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ABSTRACT

This report offers an array of steering mechanisms to help advance South Africa's higher education goals (equity and redress, efficiency, development, and accountability). Building on the experiences of other nations, the paper proposes both base formulas and non-base funding mechanisms that, combined, suggest that such policy-driven steering devices are not only possible, but also desirable in these times of rapid change and increasing instability for higher education. The paper uses three examples (the use of 3-year rolling averages, the realignment of government contribution factors, and the use of a performance-based mini-formula) to demonstrate how these proposals might impact the distribution of base funds. It also illustrates how a new non-base funding stream of performance-oriented mechanism could be developed. The paper focuses on: the higher education funding context in South Africa; a description of steering mechanisms; the overarching purposes of steering; and policy-driven steering mechanisms. The paper concludes that development of the new funding system must be simultaneous with the restructuring of the entire institutional landscape. Appended are: data on South African higher education trends and influences, a glossary of abbreviations, and a table on alternative calculations of subsidy students. (Contains 31 references.) (SM)

FUNDING SOUTH AFRICAN HIGHER EDUCATION

STEERING MECHANISMS TO MEET NATIONAL GOALS

THE INSTITUTE FOR HIGHER EDUCATION POLICY

FUNDING SOUTH AFRICAN HIGHER EDUCATION:

Steering Mechanisms to Meet National Goals

A PAPER PREPARED BY

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The Centre for Higher Education Transformation (CHET) is a non-governmental organisation that strives to develop transformation management capacity and skills throughout the higher education system by integrating skill development training processes with new knowledge production, debates and information dissemination. CHET pursues its aims within a framework of co-operative governance, the promotion of institutional, regional, national and international co-operation and the flexible mobilisation of expertise.

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INTRODUCTION

This paper was commissioned as a result of discussions convened by the Centre for Higher Education Transformation (CHET) and the Pilot Project Consortium on Higher Education (which is made up of Peninsula Technikon, University of Durban-Westville, University of Natal, and ML Sultan Technikon) regarding implementation of the new higher education policy framework and new funding mechanisms. The Pilot Project group has been working for more than a year on a wide range of implementation and funding issues, endeavouring to complement the work of the Ministry and Department of Education, the SAUVCA/CTP Joint Finance Committee, the Council on Higher Education (CHE), and others. Much of the Pilot Project Consortium's work has been focused on the implications of the 1997 Higher Education White Paper and its discussion of both "block" funding and "earmarked" funding for higher education.

The Pilot Project's work led its members to recognize that international input into the development and refinement of steering mechanisms for funding higher education could be useful. Steering mechanisms are policy tools that encourage universities and technikons to take certain steps that are deemed essential to national economic, social, or other goals. The "mechanisms" are typically some type of funding device designed to encourage or "steer" the institutions toward meeting a specific goal or goals. These mechanisms can be included *either* as a part of the ***base formula funding*** (called block funding by the White Paper) that is provided to institutions, or as part of ***non-base funding*** (often referred to as earmarked funding). These terms are explained in further detail below.

In the current South African higher education funding context, steering mechanisms are used as a component of the government funding formula and some additional allocations such as the National Student Financial Aid Scheme (NSFAS) and grants for capital improvements. The current funding formula is largely driven by a set of mathematical calculations that are heavily weighted by prior enrolment numbers. However, it does contain certain efficiency rewards for throughput rates and for research outputs. For reasons that are described below and in the Annexure, this approach is not sufficient for the future and is in the process of being changed by the Department of Education.

The Pilot Project group and CHET concluded from their preliminary discussion of funding for higher education that assistance from other countries would help to advance the discussion in South Africa, given the experience of these other countries (such as the United States and England) with steering mechanisms. The Institute for Higher Education Policy was asked to assist with this analysis of steering mechanisms in South Africa. The Institute is a U.S.-based NGO with significant experience concerning higher education financing issues broadly and steering mechanisms in particular. The intent was to build upon The Institute's U.S. experience and contribute to developing a framework of possible steering mechanisms that appear promising for South Africa.

To aid in informing the paper's principal authors about the intricacies of the South African higher education funding situation, two major activities were undertaken. One was a 10-day visit to South Africa in late July, 1999 to collect data and information, interview the principals involved in funding policy discussions, and gain a greater appreciation for the subtleties and complexities of the South African higher education system. In addition, a week-long workshop was held in late August, 1999 in Washington, DC to assist in the development of the ideas and information presented in this paper. The workshop, which coincided with a larger global conference on higher education financing co-hosted by The Institute, included the following participants:

- Ujen Purmasir, Deputy Vice-Chancellor, ML Sultan Technikon;
- Anthony Leonard, Finance Officer, University of Natal;
- Selva Govindsamy, Chief Director of Finance, University of Durban-Westville;
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- Alisa Cunningham, Senior Research Analyst, The Institute for Higher Education Policy; and
- Ronald Phipps, Senior Associate, The Institute for Higher Education Policy.

Several key documents were reviewed by the workshop participants, including: recent materials dealing with cost issues and research funding (prepared by Professor Charles Simkins); summary data on enrolments, government subsidy allocations, etc. (prepared by the Department of Education); projections of enrolments and subsidy allocations (prepared by Professor Ian Bunting); the aide memoire of the 26 May 1999 meeting of the Finance Reference Group; and other recent data tabulations and analyses.

This paper is influenced heavily by the inputs to the Washington, DC workshop, as well as suggestions and comments provided by members of the Pilot Project Consortium, CHET staff, and other specialists (see Acknowledgements). It is important to emphasise that the landscape for higher education funding appears to be a constantly shifting one in South Africa (for reasons that are described below). Therefore this paper should be seen as a contribution along a continuum of policy ideas and analyses that have been (or will be) developed. It is very possible that new decisions and information have been advanced even in the time period since the workshop was held. After presenting this paper to the Pilot Project Consortium and the Finance Reference Group, further refinement and expansion of the ideas that seem most promising will need to take place, including an assessment of what types of additional analyses and data tabulations need to be conducted, and who should be responsible for these analyses.

HIGHER EDUCATION FUNDING CONTEXT

The status of government funding for higher education in South Africa has changed significantly in recent years, the consequence of historical priorities and the effects of broader societal changes, shifting enrolment patterns, and other factors. These trends have been most pronounced in the last two years, as anticipated enrolment increases have not materialised and the overall dynamic of students, their families, staff, and institutional stability has fluctuated considerably. As a result, calls for revision of the formula used to allocate public monies to institutions of higher education have increased in frequency and importance.

The need to develop a new funding system was clearly articulated in the 1996 report of the National Commission on Higher Education (NCHE), and codified in the 1997 Education White Paper 3 ("A Programme for the Transformation of Higher Education"). These documents make clear that significant changes to the government funding formula (the so-called SAPSE formula) are required to achieve fundamental national goals. Among the goals articulated for a transformed higher education system are:

- To become an effective and efficient system that promotes high quality academic and educational standards;
- To promote equity and redress in order to "bring about equal opportunity for individuals and institutions";
- To respond to the nation's social, economic, and political development needs; and
- To ensure democracy and accountability in the governance and management of higher education institutions.

The White Paper states that:

> *"Funding formulae cannot take account of all the differences between institutions without becoming too complex and unwieldy. Nor do funding formulae lend themselves to accommodating particular needs, especially if such needs are expected to fluctuate or diminish over time. The mechanism of earmarked funding, however, readily lends itself to meeting specific and often short-term needs, and is therefore the second major component of the proposed new public funding framework."*

These and other goals of the White Paper and NCHE report continue to guide the development of South African higher education policy, both in terms of the important work already undertaken by the Department of Education in developing new funding formulas, as well as in the actions and goals of the universities and technikons that comprise the higher education system. However, in the nearly three years since the adoption of the White Paper, major and largely unanticipated changes have occurred in the higher education system. These changes include:

- A levelling and now decline in total higher education sector enrolments, defying what was predicted by the NCHE and others to be significant increases in university and technikon enrolments for the next several years;
- A shift in enrolments by subsector and race, with significant declines experienced by the historically black universities and modest increases experienced by the historically white Afrikaans institutions;
- A decline in the number of school-leavers with matriculation exemptions, an indicator of the school system's inability to produce qualified school-leavers who are prepared to participate in higher education;
- A rapid acceleration of the nation's health care crisis resulting from the high incidence of AIDS and its consequential impacts on university and technikon students and staff; and
- A growth in the number of private, profit-making post-secondary education institutions, with a great deal of uncertainty about the number of students enroled, the programmes of study, the overall quality of these entities, and the nature and level of regulatory processes to be implemented by the Department of Education with regard to their status and operation.

These issues are reviewed in further detail in the Annexure.

As discussed at the Washington, DC workshop, several important assumptions about the development of higher education funding policies must be taken into account in formulating steering mechanisms. The assumptions include:

1) Significant new resources allocated by the government for higher education purposes are not likely to materialise in the next few years. Therefore, much of the current discussion about changes to the funding system must assume a relatively level or only modestly increasing amount of support (after adjusting for inflation) for higher education purposes. At the same time, it is important that funding for higher education not decline, resulting in a further destabilising of the higher education sector.

2) Considerable work and analyses regarding the development of a new base funding formula are already underway, under the direction of the Department of Education. The Department's work in this area, including the Finance Reference Group, national planning discussions, and other internal analyses, may be aided by the input of processes such as the one undertaken in formulating this paper.

3) The timeline for the development of a new funding formula for higher education is uncertain. Many, though not all, of the participants in these policy discussions believe that it will be until at least Fiscal Year (FY) 2003 before a new funding formula is in place. This means that the current system will likely continue in some form for at least another three years.

4) The need for policy-focused steering mechanisms is critical. Given the combination of major systemic change (for higher education and because of national concerns with housing, health care, schooling, etc.) and the unlikelihood of an entirely new base funding formula being

implemented in the near future, the possibility of major instability for the public higher education system exists. This instability could have significant negative consequences for higher education as a whole in South Africa, and therefore on the nation's overall economic, social, and political development. The participants agreed that the purpose of the workshop was *not* to develop a new funding formula, but rather to develop mechanisms that can help steer toward key policy objectives as a new base formula is being developed.

5) Many of these mechanisms that can help to steer toward specific policy priorities will likely end up being permanent parts of the overall funding structure. This means that these "transitional" mechanisms should not be seen as temporary or interim in nature, but rather as key components of a new funding system for South African higher education.

WHAT ARE STEERING MECHANISMS?

As noted above, steering mechanisms are policy tools that encourage higher education institutions to take certain steps that are deemed essential to national economic, social, or other goals. The "mechanisms" are typically some type of funding device designed to encourage or "steer" the institutions toward meeting a specific goal or goals. These mechanisms can be included *either* as a part of the *base formula funding* that is provided to institutions, or as part of *non-base funding.*

Base formula funding is funding provided by the government to continue the basic operation and maintenance of higher education institutions. Base funding is typically enrolment driven and provides operational stability. This type of funding is a blunt instrument, and can provide some level of steering, though often not well targeted. It has some advantages in that it is a fairly autonomous process that does not require significant administration or oversight. Using the analogy of a compass, the base funding steering mechanisms can point the funding system in the direction of national policy goals, but usually they do not offer much precision.

Non-base funding comes in addition to the funding provided through the base formula. This type of funding is usually a pool or pools of resources directed to specific purposes, and is therefore somewhat better suited to steering. It also offers more flexibility than base formula funding and can be adapted to address new needs and goals. There are several different types of non-base funding approaches. These include earmarked funding, which is funding dedicated or earmarked for a specific program (such as the National Student Financial Aid Scheme), mini-formulas, which use an algorithm separate from the base formula to determine how funding is allocated to institutions, and other approaches that are on top of the base formula. In the compass analogy, these non-base funding approaches can often be more precise in targeting co-ordinates.

Several other nations have developed these non-base funding pools in recent years to achieve desired policy goals. In Germany, for example, the federal government and states are working in partnership to achieve specific reforms. A funding pool was allocated jointly by states and the federal government to support improvements in the higher education infrastructure, gender equity for faculty and staff positions, and other priorities over several years, with about 1 to 2 billion DM in 1996 (on an annual higher education funding base of 48 billion DM). These funds are distributed to higher education institutions based on demonstrated need and institutional mission.

In other nations, steering mechanisms occur both through base funding formulas and non-base funding approaches. This paper discusses both approaches, but considers the non-base funding mechanisms in more detail. The non-base mechanisms often can achieve significant change with limited resources, a seeming requirement in the current South African funding context..

From an international perspective, steering mechanisms are policy-driven funding priorities that occur both through base and non-base funding. They have been used increasingly by nations and states to achieve specific national policy objectives. Countries ranging from Australia to Japan to the United States are moving away from rigid formulaic allocation of government resources to support higher education to a more diversified approach that includes other types of policy-driven, non-base funding.

While steering mechanisms can be implemented by threatening the loss of funding unless certain "performance" goals are met, the most effective steering mechanisms are those that reward performance or evidence of change. The aim is to reward institutions that perform in such a way as to carry out nationally defined policy goals. An example from the U.S. experience may help to illustrate this point.

Table 1: Earmarked Funding for the Arkansas Productivity Funding Programme

Productivity/Performance Outcome	Fiscal Year 1995/96	
	Percent	US Dollars
Retention—First Year to Second Year	**39.000%**	**$3,900,000**
Overall Retention	24.375%	$2,437,500
Minority Retention	4.875%	$487,500
Developmental Education Retention	4.875%	$487,500
Transfer Two-year to Four-year	4.875%	$487,500
Graduation Rates	**2.500%**	**$250,000**
Overall Graduates	2.000%	$200,000
Minority Graduates	0.500%	$50,000
Quality	**29.625%**	**$2,962,500**
Licensure/Exit Exams by Discipline	4.875%	$487,500
Academic Program Excellence	4.875%	$487,500
Alumni/Employer Survey	4.875%	$487,500
Rising Junior Exam	15.000%	$1,500,000
Efficiencies	**17.250%**	**$1,725,000**
Administrative Costs	4.875%	$487,500
Program Productivity	7.500%	$750,000
Teaching Load	4.875%	$487,500
Workforce Development	**6.750%**	**$675,000**
Non-Credit Business & Industry Training	4.500%	$450,000
Credit Business & Industry Training	2.250%	$225,000
Diversity	**4.875%**	**$487,500**
Faculty/Staff Diversity	4.875%	$487,500
TOTAL	**100%**	**$10,000,000**

Note: Programme funds are 3% of total higher education appropriations. Graduation rates applied only to two-year institutions in 1995/96.
Source: Arkansas Department of Higher Education, 1998.

The State of Arkansas has successfully used non-base funding steering mechanisms that are related to specific policy goals. Arkansas has implemented a productivity funding programme that links a funding pool of 3% of total government allocations for higher education institutions to the achievement of certain stated goals. This performance funding is *on top of* the regular formula funding allocated to institutions. As Table 1 indicates, the state has identified six major performance goals as key goals for all institutions: retention, graduation, quality, efficiency, workforce development, and diversity. Sixteen specific measures of achievement of those goals are required of the institutions. A proportion of the performance funding pool is then allocated to institutions based upon their attainment of these measures, using a weighting scheme. This approach has resulted in significant improvements on the part of institutions in achieving state-wide goals, including increased minority retention and graduation rates, and reduced administrative costs. These concepts will be revisited and expanded upon later on in this paper.

Such steering mechanisms tend to work best when they use the baseline performance of an individual institution as the starting point for determining the amount of funding provided. In other words, the pool of resources does not reward those who are already advantaged—it rewards attainment of policy goals in relation to where that individual institution was previously. For example, in the State of South Dakota, a base budget is used to fund basic institutional operations, with annual increases for inflation as appropriated by the legislature. In addition, an amount equal to 5% of the universities' tuition and general funds is distributed through a performance funding mechanism. Each university *competes against itself* to improve its performance in a total of five state policy goals identified by the university system's Board of Regents. If a university achieves or improves upon its target in a particular goal area, it receives resources from the performance fund. The targets for Fiscal Year 1999 are shown in Table 2.

Table 2: State Policy Incentive Funds in South Dakota, FY1999

BASELINES AND TARGETS APPROVED BY THE BOARD OF REGENTS						
	Black Hills State University	Dakota State University	Northern State University	South Dakota School of Mines and Technology	South Dakota State University	University of South Dakota
1. Access for Residents						
Base: Fall 1997 FTE	2,197.70	862.80	1,815.90	1,264.50	5,524.40	4,279.10
Target: % change	1.50%	4.50%	1.00%	1.50%	1.50%	1.50%
2. Economic Growth Program Enrolment						
Base: Fall 1997 headcount	484	361	243	360	419	871
Target: % change	3.93%	8.03%	4.12%	6.11%	5.97%	8.04%
3. Academic Improvement						
Base: % reaching expected level (weighted average)	86.63%	76.63%	83.25%	96.88%	91.50%	94.00%
Target: % reaching expected level	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
4. Collaboration						
Base: FY1998 collaborative FTE	63.38	98.73	36.97	102.61	235.04	211.42
Target: % change	12.00%	8.00%	30.00%	8.00%	10.00%	10.00%
5. External Funds						
Target:	$1,186,339	$977,234	$1,403,585	$5,809,263	$10,271,434	$12,488,409

Source: South Dakota Board of Regents, 1999.

In South Africa, steering mechanisms seem particularly important because of the base funding formula's failure to focus on the nation's new policy goals. The current formula is not driven either by these national policy goals or by the needs of students, but rather uses enrolment-driven calculations to produce an institutional funding amount. A base formula that maintains or continues institutional functions is a necessary but not sufficient component of a new funding system. In the absence of policy-driven steering mechanisms—both within the base formula funding, and on top of the base funding—the funding system will retain a detachment from national goals that will only erode higher education's role in furthering the nation's growth and prosperity. What is needed, then, are steering mechanisms that relate directly to specific national policy goals. This paper therefore proposes a combination of base formula funding and non-base funding mechanisms that are more effective at changing institutional behaviour than any other funding approaches currently under consideration.

OVERARCHING PURPOSES OF STEERING

In South Africa, steering is a central component of the new higher education policy and is a deliberate alternative to the policies of the previous government, which oscillated between almost total autonomy and state intervention. Funding is not the only way to implement steering; planning is another key component of steering, as is stated in the White Paper:

> *"In addition to funding for redress and student financial aid, there is a need to encourage innovation and adaptation, and to build capacity in new areas. Institutions applying for funds through this programme will be required to relate their submissions to their strategic plans."*

Given the significant changes taking place in South African higher education, and the fact that the complex work on the development of a new base funding formula has yet to be completed, it is clear that policy-driven steering mechanisms must be developed. These mechanisms can help both to achieve immediate policy results and to pave the way to a measured phasing-in of a new base formula in the next several years.

Key Goals

In developing these policy steering mechanisms, several important policy goals must be articulated. These goals should build upon the goals set out in the Department of Education's 2000-2002 triennium planning guidelines. The goals include:

- **Stabilising Institutions and the Higher Education System:** The high degree of uncertainty now apparent to the majority of higher education institution leaders and policymakers in South Africa makes the development of interim funding mechanisms essential. The goal of stability should be promoted through mechanisms that allow institutions considering new missions or a focusing of their academic programmes to avoid major decreases in the allocation of subsidies that may occur under the current base formula due to changes in enrolments.
- **Improving Efficiency:** The need to improve overall institutional efficiency is clear. Efficiency includes a combination of financial resources, student outputs, and programmatic offerings that, together, reflect the basic mission and goals of an institution. Increasing student retention and graduation, reducing programmatic overlap and duplication, and lowering unit costs are all examples of ways to improve efficiency.
- **Encouraging Inter-Institutional and Regional Co-operation:** The clustering of institutions in specific regions presents both obstacles and opportunities for improvement in the higher education sector. The obstacles lie in the potential for overlap and duplication noted above. However, these clusterings also provide important opportunities for expertise and resource sharing, enhancements to student and staff services, and many other improvements that can impact institutional expenditures.

- **Improving Student Equity:** Student equity must be defined according to several criteria, including family income, gender, disability, and race. This lens of student equity must be applied, moreover, to equity in terms of access to quality academic programmes, especially those in science and technology, business/commerce, and other fields where the individual economic benefit is substantial and the national needs are high. Access to success for students should be a priority at all higher education institutions.

- **Enhancing Institutional Planning Capacity:** Developing a new "culture of evidence" at the campus level will be paramount in the new funding framework. These new capacities—including the ability to predict accurately and manage enrolments, operate within established budgets, and monitor progress in relation to the goals identified by the institution—will take on added importance over time. Support to enhance institutional information structures and planning systems therefore will be critical in the near- and intermediate-term.

- **Encouraging Mission Differentiation:** Concerns about stability, efficiency, equity, and other considerations make the need to differentiate the missions of institutions essential. The NCHE report and other documents propose a unified, co-ordinated system with differentiated missions for institutions. It is in this context that differentiation and re-engineering will be particularly important for those institutions experiencing the most significant changes in enrolments.

- **Improving Staff Equity:** Equity for staff at all levels of higher education institutions must be improved. For example, Cloete and Bunting (2000) report that only modest gains in employment of African academic staff have been achieved since 1993. Improved staff equity should include staff development, promotion, and retention. Staff equity goals should be geared to meeting the requirements of the Employment Equity Bill.

- **Enhancing Quality:** A key to the future of South Africa in a highly competitive world is to develop high quality higher education that is more broadly accessible than currently is the case. Given the effects of apartheid (and its unencumbered social liabilities) and the many years of isolation from much of the rest of the world, enhancing quality (and thereby the overall educational attainment levels of South Africans) is a major goal for higher education. While these problems are especially acute at the Historically Disadvantaged Institutions (HDIs), maintaining quality is also a problem for the best universities and technikons, which are striving to maintain parity with their international peers in areas such as scientific advancement and technology. The full range of quality present in South African higher education must be addressed—from the basic infrastructure to the quality of instruction. Some of these issues are being addressed through the Higher Education Quality Committee (HEQC) of the CHE. These issues need to be addressed through infrastructure improvements, which will require additional resources.

- **Promoting Development:** The nation's need for greater investment in economic and social development is well documented. The drain on resources caused by the nation's housing, AIDS, water, and other crises are enormous, and impact a broad array of economic and social issues, including health, literacy, business development, scientific advancement, technological growth, and many others. More efficient use of resources in higher education is essential for it to make appropriate contributions to national development.

The Special Case of Redress

Redress deserves special mention in the context of the purposes of steering, both because of its importance as a national goal (as articulated by the NCHE and the White Paper), and because of the limited focus that has been placed on redress as a matter of policy. Despite the significant discourse and political calculation that has gone into supporting redress for HDIs, only limited amounts of funding have been applied to date. In fact, the only resources directly allocated for institutional redress took place in 1998/99 (R27 million). These funds were distributed using FTE enrolment numbers, rather than based on any type of assessment of need among individual institutions. Monies allocated under the National Student Financial Aid Scheme (R385 million in 1999) also have been characterised as promoting "individual redress," although these funds may be considered more appropriately as fundamental to overall student access and equity.

Redress must be a priority of the funding system to ensure that the educational opportunities available to all South Africans are of sufficient quality to make the nation competitive in the global marketplace. The lingering effects of the apartheid era's underinvestment in the laboratories, technology infrastructures, and staffing of HDIs are commonly acknowledged among higher education leaders and policymakers. Investment in redress will have a profound effect on overall academic quality, system stability, student equity, and many of the other key goals noted above. Failure to support redress at this critical juncture, conversely, could have prolonged negative effects on the higher education system's ability to raise the nation's educational, economic, and social stature.

POLICY-DRIVEN STEERING MECHANISMS

Policy-driven steering mechanisms are important to South African higher education for several reasons. They can help to provide real and immediate relief to students and institutions prior to the full implementation of a new formula. In addition, these mechanisms can be used as devices to increase movement toward national goals as described in the 1997 White Paper and in national planning discussions. Moreover, they help point the way toward what is both possible and desirable in these times of rapid change and increasing instability for the higher education sector overall.

A policy-focused funding strategy should assist the Department of Education and higher education leaders in achieving a better, and therefore more efficient and equitable, system of allocating government resources to universities and technikons. In considering the various steering mechanisms that might be implemented, several different lenses can be applied to help differentiate among them. One is whether or not the steering mechanism concerns a change to the existing base (SAPSE) formula or requires non-base funding. Another is the timeframe within which the steering mechanisms can be implemented; namely, whether the steering mechanisms can be implemented ***immediately*** (during the 2000/2001 budget cycle), in the ***near-term*** (within one to three years), or in the ***intermediate-term*** (within three to five years). In addition, the nine key goals that build upon the Department of Education's 2000–2002 triennium planning guidelines must guide the development of these steering mechanisms. These three layers or levels can be seen most clearly in the summary grid of possible steering mechanisms and policy goals, which is explained in greater detail below.

It is clearly desirable to understand the implications that such steering mechanisms might have. To aid in this analysis, the discussion below considers the financial implications of three of the proposed steering mechanisms. These analyses of the financial effects of steering mechanisms (two that are changes to the base funding formula, and one that is a non-base funding mini-formula) are offered as examples of the possible distributional effects of the mechanism. Obviously such analyses will need to be done for all of the mechanisms that the members of the Pilot Project Consortium and the Finance Reference Group consider to be particularly promising.

The discussion of steering mechanisms also provides concrete examples from the international experience to demonstrate how such mechanisms are being used in other countries. These examples—largely drawn from the principal authors' U.S.-based experience—are intended to indicate how and why the mechanisms have resulted in change that meets a specific policy goal defined by the nation or state.

It is important to emphasise that an evaluation of institutional needs and requirements is essential to the success of these steering mechanisms. As preliminary steps, it is necessary to engage in two

SOUTH AFRICAN HIGHER EDUCATION FUNDING
POSSIBLE STEERING MECHANISMS AND POLICY GOALS

(X = primary goal 0 = secondary goal)

Time frame: 2000/2001 budget cycle ("Immediate")

	STEERING MECHANISMS	Stabilise institutions	Improve efficiency	Encourage institutional/ regional co-operation	Improve student equity	Enhance institutional planning capacity	Encourage mission differentiation	Improve staff equity	Enhance quality	Promote development
CHANGES TO BASE FORMULA:	Use 3-year actual rolling average enrolments in the formula	X								
	Remove output variables for first-year entries	0			X					
	Add time limits for funding students		X							
	Adjust cost units between higher education sectors	X					0			
NON-BASE FUNDING:	Use available redress funding for improvement of academic & information infrastructure	X			0	0	0		X	0
	Allocate existing financial aid to institutions based more on financial need analysis of students	0			X					

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Time frame: 1 to 3 years ("Near-Term")

	STEERING MECHANISMS	Stabilise institutions	Improve efficiency	Encourage institutional/ regional co-operation	Improve student equity	Enhance institutional planning capacity	Encourage mission differentiation	Improve staff equity	Enhance quality	Promote development
CHANGES TO BASE FORMULA:	Realign government contribution factor in formula toward institutions with a higher percentage of historically disadvantaged students	X			0					
	Phase out or modify output variables in formula	0			X					
	Create a new level of study for basic skills within the formula (level 0)	0	0		X				0	
	Expand/reweight the treatment of disciplines, levels of study, or both	X			0					
NON-BASE FUNDING:	Add premiums for progression/graduation rates		X						0	0
	Add premiums for pass rates of historically disadvantaged students				X					
	Add premiums for staff diversity & internal staff development		0					X		
	Add non-base funding for academic development until changes in base formula are implemented	0	0		X				0	
	Add non-base funding to improve the institutional information infrastructure	0	0			X				0
	Steer existing financial aid funding toward critical disciplines				0		0		0	X

Time frame: 3 to 5 years ("Intermediate-Term")

	STEERING MECHANISMS	Stabilise institutions	Improve efficiency	Encourage institutional/ regional co-operation	Improve student equity	Enhance institutional planning capacity	Encourage mission differentiation	Improve staff equity	Enhance quality	Promote development
CHANGES TO BASE FORMULA & NON-BASE FUNDING:	Remove research from the base formula & create a new mission-specific algorithm, with grading for institutions	0	0				X		0	0
NON-BASE FUNDING:	Add premiums for teaching, with performance criteria		0				X			0
	Add premiums for inter-institutional programme productivity		0	X			0			
	Create expanded national student financial aid programme that maximises student choice & portability				X				0	0

processes. One is to undertake broad institutional self-evaluation. Such self-evaluation would allow institutions to focus on determining their core mission, setting institutional objectives, and assessing the alignment of resources with capacity to meet these objectives. This process would permit institutions to differentiate their missions and focus on those programmes and offerings that represent the greatest strengths and capacities of the institution.

Second, a national evaluation of facilities is required. While individual institutions have assessed their facilities needs in recent years, no concerted national effort has been undertaken. A uniform audit of facilities would allow for a common standard of need that could be applied across the system of higher education. Given the rapidly emerging challenges posed by technology and computers—as well as the historical disparities in laboratories and other scientific and technical facilities among institutions—this audit would aid in the development of a long-term infrastructure development plan.

Immediate Steering Mechanisms

Several immediate changes may be implemented to help build a new funding system. These changes may be effected without major adjustments to existing systems or processes at the government or institutional levels. These are briefly discussed below.

A. Changes to the Base Formula

- **Use three-year actual rolling average enrolments in the formula.**

  Under the current formula, the number of Effective Subsidy Students (ESS)—the fundamental basis for the determination of an institution's subsidy allocation—for the coming year is normally projected based on the number of students from the prior year, plus the difference between the prior year and the year previous. For example, the number of subsidy students in 2000 is calculated based on the number of subsidy students in 1998, plus the difference between the number in 1998 and 1997. This methodology is highly problematic for institutions facing serious declines in enrolments in recent years, since they would face significant reductions in subsidy income (see example in the Annexure). This is particularly troublesome for the HDI universities, UNISA, and Technikon SA.

  To reduce this "drop off the cliff" phenomenon, the projection formula instead could be replaced with a simple three-year actual rolling average. The three-year rolling average would be based on an average of enrolments for the three years prior to the current year. For example, to estimate the number of ESS in the year 2000, the numbers from 1998, 1997, and 1996 would be averaged. This would help to soften the decline in subsidy income for these institutions and promote system stability as it continues to transition and transform.

  Tables 3 and 4 provide estimates of what such a three-year average would do to the calculation of ESS and the allocation of subsidies by institution. Table 3 looks at the number of projected ESS for 1999 and 2000 using the current formula, a three-year rolling average, and a weighted three-year average that counts the most recent of the three years more heavily than the previous two (on a 50:25:25 basis). This table indicates that the three-year rolling averages provide a

Table 3: Alternative Calculations of Subsidy Students, 1999 to 2000

Weighted for discipline (S_{II} equivalent)

	Projected ESS			ESS using 3-year rolling average			ESS using weighted 3-year rolling average		
	1999	2000	% change	1999	2000	% change	1999	2000	% change
Universities									
Cape Town	29,664	30,747	3.65%	29,336	29,754	1.42%	29,390	29,853	1.57%
Durban-Westville	15,488	14,626	-5.57%	15,723	15,070	-4.16%	15,628	14,959	-4.28%
Fort Hare	9,031	7,658	-15.21%	8,715	8,455	-2.98%	8,731	8,256	-5.44%
MEDUNSA	11,217	12,103	7.91%	10,877	11,334	4.21%	10,953	11,412	4.18%
Natal	31,342	34,853	11.20%	29,906	31,329	4.76%	30,153	31,811	5.50%
North	21,078	20,468	-2.89%	22,119	21,113	-4.55%	21,761	20,952	-3.72%
North West	9,071	10,462	15.34%	7,496	8,775	17.07%	7,780	9,071	16.59%
Orange Free State	19,789	19,586	-1.03%	19,194	19,513	1.66%	19,307	19,482	0.90%
Port Elizabeth	10,975	11,755	7.11%	9,603	10,240	6.64%	9,810	10,523	7.26%
Potchefstroom	18,038	21,432	18.82%	16,535	18,014	8.95%	16,712	18,604	11.32%
Pretoria	49,713	53,548	7.71%	48,095	49,852	3.65%	48,389	50,316	3.98%
Rand Afrikaans	22,601	24,736	9.45%	21,369	22,303	4.37%	21,516	22,647	5.26%
Rhodes	8,661	9,488	9.55%	8,374	8,643	3.22%	8,406	8,742	4.00%
Stellenbosch	30,058	31,100	3.47%	28,068	29,085	3.63%	28,315	29,351	3.66%
Transkei	9,103	9,049	-0.59%	9,662	9,359	-3.15%	9,522	9,232	-3.05%
Venda	9,975	8,655	-13.24%	8,889	9,112	2.50%	9,119	8,998	-1.33%
Western Cape	17,207	15,047	-12.55%	17,020	16,108	-5.36%	16,973	15,843	-6.66%
Witwatersrand	32,689	32,834	0.45%	32,962	32,703	-0.79%	32,853	32,675	-0.54%
Zululand	10,136	10,227	0.90%	9,959	9,993	0.34%	9,973	10,012	0.39%
UNISA	47,434	49,472	4.30%	46,445	47,393	2.04%	46,595	47,623	2.21%
Vista	24,603	24,883	1.14%	22,418	23,046	2.80%	22,763	23,292	2.32%
HAI Universities	**300,963**	**319,549**	**6.18%**	**289,888**	**298,830**	**3.08%**	**291,447**	**301,626**	**3.49%**
HDI Universities	**136,908**	**133,179**	**-2.72%**	**132,879**	**132,365**	**-0.39%**	**133,203**	**132,026**	**-0.88%**
Total Universities	**437,871**	**452,728**	**3.39%**	**422,767**	**431,194**	**1.99%**	**424,650**	**433,652**	**2.12%**
Technikons									
Border	6,264	7,190	14.77%	4,392	5,412	23.21%	4,688	5,658	20.70%
Cape	14,925	15,913	6.62%	14,919	15,142	1.49%	14,910	15,206	1.98%
Eastern Cape	6,686	6,394	-4.36%	5,338	6,020	12.79%	5,549	6,064	9.29%
Free State	9,204	8,758	-4.84%	8,767	8,889	1.39%	8,837	8,847	0.12%
M L Sultan	14,956	13,700	-8.40%	11,531	12,664	9.82%	11,975	12,856	7.36%
Mangosuthu	9,466	8,841	-6.61%	8,608	8,807	2.31%	8,723	8,775	0.60%
Natal	15,709	15,001	-4.51%	13,845	14,514	4.84%	14,094	14,567	3.36%
North West	5,400	5,922	9.67%	4,245	4,767	12.28%	4,385	4,930	12.42%
Northern Gauteng	11,598	13,025	12.30%	11,275	11,805	4.71%	11,345	11,927	5.13%
Peninsula	12,793	13,573	6.10%	11,580	12,272	5.98%	11,741	12,429	5.86%
Port Elizabeth	12,756	12,549	-1.62%	12,166	12,419	2.07%	12,259	12,415	1.27%
Pretoria	28,049	28,948	3.20%	23,830	25,620	7.51%	24,316	26,161	7.59%
Vaal Triangle	17,893	18,082	1.06%	14,146	15,482	9.44%	14,591	15,875	8.80%
Witwatersrand	18,755	19,709	5.09%	17,921	18,755	4.65%	18,081	18,844	4.22%
SA	34,204	30,895	-9.67%	30,869	31,114	0.79%	31,310	30,910	-1.28%
HAI Technikons	**151,496**	**149,856**	**-1.08%**	**136,464**	**141,934**	**4.01%**	**138,397**	**142,825**	**3.20%**
HDI Technikons	**67,164**	**68,645**	**2.21%**	**56,969**	**61,747**	**8.39%**	**58,406**	**62,641**	**7.25%**
Total Technikons	**218,660**	**218,501**	**-0.07%**	**193,432**	**203,681**	**5.30%**	**196,804**	**205,466**	**4.40%**
All Institutions Total	**656,531**	**671,229**	**2.24%**	**616,199**	**634,875**	**3.03%**	**621,454**	**639,117**	**2.84%**
HAIs	**452,459**	**469,405**	**3.75%**	**426,351**	**440,764**	**3.38%**	**429,844**	**444,451**	**3.40%**
HDIs	**204,072**	**201,825**	**-1.10%**	**189,848**	**194,111**	**2.25%**	**191,610**	**194,666**	**1.60%**

Note: Projected figures are based on 1997 and 1998 figures. Rolling averages are based on 1998, 1997, and 1996 figures. Weighted rolling averages are weighted 50:25:25, respectively.
Source: Institute for Higher Education Policy calculations, based on South African Department of Education data.

kind of dampening effect that reduces the sharp declines in funding that would apply to institutions facing serious declines in enrolments in prior years. It also shows that increases in funding for institutions that have raised their enrolments would be less steep. In both alternative calculations, some level of stability would be promoted as it relates to the calculations of these subsidy students. (Table H, in the Annexure, shows the percentage differences between the rolling average estimates and the current formula projections.)

Table 4 then offers a view of what these alternative ESS calculations would do to the distribution of formula subsidy allocations. The table provides subsidy allocations in a base year (1998/1999), and compares them with the projected formula allocations for the three subsequent years (1999/2000, 2000/2001, and 2001/2002) using two methods. One is the existing method used by the Department of Education under SAPSE. The other uses a three-year (unweighted) rolling average. Again, this table indicates that the three-year average offers some dampening effect on the declines or increases in funding that institutions would obtain using the current formula. The table also indicates that the three-year average would produce a lower total amount of formula subsidy allocations for all institutions in the first two years. These "excess" funds might be used for the non-base funding, policy-driven purposes described further below.

Table 4: Gross Estimates of Formula Subsidy Allocations Using Alternative ESS Calculations, 1998/99 to 2001/2002

In 1000s of Rands

	Base Year	Estimates of formula allocations using Department of Education projections of ESS				Estimates of formula allocations using simple 3-year rolling averages of ESS			
	1998/99 (actual)	1999/2000	2000/2001	2001/2002	% change, 1998/99 to 2001/2002	1999/2000	2000/2001	2001/2002	% change, 1998/99 to 2001/2002
Universities									
Cape Town	268,820	280,267	311,928	317,925	18.27%	277,166	301,855	307,003	14.20%
Durban-Westville	132,358	143,802	145,426	129,297	-2.31%	145,983	149,837	143,365	8.32%
Fort Hare	90,587	93,769	84,339	66,175	-26.95%	90,486	93,119	83,855	-7.43%
MEDUNSA	104,111	158,054	162,894	120,761	15.99%	153,264	152,543	143,802	38.12%
Natal	275,505	301,978	359,656	302,091	9.65%	288,149	323,295	320,235	16.24%
North	209,013	177,826	201,306	137,924	-34.01%	186,614	207,646	183,896	-12.02%
North West	91,646	88,191	106,607	82,768	-9.69%	72,878	89,413	89,729	-2.09%
Orange Free State	179,515	185,818	195,973	212,644	18.45%	180,234	195,246	199,265	11.00%
Port Elizabeth	80,045	105,993	121,950	142,403	77.90%	92,745	106,238	121,181	51.39%
Potchefstroom	149,001	168,791	218,845	233,683	56.83%	154,726	183,942	204,374	37.16%
Pretoria	448,720	477,027	551,960	518,715	15.60%	461,503	513,869	518,843	15.63%
Rand Afrikaans	189,591	212,215	250,020	213,620	12.67%	200,652	225,436	223,731	18.01%
Rhodes	78,386	85,659	100,364	101,814	29.89%	82,820	91,429	95,530	21.87%
Stellenbosch	258,130	282,296	312,160	334,011	29.40%	263,599	291,937	307,593	19.16%
Transkei	109,367	99,743	105,952	90,436	-17.31%	105,876	109,581	101,033	-7.62%
Venda	85,052	90,471	85,676	85,294	0.28%	80,622	90,200	89,469	5.19%
Western Cape	143,061	159,804	149,988	124,557	-12.93%	158,064	160,563	148,958	4.12%
Witwatersrand	292,154	309,229	331,318	320,287	9.63%	311,818	329,994	326,833	11.87%
Zululand	86,835	95,268	102,721	93,377	7.53%	93,610	100,365	99,232	14.28%
UNISA	402,877	417,884	474,346	367,649	-8.74%	409,173	454,410	427,036	6.00%
Vista	179,681	221,238	236,764	205,148	14.17%	201,595	219,285	223,325	24.29%
HAI Universities	**2,622,744**	**2,827,157**	**3,228,500**	**3,064,842**	**16.86%**	**2,723,119**	**3,019,186**	**3,056,240**	**16.53%**
HDI Universities	**1,231,711**	**1,328,166**	**1,381,673**	**1,135,737**	**-7.79%**	**1,289,080**	**1,373,220**	**1,304,696**	**5.93%**
Total Universities	**3,854,455**	**4,155,323**	**4,610,193**	**4,200,579**	**8.98%**	**4,012,199**	**4,392,406**	**4,360,936**	**13.14%**
Technikons									
Border	38,923	54,944	64,642	112,864	189.97%	38,524	48,655	73,119	87.85%
Cape	102,392	104,408	118,853	105,209	2.75%	104,364	113,089	111,002	8.41%
Eastern Cape	53,872	55,831	55,527	67,872	25.99%	44,570	52,278	58,603	8.78%
Free State	64,971	66,135	66,382	61,142	-5.89%	62,996	67,372	65,480	0.78%
M L Sultan	96,716	126,204	114,382	111,074	14.85%	97,307	105,735	111,552	15.34%
Mangosuthu	68,936	74,923	75,378	72,725	5.50%	68,129	75,089	73,582	6.74%
Natal	102,233	113,056	111,693	132,237	29.35%	99,641	108,072	117,426	14.86%
North West	41,802	39,034	54,267	70,280	68.13%	30,687	43,676	53,885	28.90%
Northern Gauteng	96,213	95,320	113,415	195,970	103.68%	92,662	102,796	137,070	42.46%
Peninsula	94,726	103,893	115,869	107,916	13.92%	94,040	104,763	106,725	12.67%
Port Elizabeth	87,070	90,363	95,214	83,933	-3.60%	86,186	94,223	90,920	4.42%
Pretoria	161,589	208,049	226,278	280,529	73.61%	176,756	200,267	229,770	42.19%
Vaal Triangle	94,181	133,676	140,102	138,186	46.72%	105,683	119,953	131,591	39.72%
Witwatersrand	138,929	131,346	145,363	122,240	-12.01%	125,503	138,323	134,289	-3.34%
SA	212,427	251,232	233,399	232,041	9.23%	226,734	235,054	234,404	10.35%
HAI Technikons	**963,792**	**1,098,265**	**1,137,284**	**1,155,517**	**19.89%**	**989,287**	**1,077,164**	**1,117,829**	**15.98%**
HDI Technikons	**491,188**	**550,149**	**593,480**	**738,701**	**50.39%**	**466,640**	**533,839**	**622,771**	**26.79%**
Total Technikons	**1,454,980**	**1,648,414**	**1,730,764**	**1,894,218**	**30.19%**	**1,455,927**	**1,611,003**	**1,740,600**	**19.63%**
All Institutions Total	**5,309,435**	**5,803,737**	**6,340,957**	**60,944,797**	**14.79%**	**5,447,203**	**5,997,527**	**6,073,181**	**14.38%**
HAIs	**3,586,536**	**3,925,422**	**4,365,804**	**4,220,359**	**17.67%**	**3,698,917**	**4,099,422**	**4,166,950**	**16.18%**
HDIs	**1,722,899**	**1,878,315**	**1,975,153**	**1,874,438**	**8.80%**	**1,747,394**	**1,899,668**	**1,908,640**	**10.78%**

Note: ESS are S_H equivalent. South African Department of Education projections are based on the SAPSE formula and use estimated @ values. Projections based on rolling averages are calculated using each year's formula funds per student from the Department of Education's projections.
Source: Institute for Higher Education Policy calculations, based on South African Department of Education data.

- **Remove output variables for first-year entries.**

  The SAPSE formula's treatment of so-called "degree credit" students significantly limits the base funding provided to institutions of higher education that serve high-risk student populations. This is because the calculation of ESS reduces by one half the allocation for students who do not pass their exams. Removing these output variables from the formula for first-year students (or at minimum a reduction to a weight less than 0.5), thereby allowing for the continued subsidisation of students even if they do not pass their first examinations, would lessen the regressive impact of this component of the formula on student equity. In addition, this mechanism would allow for some level of stabilisation for institutions that are contending with significant changes in the numbers of disadvantaged students enrolled.

  Removing the output variables for first-year entries would not eliminate the formula's intended goal of rewarding student success; instead, it reduces the powerful disincentive to enrol disadvantaged students.

- **Add time limits for funding students.**

  To promote student progression and success, and thereby improve overall system efficiency, time limits could be placed on the length of time for which students can be included in an institution's calculation of subsidy totals. For example, the formula might permit the inclusion of only those students who are no more than two years beyond the normal time for qualification for the first degree. This would allow students to make satisfactory academic progress in a reasonable amount of time.

  These time limits are quite common in the funding systems used by other nations. Federal student assistance in the United States, for example, generally limits aid eligibility to 150% of the time that it takes to normally complete the degree programme. This provides some degree of efficiency by ensuring that students are not subsidised for an indeterminate period of time.

  An analogous approach would be to limit the total number of academic credits for which a student could be subsidised. Again, this would offer a reasonable allowance that students have the opportunity to complete their programmes of study, ensuring that student progression through the system is achieved.

- **Adjust cost units between higher education sectors.**

  In calculating subsidy formula amounts, the ESS numbers in the Natural Sciences and Human Sciences categories are linked to a series of cost units that differ for universities and technikons. The SAPSE formula effects various calculations based on this differentiation to generate each sector's subsidy formula income. The purpose of rationalising these cost units would be to eliminate the discrepancy in the subsidy base between universities and technikons. This new approach could be developed by a working group of Department of Education officials and institutional chief finance officers, operating under the auspices of the Finance Reference Group.

B. Non-Base Funding

In the immediate period of transition to a new funding formula (the 2000/2001 budget cycle), it is unlikely that significant new non-base funding resources will be available. However, existing earmarked funds—especially those allocated for redress purposes and student financial aid—could be used in somewhat different ways than is currently the case. These include:

- **Use available redress funding for improvement of the academic and information infrastructure.**
  One way to break the impasse on the issue of redress funding is to use the amount of non-base funds already authorized for redress—some R300 million—to support the improvement of the academic and information infrastructures at HDIs. The Department of Education could be tasked with developing a mini-formula that would allocate the funding based on several criteria: key areas in need of upgrading (for example, laboratories, management information systems, and student computer systems); institutional mission; and performance in meeting defined objectives in a specific period of time. In the latter case, it may be possible to spread the funding over a two- to three-year period, with staged payments to institutions based on their accomplishments in meeting defined project objectives. This would provide a level of accountability and assurance that funds would be spent for the purposes defined by the institution itself and approved by the Department.

- **Allocate existing financial aid to institutions based more on financial need analysis of students.**
  The current method of distribution of National Student Financial Aid Scheme (NSFAS) funds (R385 million in 1999/2000) uses the total population of historically disadvantaged students enroled to determine the institutional allocation. While this technique allows for a macro-level analysis of "need," it does not ensure that resources are ultimately applied to students who have the greatest financial limitations.

  One approach to improve the equity of NSFAS funds distributed would be to base the institutional allocation on a combination of factors, including the financial need of students, gender, historical disadvantage, and other factors that have been identified as barriers to student access and success. Similarly, institutions should be encouraged to develop a more rigorous process of student financial need analysis to ensure that a progressive system of financial aid—allocating the greatest support to those with the greatest needs—is established.

  Several U.S. states use this method for the allocation of state-funded student assistance. While state-funded student aid is dwarfed by comparison to federal aid (US$3.5 billion in state aid in 1998/99 compared to US$46 billion in federal assistance), it nevertheless plays a critical role in promoting student access and equity. For example, states such as Massachusetts typically have an array of state-funded aid programmes for students—some centrally administered by a state agency, others managed by the higher education institutions. These diverse aid programmes (Massachusetts has 17 separate student aid programmes) target an array of goals: financial need, academic excellence, workforce development priorities, and so on. Most programmes use some method of analysing need as a component of the financial award calculation.

Near-Term Steering Mechanisms

Mechanisms that could be implemented in a one- to three-year timeframe should be considered as a critical part of the development of a new funding system. In the current environment, these near-term mechanisms represent a major opportunity to advance the nine key policy goals. They include ongoing changes to the base formula, as well as significant new investment in performance-based funding through non-base pools of resources. These are described below:

A. Changes to the Base Formula

- **Realign the government contribution factor within the formula toward institutions with a higher percentage of historically disadvantaged students.**

  The current formula calculates a gross subsidy formula income provision for institutions based on the number of subsidy students multiplied by various cost units. This formula provision is then reduced by a percentage government contribution factor that determines the subsidy entitlement for each institution. In 1998/99, this contribution factor was equal to 90% of subsidy entitlement for historically disadvantaged technikons, 80% for historically advantaged technikons (78% for Technikon SA), and a variable amount that ranged from 78% to 81% for universities. The technikon factors of 80% and 90% were set by agreement of the technikon sector itself, whereas the university factor makes no distinction between Historically Advantaged Institutions (HAIs) and HDIs, and varies only on the basis of subsidy student numbers (projected) for the year.

  The rapidly changing profile of student enrolments at institutions of higher education across South Africa, however, suggests that these contribution factors should be realigned to emphasise the enrolments of historically disadvantaged students (HDS). Irrespective of their historical role, institutions should be remunerated fairly for the student populations that they currently serve. This would allow institutions serving a high proportion of disadvantaged students to receive a greater proportion of their total revenues from the government, an acknowledgement of the public benefits and purposes served by educating these historically underrepresented groups.

  For example, Table 5 illustrates one possible way in which the contribution factors might be realigned. The table uses data from 1998/1999 to show how the formula subsidy entitlement is distributed by institution using the current contribution factors, and how the distribution of subsidy entitlements would change using a revised contribution factor. The revised contribution factor is calculated based on the proportion of HDS enroled (on a headcount basis). The new contribution factors tentatively have been assigned by the authors for illustration purposes, and are as follows:

  - .90 = HDS share of enrolment is greater than 90%;
  - .85 = HDS share of enrolment is 76 to 90%;
  - .80 = HDS share of enrolment is 61 to 75%;
  - .75 = HDS share of enrolment is 46 to 60%;
  - .70 = HDS share of enrolment is 45% or less.

Table 5: Illustration of Possible Realignment of Government Contribution Factor, 1998/99

Assumption for realigned contribution factor (HDS = historically disadvantaged students):

.90 = HDS share of enrolment is greater than 90%
.85 = HDS share of enrolment is 76 to 90%
.80 = HDS share of enrolment is 61 to 75%
.75 = HDS share of enrolment is 46 to 60%
.70 = HDS share of enrolment is 45% or less

	Actual:			Realigned:		
	Recommended formula subsidy provision (1000s of Rands)	Government contribution (ratio)	Formula subsidy entitlement* (1000s of Rands)	Historically disadvantaged student share of headcount enrolment	Revised government contribution (ratio)	Revised formula subsidy entitlement* (1000s of Rands)
Universities						
Cape Town	529,623	0.7928	418,086	48%	0.75	397,217
Durban-Westville	258,269	0.8001	205,851	98%	0.90	232,442
Fort Hare	159,310	0.8139	128,444	100%	0.90	143,379
MEDUNSA	171,895	0.8306	141,701	97%	0.90	154,706
Natal	535,207	0.8035	428,468	74%	0.80	428,166
North	414,562	0.7913	325,070	100%	0.90	373,106
North West	140,696	0.8177	114,539	100%	0.90	126,626
Orange Free State	350,506	0.7995	279,194	45%	0.70	245,354
Port Elizabeth	152,711	0.8189	124,492	73%	0.80	122,169
Potchefstroom	291,219	0.8004	231,736	43%	0.70	203,853
Pretoria	888,670	0.7876	697,879	63%	0.80	710,936
Rand Afrikaans	372,959	0.7933	294,864	51%	0.75	279,719
Rhodes	149,994	0.8187	121,911	60%	0.75	112,496
Stellenbosch	509,209	0.7931	401,460	20%	0.70	356,446
Transkei	176,941	0.8077	142,100	97%	0.90	159,247
Venda	164,587	0.8075	132,278	100%	0.90	148,128
Western Cape	280,951	0.7974	222,499	98%	0.90	252,856
Witwatersrand	575,146	0.7923	454,378	51%	0.75	431,360
Zululand	168,537	0.8082	135,052	99%	0.90	151,683
UNISA	798,326	0.7851	626,580	62%	0.80	638,661
Vista	353,221	0.7920	279,451	99%	0.90	317,899
HAI Universities	**5,153,570**		**4,079,048**			**3,926,377**
HDI Universities	**2,288,969**		**1,826,985**			**2,060,072**
Total Universities	**7,442,539**		**5,906,033**			**5,986,449**
Technikons						
Border	67,534	0.9000	60,535	97%	0.90	60,781
Cape	199,426	0.8000	159,247	47%	0.75	149,570
Eastern Cape	94,127	0.9000	83,785	99%	0.90	84,714
Free State	126,875	0.8000	101,046	63%	0.80	101,500
M L Sultan	167,724	0.9000	150,419	97%	0.90	150,952
Mangosuthu	119,863	0.9000	107,214	100%	0.90	107,877
Natal	199,471	0.8000	158,999	76%	0.85	169,550
North West	73,052	0.9000	65,014	100%	0.90	65,747
Northern Gauteng	168,070	0.9000	149,637	100%	0.90	151,263
Peninsula	164,706	0.9000	147,323	97%	0.90	148,235
Port Elizabeth	169,921	0.8000	135,417	68%	0.80	135,937
Pretoria	315,359	0.8000	251,315	52%	0.75	236,519
Vaal Triangle	184,064	0.8000	146,477	78%	0.85	156,454
Witwatersrand	271,070	0.8000	216,072	73%	0.80	216,856
SA	423,634	0.7800	330,381	78%	0.85	360,089
HAI Technikons	**1,889,820**		**1,498,954**			**1,526,475**
HDI Technikons	**855,076**		**763,927**			**769,568**
Total Technikons	**2,744,896**		**2,262,881**			**2,296,044**
All Institutions Total	**10,187,435**		**8,168,914**			
HAIs	**7,043,390**		**5,578,002**			**5,452,852**
HDIs	**3,144,045**		**2,590,912**			**2,829,641**

* Before application of @ value.

Source: Institute for Higher Education Policy calculations, based on South African Department of Education data.

The table indicates that universities and technikons serving the highest proportions of historically disadvantaged students generally would receive a higher formula subsidy entitlement—irrespective of the institution's historical status (HDI/HAI) or whether it is a university versus a technikon.

- **Phase out or modify output variables in the base formula.**

  Building on the elimination of output variables in the base formula for first-year entries, it should be possible to phase out most output variables in the formula in the near-term. These output variables, which were incorporated into the formula early in its history (when the formula only was used for HAIs), are clearly regressive in the current higher education context in South Africa and impede student equity. In their place, other mechanisms that provide incentives for student progression and the success of historically underrepresented groups should be implemented (see discussion below).

- **Create a new level of study for basic skills within the formula.**

  The SAPSE formula weights the course levels in which students are enroled to calculate the number of ESS. However, the current system makes no provision for students enroled in basic skills or academic development courses. This means that no subsidy is provided for the education of students who typically require more investment of resources than their better-prepared and more advantaged classmates.

  A new level of study could be introduced into the formula that provides some amount of subsidy for students in these courses. These so-called "level 0" students could be specially weighted in the formula to promote access to success, and to enhance the efficiency and stability of institutions. The special weights also might reward the successful progression of students from the basic skills courses into the normal academic programme.

- **Expand/reweight the treatment of disciplines, levels of study, or both.**

  In addition to the weighting for level of study noted above, the current formula heavily weights the one generic category, Natural Sciences, against the other, Human Sciences. It is clear that this differentiation is insufficiently sensitive to the higher education needs of the country and should be refined.

  Three different solutions to this dilemma are possible and most likely can be used in combination. One is simply to reweight the treatment of various CESM categories to reflect more accurately the nation's current needs and priorities. For example, business and commerce courses, which are currently classified in the Human Sciences grouping, have been identified in national policy discussions as essential to the transformation of South Africa. These courses could be reweighted to reflect this priority.

  A second option is to expand the number of major groupings beyond the Natural and Human Sciences. This would promote a more progressive system of weighting to take into account current and emerging national needs.

A third option is to reweight the levels of study themselves. The current system of weighting course levels assumes that each successive level of academic progress deserves greater subsidy. Thus, students at the higher undergraduate levels are subsidised at a higher rate than lower and intermediate undergraduates, intermediate postgraduates are subsidised at a higher rate than lower postgraduates, and so on. A new weighting scheme could be devised to target resources on those degrees/qualifications that are identified as priorities in national planning discussions.

Table 6: Illustration of a Possible Performance Funding Mini-Formula in the Near-Term, 2001/2002

Distribution of overall funds

	Percent	Rands (in millions)
Productivity/performance outcomes:		
Progression—first year to second year	50%	101
Overall	40%	80
Disadvantaged students	10%	20
Graduation rates	30%	60
Overall	20%	40
Disadvantaged students	10%	20
Diversity	10%	20
Faculty/staff diversity	10%	20
Staff development	10%	20
Faculty/staff development programmes	10%	20
Total	100%	201

Note: Details may not add to totals due to rounding. This mini-formula does not include existing earmarked funding, such as financial aid and redress funds. Intermediate-term steering mechanisms, such as premiums for teaching effectiveness and for inter-institutional programme productivity, could be added as necessary.

These approaches to greater delineation and differentiation concerning academic disciplines and levels of study are quite common in the United States. In fact, nearly all U.S. states that use formulas to calculate funding requirements in the instructional programme area differentiate based on discipline (such as education, business, and architecture) level of study, and type of institution.

B. Non-Base Funding

The near-term period represents a major opportunity for advancement of national goals using non-base funding. The core of this non-base funding stream could be drawn from the reduced base formula subsidy totals that will be available because of the declines in enrolments between 1998 and 1999. As Bunting has calculated (see Annexure), subsidy allocations under the current SAPSE formula are projected to decline from 5,982 million Rands in 2000/2001 to 5,781 million Rands in 2001/2002. This difference (a total of 201 million Rands) could be seen as the floor of an expanded non-base funding stream that is used for policy-driven performance purposes. Other earmarked funds, such as those allocated for redress purposes, student financial aid, and others (excluding existing funds for capital loans, property tax, etc.) would be considered on top of this new amount of non-base performance funding.

Table 6 provides an illustration of how a portion of such non-base funding might be distributed, using performance-based steering mechanisms (described below). This mini-formula uses the Arkansas Productivity Funding Programme (see Table 1) distribution methodology as a guide. As the illustration shows, the total pool of 201 million Rands (in 2001/2002) in performance funding resources could be allocated on a proportional basis. Under this example, greater emphasis is placed on student progression, academic development, and graduation rates, reinforcing the

goals of efficiency, stability, and student equity. Other weightings and priorities are possible. For each mechanism, indicators or measures of progress could be developed to allocate the funds to individual institutions.

The types of funding mechanisms that could be implemented through non-base funding in this near-term period include the following:

- **Add premiums for progression and graduation rates.**
  One important method for enhancing efficiency and ensuring the overall effectiveness of the higher education sector would be to develop a system of incentives for student progression and graduation. Such an incentive approach would represent a major departure from the current system, and would advance the system closer to the goals articulated in the 1997 White Paper. In this new structure, institutions would be paid a premium based on their actual throughput and graduation rates as measured against a predetermined baseline for each institution. For example, a ratio of degrees awarded to total student enrolments could be established for each institution. Institutions with an increase in this ratio (from their own base) would be rewarded for their success. This premium would serve as an incentive to institutions to invest in the appropriate amount of academic support and development for all students to enhance the prospects of their success. This is precisely what has taken place in U.S. states such as Arkansas and Connecticut that have used performance funding to promote student progression and graduation.

- **Add premiums for pass rates of historically disadvantaged students.**
  An additional premium focused specifically on the pass rates of historically disadvantaged students could be implemented to improve student equity. This would help to enhance the goal of "access to success" articulated above. It also would serve as an added incentive for institutions to focus the maximum amount of attention possible on the success of under-prepared and historically disadvantaged populations. Again, international experience comes to bear in this regard. The state of Connecticut actually ended its minority student advancement programme because it had achieved its goals of improving minority student pass rates at both public and private higher education institutions.

- **Add premiums for staff diversity and internal staff development.**
  Staff equity, both for teaching as well as administrative staff, is essential to the ongoing transformation of the South African higher education system. This is especially important at the individual institution level, where the ability to recruit and retain quality staff is critical to institutional development and growth. To promote these goals, premiums could be paid to institutions that develop staff diversity programmes (according to guidelines established by the Department of Education), or that meet certain goals for staff development and advancement. These funds would be allocated based on the institution's improvement from a baseline. In the international example from Arkansas, this premium approach has been used (requiring less than 5% of the total performance funding pool) to make significant gains in faculty and administrative staff diversity.

- **Add non-base funding for academic development until changes in the base formula are implemented.**
  To improve student equity and encourage greater participation in higher education by historically underrepresented populations, non-base funds could be allocated to institutions to support bridging and academic development programmes that enhance student persistence and graduation. These funds could be made available to institutions based on a mini-formula that calculates the number of students requiring academic development multiplied by a unit cost figure.

  Over a longer-term period, students participating in these academic development programmes could be incorporated into the calculation of overall subsidy student totals of institutions (see "level 0" weighting discussion, above). This transitional non-base funding mechanism thereby would be incorporated into the new base funding formula, using various weighting factors.

- **Add non-base funding to improve the institutional information infrastructure.**
  Little has changed in the information infrastructure of higher education institutions since the completion of the 1996 NCHE report. Institutions continue to be hampered by inadequate technology, limited staffing, and an institutional culture that has difficulty emphasising data and information needs over student services and staff development. In the current system, the accessibility, usability, accuracy, and transparency of data represent a significant impediment for institutions.

  One way to change this system is to allocate non-base funding specifically for the development and advancement of the institutional information infrastructure. Such funds could be made available based on the submission of a multi-year plan for improvement, with specific objectives and goals identified. This improved information system would aid significantly in developing a new "culture of evidence" to enhance the planning capacity of institutions and assist in national planning.

- **Steer existing financial aid funding toward critical disciplines.**
  In addition to the immediate targeting of student financial aid more to students based on financial need, it would be desirable in the near-term to steer such aid toward disciplines that are identified as high national priorities. For example, some additional direction to institutions (in the determination of their NSFAS allocation) could be provided to promote student enrolments and success in science and technology, business, and commerce. This would promote greater equity for student populations that have been underrepresented in these fields.

  Financial aid programmes in the United States offer an array of examples that could be studied and applied in the South African context. Many states, for example, have established small student aid programmes that target grant aid in "critical shortage" areas, such as teaching, mathematics, and science. The federal government also promotes such steering, funding programmes that target minorities studying in science, engineering, early childhood education, and other national need areas.

Intermediate-Term Steering Mechanisms

The intermediate-term steering mechanisms are predicated on the assumption that a new funding formula will be implemented partially or fully in the next three to five years. These mechanisms include a combination of ongoing changes to the existing base formula (or possibly modification to a newly implemented formula) as well as non-base funding approaches. Examples of such mechanisms include:

- **Remove research from the base formula and create a new mission-specific algorithm, with grading for institutions.** A significant amount of time and human resources has been applied in the last two years to determining the role of research in the subsidy formula. That work must continue, particularly since a new formula cannot be implemented in the absence of these complex equations. Once the new formula is developed, however, it may be useful to take a step back from these calculations and ask whether or not research should be included as a sub-component in the main base funding formula.

  There is some reason to believe that removing research from the base subsidy formula entirely, and replacing it with a new algorithm that targets research directly, would be a more efficient and accurate method of allocating such funds. In other nations, including the United States, there has been some movement toward this type of separate formula, based on the argument that the base subsidy formula should be targeted—to the greatest extent possible—on direct and indirect support of instruction and student learning. Since it is difficult to quantify accurately how much research impacts student learning directly, these algorithms outside the main formula help to overcome that hurdle. For example, the state of Arkansas allocates 20% of total faculty salaries for research at its main "flagship" research university, the University of Arkansas, Fayetteville.

  This approach complements a more differentiated system of higher education, with certain institutions focused more on teaching and learning and others conducting various levels of research. If such a system were considered, it would be important to establish a grading system that assesses research needs and capacities as compared to the institution's mission and goals. This approach would ensure that those institutions that have defined research as a major focus of their mission would receive sufficient resources to support that mission.

  One nation where this differentiated approach to the allocation of research funding takes place is England. The Higher Education Funding Council for England (HEFCE) distributes funds to institutions selectively based on the institutions' demonstrated strengths in specific areas. Funding is allocated under two headings—quality-related (QR) research funding and generic research (GR) funding—although more than 90% is actually allocated via the QR process. Under this process, institutions are assessed through a peer-review system. Institutions are awarded a rating on a 1 to 5 scale that is based on a peer-reviewed analysis of quality of research in various units of assessment. Those with a low rating get little or no research funds, while those with the highest ratings get incrementally higher funding levels.

- **Add premiums for teaching, with performance criteria.**
  To further support mission differentiation and institutional efficiency, it would be useful to allocate some portion of non-base funds to promote teaching by faculty. These premiums could be based on the teaching workloads of faculty, independent assessments of teaching effectiveness (by independent review teams, for example), student evaluations, and other mechanisms. This would help to advance the teaching purposes and goals of institutions that have student learning as their primary goal.

- **Add premiums for inter-institutional programme productivity.**
  In the constantly changing environment within which higher education functions as a major social institution in South African society, opportunities for inter-institutional and regional co-operation are essential. These co-operative arrangements should take advantage of the best skills and resources of each institution engaged in the collaboration. Non-base funding could be used to make this possible by providing specific targets for programme productivity and efficiency. Examples include joint academic programmes, institutional articulation agreements for the preparation and transfer of students along the educational pathway, and technology-based learning alternatives. These monies also could be used to help establish such programmes if they do not exist.

- **Create an expanded national student financial aid programme that maximises student choice and portability.**
  It would be desirable from a student equity perspective to create an expanded student financial aid scheme that builds on the success of the current TEFSA-administered system. Such a programme would offer students a great deal of flexibility to choose the institution of higher education that best serves their educational needs and goals. This system should include a combination of student grant aid, work-study or other service, and a limited amount of repayable loans or credits. Such aid should be based primarily on student financial need.

  The U.S. student aid system provides an excellent example of the benefits of such an approach. The federal aid programmes, which allocate over US$40 billion in aid to students annually, have been credited with improving the higher education enrolments of low-income and disadvantaged populations. Enrolment rates immediately after high school for low-income high school graduates ages 16 to 24 have increased from 26% in 1972 (prior to the implementation of major grant aid programmes) to 49% in 1996. Likewise, enrolments by black students in this age cohort have risen from 45% in 1972 to 56% in 1996.

  The U.S. system places a high premium on the portability of aid and allows students to use their federal aid funds at any institution to which they have been admitted. This is accomplished via a nationally consistent methodology for calculating student eligibility and aid award amounts.

CONCLUSIONS AND ADDITIONAL CONSIDERATIONS

An enormous investment of time, human resources, and creative energy has been applied to the development of a new base funding formula for South African higher education in the last two years. This investment has been worthwhile, and will help lead to a new base formula in the next few years. In the period between now and the full implementation of that new base formula, however, policy-driven steering mechanisms can be put in place to help achieve important national goals defined under the national higher education planning process. These steering mechanisms can be implemented without major disruption to the current system of higher education via changes both to the existing base formula and through non-base funding mechanisms. Such mechanisms could have a large impact on accelerating progress toward those original goals, even as a new base formula is being finalised.

It is apparent that the South African higher education system is one of the fastest changing in the world and that a major problem in implementing a new funding system is its constantly shifting problems and focus. For example, during 1999 there was considerable concern about stabilising the system (as is reflected in our report), but since December 1999, the focus apparently has shifted to restructuring the entire institutional landscape. It is quite clear that major restructuring cannot occur in the short term through financial steering alone; but in the longer term, steering will be essential to consolidate and enhance the new landscape. A key question is whether the new funding system needs to wait for the restructuring or whether it is going to be a simultaneous process.

Our conclusion is that it is essential to do both simultaneously. At the present time funding for higher education is based on the SAPSE base funding formula that remains in place. That formula is largely FTE enrolment driven and, as such, funding is heavily weighted by FTE levels (with a two-year lag time). This means that the falling enrolments of the last two years will be reflected in next year's budget allocation unless policy-driven non-base funding becomes a key part of the funding structure.

Among the suggestions in this report are those relating to efforts to hold national funding constant to allow for stabilisation. Part of that could be achieved by expanding the amount of the total budget dedicated to non-base funding. If, for example, government accepts some of the suggestions concerning non-base funding for academic development, information technology, and the like, some portion of the total budget would no longer be driven by FTE enrolments. Without these changes, the system will be confronted with large decreases in the government's allocation to higher education beginning next year. That is surely neither in the national interest nor in the interest of building a high quality system of higher education in South Africa.

This paper is designed to offer an array of steering mechanisms to help advance the nation's goals through its higher education system, including: equity and redress, efficiency, development,

accountability, and other key goals defined in the White Paper. Building on the experience of other nations, it proposes both base formula and non-base funding mechanisms that, combined, suggest that such policy-driven steering devices are not only *possible*, they are also *desirable* in these times of rapid change and increasing instability for the higher education sector overall. The list of steering mechanisms is by no means inclusive of all the possible approaches to be used. But by showing what is possible, the paper can help to pave the way toward a better, and ultimately more efficient and equitable, system of allocating government resources to higher education.

This paper does not analyse the financial implications of all of the mechanisms that are discussed. Limitations in both resources and availability of data (at least for the purposes of the Washington workshop) prevented such an analysis. Instead, the paper uses three examples—the use of three-year rolling averages, the realignment of government contribution factors, and the use of a performance-based mini-formula—to demonstrate how these proposals might impact the distribution of base funds. In addition, it provides an illustration of how a new non-base funding stream of performance-oriented mechanisms could be developed. Clearly such analyses will need to be done for all of the steering mechanisms that members of the Pilot Project Consortium and the Finance Reference Group believe are particularly promising or noteworthy.

POSTSCRIPT

This paper was completed in March, 2000 and presented and discussed at a special meeting of the Department of Education Finance Reference Group (which includes Department staff and consultants, university and technikon vice-chancellors, and other representatives) in April, 2000. The meeting also included a presentation from staff of the Higher Education Funding Council of England regarding funding of higher education in the United Kingdom.

The April meeting of the Finance Reference Group clearly demonstrated the interest of national leaders in implementing the kinds of policy-oriented steering mechanisms discussed in the paper. Several of the specific mechanisms outlined in the paper were endorsed by individual members of the Finance Reference Group. At the same time, it was clear from the discussion that the timing of implementation of some combination of these mechanisms continues to vex the dialogue about changing the funding system. Other aspects of the higher education context in South Africa, particularly efforts to define and differentiate the missions of institutions of higher education (the so-called "size and shape" exercise), appear to be impeding the final decision to begin implementing at least some of these steering mechanisms.

The steering mechanisms discussed in the paper are not predicated on the need for an entirely new method for describing the system. Nor does their implementation depend on the development of a new framework for higher education funding. Since the goals articulated in the White Paper and legislation continue to define the overall framework for higher education in South Africa, there is no reason to wait for these other processes to reach some indeterminate ending point. The experience of other nations supports the view that steering mechanisms can be implemented individually, or in combination, to attain policy goals that have been defined through national discussions.

At the Finance Reference Group meeting, there was conversation about whether implementation of these mechanisms might have some destabilising impact on institutions. In fact, there is reason to believe that failing to implement some of these mechanisms could be more destabilising than trying any one of them. Several of the mechanisms are designed to alleviate the very concerns about stability discussed at the meeting. By declining to act, the generally agreed upon flaws of the current funding formula will be allowed to continue, doing further harm to an already fragile system.

Following the April meeting, the Deputy Director-General of the Department of Education instructed that a plan for implementing some combination of the mechanisms discussed at the meeting be developed. This is the most encouraging sign yet that some of the funding options defined in this paper will begin to steer the system of higher education toward national goals. With more than three years passed since the White Paper's adoption, the need for such proactive measures grows more pressing each day.

ANNEXURE

SOUTH AFRICAN HIGHER EDUCATION TRENDS AND INFLUENCES

Several key trends and factors have influenced higher education in South Africa in recent years. These have resulted in largely unanticipated outcomes for the higher education sector overall, and for specific groupings of students and institutions in particular. These trends and factors must be taken into account in the development of steering mechanisms that are intended to achieve national goals.

Among the most important of these trends and factors are:

- **The expected growth in higher education enrolments has not occurred.**

The 1996 NCHE report and the 1997 White Paper assumed that enrolments in both universities and technikons would increase substantially following the 1994 elections. The NCHE report, for example, projected that total headcount enrolments would increase to 680,000 by 1999 and 740,000 by 2001. The NCHE assumed that total enrolments would eventually level off at just about one million students early in the new millennium.

However, as Table A indicates, these expectations seem to be largely inaccurate thus far. Not only have enrolments not increased at the projected rate of 4 to 5% per annum, there actually has been a decline in enrolments—measured in both headcount and FTE terms—in the last year. Data as of June, 1999 indicate that total higher education sector enrolments have fallen to their 1995 levels, to about 564,000 students.

Table A: Higher Education Enrolments, 1995 to 1999

Distribution of overall funds

Headcount

	1995	1997	1998	June 1999	Change 1998-99	Change 1995-99
Universities	384,000	394,000	397,000	372,000	-6.30%	-3.13%
Technikons	185,000	202,000	208,000	192,000	-7.69%	3.78%
Total	**569,000**	**596,000**	**605,000**	**564,000**	**-6.78%**	**-0.88%**

FTE

	1995	1997	1998	Estimated 1999	Change 1998-99	Change 1995-99
Universities	252,000	261,000	260,000	245,000	-5.77%	-2.78%
Technikons	126,000	153,000	152,000	141,000	-7.24%	11.90%
Total	**378,000**	**414,000**	**412,000**	**386,000**	**-6.31%**	**2.12%**

Source: Republic of South Africa, Department of Education, 1999.

▶ **Significant shifts have taken place in enrolments by system subsector.**

Table B indicates that two major changes have occurred with regard to student enrolment patterns by subsector. One is that enrolments at historically disadvantaged institutions have decreased, primarily at HDI universities, which have seen enrolments plummet in the last five years, declining by nearly 30% in the 1995 to 1999 time period (14% alone between 1998 and 1999). These declines have occurred in all student race categories. At the same time, enrolments in historically disadvantaged technikons have increased, largely driven by increases in African student enrolments. These increases in historically disadvantaged technikon enrolments, however, are not enough to offset the declines in HDI university enrolments, meaning that there has been a net decline in the HDI higher education subsector.

The other major change is that enrolments at historically advantaged institutions have increased modestly over this time frame, especially at the historically white Afrikaans universities. Enrolments at both HAI universities and technikons have grown over the five-year period, although much of that growth appears to have taken place between 1995 and 1997. Exceptions to this overall trend of modest increases in the last five years are UNISA and Technikon SA, which have seen sharp declines in enrolments in the 1997 to 1999 period.

▶ **Student enrolments by race have not changed according to the patterns predicted by the NCHE.**

The patterns predicted by the NCHE with regard to substantial increases in enrolments by African, Coloured, and Indian students have not materialised. In fact, while overall higher education sector enrolments by African students have risen modestly in the last five years, most of that has been the result of increases at HAIs, which experienced a 36% gain in African student enrolments since 1995. Enrolments by African students in HDIs have declined by 9% in that time period, with the most substantial declines seen in the HDI universities. Total enrolments by Indian students also have increased slightly, rising by 6% between 1995 and 1999.

The sharpest declines in enrolments have been among white and Coloured students. White student enrolments have dropped by 24% overall (9% alone between 1998 and 1999), with the most significant fall experienced by HAI technikons (both in number and percent). Coloured student enrolments also have dropped, mostly due to significant declines in attendance at HDIs.

▶ **Declines in overall higher education sector enrolments are predicted in the coming triennium.**

Bunting (1999c) has projected that enrolments in the higher education sector will continue to decline in the coming triennium, falling from 564,000 in 1999 to 516,000 by 2002 (see Table G, below). His projections indicate that these declines may be the most pronounced at HDI universities and UNISA. Technikon enrolments also are projected to decline, though somewhat more slowly, with a fairly substantial increase in HDI technikon attendance.

Table B: Headcount Enrolment Trends by Sector and by Race, 1995 to 1999

	Headcount enrolment:						Percentage share of total:					
	1995	1997	1998	1999	Change, 1998-99	Change, 1995-99	1995	1997	1998	1999	Percentage point change 1998-99	Percentage point change 1995-99
HDI universities total	110,777	102,205	92,457	79,132	-14.41%	-28.57%	100.00%	100.00%	100.00%	100.00%		
White	990	760	580	640	10.34%	-35.35%	0.89%	0.74%	0.63%	0.81%	0.18%	-0.08%
Indian	6,025	4,727	4,495	3,815	-15.13%	-36.68%	5.44%	4.63%	4.86%	4.82%	-0.04%	-0.62%
Coloured	7,519	5,643	4,920	3,710	-24.59%	-50.66%	6.79%	5.52%	5.32%	4.69%	-0.63%	-2.10%
African	96,243	91,075	82,462	70,967	-13.94%	-26.26%	86.88%	89.11%	89.19%	89.68%	0.49%	2.80%
HDI technikons total	32,000	43,375	45,312	44,439	-1.93%	38.87%	100.00%	100.00%	100.00%	100.00%		
White	620	660	623	425	-31.78%	-31.45%	1.94%	1.52%	1.37%	0.96%	-0.42%	-0.98%
Indian	3,660	3,640	3,316	2,770	-16.47%	-24.32%	11.44%	8.39%	7.32%	6.23%	-1.08%	-5.20%
Coloured	3,750	3,695	3,395	3,005	-11.49%	-19.87%	11.72%	8.52%	7.49%	6.76%	-0.73%	-4.96%
African	23,970	35,380	37,978	38,239	0.69%	59.53%	74.91%	81.57%	83.81%	86.05%	2.23%	11.14%
HAI universities (Afrikaans)	92,261	115,808	125,568	127,767	1.75%	38.48%	100.00%	100.00%	100.00%	100.00%		
White	62,518	59,478	59,264	59,188	-0.13%	-5.33%	67.76%	51.36%	47.20%	46.32%	-0.87%	-21.44%
Indian	1,026	1,527	2,020	2,579	27.67%	151.36%	1.11%	1.32%	1.61%	2.02%	0.41%	0.91%
Coloured	3,652	4,317	5,364	4,811	-10.31%	31.74%	3.96%	3.73%	4.27%	3.77%	-0.51%	-0.19%
African	25,065	50,486	58,920	61,189	3.85%	144.12%	27.17%	43.59%	46.92%	47.89%	0.97%	20.72%
HAI universities (English)	53,942	56,761	59,446	58,182	-2.13%	7.86%	100.00%	100.00%	100.00%	100.00%		
White	28,077	25,291	24,685	23,342	-5.44%	-16.86%	52.05%	44.56%	41.53%	40.12%	-1.41%	-11.93%
Indian	8,829	10,371	11,545	11,740	1.69%	32.97%	16.37%	18.27%	19.42%	20.18%	0.76%	3.81%
Coloured	2,920	3,130	3,260	3,272	0.37%	12.05%	5.41%	5.51%	5.48%	5.62%	0.14%	0.21%
African	14,116	17,969	19,956	19,828	-0.64%	40.46%	26.17%	31.66%	33.57%	34.08%	0.51%	7.91%
HAI technikons total	67,618	81,495	85,558	82,317	-3.79%	21.74%	100.00%	100.00%	100.00%	100.00%		
White	37,889	31,621	30,456	24,090	-20.90%	-36.42%	56.03%	38.80%	35.60%	29.26%	-6.33%	-26.77%
Indian	1,959	2,772	2,904	2,780	-4.27%	41.91%	2.90%	3.40%	3.39%	3.38%	-0.02%	0.48%
Coloured	4,177	5,245	5,303	4,952	-6.62%	18.55%	6.18%	6.44%	6.20%	6.02%	-0.18%	-0.16%
African	23,593	41,857	46,895	50,495	7.68%	114.03%	34.89%	51.36%	54.81%	61.34%	6.53%	26.45%
UNISA	127,998	124,211	120,811	107,849	-10.73%	-15.74%	100.00%	100.00%	100.00%	100.00%		
White	50,925	46,892	46,418	42,917	-7.54%	-15.73%	39.79%	37.75%	38.42%	39.79%	1.37%	0.01%
Indian	11,240	11,802	12,822	12,373	-3.50%	10.08%	8.78%	9.50%	10.61%	11.47%	0.86%	2.69%
Coloured	4,677	4,816	4,790	4,687	-2.15%	0.21%	3.65%	3.88%	3.96%	4.35%	0.38%	0.69%
African	61,156	60,701	56,781	47,872	-15.69%	-21.72%	47.78%	48.87%	47.00%	44.39%	-2.61%	-3.39%
Technikon South Africa	85,641	76,862	77,342	65,655	-15.11%	-23.34%	100.00%	100.00%	100.00%	100.00%		
White	33,451	17,838	17,129	13,178	-23.07%	-60.61%	39.06%	23.21%	22.15%	20.07%	-2.08%	-18.99%
Indian	3,569	2,608	2,540	2,323	-8.54%	-34.91%	4.17%	3.39%	3.28%	3.54%	0.25%	-0.63%
Coloured	6,283	4,693	4,694	4,118	-12.27%	-34.46%	7.34%	6.11%	6.07%	6.27%	0.20%	-1.06%
African	42,338	51,723	52,979	46,036	-13.11%	8.73%	49.44%	67.29%	68.50%	70.12%	1.62%	20.68%
All universities total	384,978	398,985	398,282	372,930	-6.37%	-3.13%	100.00%	100.00%	100.00%	100.00%		
White	142,510	132,421	130,947	126,087	-3.71%	-11.52%	37.02%	33.19%	32.88%	33.81%	0.93%	-3.21%
Indian	27,120	28,427	30,882	30,507	-1.21%	12.49%	7.04%	7.12%	7.75%	8.18%	0.43%	1.14%
Coloured	18,768	17,906	18,334	16,480	-10.11%	-12.19%	4.88%	4.49%	4.60%	4.42%	-0.18%	-0.46%
African	196,580	220,231	218,119	199,856	-8.37%	1.67%	51.06%	55.20%	54.76%	53.59%	-1.17%	2.53%
All technikons total	185,259	201,732	208,212	192,411	-7.59%	3.86%	100.00%	100.00%	100.00%	100.00%		
White	71,960	50,119	48,208	37,693	-21.81%	-47.62%	38.84%	24.84%	23.15%	19.59%	-3.56%	-19.25%
Indian	9,188	9,020	8,760	7,873	-10.13%	-14.31%	4.96%	4.47%	4.21%	4.09%	-0.12%	-0.87%
Coloured	14,210	13,633	13,392	12,075	-9.83%	-15.02%	7.67%	6.76%	6.43%	6.28%	-0.16%	-1.39%
African	89,901	128,960	137,852	134,770	-2.24%	49.91%	48.53%	63.93%	66.21%	70.04%	3.84%	21.52%
All HDI total	142,777	145,580	137,769	123,571	-10.31%	-13.45%	100.00%	100.00%	100.00%	100.00%		
White	1,610	1,420	1,203	1,065	-11.47%	-33.85%	1.13%	0.98%	0.87%	0.86%	-0.01%	-0.27%
Indian	9,685	8,367	7,811	6,585	-15.70%	-32.01%	6.78%	5.75%	5.67%	5.33%	-0.34%	-1.45%
Coloured	11,269	9,338	8,315	6,715	-19.24%	-40.41%	7.89%	6.41%	6.04%	5.43%	-0.60%	-2.46%
African	120,213	126,455	120,440	109,206	-9.33%	-9.16%	84.20%	86.86%	87.42%	88.38%	0.95%	4.18%
All HAI total	427,460	455,137	468,725	441,770	-5.75%	3.35%	100.00%	100.00%	100.00%	100.00%		
White	212,860	181,120	177,952	162,715	-8.56%	-23.56%	49.80%	39.79%	37.97%	36.83%	-1.13%	-12.96%
Indian	26,623	29,080	31,831	31,795	-0.11%	19.43%	6.23%	6.39%	6.79%	7.20%	0.41%	0.97%
Coloured	21,709	22,201	23,411	21,840	-6.71%	0.60%	5.08%	4.88%	4.99%	4.94%	-0.05%	-0.13%
African	166,268	222,736	235,531	225,420	-4.29%	35.58%	38.90%	48.94%	50.25%	51.03%	0.78%	12.13%
All institutions	570,237	600,717	606,494	565,341	-6.79%	-0.86%	100.00%	100.00%	100.00%	100.00%		
White	214,470	182,540	179,155	163,780	-8.58%	-23.64%	37.61%	30.39%	29.54%	28.97%	-0.57%	-8.64%
Indian	36,308	37,447	39,642	38,380	-3.18%	5.71%	6.37%	6.23%	6.54%	6.79%	0.25%	0.42%
Coloured	32,978	31,539	31,726	28,555	-9.99%	-13.41%	5.78%	5.25%	5.23%	5.05%	-0.18%	-0.73%
African	286,481	349,191	355,971	334,626	-6.00%	16.81%	50.24%	58.13%	58.69%	59.19%	0.50%	8.95%

Source: South African Department of Education data.

Table C: Pass Rates on Matric Exam, 1994 to 1998

	1994	1995	1996	1997	1998	% Change
School-leavers obtaining full matriculation exemption	89,000	79,000	80,000	70,000	69,000	**-22.47%**
NCHE projection	89,000	98,000	108,000	118,000	130,000	**46.07%**

Source: Cloete and Bunting, 2000.

- **The number of qualified school-leavers has declined, further eroding the potential enrolment base of universities and technikons.**

School-leavers with matriculation exemptions have declined steadily in the last five years, falling from 89,000 in 1994 to 69,000 in 1998. As Table C shows, this drop varies dramatically from the projections of the NCHE in 1996. Moreover, the current number of qualified school-leavers differs with the more recent projections of institutions themselves, as described in their three-year rolling plans (submitted in late 1998). These declines have implications both for the total number of prospective higher education enrolees and the academic development and remedial education needs of university and technikon students.

- **A growing private, for-profit sector has emerged in South Africa in recent years, creating competition for students who might traditionally enrol in higher education institutions.**

Though national data are unavailable, anecdotal evidence indicates a growing segment of institutions that may be competing with the public higher education system. These institutions include both foreign-owned enterprises as well as South African-run organisations. It is possible that private institutions are drawing a disproportionate number of white students and those who are able to pay the higher tuition fees typically charged. However, many unanswered questions

Table D: Government Spending on Higher Education, 1995/96 to 1999/2000

	Nominal:						*Real (1998/99 Rands):*					
	1995/96	1996/97	1997/98	1998/99	1999/2000	% change, 1995/96 to 1999/2000	1995/96	1996/97	1997/98	1998/99	1999/2000	% change, 1995/96 to 1999/2000
Expenditures on higher education, in billions of Rands	4.072	5.207	5.432	6.003	6.545	60.73%	5.097	6.026	5.847	6.003	6.112	19.92%
Total government expenditures, in billions of Rands	154.836	182.984	199.964	206.995	219.602	41.83%	193.812	211.782	215.233	206.995	205.086	5.82%
Government expenditures on on higher education as % of total expenditures	2.63%	2.85%	2.72%	2.90%	2.98%	13.33%	2.63%	2.85%	2.72%	2.90%	2.98%	13.33%
GDP, in billions of Rands	497.295	556.206	606.993	654.000	708.400	42.45%	622.475	643.743	653.319	654.000	661.572	6.28%
Government expenditures on higher education as % of GDP	0.82%	0.94%	0.89%	0.92%	0.92%	12.83%	0.82%	0.94%	0.89%	0.92%	0.92%	12.83%
Consumer Price Index	101.58	109.86	118.1	127.15	136.15							

Note: Using the Consumer Price Index (1995 = 100), inflation-adjusted figures were calculated for the state financial year, and the figure for 1999/2000 was estimated assuming a 9 point increase from the previous year; from Republic of South Africa, Statistics South Africa, 1999.
Source: Bunting, 1999b.

Table E: Government Appropriations to Universities and Technikons, 1995/96 to 1999/2000

		Nominal (in millions of Rands):						*Real (1998/99 Rands):*					
		1995/96	1996/97	1997/98	1998/99	1999/2000	% change, 1995/96 to 1999/2000	1995/96	1996/97	1997/98	1998/99	1999/2000	% change, 1995/96 to 1999/2000
Formula funds	Universities	2,710	3,275	3,591	3,854	4,155	53.32%	3,392	3,790	3,865	3,854	3,880	14.39%
	Technikons	856	1,120	1,296	1,455	1,648	92.52%	1,071	1,296	1,395	1,455	1,539	43.64%
	Total	3,566	4,395	4,887	5,309	5,803	62.73%	4,464	5,087	5,260	5,309	5,419	21.41%
Earmarked funds	Universities	356	576	385	483	493	38.48%	446	667	414	483	460	3.32%
	Technikons	150	236	160	208	248	65.33%	188	273	172	208	232	23.35%
	Total	506	812	545	691	741	46.44%	633	940	587	691	692	9.26%
Total	Universities	3,066	3,851	3,976	4,337	4,648	51.60%	3,838	4,457	4,280	4,337	4,341	13.11%
	Technikons	1,006	1,356	1,456	1,663	1,897	88.57%	1,259	1,569	1,567	1,663	1,772	40.69%
	Total	4,072	5,207	5,432	6,000	6,545	60.73%	5,097	6,026	5,847	6,000	6,112	19.92%
Consumer Price Index		101.6	109.9	118	127.2	136.2							

Note: Using the Consumer Price Index (1995 = 100), inflation-adjusted figures were calculated for the state financial year, and the figure for 1999/2000 was estimated assuming a 9 point increase from the previous year; from Republic of South Africa, Statistics South Africa, 1999.
Source: Cloete and Bunting, 2000.

remain about these institutions, including the number of students enroled, the programmes of study, the overall quality of their educational offerings, and the regulatory processes that the Department of Education may introduce.

- **Government funding of higher education has been reasonable in the last five years, increasing modestly in both nominal and real Rands.**

Tables D and E indicate that government spending on higher education has been generally consistent since 1995, reflecting a reasonable level of overall investment. Total expenditures on higher education, and as a percentage of Gross Domestic Product (GDP), have risen over that time period, as shown in Table D. Appropriations to support both base formula funding for institutions and earmarked funding have risen more rapidly in technikons than universities, with both showing real increases in funding since 1995.

Table F: Public Expenditures in South Africa and OECD countries, 1995

	Public expenditure on higher education as % of total public expenditure	Public expenditure on higher education as % of GDP	Higher education expenditure per student (FTE) on public and private institutions (in US$, using PPP)	Expenditure per FTE student as % of GDP per capita
South Africa	2.63%	0.82%	$6,086	94%
OECD countries (mean)	2.20%	0.90%	$8,134	46%

Note: PPP = purchasing power parity. GDP per capita was calculated using 43.5 million as the estimate of South Africa's population in 1995.
Source: Republic of South Africa, Ministry for Welfare and Population Development, 1996 (population estimates); World Bank, 1999 (PPP conversion factor); Bunting, 1999b; Republic of South Africa, Department of Education, various years; Organisation for Economic Co-operation and Development, 1998.

Table G: Projected Impact of Declining Enrolments on Allocation of Formula Funding, 1999/2000 to 2002/2003

	1999/2000 actual	2000/2001	2001/2002	2002/2003	Change, 1999/2000 to 2002/2003
TOTAL:					
Headcount enrolment	564,000	540,000	526,000	516,000	-8.51%
Subsidy allocation (millions of Rands)	5,790	5,982	5,781	5,434	-6.15%
UNIVERSITIES TOTAL:					
Headcount enrolment	372,000	354,000	342,000	333,000	-10.48%
Subsidy allocation (millions of Rands)	4,125	4,346	3,993	3,796	-7.98%
Share of total subsidy allocation	71.24%	72.65%	69.07%	69.86%	
HDI UNIVERSITIES:					
Headcount enrolment	79,000	70,000	64,000	59,000	-25.32%
Subsidy allocation (millions of Rands)	1,328	1,302	1,103	982	-26.05%
Share of total subsidy allocation	22.94%	21.77%	19.08%	18.07%	
HAI UNIVERSITIES (AFRIKAANS):					
Headcount enrolment	128,000	130,000	132,000	134,000	4.69%
Subsidy allocation (millions of Rands)	1,402	1,557	1,561	1,522	8.56%
Share of total subsidy allocation	24.21%	26.03%	27.00%	28.01%	
HAI UNIVERSITIES (ENGLISH):					
Headcount enrolment	57,000	56,000	55,000	55,000	-3.51%
Subsidy allocation (millions of Rands)	977	1,043	985	978	0.10%
Share of total subsidy allocation	16.87%	17.44%	17.04%	18.00%	
UNISA (DISTANCE):					
Headcount enrolment	108,000	98,000	91,000	85,000	-21.30%
Subsidy allocation (millions of Rands)	418	444	344	314	-24.88%
Share of total subsidy allocation	7.22%	7.42%	5.95%	5.78%	
TECHNIKONS TOTAL:					
Headcount enrolment	191,000	186,000	184,000	183,000	-4.19%
Subsidy allocation (millions of Rands)	1,665	1,636	1,788	1,638	-1.62%
Share of total subsidy allocation	28.76%	27.35%	30.93%	30.14%	
HDI TECHNIKONS:					
Headcount enrolment	44,000	48,000	51,000	53,000	20.45%
Subsidy allocation (millions of Rands)	550	561	696	642	16.73%
Share of total subsidy allocation	9.50%	9.38%	12.04%	11.81%	
HAI TECHNIKONS:					
Headcount enrolment	82,000	80,000	78,000	77,000	-6.10%
Subsidy allocation (millions of Rands)	864	854	873	810	-6.25%
Share of total subsidy allocation	14.92%	14.28%	15.10%	14.91%	
TECHNIKON SA (DISTANCE):					
Headcount enrolment	65,000	58,000	55,000	53,000	-18.46%
Subsidy allocation (millions of Rands)	251	221	219	186	-25.90%
Share of total subsidy allocation	4.34%	3.69%	3.79%	3.42%	

Notes: Enrolment details may not add to totals due to rounding. Actual 1999 subsidy allocations differ slightly from figures reported elsewhere. Projected subsidy allocations are in terms of real 1999/2000 Rands.
Source: Bunting, 1999c.

The overall investment in higher education by the South African government is generally consistent with the investment made by Organisation for Economic Co-operation and Development (OECD) nations. For example, Table F shows that public expenditure on higher education as a percentage of total public expenditure is slightly higher in South Africa compared to OECD countries. Similarly, expenditures on higher education as a percentage of GDP are roughly comparable.

Figures on investment per FTE student paint a more complex picture, indicating a lower average expenditure per student in South Africa but a significantly higher per student investment as a proportion of GDP. These figures suggest that the relatively low tax base in South Africa—the consequence of high unemployment levels—results in a relatively high ratio of expenditures per student as a percentage of GDP per capita. As GDP rises in the South African economy, the South African situation is likely to appear more similar to that of the OECD nations.

▶ **The recent declines in enrolments experienced by higher education institutions in South Africa, combined with further projected decreases, could have a profound impact on the distribution of formula funding to institutions.** Based on available data, the broad impacts of the declining enrolment situation on the allocation of formula funds have been calculated by Bunting (1999c). These calculations, which use the SAPSE formula's method of

determining subsidy allocations based on enrolments in prior years, are drawn from data available from all higher education institutions except for the University of Transkei.

Table G, which shows aggregated totals of subsidy allocations (based on the current SAPSE formula) for HDI and HAI universities and technikons, projects a dramatic decline in subsidy allocations at HDI universities, by 26% between 1999/2000 and 2002/2003. The table also projects declines in total Rands distributed to HAI technikons beginning in 2000/2001. As a share of total subsidy allocations, the table indicates that HDI universities would experience a continuous decline as a proportion of the total. HAI Afrikaans universities and HDI technikons would increase their overall shares under the current formula.

The table also shows that there would be severe declines in subsidy funding allocated to UNISA and Technikon SA—both in total Rands and as a share of total subsidy allocations—based on the recent precipitous drops in enrolments experienced by these institutions.

- **Numerous external factors, such as the growing health care crisis in South Africa from AIDS, could dwarf the concerns about higher education funding in the near future.**

The broader context within which higher education institutions function cannot be avoided in the funding discussions. The incidence of AIDS in South African society and on the campuses of universities of technikons is a major concern for the nation. AIDS has implications for both students and staff, and more broadly could overwhelm the health care plans, pension programmes, and other systems that undergird the higher education system's operation. Failure to adequately consider the implications of AIDS and related external influences on the system of higher education is a mistake. These external factors and their effects on students must be confronted in the dialogue about higher education funding, and in the broader context of higher education's role as an agent for addressing the nation's social and economic challenges.

GLOSSARY OF ABBREVIATIONS

CESM	Classification of Educational Subject Matter
CHET	Centre for Higher Education Transformation
ESS	Effective Subsidy Students
FTE	Full Time Equivalent
HAI	Historically Advantaged Institution
HDI	Historically Disadvantaged Institution
HDS	Historically Disadvantaged Student
NCHE	National Commission on Higher Education
NSFAS	National Student Financial Aid Scheme
SAPSE	South African Post-Secondary Education
S_H	Students in the Human Sciences Category
TEFSA	Tertiary Education Fund of South Africa
UNISA	University of South Africa

ALTERNATIVE CALCULATIONS OF SUBSIDY STUDENTS

Table H: Percentage Differences Between Projected Subsidy Students and Rolling Average Estimates, 1999 and 2000

Weighted for discipline (S_{11} equivalent)

	1999					2000				
	Projected ESS	ESS using 3-year rolling average	% difference from projected	ESS using weighted 3-year rolling average	% difference from projected	Projected ESS	ESS using 3-year rolling average	% difference from projected	ESS using weighted 3-year rolling average	% difference from projected
UNIVERSITIES										
Cape Town	29,664	29,336	-1.11%	29,390	-0.93%	30,747	29,754	-3.23%	29,853	-2.91%
Durban-Westville	15,488	15,723	1.52%	15,628	0.90%	14,626	15,070	3.03%	14,959	2.27%
Fort Hare	9,031	8,715	-3.50%	8,731	-3.33%	7,658	8,455	10.41%	8,256	7.81%
MEDUNSA	11,217	10,877	-3.03%	10,953	-2.35%	12,103	11,334	-6.35%	11,412	-5.72%
Natal	31,342	29,906	-4.58%	30,153	-3.79%	34,853	31,329	-10.11%	31,811	-8.73%
North	21,078	22,119	4.94%	21,761	3.24%	20,468	21,113	3.15%	20,952	2.36%
North West	9,071	7,496	-17.36%	7,780	-14.23%	10,462	8,775	-16.13%	9,071	-13.30%
Orange Free State	19,789	19,194	-3.01%	19,307	-2.43%	19,586	19,513	-0.37%	19,482	-0.53%
Port Elizabeth	10,975	9,603	-12.50%	9,810	-10.61%	11,755	10,240	-12.88%	10,523	-10.48%
Potchefstroom	18,038	16,535	-8.33%	16,712	-7.35%	21,432	18,014	-15.95%	18,604	-13.20%
Pretoria	49,713	48,095	-3.25%	48,389	-2.66%	53,548	49,852	-6.90%	50,316	-6.03%
Rand Afrikaans	22,601	21,369	-5.45%	21,516	-4.80%	24,736	22,303	-9.83%	22,647	-8.44%
Rhodes	8,661	8,374	-3.31%	8,406	-2.94%	9,488	8,643	-8.90%	8,742	-7.86%
Stellenbosch	30,058	28,068	-6.62%	28,315	-5.80%	31,100	29,085	-6.48%	29,351	-5.63%
Transkei	9,103	9,662	6.15%	9,522	4.61%	9,049	9,359	3.42%	9,232	2.03%
Venda	9,975	8,889	-10.89%	9,119	-8.59%	8,655	9,112	5.28%	8,998	3.96%
Western Cape	17,207	17,020	-1.09%	16,973	-1.36%	15,047	16,108	7.05%	15,843	5.29%
Witwatersrand	32,689	32,962	0.84%	32,853	0.50%	32,834	32,703	-0.40%	32,675	-0.49%
Zululand	10,136	9,959	-1.74%	9,973	-1.60%	10,227	9,993	-2.29%	10,012	-2.10%
UNISA	47,434	46,445	-2.08%	46,595	-1.77%	49,472	47,393	-4.20%	47,623	-3.74%
Vista	24,603	22,418	-8.88%	22,763	-7.48%	24,883	23,046	-7.38%	23,292	-6.40%
HAI Universities	**300,963**	**289,888**	**-3.68%**	**291,447**	**-3.16%**	**319,549**	**298,830**	**-6.48%**	**301,626**	**-5.61%**
HDI Universities	**136,908**	**132,879**	**-2.94%**	**133,203**	**-2.71%**	**133,179**	**132,365**	**-0.61%**	**132,026**	**-0.87%**
Total Universities	**437,871**	**422,767**	**-3.45%**	**424,650**	**-3.02%**	**452,728**	**431,194**	**-4.76%**	**433,652**	**-4.21%**
TECHNIKONS										
Border	6,264	4,392	-29.89%	4,688	-25.16%	7,190	5,412	-24.73%	5,658	-21.30%
Cape	14,925	14,919	-0.04%	14,910	-0.10%	15,913	15,142	-4.85%	15,206	-4.45%
Eastern Cape	6,686	5,338	-20.17%	5,549	-17.01%	6,394	6,020	-5.85%	6,064	-5.16%
Free State	9,204	8,767	-4.75%	8,837	-3.99%	8,758	8,889	1.49%	8,847	1.02%
M L Sultan	14,956	11,531	-22.90%	11,975	-19.93%	13,700	12,664	-7.56%	12,856	-6.15%
Mangosuthu	9,466	8,608	-9.07%	8,723	-7.85%	8,841	8,807	-0.38%	8,775	-0.74%
Natal	15,709	13,845	-11.87%	14,094	-10.28%	15,001	14,514	-3.24%	14,567	-2.89%
North West	5,400	4,245	-21.39%	4,385	-18.79%	5,922	4,767	-19.52%	4,930	-16.75%
Northern Gauteng	11,598	11,275	-2.79%	11,345	-2.18%	13,025	11,805	-9.36%	11,927	-8.43%
Peninsula	12,793	11,580	-9.48%	11,741	-8.23%	13,573	12,272	-9.58%	12,429	-8.43%
Port Elizabeth	12,756	12,166	-4.62%	12,259	-3.90%	12,549	12,419	-1.04%	12,415	-1.07%
Pretoria	28,049	23,830	-15.04%	24,316	-13.31%	28,948	25,620	-11.50%	26,161	-9.63%
Vaal Triangle	17,893	14,146	-20.94%	14,591	-18.46%	18,082	15,482	-14.38%	15,875	-12.21%
Witwatersrand	18,755	17,921	-4.45%	18,081	-3.59%	19,709	18,755	-4.84%	18,844	-4.39%
SA	34,204	30,869	-9.75%	31,310	-8.46%	30,895	31,114	0.71%	30,910	0.05%
HAI Technikons	**151,496**	**136,464**	**-9.92%**	**138,397**	**-8.65%**	**149,856**	**141,934**	**-5.29%**	**142,825**	**-4.69%**
HDI Technikons	**67,164**	**56,969**	**-15.18%**	**58,406**	**-13.04%**	**68,645**	**61,747**	**-10.05%**	**62,641**	**-8.75%**
Total Technikons	**218,660**	**193,432**	**-11.54%**	**196,804**	**-10.00%**	**218,501**	**203,681**	**-6.78%**	**205,466**	**-5.97%**
ALL INSTITUTIONS TOTAL	**656,531**	**616,199**	**-6.14%**	**621,454**	**-5.34%**	**671,229**	**634,875**	**-5.42%**	**639,117**	**-4.78%**
HAIs	**452,459**	**426,351**	**-5.77%**	**429,844**	**-5.00%**	**469,405**	**440,764**	**-6.10%**	**444,451**	**-5.32%**
HDIs	**204,072**	**189,848**	**-6.97%**	**191,610**	**-6.11%**	**201,825**	**194,111**	**-3.82%**	**194,666**	**-3.55%**

Note: Projected figures are based on 1997 and 1998 figures. Rolling averages are based on 1998, 1997, and 1996 figures. Weighted rolling averages are weighted 50:25:25, respectively.

Source: Institute for Higher Education Policy calculations, based on South African Department of Education data.

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