competitive advantage over Asian manufacturing industries in terms of labor cost, technology must be the core of South Africa's comparative advantage and drive its future growth and sustainable employment creation. The report recommends a number of actions to 'close the technology gap':

- Both generation and commercialisation of knowledge are needed. Technology progress involves not only Research and Development (R&D) and invention, but also actions that turn inventions into marketable new products and new processes.
- South Africa has drastically scaled up investment in knowledge generation since the fall of apartheid. In real terms, R&D expenditure in 2007–08 was approximately three times the level of expenditure in the mid-1990s. The role of the business sector in financing R&D activity has strengthened substantially vis-à-vis that of the government and the higher education sector.

- This trend has not, however, been matched by an equally rapid increase in R&D personnel, as measured by the number of full-time equivalent (FTE) researchers. From 1992 to 2006, the total number of FTE researchers increased by only 33%. South Africa has approximately 1.5 FTE researchers per 1,000 employed, which is relatively fewer than countries that have a similar ratio of R&D spending to GDP, e.g. Portugal (4.8) and Italy (3.6).
- Priority must be given to enhancing the supply of the high-level skills required for innovation. In particular, as the DST has acknowledged, "To build a knowledge-based economy positioned between developed and developing countries, South Africa will need to increase its Ph.D. production rate by a factor of about five over the next 10–20 years" (Department of Science and Tchnology, 2008:29). This is also the long term solution to the race and age imbalance in the country's academic staff, and to any future expansion of the system. If we are to improve the quality of academic teaching and research, expand enrolments and change the demographic profile of the country's research cadre, then we must dramatically scale up postgraduate qualifications among all students, but particularly among Africans.
- Better overall coordination of innovation policy and the innovation framework in South Africa is needed. It is not clear from the DHET Strat Plan, for example, how the HE pipeline will feed the ambitious targets of the DST with respect to Ph.D production and SARChI appointments.

5.3.4 Access

The DHET is targeting a long term goal of 50% participation rate in universities and colleges by 2030. New higher education institutions are being established in Mpumalanga and the Northern Cape, although their precise future trajectories as still to be determined. In asking the question: 'What current institutions have the capacity to increase their intake in areas of strength and which of these match the existing needs?' the DHET Strat Plan points to a need to adopt a differentiated strategy with respect to expanding HE, with expansion being confined to those institutions with relatively strong capacity

Financial difficulty is cited as a main cause of student dropout throughout the system. In 2010, struggling university students at 14 universities owed more than R2 billion in outstanding tuition and accommodation fees; eight institutions were forced to write off almost R70 million in bad debts; and 17 were battling to recover a further R827.6 million in fees from previous years. (Govender, 2010). The DHET Strat Plan notes that government is gradually introducing free education for the poor to undergraduate level in universities and colleges. Students who qualify for assistance from the National Student Financial Aid Scheme (NSFAS) will receive awards to cover the cost of their studies. Final year students in universities will be offered the incentive of loans being converted to full bursaries if they complete all the requirements for graduation in the same year. In another important path-breaking development, students in FET Colleges who qualify for NSFAS loans will be exempted completely from paying academic fees.

Regarding expansion, Pillay has done some scenario costing for the NSFAS (Pillay, 2010). Assuming the following: 40% of students are poor and require bursaries; using the 2009 NSFAS average full cost of study of R43 358; participation rate rises to 24% by 2020, then the total cost goes from R14.9 billion in 2009 to R22.7 billion in 2020 (2009 prices).

Table 22: Costs of university education, assuming 40% of students on full NSFAS bursaries

	Participation rate remains at 17%	Participation rate increases to 24% by 2020	Participation rate increases to 30% by 2020
2009	R 14,477,553,754	R 14,931,669,151	R 15,211,925,607
2010	R 14,784,600,298	R 15,692,890,831	R 16,287,507,267
2011	R 14,943,327,998	R 16,323,785,831	R 17,260,302,046
2012	R 15,097,454,384	R 16,972,955,731	R 18,283,562,311
2013	R 15,245,128,926	R 17,638,638,003	R 19,357,274,972
2014	R 15,387,775,561	R 18,322,721,576	R 20,485,425,494
2015	R 15,503,738,103	R 18,999,000,569	R 21,640,216,269
2016	R 15,593,937,401	R 19,666,646,532	R 22,821,121,734
2017	R 15,701,501,548	R 20,379,611,727	R 24,092,308,481
2018	R 15,810,106,640	R 21,118,823,068	R 25,434,784,129
2019	R 15,919,762,885	R 21,885,259,506	R 26,852,571,361
2020	R 16,030,480,640	R 22,679,936,971	R 28,348,976,217

Source: Pillay (2010)

An underdeveloped area of the Strat Plan concerns the role of private HE institutions. For example, the objectives for private HEIs listed in DHET's five-year strategic plan for 2010/11 to 2014/15 are:

3.3.3.1 To ensure the appropriate regulation and registration of private higher education institutions

3.3.3.2 To monitor the compliance of private higher education institutions with the legislation and regulations

3.3.3.3 To maintain accurate records and data on private higher education institutions

3.3.3.4 To provide information on registration and amendment procedures in private higher education institutions

(Department of higher Education and Training, 2010a:74)

These goals are all about compliance and regulation, with no mention as to how the private sector might be incentivised to expand in order to complement government efforts to raise enrolment. Interestingly, in the last 50 years, South Korea has focused state attention on building a high quality school system, leaving vocational training and higher education largely to the private sector; as a result, 75% of post-secondary education is provided by private institutions, most of which receive state subsidy for approved programmes. This is not an argument to privatise state institutions in South Africa, but a suggestion to investigate the role the private sector could play in boosting both the quantity and variety of HE programmes. Regulation of an area which has shown itself to be as prone to corruption as any other is essential (this is not only a problem in SA; see Hotson,2011), but that should not be an argument against releasing the energy of the private sector to provide higher education services, a function it performs well in many countries. Inevitably private universities serve mainly those who can pay, but this could be expanded if state subsidies applied equally to private institutions, conditional on cross-subsidisation of poor students.

6. The Post-school Sector

6.1 Introduction

This chapter tackles that part of the education and training system which lies outside of school and below the university. It constitutes a very important terrain, preparing young adults (16-24) for a variety of trade and occupationally oriented qualifications, and offering alternate and second chance level 4 qualifications to adult learners. Part of the Post-school sub-system parallels the last three years of academic high school, offering the NC(V) as an alternate to the NSC through the FET College sector. Also partly in parallel to, and partly beyond the NC(V), are the 'N' courses offered to apprentices as the theory component of their path to artisanships (N1-N3) and advanced artisanships (N4-N6). This latter component is undergoing a revival in the light of the dramatic decline in the supply of artisans, the manifest failure of learnerships to gain traction either in the market or among students, and the fact that the NC(V) is not designed to provide theory to apprentice artisans. It addition, the Skills sub-system contains post-school courses designed to supply specific vocational skills for particular job paths: certificates and diplomas in bookkeeping, computer application, and the like.

In South Africa, the post-school sub-system comprises public and private Further Education and Training colleges, private training providers (including in-house company training centres), the Sector Education and Training Authorities (SETAs) and the National Skills Fund (NSF), but is undeveloped in terms of both quantitative supply and programme quality. It is a complex terrain, at present in ferment, with tension between the Minister and a number of SETAs, a crisis of capacity in the majority of state colleges, and a paucity of data on both public and private providers. Despite having been identified in 1994 as an area of high priority, the Skills terrain remains very undeveloped, a damning indictment of the 15-year old SETA system, the learnership design and incentives regime, and the ability of the NQF to promote coherence and quality and to stimulate provision.

6.2 The size and shape of the post-school youth cohort

In this first section, we estimate the post-school learning pool and the current flow of learners into the post-schooling environment. Understanding the make-up and size of the pool of learners exiting the schools is important for determining the role of the post-school education and training system. Assuming we start with a cohort of 1 000 000 entering Grade 1, and that at the end of Grade 9 they remain largely in the system, the following situation applies:

Table 23: Estimated size and shape of annual post-school youth cohort

Category	Rank	Number	Sub-total	NEET candidates
Grade 9 dropout	5th	67 000	**No L4**: 667 000 College: 26 000 Balance: 441 000	60% unemployed of 441 000 = 264 600
Grade 10 dropout	4th	100 000		
Grade 11 dropout		300 000		
NSC fail	3rd	200 000		
NSC pass: dipl/cert	2nd	226 000	**With L4**: 333 000 University: 165 000 College: 29 000 Balance: 139 000	40% unemployed of 139 000 = 55 600
NSC pass: bachelor	1st	107 000		
Total possible new NEETs pa				**320 200**

Of the estimated 333 000 who qualify to enter the university sector, just over half (165 000 in 2009; see Table 23) gain entrance. This leaves a balance of around 150 000 with a Level 4 qualification (the NSC) to compete for places in FET colleges or the job market. We know that 55 000 new learners registered for the NC(V) in 2009, and that just over half (29 000) of all NC(V) students already have the NSC, which means that of the estimated 600 000 learners who exit schooling annually without a Grade 12 (level 4 of the NQF), only some 26 000 gain a place in a level 4 programme at an FET college.

The ratio of first year entrants to universities and colleges, at 165:55 or 3 to 1, reflects the so-called 'inverted pyramid' of South Africa's post-school education sector. The DHET plans to correct this imbalance over the next 15 years by growing college enrolments faster than those of the universities.

Some early school leavers will drift into low prospect jobs: assuming a generous 74 000 gain employment or training, this leaves around half a million young adults in the NEETS category. This is the annual addition to the NEETS pool, a frightening figure as Minister Nzimande, Mr Vavi, and others keep reminding us.

6.3 Programmes

The Figure below illustrates the current mix of programmes and delivery sites available to 16-24 year old young people. The Technical High Schools have not been given much attention, but do have the potential to play an important role in the pipeline of skills to post-schooling vocational or occupational training. FET colleges straddle the General Vocational and Occupational streams, although delivery in colleges is primarily in the realm of General Vocational programmes, and this is likely to be the core focus of colleges in the future.

Figure 3: Programmes available

Stream	General Academic	General Vocational	Occupational
Programmess	National Senior Certificate (NSC)	National Certificate Vocational (NC(V)) and 'N' programmes (N1-N3)	Learnerships, Apprenticeships and Skills Programmes
Institution	Ordinary Schools, Technical High Schools	FET colleges (public and private) Occupational colleges (e.g. Agricultural colleges)	Theoretical component offered by colleges and private providers Practical learning offered in the workplace.
Target Groups	Scholars : Post-grade 9's	School leavers: Post-grade 9's (NC(V)) and Post-grade 12's	School leavers (Post-Grade 9), Employed & unemployed, especially youth
Theory / Practical / Workplace	Theory and Practical in workshops No workplace learning	NC(V) – Theory and Practical in workshops N Programmes – Theory and practical in workshops No workplace learning (though some access to workplace exposure)	Learnerships and Apprenticeships– Theory in college/private provider & practical on-the-job training Skills Programmes – integrated modules & practical/ workplace learning

Source: Gewer and Elliot, 2011

The challenge is how to grow occupational delivery in FET colleges, as this has been primarily the domain of private training providers and training centres within industry. Occupational training is funded through the SETAs via the skills levy system and is targeted predominately at developing the existing workforce rather than unemployed or pre-employed youth. While some colleges are involved in learnership delivery, many of the colleges are not necessarily accredited to offer these programmes across different sectors. As of 2011, colleges had only 5 800 learners in learnerships and 13 000 learners in skills programmes (Gewer and Elliot, 2011).

Growing occupational programmes in FET colleges is a critical ingredient for bringing skills development and FET into a common framework. This necessitates a framework that maps out the relationship between SETAs and colleges, and promotes the role of colleges as key delivery sites for occupational training, particularly in the fields that colleges have capacity to deliver. This also forms an important mechanism for expanding access in colleges through a diverse programme base that can potentially address critical skills needs in the labour market.

6.4 Emerging policy: the DHET Strategic Plan and National Skills Development Strategy (NSDS) III

Post-schooling provision is driven by the government's Programme of Action (2009-2014), and in particular *Outcome 5: A skilled and capable workforce to support an inclusive growth path*. In this regard, the Minister of Higher Education and Training has in his delivery agreement the following key outputs and indicators that relate to post-school provision (Department of Higher Education and Training, 2010a):

Output 2: Access to programmes leading to intermediate and high level learning

- Participation of the youth and adults in FET colleges, to reach one million by 2014
- By 2030, at least 50% of young people in the 18-to-24 age group should be studying in universities and colleges
- Success rate of enrolled NC(V) learners
- Matric equivalent second chance programmes
- Range of learning options for those with matric who do not meet university entrance

Output 3: Access to occupationally directed programmes

- Number of learnerships to 20,000 per annum by 2014
- Number of qualified artisans to 10,000 per annum by 2014
- 60 % trade test pass rate by 2014
- 70% placement rate of Learnerships, apprenticeships, and NC(V) learners into workplace experience per annum by 2014

The Plan emphasises the importance of assisting students and learners to move between learning and work: the skills levy funds will be used to incentivise firms to open up structured workplace learning for college students as well as for university and university of technology students. The State Owned Enterprises and other large employers have a special role to play in this regard.

The third wave of the National Skills Development Strategy (NSDS III) was released in February 2011 (Department of Higher Education and Training, 2011a), and articulates with the broader economic strategy and policy framework, including the new economic growth path (which aims to add 50 000 new artisans to the labour market by 2015), the Industrial Policy Action Plan (Two) and the Human Resource Strategy for SA. NSDS III has eight goals, which mesh closely with those of the DHET Strat Plan.

6.5 Current provision

6.5.1 Lack of reliable data

Getting a detailed picture of post-school provision is difficult because, unlike the school and university sub-systems, no central database is available publicly, while government does not publish a standard set of statistics annually. Data is collected separately by the DBE, DHET, each of the SETAs, and by SAQA. However, each of these databases serves a different purpose and absence of a common set of categories makes it difficult to interpret. Successive reports of the first two plans under the NSDS noted the achievement of targets, but it is hard to work out exactly what these figures mean because of their high levels of aggregation. Similarly, data from the colleges concerning

enrolments and throughput rates are generally not comparable from one year to the next. SAQA does not publish annual figures arising from the National Learner Record Database.

In recognition of this problem, the DHET's Strat Plan sets out the intention of the department to give substance to Strategic priority nine of the HRDSA: to generate annual data on the demand for priority skills, in order to guide measures for supply, including HET and FET enrolment planning, SETA sector skills plans, and managing the immigration of skilled persons. ' What is needed is knowledge and planning instruments for the system as a whole – strategic intelligence for strategic decision-making for the post-school system' (Department of Higher Education and Training, 2010a). The DHET wants to build an expanded Management Information System (MIS), based on strategic information generated by new research, but also through the improved integration and utilisation of existing data bases. Such a data system would be a prerequisite for establishing the department's envisaged institutional mechanism for skills planning, a task which the DHET has prioritised (Department of Higher Education and Training, 2010b).

6.5.2 Enrollment and throughput

In 2009, NCV programs made up 48% of public FET College enrollments, N-programmes accounted for 45%, and occupational programs seven percent (World Bank, in press). Table 24 shows total enrollment by type of programme in FET colleges.

Table 24: FET College student enrollment by program, 2001-2009

	2001	2002	2003	2004	2005	2006	2007	2008	2009
N1-N6: GS	170590	166105	161807	162605	174678	193717	206631	194249	182414
N1-N6: NS	265590	281502	291676	297770	305254	330135	292137	262408	213900
NC(V)							26451	67512	122921
Total	436180	447607	453483	460375	479932	523852	525219	524169	520235
GS = general subjects; NS = natural science									

Source: World Bank (in press)

Data collected by the Department of Education in 2006 showed 864 private providers and over 4,000 training sites with a total enrolment head count of 710 000 trainees (World Bank, in press). In relation to the number of students, private providers enrolled 58% of the total. The World Bank draft report notes that private training provision tends to complement rather than duplicate public provision: for example, engineering trades made up 60% of enrolments in public FET colleges (both NCV and N courses) in 2009, compared with only 10% in private training institutions in 2005 (Akoojee and McGrath, 2007). Better data are needed on the number, type and quality of private provision. However, it has been ascertained that private skills provision is constrained by student ability to pay and a slow accreditation process.

Since the introduction of the NC(V) in 2007, the colleges have exhibited a very low pass rate, estimated at no more than 20% in the first year. The calculation is complicated by students carrying subjects into subsequent years. However, colleges have demonstrated incremental improvements in the pass rates at each NQF level, which suggests that they have begun to adapt to the demands of the NC(V), and results may continue to improve marginally over the next few years.

Nevertheless, improvement in the throughput rate is likely to be slow, and to be further impeded by rapid increases in enrolment. Gewer and Elliot (2011) undertook a modelling exercise based on the

present throughput rate of college graduates improving by 1% per annum to 65% by 2025. They show that astronomical numbers of enrolees will be required to meet the projected demand of scarce skills, given the very sluggish throughput of the college system. This seems to be to put the cart before the horse: it would be far more efficient to improve throughput before expanding enrolment. This should not inhibit the few good to excellent colleges from expanding both their enrolments and their programme mix, nor does it preclude finding alternate sites of delivery, including an expansion of the private sector. But for the majority of SA's colleges, the priority must be to improve institutional capacity and throughput before loading them with additional demands.

The 2008 National Plan for FET colleges (Department of Education, 2008) set a target of increasing college enrolments to 1 million learners by 2014. This would effectively mean doubling numbers in 5 years, and does seem to be beyond the reach of what the department itself admits is a very fragile sector (Department of Higher Education and Training, 2010a). The DHET Strat Plan reiterates this goal, while acknowledging that achieving it will mean a massive expansion of the college system. Interestingly, in contrast to DHET's approach to private HE (see section 5.3.4), the Strat Plan signals the intention of the department to consider ways of incorporating private colleges as an integral part of the post-school sector; its goal for this sub-sector is: To regulate and support private colleges as a means of expanding the institutional base for providing quality post-school education and training opportunities (Department of Higher Education and Training, 2010a:76).

The recruitment and selection of learners into FET Colleges is complicated by a number of factors. In the first instance, the NC(V) was introduced as an alternative stream to secondary schooling, which is capped by the NSC. However, data generated through a survey of 18 131 students at the end of 2010 indicates that more than half of students in FET Colleges have achieved a Grade 12 certificate (Gewer, 2010). Colleges therefore have two target populations – those that have completed Grade 12 and those that left school before reaching Grade 12 or failed the NSC. At present the NC(V) does not suitably cater for this mix of learners and lecturers struggle to adapt to these mixed groups, which means that some learners will invariably be given inadequate support. Besides, this situation reflects that, instead of acting as an alternate to the NSC, many students are using the NC(V) as a 'marking time' exercise while they wait to get into university or the workplace, which is a very inefficient use of college resources.

The second factor that impacts on effective recruitment and selection is the effect of national policy on growth in the FET College subsystem and the pressure on colleges to expand their enrolments. Despite severe constraints on the budget, the DHET has sought to ensure that colleges grow enrolments by at least 15% in 2011. More importantly, the NSFAS allocation for FET College bursaries has been increased substantially from around R400 million to R1.2 billion in order to accommodate all qualifying students and ensure access. In addition, colleges have been instructed not to turn away students, and to find ways to accommodate any student that wishes to study at a college. Invariably these students will be enrolled into "N" programmes which are shorter and less expensive than the NC(V). These programmes will more likely be key vehicles for expansion in the short- to medium-term as they are exchequer-funded, and therefore do not require alternative forms of funding, and are relatively easy to manage. The challenge associated with these programmes is that the N1-N3 programmes require workplace access for apprenticeships, and the N4-N6 route requires workplace experience in order to qualify for a National Diploma.

With respect to N1-N3, the Ministry has set a target of 21 000 enrolments in artisan training per year. The realisation of this target in the short-term is heavily reliant on expansion of N1-N3 enrolments in addition to NC(V) graduates. As such, the expectation placed on colleges to expand N1-N3 represents a critical strategic move to meet industry need for artisans. The analysis later in this paper examines the reality of this in light of the current performance of the subsystem. However, the key challenge is ensuring that expansion of these programmes is aligned to demand in the labour market so that these learners will be taken up by industry. At present this is not being done systematically and this poses a threat to the uptake of learners.

6.5.3 Funding

The 213 000 learners enrolled in approved NC(V) and N programmes enabled the colleges to attract treasury funding of around R 4.475 billion for the 2011/12 financial year. This represents 2.3% of the total education budget of R190 billion. This funding is locked into a conditional grant system which is tied to the medium-term expenditure framework, which means it will remain static over a three-year cycle with some provision for inflation. This fixed funding basket represents a critical impediment to expansion of the post-school system.

The DHET target of 1 million learners in NC(V) or 'N' programmes by 2014 will require dramatic expansion of the college system, as shown below.

Table 25: Projected enrolment rates in FET sector using different participation rates

Year	Participation rate remains at 2%	Participation rate increases from current 2% to 10%	Participation rate increases from current 2% to 20%	Participation rate increases from current 2% to 40%	DHET Scenario: Growth rate of 45,8% per annum to 2014, then participation rises from 15% to 40%
2010	125,520	142,390	151,652	161,515	177,000
2011	126,867	163,263	185,191	210,064	256,000
2012	128,176	179,433	226,053	273,092	371,000
2013	129,430	203,550	275,786	354,845	538,000
2014	130,641	230,908	336,320	460,876	800,000
2015	131,625	261,944	409,400	597,511	949,173
2016	132,391	297,151	497,510	773,332	1,124,241
2017	133,304	337,089	605,232	1,001,965	1,333,029
2018	134,226	382,396	736,292	1,298,217	1,580,622
2019	135,157	433,792	895,750	1,682,094	1,874,238
2020	136,097	492,096	1,089,761	2,179,523	2,179,523

Starting point: 177 000 learners enrolled in 2009
Source: Pillay (2010)

The financial implications of this expansion depends on the support that is given to learners. Assuming that 70% of learners are placed on full NSFAS support of R6 000 pa, the costs of this expanded access will rise to R3.36 billion in 2014.

Table 26: Cost of bursary provision for 70% of students at different participation rates (2009 prices)

Year	Participation rate remains at 2%	Participation rate increases from current 2% to 10%	Participation rate increases from current 2% to 20%	Participation rate increases from current 2% to 40%	DHET Scenario: Growth rate of 45,8% per annum up to 2014. Then participation rate increases from 15% to 40%
2010	R 527,183,138	R 598,039,531	R 636,936,673	R 678,363,729	R 743,400,000
2011	R 532,842,985	R 685,702,945	R 777,801,437	R 882,269,909	R 1,075,200,000
2012	R 538,338,759	R 753,619,717	R 949,423,293	R 1,146,988,258	R 1,558,200,000
2013	R 543,604,477	R 854,910,466	R 1,158,302,523	R 1,490,347,197	R 2,259,600,000
2014	R 548,690,911	R 969,815,263	R 1,412,542,385	R 1,935,678,849	R 3,360,000,000
2015	R 552,825,855	R 1,100,163,915	R 1,719,478,749	R 2,509,545,027	R 3,986,526,416
2016	R 556,042,144	R 1,248,032,162	R 2,089,541,112	R 3,247,995,830	R 4,721,813,158
2017	R 559,877,622	R 1,415,774,736	R 2,541,973,768	R 4,208,254,248	R 5,598,723,072
2018	R 563,750,217	R 1,606,062,861	R 3,092,426,754	R 5,452,512,765	R 6,638,613,553
2019	R 567,660,294	R 1,821,926,785	R 3,762,148,741	R 7,064,795,486	R 7,871,798,572
2020	R 571,608,222	R 2,066,804,040	R 4,576,997,290	R 9,153,994,580	R 9,153,994,580

Source: Pillay (2010)

Outside of the NC(V) and "N" programmes, the FET Colleges provide theory training for learnerships as well as skills programmes. These programmes are funded primarily through the SETAs or are privately funded by students. Enrolments in these programmes constitute a small percentage of students (around 18 000) but do represent a potential area of growth within the post-school system if a framework is put in place for SETAs and the NSF to utilise colleges as key site of delivery for occupational programmes. Just over R9 billion will be transferred from the National Revenue Fund to SETAs and the NSF, much of which the former use to fund training in the workplace. However, the National Skills Development Strategy III requires SETAs to set aside 10% of the mandatory grant to fund workplace learning opportunities (through learnerships, apprenticeships and internships), and to place particular emphasis on FET colleges as critical partners in delivery of programmes that prepare young people for access to training in the workplace, either as part of or after the completion of a qualification. This requirement positions colleges to expand their contribution to the talent pool if they can convince the private sector that their delivery is in line with industry requirements.

Minister Nzimande concedes that he would need to consider `innovative solutions' to the lack of funds available for the colleges if significant expansion of the sector is to occur (Blaine, 2010b).

6.6 Supply side constraints

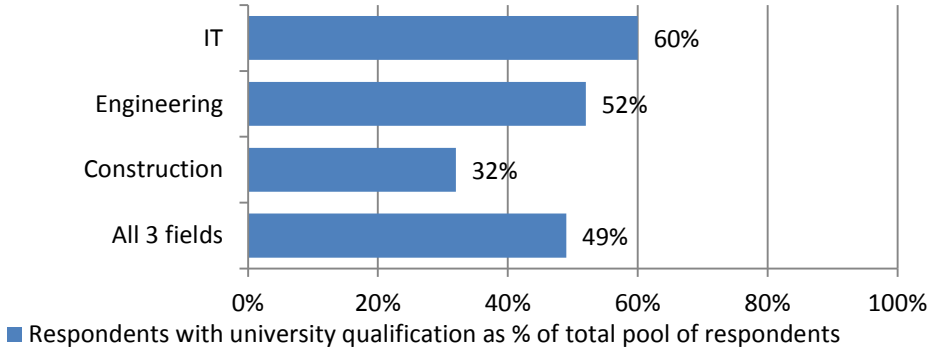
Post-schooling has entered a critical period as it begins to operate within a more coherent framework than existed under previous administrations. More specifically, the shift from a FET system to a post-school system allows for a more comprehensive approach to meeting the needs of post-school youth. The DHET has sought to increase enrolments annually in order to work towards its goal of 1 million enrolments by 2015, which requires a 45% pa growth. This is a very tall order, particularly if these learners are to be provided with real skills rather than merely being 'warehoused' for the duration of their studies. Even if the 1 million is to be achieved over the next 10 years, a number of very serious constraints will need to be overcome, including the following.

6.6.1 Student preparedness

Low throughput rates can arise partly out of low institutional capacity, particularly among teaching staff, and partly from poor student preparedness. Both are notoriously intractable, long range problems. It must be remembered that college students are made up of two fractions: those who passed the NSC but were unable to enter HE because of low matric scores, and those who either failed matric or dropped out in Grades 10 or 11. In other words, their foundation skills in language and mathematics are likely to be the lowest of the 1 million cohort which entered Grade 1 12 years ago, and these students are ill-equipped to study at level 4.

6.6.2 Staff capacity

Delivery capacity by management and teaching staff is a significant impediment to effective skills supply. A survey of about 1 000 college lecturers in 2008 in the Western Cape showed that they were concerned about their subject knowledge, appropriate pedagogy, and workplace exposure (Papier, 2010). Added to this is that there is no training base for FET college lecturers, and no new qualifications framework as yet for lecturing staff. Data collected through a survey of engineering, construction, and information technology lecturers at the end of 2009 indicated a large number of lecturers that do not have a technical or teaching qualification (Gewer, 2010). The graph below indicates the low level of engineering and construction lecturers that have higher education qualifications which would indicate their level of theoretical knowledge in the field.



Source: Gewer, 2010

This suggests an urgent need for upskilling of lecturers, particularly in engineering and construction, but more broadly as well, to ensure they are able to deliver the programmes effectively. To achieve this, a detailed review of qualifications and experience amongst lecturers in the various sub-fields is needed so that appropriate interventions can be formulated.

To confront the challenge of poor quality programmes, low graduation and throughput rates, the government announced in 2008 that the following strategies would be implemented:

- Qualifications, programmes and curriculum development;
- Driving quality through centralised assessment, examinations and quality assurance systems;
- Driving quality through lecturer training, development and support; and
- Regulating private provision.

Indicators of success towards achieving some of these goals were said to include the development and implementation of the National Professional Lecturer Development Framework, the availability

of suitably qualified FET college lecturers and high quality FET qualifications, programmes and supporting curriculum. (Government Gazette, 2008). However, by September 2010 the Lecturer Development Framework had still not been finalised, despite a draft policy framework having been released in August 2009. (Papier, 2010).

6.6.3 Work placements

A key challenge behind the delivery of technical, vocation and educational training (TVET) is creating sufficient access to workplaces for the purpose of on-the-job training. However, most colleges have limited access to workplaces for school leavers which restricts their preparation for the workplace. Therefore, an important piece of the TVET puzzle is a framework enabling industry and colleges to engage around access to workplaces for experiential learning, which has been found to be a significant determinant of employability (Wolf, 2011). This framework should lay down conditions for different forms of workplace learning and provide incentives for placement of young learners. In a recent review of the English TVET system, Wolf had this to say about work placement:

> Employers continue to value and reward employment experience and not just formal credentials. ... employment of any sort has value for people's later careers and chances. Even though formal credentials are seen as increasingly important, they are not, in fact, all-determining. Work experiences still offer an alternative progression route, while many formal qualifications are not worth having at all. While employers may be unwilling to offer full-time employment to young school-leavers, there is a wealth of evidence indicating that they value work experience, and that the best way to obtain a job is to have one – and failing that, to at least have had one recently. This is partly because a genuine workplace teaches both general and specific work-skills more effectively than any education-based simulation can, however hard it tries; and partly because ... employers use employment records as signals that individuals have acquired important character traits and ways of behaving.
>
> (Wolf, 2011:33)

If the colleges are able to achieve a 15% improvement in NC(V) and Report 191 throughput over the next 5 years, in certain important skill areas demand will be met by 2015 (Gewer and Elliot, 2011). The challenge then shifts to the workplace. In order to achieve the 50 000 artisans needed within the next five years, significant work placements will be needed for trade test certification. However, a survey of over 18 000 college learners at the end of 2010 found that only 35% of college learners are currently gaining access to workplaces through apprenticeships, learnerships or other forms of workplace learning (Gewer, 2010). Current throughput rates for trade tests are around 35%, suggesting that in addition to strengthening engineering delivery in colleges, the preparation of young people for the trade test must also be strengthened.

The idea of a youth employment subsidy mooted by the Treasury (National Treasury, 2011) would address some of these needs, provided it is approved by the unions. It would be available for a maximum of two years and have a maximum value of R12 000, approximately half of the average income of a formal-sector worker aged 18 to 29 years old and eligible for the subsidy. It is estimated that the youth employment subsidy would subsidise 423 000 new jobs for young and less skilled people aged between 18 and 29 years old. The youth employment subsidy is expected to cost R5 billion in tax expenditure over three years. Net new job creation is estimated to be 178 000 jobs at a cost per job of R28 000. A recent study by the Southern Africa Labour and Development Research Unit (SALDRU) notes that even a temporary wage subsidy scheme is likely to have more sustained

long-term benefits than targeted welfare programs, because wage subsidies temporarily draw people into employment where they can gain experience (Burns et al, 2010).

6.6.4 Enrolment/demand mismatch

There are sectors in which the colleges are currently over- or under-enrolling in relation to demand at an aggregated level. While a more detailed mapping of the occupational groups against the curriculum is needed, the aggregated enrolments in areas of management, information technology, office administration and tourism are far exceeding the demand even in the first five years. This does not take into account further specialised training that must happen in the workplace once the general qualification is completed. It suggests therefore that much clearer pathways into specialised occupational training is needed, preferably with a strong workplace learning component, in order to ensure these learners are more employable.

The planned institutional mechanism for skills planning (see section 6.5.1 above) currently being operationalised by the Minister will no doubt want to address matters of supply/demand mismatch. More detailed analysis is needed to establish where the demand is, and how the programmes can be better aligned to meet these demands. This determines the kind of curriculum realignment that will be needed, particularly in the more specialised occupational training.

6.6.5 Programme/demand mismatch

The newly establish Quality Council for Trades and Occupations (QCTO) is responsible for standards within industry training; one of its tasks will be prioritise the development of occupational qualifications and put in place mechanisms for colleges to offer the theoretical components of these new qualifications. The DHET Strat Plan (Department of Higher Education and Training, 2010a) signals the intention to promote the notion of PIVOTAL programmes, namely Professional, Vocational and Technical, and Academic Learning Programmes, which embrace both an institutional and a workplace/community dimension.

The Strat Plan notes that another round of system-wide ground-shifting changes is undesirable in the current change-weary environment, but nevertheless outlines a new approach to the development of programmes, namely the COSE initiative (A Collaboration for Occupational Skills Excellence)**.** The project's central purpose is to streamline the roles and functions of each of its delivery agents, so as to optimise the education and training pipeline of the most scarce ten or fifteen intermediate-level occupations. The project plan will involve teams of experts, one for each of the selected occupations, to carry out the work. The teams will need to bring together the two communities: those with expertise on the institutional side and those with expertise from the world of work. Together they will need to investigate every step of the pipeline and develop measures to address inefficiencies, blockages and gaps. It is envisaged that the plans will commence with implementation in 2011/12.

6.6.6 Curriculum

Commenting on the importance of language and maths skills for all post-16 education, Wolf has this to say:

> English and Maths GCSE (at grades A*-C) are fundamental to young people's employment and education prospects. Yet less than 50% of students have both at the end of Key Stage 4 (age 15/16); and at age 18 the figure is still below 50%. Only 4% of

> the cohort achieve this key credential during their 16-18 education. Worse, the funding and accountability systems established by government create perverse incentives to steer 16+ students into inferior alternative qualifications. The result is that many of England's 14-19 year olds do not, at present, progress successfully into either secure employment or higher-level education and training. Many of them leave education without the skills that will enable them to progress at a later date.
>
> Wolf, 2011: 8

The strength of the NC(V) is that it is designed to provide the language and maths skills that Wolf finds essential, together with an introduction to vocational fields. The NC(V) is not intended to provide the theory for any apprenticeship or occupation, but aims to provide students with general intellectual skills, and a broad understanding of a sector of the labour market. A goal of the DHET Strat Plan is to provide all young people with a level 4 qualification: it need look no further than the NSC and NC(V), although the latter may need some tweaking in the light of experience over its first three years of operation.

However, it was a mistake (which the DHET soon remedied) to abolish the N programmes; rather, they should have been streamlined (as is now happening), in order to provide occupationally specific vocational courses.

6.7 The problem of the NEETS

One of the toughest choices facing government concerns the NEETS. Cloete's (2009) figure of a total pool of 2.8 million is widely accepted, and we estimate that in the order of 300 000 new NEETS join the pool annually (see Table 23). This is the lifeblood of the country haemorrhaging from our inefficient school system. Taking any cohort of 18 year olds, as shown in Table 23, we see that the NEETS are drawn from the 3rd, 4th and 5th ranks: those who failed the NSC or dropped out before getting there. The success rates of these young people attempting a level 4 qualification are going to be very low. One way of improving the appallingly low pass rates in the colleges would be to screen applicants and take the best, since there is, after all, a large oversupply relative to places available. Improving pass rates would also make more efficient use of NSFAS funds, thus allowing more students to be assisted. Rather than cramming thousands of ill prepared students into colleges, further clogging up the system and decreasing throughput, we should provide places to those students most likely to succeed both in their studies and in the job market. Ideally such screening should happen as part of a national exam – the GCE – followed by career guidance at the end of Grade 9. Students could then be channelled most effectively into the NSC stream, into a college to take the NC(V) or a vocational programme, or directly into the workplace. Over time, the GCE would gain currency in the workplace, as used to be the case with the old Junior Certificate (JC).

So, if the NEETs do not qualify for college places, what is to be done with them? The Public Adult Learning Centres (PALCs) offer a second chance matric programme, which at present is not in the best shape, although Umalusi is working on a new curriculum, the National Senior Certificate for Adults (NASCA). This is a route open to NEET youth, although if they are unable to pass the college entrance exam (hopefully soon to be the GCE) then they are unlikely to be successful in the NASCA.

The National Rural Youth Service Corps launched by the President on 6 May 2011 currently offers eight thousand young people between 18 and 35 years of age with Grade 10 or higher qualification a two year development programme (Zuma, 2010). The Treasury's proposed job placement scheme,

and a revival of the Extended Public Works Programme offer further options. It would seem that these are better alternatives for NEET youth, given their very poor academic records to date, and it is along these lines that government should be thinking when considering options for the NEETs.

6.8 Conclusion

The DHET has set itself a plan to massively expand the FET College sector to meet the needs of the large number of school leavers and unemployed youth that are ill-prepared to engage with the labour market. The data outlined in this paper indicate that this growth will not necessarily address skills demands, and will not necessarily enhance the chances of school leavers being employable. A number of enabling factors are needed to ensure the post-schooling system is adequately configured to provided access, co-ordination, and articulation. These include:

- Ensuring enrolment growth is in line with the capacity of colleges so that these institutions are not further weakened;
- Introducing an intensive national strategy to strengthen management and teaching capacity in order to enhance learner throughput;
- Guiding enrolment planning to align with evolving workplace demand;
- Creating a framework for college-SETA-employer engagement to stimulate growth in occupational training and workplace access.

7 Conclusion and recommendations

Driven by the Presidency and the Cabinet, the post-2009 South African government has embarked on an extensive process of planning and coordinating its work in the interests of improving the delivery of public services. In January 2010, the government adopted *12 Outcomes* to guide planning (The Presidency, 2010), and it is around these that the line ministries are building their plans. While each minister is responsible for a set of targets for his/her department, ministerial performance agreements signed with the President are co-signed by a number of other ministers whose work intersects with that of the main signatory. There is a far greater feel of government coherence of purpose across the veritable flood of documents currently emanating from ministerial offices and government departments than there has been at any time since 1994.

Emerging plans are nothing if not comprehensive: in one government document after the other all the relevant buttons are pressed. While this certainly is a good list of things to do in the next 50 years, the very thoroughness of the plans in covering all bases tends to hide what the most important tasks might be. In the present report, making sense of government plans to improve education and training is guided by two considerations: prioritisation and differentiation. We will resist the temptation to produce yet another comprehensive list of priorities. Instead, within each of the three components of the education and training system we identify one or two principal issues on which initial effort should be focused: without achieving these targets none of the other goals are likely to met with any degree of success.

Regarding priorities, we would argue that institutional capacity is a prerequisite for expanding meaningful access, and the extent to which institutions are able to meet access expectations depends heavily on their capacity. It follows that building capacity, particularly through staff recruitment and development, should precede demands to expand access or to diversify programme offerings. Burdening weak institutions with large numbers of students is likely to lead to even slower throughput rates and rising per capita costs, causing even higher levels of staff, student and market frustration. Plans need to be prioritised, all the more so under present conditions of a weak and badly disciplined civil service.

The second principle guiding the analysis that follows is that of differentiation. While all three components of the education and training system are, on average, underperforming, there are large differences in quality and size across institutions within each component. These differences bear the imprint of colonial and apartheid planning and resource distribution. After 17 years, a brief interlude after all in the more than 500 year history of nation forming in South Africa, the general inequity imprint remains largely in place, although it is evolving into patterns determined more by geography and social class than by race and gender. But the point remains that the existence of different institutional fractions imposes a differentiated ordering of priorities on the planner. For example, those institutions with high throughput rates could be resourced to expand and diversify, while building capacity needs to be prioritised in less efficient institutions. The same quantum of resources may be expended on each of these two fractions, but for different purposes and different outcomes. This is not to advocate a two-tiered system characterised by a hierarchy of elite urban institutions at the cutting edge of the system, and second class rural facilities training lower level skills. Such an eventuality will be minimised by incentivising research focused on targeted needs across the socio-economic and geographical divides. The research and development programme in the Fort Hare

Faculty of Agriculture is an instructive example of how excellence can be incentivised to respond to regional human needs, even under the most challenging institutional conditions.

7.1 Schools

If the nation were to set itself a single goal for the next two decades, we would vote that fixing schools should be accorded this priority. It is the inefficient school system that produces around 300 000 ineducable young adults annually, that is responsible for low numbers of school leavers possessing an NSC of insufficient quality to enter science and technology programmes, and it is the school system which carries the largest responsibility for very low throughput rates in all the country's colleges and universities. Perhaps worst of all, instead of acting as socialising institutions which provide an extended family and exemplary role models for the country's children – desperately needed under present conditions of social disintegration – our schools are teaching children lazy work habits and a very questionable attitude to expertise.

7.1.1 Accountability

Within the larger cabinet framework, the plans announced so far by the DBE are remarkably comprehensive and considerably more detailed than anything before 2009. Implementation is also proceeding apace, with significant movement in the fields of curriculum development through formulation of the Curriculum Assessment Policy Statements (CAPS), the production and distribution of books, and annual national assessments (ANA); more is to follow on performance management and both initial and in-service teacher training (Motshekga, 2011). The accountability measures proposed by the DBE are very similar to those adopted by Brazil in 1995, since which time that country has moved from one of the worst performing education systems of any middle-income country to one of strong and sustained improvement (World Bank, 2010). The three critical policies adopted by the Cardoso government in 1995 were: i) equalising funding across regions, states and municipalities; ii) measuring the learning of all children against a common national yardstick; and iii) protecting the educational opportunity of students from poor families through social programmes. Just as important was the continuation and strengthening of these policies under the Lula government which followed Cardoso in 2002.

7.1.2 Incremental or transformational change?

It seems that the measures currently proposed by the DBE to reform schooling can be approached in one of two ways, incrementally or transformationally. In the former, an accountability regime is instituted and it is assumed that competence and efficiency will emerge as accountability measures squeeze out bad practice. This may prove to be a long and inefficient process, given that bureaucratic accountability is unlikely to have much traction in a system dominated by relations of patronage and employee impunity. Indeed, while government planning since 2009 has been both more thoroughgoing and detailed than anything seen before, the question keeps occurring: what is different this time? Why will these programmes work, when similar initiatives in the past such as the Foundations for Learning Campaign, the Integrated Quality Management System, and many others have failed to make any systemic impact?

In contrast, a transformational approach would be more radical, seeking to change teachers' conditions of service in the interests of building a culture of expertise throughout the school system. Changing their conditions of service would, in turn, require negotiation with the unions. It does seem rather one-sided that, in the annual salary negotiations, often backed by militant strike action,

teachers frequently win increases well in excess of inflation without conceding a *quid quo pro.* Perhaps government and the unions could reach a pact in which both sides gain and a significant step is taken to place competence as the central principle in determining staff recruitment, promotion and training. The unions could be offered a guaranteed five year programme of extensive training in return for a ban on union 'deployment' activities, the acceptance of proficiency tests following training, and retrenchment (with package) on failing the test a second time.

7.1.3 Proficiency

Proficiency tests should be devised for every job and strictly applied in recruiting and promoting staff for all positions in the public service. It is clear that technical knowledge in both the classroom and administrative spheres is a very significant source of inefficiency. Teachers applying for posts, newly qualified or otherwise, should pass the relevant subject content test before appointment; the same should apply to applicants for heads of subject departments, and curriculum officials in district and provincial offices. School managers and management supervisors should undergo thorough training in matters such as labour law, industrial relations and data management; management training should include extensive hands-on experience and mentoring. Expertise, not clan loyalty, can be the only criterion for building a strong developmental state[7]. Proficiency tests would be based on detailed job descriptions for managers and office based staff, and for teachers they would assess a deep principled understanding of the relevant subject.

7.1.4 Training

The release by the DHET of *The Integrated Strategic Planning Framework for Teacher Education and Development for South Africa* (Departments of Basic Education and Higher Education and Training, 2011) envisages vastly improved initial and in-service training for teachers. This is a very welcome and long overdue development. The DBE concedes that the billions spent on ACE training, while vastly increasing the wage bill through 'qualifying' teachers, was not well spent, a conclusion echoed by the CHE evaluation of the ACE programmes(Council on Higher Education, 2010). Research indicates that, for in-service training, the programme design which stands out as more effective than most is the one adopted by the Cape Teaching and Leadership Institute in the Western Cape, by the MASTEC college in Limpopo, and by Gauteng's Scibono Centre. This consists of intensive residential training during which substitute teachers are hired to take the classes of teachers on course.

In order to maximise the systemic impact of training, it should commence with supervisory staff and school principals, and work down to subject heads and finally teachers.

7.1.5 Governance and management

The place to start reforming any dysfunctional school is in the sphere of governance, where legislation provides wide-ranging powers to the School Governing Body (SGB), including staff recruitment. Getting the kind of skills onto an SGB able to select and support an excellent principal is the first problem in poor communities where unemployment and illiteracy are rife, the principles of institutional governance little understood, and unions often dominate proceedings, even though they only have observer status on SGBs. The use of local structures such as churches or civic groups would seem to present promising possibilities for assisting rural schools; it would obviously be a

[7] With reference to Cosatu General Secretary Mr Vavi, who has characterised the South African state as 'predatory'; Habisso (2010) defines the latter as follows: "The predatory state is the developmental state without bureaucratic competence."

conflict of interest for unions to be involved at all. The appointment of a good principal who is both an inspiring leader and a good technical manager has been shown to make a vast difference to the quality of schooling, even in schools which serve the poorest communities.

7.2 Higher Education

The higher education system has been characterised as a low participation/high attrition sector. This is true but, compared to both schooling and the post-school sub-systems, higher education is in much better shape. It is also true that the system level statistics hide great variation and inequality within the sector. But even here trends for the past decade are positive: African students and women constitute the majority, the former rapidly approaching the national demographic profile, while research outputs have rocketed across the board. The numbers of enrolments and graduates exhibit an improving balance between the broad fields of study of Science, Engineering and Technology; Management; and Humanities.

7.2.1 Expansion

The system is likely to absorb relatively smoothly an increase in participation from the present 17% of the age cohort to around 25% over the next decade; 30% would constitute an appropriate medium term target. Current trends towards even greater demographic representativity will be facilitated by the increases in NSFAS funding proposed by the Minister of HET.

The highest priority in the sector must be to improve throughput efficiencies, currently unacceptably low. Universities should be incentivised to devise and evaluate programmes aimed at assisting high risk students; such programmes can take a variety of forms and should be resourced from earmarked national funds on all campuses. A great deal of expansion could be funded from efficiency savings derived from improved throughput and higher graduation rates. However, improving internal efficiency is likely to reach a ceiling unless the quality of school graduates is significantly improved.

The second priority for the universities is to increase the numbers of African and woman post-graduates, especially Ph.Ds, in the interests of feeding the country's capacity for research and innovation, of normalising the demographics of the lecturing corps, and of replacing the aging cohort of university staff.

7.2.2 Innovation and differentiation

A third outstanding challenge to HE lies in explicating the role of the sector in effecting the ideals of South Africa's New Growth Path and associated ministerial plans. The lessons from South Korea are instructive here: high growth is promoted by HE excellence, not only in producing more scientists and professionals, but by building world class institutions, and prioritising basic research and research and development *en route* to the more effective use of existing technology, finding new uses for it, and ultimately, developing new technologies and innovative solutions for narrowing the country's socio-economic deficits. Amid the welter of government planning happening at present, these considerations appear incidentally, at best.

For example, funding for high level research is provided by the DST and the Foundation for Research Development (FRD) through the establishment of research chairs, sometimes in interesting partnerships with private sector donors. Yet this important element does not feature in the DHET Strat Plan. The plan also does not mention, for example, the opportunities for cutting-edge research

linked to technological innovation and high industrial growth potential which follows from the intention of the DTI's Industrial Policy Action Plan (IPAP) (DTI, 2011) to target green industries in general and renewable energy in particular.

What is needed is, first, a coherent understanding across government Ministries (DBE, DHET, DST, DTI, ED, and the Treasury, to name the most obvious candidates) of the role of HE in leading and shaping the country's growth path. This commitment should be followed by a coordinated plan to achieve the twin goals of producing the high level professionals required to lead both the public and private sectors, and to provide the cutting edge knowledge capacity needed to leapfrog to higher levels of socio-economic development. Achieving this consensus should be one of the first tasks of the envisaged skills planning facility currently under construction by the Minister. If we are serious about innovation then the plan would include targets of developing two or three world class institutions, and doubling the number of world class scientists in 20 years.

7.3 The Post-school sector

7.3.1 System design

The real tragedy of post-apartheid education and training lies in the failure to make significant inroads into the country's training deficits, despite generous budget allocations through the skills levy. While our schools may be extremely inefficient in the quality of their products, at least they provide near universal access. The post-school sector, in contrast, is lacking in both quantitative access and in the quality of the meagre provision that it does supply. The unions entered the elections of 1994 on a platform which included the vision of a much expanded training sector: the slogan 'From sweeper to engineer' aptly captured the aspirations of the masses. Establishment of the SETAs, SAQA and the NQF carried these hopes into qualification designs and institutional mandates which largely ended in frustration. The mood is well captured by the complaint of the Acting Director General for the DHET that 90% of the R8bn spent annually by the SETAs is spent on 'ad hoc crash courses' which are of little value in building a strong skills base (Qonde, 2011).

Sweeping new legislation was introduced in 2008 to reconstitute the terrain, but by mid 2011 the Minister had not yet succeeded in launching a fully functional QCTO, stabilising the SETAs, or consolidating a very fragile college sector. The post-school sub-system faces challenges of quality, expansion, and diversification, and it would seem that the colleges are simply unable to meet these three demands simultaneously without further weakening the institutions and the quality of their graduates. Improvement in all three dimensions is heavily dependent on staff capacity, and we would recommend that this be the first issue to be addressed: expanding enrolment and diversifying programmes off a weak institutional base cannot be good for anyone, least of all the programme recipients whose hopes are raised but who are unable to complete the course, or whose training turns out to be worthless in the job market.

7.3.2 Staff and institutional capacity

The intervention most likely to make the biggest difference to improving quality and providing a sound platform for expansion and diversification is staff development. Urgent training of management and lecturing staff is a prerequisite step to strengthening the institutions. The Minister has announced a plan for pursuing this task.

The lessons from in-service training for teachers described under section 7.1.4 above apply equally to lecturers in the college sector: training should be of significant duration and intensity, and end with a proficiency test in the relevant occupational field. Importing master craftsmen from EU or BRIC countries for a three- to five- year period to train college staff in both theory and practice would be an innovative way to mobilise the expertise required for this massive undertaking. Such expertise is certainly not available in SA, despite the loose talk of utilising the universities of technology and e-learning. In the occupational fields the aim should be to produce master craftspeople among the college staff. Since each of the 50 colleges operates regionally through a number of delivery sites, a relatively large number of trainers would be required to make a significant difference, say 10 per college spread across the main skill areas, giving a minimum total of 500 trainers. Between training programmes the trainers could assist with teaching and provide on-site support to lecturers in the classroom and workshops.

Building institutions of quality depends on governance, management, and staff recruitment and development. And ultimately, it is high quality institutions which provide excellent training that is responsive to the needs of the local and national economies.

7.3.3 Building quality

A pipeline of quality needs to be built, starting with the GEC at the end of Grade 9, which would channel students to the academic (NSC) or pre-vocational (NC(V)) tracks for the last three years of the FET phase. The GEC will also act to improve quality in the senior phase of compulsory schooling. It is a desirable goal for all 18-24 year old youth to complete a level 4 qualification, either through the NSC or the NC(V). However, if they do not have the learning foundations necessary to cope with either programme, then it would seem a waste to put them through three years for which they will gain no recognition, when they could be doing something more constructive.

7.3.4 Expansion

Taking account of the very weak capacity of the majority of colleges at present, reflected in low throughput rates, the target of enrolling 1 million young adults in colleges by 2014 seems a sure route to frustration and waste, unless the goal is nothing more ambitious than ‘warehousing’ the majority of these youngsters for three or four years, with no serious expectation that they will benefit from the training. But there are better ways of spending the money and achieving a more constructive result.

We would suggest that colleges only be permitted to expand beyond a certain limit, or to diversify their programme mix, once they have achieved a throughput threshold of around 60% or more. In other words, build on existing and emerging quality. In addition, entrance to colleges should be open to school leavers and other young adults alike, but all should be required to pass the GEC before gaining entry; currently many colleges seem willing to accept any student off the street. A target of a 10% annual expansion of the system would seem to be feasible. Certainly, the target of around 1 million college students as the optimal size of the sector in the next decade should not be lost sight of, but that should be a longer term goal.

South Korea has an important lesson for South Africa regarding the expansion of both post-school and HE provision. It allowed the vigorous growth of the private sector, supported by government subsidy for poor students. The result is that some 75% of South Korean FET and HE services are provided by the private sector. This was a deliberate policy decision, allowing the state to focus its

attention on the prior task of building quality basic schooling. Going down this road may not be an easy route for South Africans, trapped as we are in mutual suspicion between the public and private sectors. And yet, neither sector has a monopoly on corruption or inefficiency. The bigger task must be to punish corruption with the law and inefficiency with bureaucratic accountability and market forces, and then to make optimal use of all available means to build a strong system, be it public or private. It is recommended that government investigates ways of releasing the creative energy of the private sector in providing education and training services in the further and higher education sub-systems.

7.3.5 Diversification and programme design

The flaw at the heart of South Africa's first NQF was its design. Programmes were intended to be 'designed down' from a set of unit standards registered with SAQA. The failure of this model is demonstrated by the fact that of the thousands of registered unit standards, only a few hundred ever found favour with qualifications designers (Allais, 2007). The talk now is about moving away from an up-front, design down and prescriptive approach to a practice-based, design-up and descriptive approach. (Walters and Isaacs, 2009:14). In other words, start with what is needed in the workplace, rather than with an abstract design which may satisfy certain rules but has no currency in the real world. The new procedures for qualification development announced by the DHET (2011) are encouraging: teams of experts, one for each of the selected occupations, will carry out the work of programme construction. It is envisaged that the teams will bring together those with expertise on the institutional side and those with expertise from the world of work.

It is against this background that the Industrial Policy Action Plan (Department of Trade and Industry, 2011) call for demand-driven programme development and training should be viewed. We have mentioned the intention by IPAP to target the renewable energy sector for high job growth; further, the plan envisages job growth in the automotive industry, clothing and textiles, boatbuilding, and oil and gas servicing. The scarce skills list produced by the Department of Labour (see Gewer and Elliot, 2011) and the five areas identified in the New Growth Path – energy, transport, communication, water and housing – should also guide the expansion of existing programmes and development of new ones. The New Growth Path assumes that sustaining high levels of public investment in the five priority areas is expected to create jobs in construction, operation and maintenance of infrastructure. The implications of these growth targets for programme development at both FET and HE levels need to be explored. Again, the Minister of Higher Education and Training's envisaged facility for skills planning will play a key role in mediating the scenarios developed by various ministries with the provision of suitable training in the colleges.

In the meantime, the goal of having every young person complete a level 4 qualification, through the NSC (in the high schools), the NC(V) (in colleges), or the NASCA (in the PALCs) is a good one, and the appropriate college programme for this purpose is the NC(V), the intention of which is to give students a good grounding in language and mathematical skills, while providing an introduction to a vocational field.

7.3.6 Work placements

The Minister has announced his intention to engage with large employers, including the state owned enterprises (SOEs), to provide work placement sites and apprenticeships to learners. This is a key piece of the training puzzle that suffers from a great dearth of opportunities for young learners. In

particular, the priority accorded by the DHET Strat Plan of training 10 000 artisans per annum by 2014 is strongly supported by research conclusions around the world (Wolf, 2011). High quality apprenticeships offer the best combination of appropriate theoretical training, practical skill formation, and work experience. They provide indispensable skills both in feeding the productive capacity of the formal job sector and in growing the small enterprise sector.

It is clear that the corporatisation of the SOEs led to the death of South Africa's apprentice system, and government would be well advised to reinstitute this function, supported by designated grants, as part of their core business. Growth in apprenticeships will require reform of the N1-N3 curricula and expansion of college enrolment in these programmes.

7.3.7 Options for the NEET youth

The overwhelming priority regarding the NEET youth is to stem the tide which feeds this pool, estimated to be growing by around 300 000 annually. This provides yet another reason to improve the efficiency of the country's schools.

In addition, social justice considerations motivate strongly for finding ways of providing further earning and learning opportunities for existing NEET youth, but we have argued above that FET college training is not necessarily the best way of developing these opportunities. For those young people who do not gain access to a college or apprenticeship, other programmes are being designed, such as the National Rural Youth Service Corps programme and a renewal of the extended public works programme, both of which include training in useful occupational skills.

Further, the Treasury argues that an affordable youth employment subsidy scheme would lower the relative cost of hiring a young person, and therefore increase demand for young workers. An important benefit is that the work experience and training gained during the period of subsidised work will improve longer-term employment prospects. Getting a first job is important. Young unemployed people who have some work experience are more than three times more likely to find a job than young people who have none.

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Appendix 1: Terms of Reference

Terms of reference

To write a paper that provides evidence about the optimal size and shape of pre-school, school, post-school and higher education landscape with a view to ensuring that learners have unlimited and diversified learning opportunities. This should take into account the present situation as well as future demand based on projected demographic changes. The paper must also identify gaps in the literature.

Specific questions to be addressed:

- What are the major fault-lines in our education and skills development system?
- What is the current size and shape of the Early childhood Development (ECD), basic and higher education (HE) sectors?
- How well are these sub-sectors performing in relation to meeting the demands for learning opportunities?
- How can the performance be enhanced?
- What would be the effective approach to addressing the problem of the many young people who are not in school, not working and not employed? How can the flow from school to post-school learning be improved, and how can the scale of post-school learning be expanded while also improving its quality? This is seen as a major focus of the study, in view of the major deficiencies in this area.
- What should be the optimum size of the ECD, Schools, Post-school and HET sectors in 2025?
- Review the outcome targets, and comment on whether you think they are appropriately framed. Refer to: **http://www.info.gov.za/issues/outcomes/index.html#outcomes**
- Taking into account the outcome targets provided for 2014, what should the targets be for 2025?
- How have countries facing similar problems turned their education systems around?
- What are the most effective interventions to improve education outcomes by 2020-2025?
- What actions are to be taken today?

The study was commissioned by the NPC on 15 March, providing 8 working days to prepare a presentation for the seminar on 28-29 March. The first draft dealing with the diagnostics aspects of the paper to be ready by the 25th of March in order to serve as a basis for the discussion in a seminar proposed for the 28-29 March 2011. The remainder of the report which will take into account the feedback from the seminar should be completed by 15th of April 2011. The final report should be ready by 15 May.

Appendix 2: 12 Outcomes adopted by government

Outcome 1: Improved quality of basic education.

Outcome 2: A long and healthy life for all South Africans.

Outcome 3: All people in South Africa are and feel safe.

Outcome 4: Decent employment through inclusive economic growth.

Outcome 5: A skilled and capable workforce to support an inclusive growth path.

Outcome 6: An efficient, competitive and responsive economic infrastructure network.

Outcome 7: Vibrant, equitable and sustainable rural communities with food security for all.

Outcome 8: Sustainable human settlements and improved quality of household life.

Outcome 9: A responsive, accountable, effective and efficient local government system.

Outcome 10: Environmental assets and natural resources that are well protected and continually enhanced.

Outcome 11: Create a better South Africa and contribute to a better and safer Africa and World.

Outcome 12: An efficient, effective and development oriented public service and an empowered, fair and inclusive citizenship.

The President has signed performance agreements with all 34 Cabinet Ministers, following which Ministers were to establish an Implementation Forum for each of the twelve outcomes. In each implementation forum Ministers and all other parties responsible for delivering on an outcome, would develop a Delivery Agreement. All departments, agencies and spheres of government involved in the direct delivery process required to achieve an output, should be party to the agreement. The Delivery Agreement will refine and provide more detail to the outputs, targets, indicators and key activities for each outcome, and identify required inputs and clarify roles and responsibilities. It will spell out who will do what, by when and with what resources.