

3

APARTHEID'S HIGHER EDUCATION LEGACY

3.1 Introduction

This section offers a brief overview of aspects of higher education that can in many ways be traced back to centuries of colonialism and the oppressive policies that were this system's hallmark. The report concentrates, however, on those characteristics of South African higher education that were largely shaped by the policies of that form of internal colonialism which was peculiar to South Africa, namely apartheid. A description of some of these characteristics highlights the main issues the Commission seeks to address through its policy proposals. The focus is on the period up to the end of 1993, partly because this is the latest date for which reliable and coherent data are available, but mainly because 1993 signalled the end of statutory apartheid.

Most issues raised in this section may be described as the negative consequences of the apartheid legacy on higher education. While these are the elements the Commission has primarily sought to address, it is important to note that this emphasis must not be taken to imply that South African higher education has no merits or positive features. Indeed, the 1994 White Paper on Education and Training argues that South Africa has achieved

by a large measure, the most developed and well-resourced system of education and training in Africa. The quality of South Africa's diploma, degree, postgraduate and research output has created and sustained the country's sophisticated economic and financial infrastructure, industrial, business and communications technology and medical, legal, cultural and other professional services.

This statement is particularly true of certain higher education institutions which have developed internationally competitive research and teaching capacities and produced high quality professional training programmes. While most of this capacity is located at the historically white institutions (HWIs), some historically black institutions (HBIs) have developed expertise in a number of academic areas, and especially in community outreach and research into basic community needs, as well as dealing with under-prepared learners.

The academic and administrative experience, as well as the expertise and infrastructure that have been built up within some South African higher education institutions should be regarded as national assets. Measured by international indicators, such as the proportion of the gross domestic prod-

uct (GDP) devoted to higher education, student:staff ratios and physical plant, higher education is well resourced. In 1992, for example, public and private expenditure on higher education amounted to 1,7% of the country's GDP, the same as the mean average for Organisation for Economic Co-operation and Development (OECD) countries. It would be detrimental to the national interest and the future provision of quality higher education if the valuable features and achievements of the existing system are not identified, retained and used in the restructuring process.

3.2 The apartheid higher education model

A major characteristic of South Africa's higher education is the legacy of apartheid ideology which provided the framework for structuring the education system after 1948. Starting with the Bantu Education Act of 1953, all education in South Africa was officially divided along racial/ethnic lines to reinforce the dominance of white rule by excluding blacks from quality academic education and technical training.

The Extension of the University Education Act of 1959, which established racially based universities, applied this ideology to higher education. The University Colleges of the North and of Zululand were established for Sotho, Venda, Tsonga-speaking and Zulu-speaking African people respectively, and the Universities of Western Cape and

Durban-Westville for coloureds and Indians respectively. The University of Fort Hare, which had for many decades played a significant role in providing higher education to black people from South Africa and the rest of Africa, was restricted to Xhosa-speaking Africans.

Prior to this Act the existing universities catered largely for whites. Although there was no legislation barring black people from any university at that point, universities were differentiated by race. The Extension of University Education Act formally restricted entry to universities according to race. Black people were admitted to white universities only in cases where equivalent programmes were not offered at black universities and only after ministerial permission was obtained. The early 1980s saw the establishment of several universities in the independent 'homelands' which were intended to service the needs of separate development.

In keeping with international trends and in response to national needs a third type of higher education institution - the technikon - developed in 1978 alongside the universities and colleges for vocational training. The technikons developed within the apartheid framework which at that time defined the rest of the education system. This ultimately led to a South African higher education set-up having as its main components 21 universities, 15 technikons and about 140 single discipline, vocational colleges (education, nursing and agriculture), all divided along racial lines.

The boundaries between the university, technikon and college sectors were defined according to their differing functions. These were shaped by the Van Wyk de Vries Commission (1974) and the Goode Committee (1978) which distinguished between the university, technikon and college functions as follows:

- A main function of universities is to educate students in a range of basic scientific (or scholarly) disciplines with a view to high-level professional training; while that of technikons is to train students in the application of knowledge rather than in basic knowledge itself with the view to high-level career training; and that of colleges is preparation for specific vocations, such as nursing, teaching and policing.
- Universities engage in basic scientific research, technikons engage in developmental scientific research and colleges are not expected to do research.

These functional differences between universities, technikons and colleges led to the argument that just as the functions of the three kinds of institutions were different, so too should their qualification structures be different. Consequently, it was decided that universities and technikons should have different kinds of qualifications which flowed from recognition that the essential function of universities

was the study and advancement of the basic sciences, and that of the technikons the teaching of technology.

The policy of introducing and maintaining strict functional boundaries between universities, technikons and colleges has proved difficult to implement. One of the reasons for this is that when technikons were established in the early 1980s, universities had for a long time already been offering instructional programmes with a vocational focus which complied more with the definition of technikon functions; programmes which arguably should have been transferred to the technikons.

Contrary to the aim of sectors developing vertically alongside each other, inequalities exist between the sectors. Universities have the most access to resources and are regarded as more prestigious.

The existing higher education system has been described as an 'inverted pyramid', which means that the enrolment figures for students in the college, technikon and university sectors respectively are in inverse proportion to patterns in many other countries.

Table 1 presents an overall picture of how learners are presently distributed in South Africa between all the different sectors in the education system. It illustrates the dominance of university and technikon enrolments in the higher education system.

Table 1: Total headcount enrolments in education (1995)

Sector	Total Headcounts	% of Sector	% of Headcount
Schools			
Private schools	220 000 ⁽¹⁾	1,8	1,6
Public schools (primary)	8 521 900 ⁽²⁾	69,4	63,5
Public schools (secondary)	3 483 700 ⁽²⁾	28,4	26,0
Special schools	52 500 ⁽³⁾	0,4	0,4
Schools subtotal	12 278 100	100%	91,5%
Further education			
Technical colleges	125 735 ⁽⁴⁾	45,7	0,9
Private colleges for secondary education	90 000 ⁽⁵⁾	32,8	0,7
Private colleges (post-school programmes)	59 000 ⁽⁵⁾	21,5	0,4
Further education subtotal	274 735	100%	2,0%
Higher education			
Agricultural colleges	1930 ⁽⁶⁾	0,2	0
Technical colleges (N4 - N6)	52 320 ⁽⁶⁾	6,2	0,4
Private colleges	147 645 ⁽⁶⁾	17,0	1,1
Colleges of education	97 947 ⁽⁶⁾	11,3	0,7
Colleges of nursing	9 783 ⁽⁶⁾	1,1	0,1
Technikons	179 801 ⁽⁶⁾	20,7	1,4
Universities	380 184 ⁽⁶⁾	43,7	2,8
Higher education subtotal	869 610	100%	6,5%
ALL EDUCATION	13 422 445 ⁽⁷⁾	—	100%

(1) No statistics available for 1995. Graphically extrapolated from 'CS Education According to Province for 1994', Department of Education, Report: 233 (95/08) and previously published education statistics.

(2) 'The Medium to Long-Term Financing of Education: Analysis of Specific Provision Scenarios', Department of Education, Report 300 (95/06).

(3) Prof C E W Sinkins, private communication (June 1996).

(4) 'Trends in Higher Education Development, 1988-1995', Centre for Policy and Information, Development Bank of South Africa (1995).

(5) No exact detail on private sector college and university education available. Figures based on the National Business Initiative survey for the National Training Board (1996) and input from Mr M G Andrew, Association of Distance Education Colleges of Southern Africa.

(6) Unpublished detail on headcounts of enrolled students at universities and technikons for 1995, Department of Education (1996).

(7) Colleges in other state departments, for example police colleges, are not listed.

3.3 Discriminatory features of the system

The model described above has generated many racial and gender inequalities in higher education. This section serves to highlight some of these inequalities. At the same time, it points out the ineffectiveness and inefficiencies which characterise the system and which are mainly a consequence of ideologically inspired discriminatory policies.

Because of the poor information available, a reasonably clear picture can be given only of South Africa's universities and technikons. As a result, the section that follows refers only to universities and technikons. Notwithstanding this, the universities and technikons accommodate most higher education students and will thus serve as good indicators of the inequalities and inefficiencies inherent in higher education.

3.4 Inequalities in student access and success

Many of the debates and struggles in higher education, especially in the 1980s, were focused on issues of access by black (African, coloured and Indian) students to higher education institutions. This is understandable if one takes into consideration that even in 1986, for example, of the total student enrolments at technikons only 7% were African while 83% were white. In the university sector only 23% were African compared to 64% white. Despite a significant increase in the enrolment figures of black students during the period between 1986 and 1993, the student composition of universities and technikons still reflects the legacy of apartheid.

Between 1986 and 1993, African enrolments at universities and technikons increased at an average annual rate of 14%, compared to an average

annual growth of 0,4% for whites. Total student enrolments at universities and technikons increased by an annual average of 8% during this period. The picture emerging from these and other statistics about increasing African enrolment can, however, be misleading.

Much of this growth in the enrolment of African students at universities, for instance, was due to increasing numbers being registered at historically black universities (HBUs), which as a group almost doubled their student numbers, and at the distance learning universities of VISTA and UNISA. In contrast, growth at the historically white universities (HWUs) was extremely limited, with an annual increase of 1,5% against almost 10% for HBUs. The marked growth of full-time equivalent students (FTEs) at HBUs increased their share of the total number of FTEs at universities from 16% in 1988 to 21% in 1993, while the share of HWUs dropped from 52% to 45%.

Table 2: Enrolment percentages in universities and technikons by race and institutional type (1993)

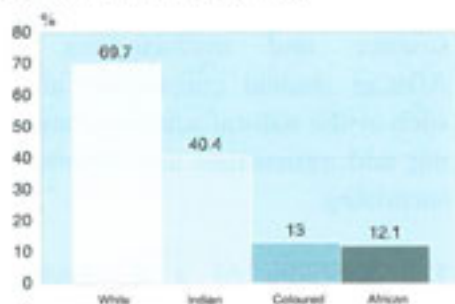
	African	Coloured	Indian	White	Total
Contact universities and technikons					
Historically white	13%	28%	24%	62%	39%
Historically black	44%	39%	34%	1%	22%
Distance universities and technikons					
Total	43%	33%	42%	37%	39%
	100%	100%	100%	100%	100%

Source: Department of National Education (1995): 'Education in RSA 1993'.

Table 2, taking the headcount enrolments of students at universities and technikons together, shows that in 1993 the bulk of African, coloured and Indian students were registered at either historically black institutions (HBIs) or distance education institutions. These data mean that much of the growth in enrolment of African and other black students has taken place at HBIs; that is, at institutions without the necessary capacity and resources to cope adequately with the special needs of an influx of students with unfavourable school backgrounds.

What is more, the increase in the total number of African students enrolled did not lead to a significant shift in the balance of participation rates between the population groups. These participation rates indicate there are still stark racial disparities in student access. Figure 1 shows what participation rates were in higher education in South Africa in 1993. It uses the age group 20-24 which is the age cohort UNESCO normally uses. The calculations are based on enrolment figures that include students in higher education programmes at institutions in the former TBVC territories, private institutions and technical colleges.

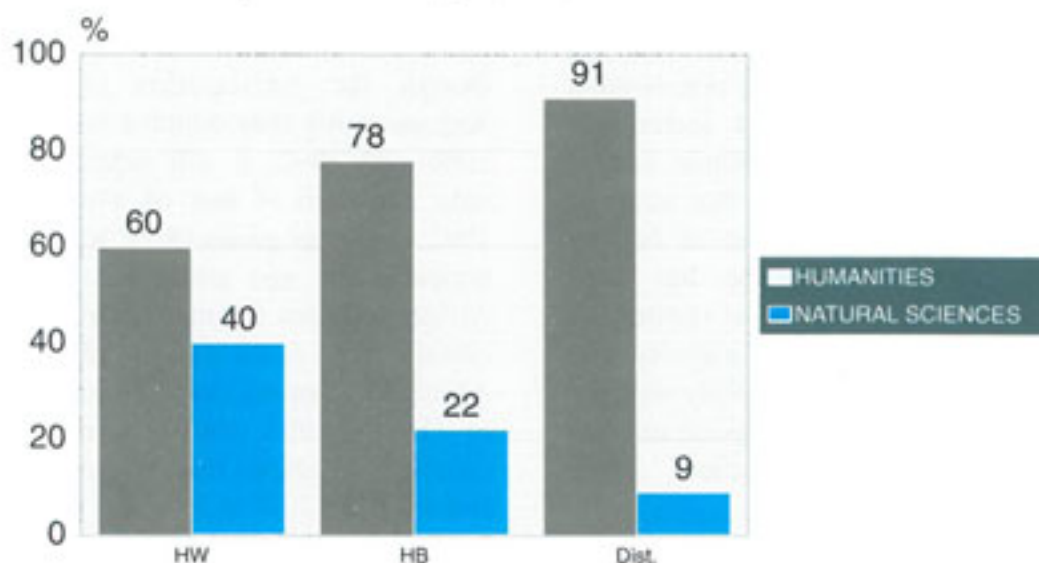
Figure 1: Gross higher education participation rates (1993)



Calculations for different years, but excluding institutions in the former TBVC territories, private institutions and technical colleges, show that even though the participation rate of Africans more than doubled between 1986 and 1992, it still represented only one-sixth of that of whites in 1992. In the age group 18-21, which is typically the age group for South African students to enter higher education, the participation rate of Africans increased from 5% in 1986 to 11% in 1992, while the rate of coloureds increased from 9% to 12%, Indians from 32% to 37% and whites from 61% to 65% in the same period. In the age group 20-24 the respective increases during the period 1986 to 1992 were 4% to 9% for Africans, 7% to 10% for coloureds, 27% to 33% for Indians and 48% to 54% for whites. (Bunting, 1994).

Racial inequalities in access are not limited to the total number participating in the system, but exist across disciplines and are most prevalent in the more senior levels of study. The concentration of particularly African and coloured student enrolments at the HBUs and distance institutions had a significant impact on the type and levels of programmes black students had access to. Figure 2 shows that in 1993 only about 20% of FTE students following courses in the broadly defined area of the natural sciences were registered at HBUs. In 1993, the ratio of natural science enrolments in the contact historically white institutions (HWIs) to those at the contact HBIs was nearly 4:1.

Figure 2: Full-time equivalent student enrolments in humanities and the natural sciences by institution type (1993)



Notes : 1. Source: Department of National Education (1995) : 'Education in RSA 1993'.

2. The 'natural science' category includes the following categories: agriculture, architecture, computer science, engineering, health sciences, home economics, industrial arts, life and physical sciences, mathematical sciences.

The 'humanities' category includes all other fields of study.

Not only is South Africa's output in natural science, engineering and technology low by international standards, but about 80% of South Africa's present human resources in these fields are white. These distortions, a direct result of the failure of the educational system led to a severe shortage of graduates in natural science, engineering and technology, considered to be the intellectual engine of economic development.

This inability of South African higher education to provide the human resource needs of the country illustrates the ineffectiveness of the system. Enrolment figures regarding the broad field of natural and applied natural sciences suggest that without intervention the imbalances will continue to exist to the detriment of the

economy, especially when one takes into account that at postgraduate levels these distortions are even more pronounced.

A crucial point to note is that the apartheid schooling system effectively restricted the entry of black students to higher education and particularly disciplines in the natural sciences. This is demonstrated by the fact that one African school pupil to every sixty white school pupils obtains a matriculation exemption with higher grade passes in physical science and mathematics. Low African student enrolments in areas such as the natural sciences, engineering and agriculture are therefore not surprising.

The problem of a disadvantaged

schooling system for black people in general has been compounded by the entrance requirements for higher education, especially at some HWUs, which disqualify many black students on the basis of their matriculation results. In many instances these results bear little relation to their ability to cope with higher education. While access is therefore increasing, this has not significantly altered the skewed student profile, particularly as far as the study of the natural and applied natural sciences is concerned.

Not only student access but also student outputs of South Africa's higher education system have been uneven, and reflect the inequalities and ineffectiveness in higher education.

Table 3 compares the graduates of the contact HBUs with those of contact HWUs in 1986 and 1993. The table shows that in 1986 81% and in 1993 83% of HBU graduates had been enrolled for undergraduate degrees or diplomas compared with only 59% in

1986, and 60% in 1993 for the HWUs. But more importantly, it shows that 37% in 1986 and 42% in 1993 of HBU graduates completed undergraduate diplomas, indicating that these institutions were dealing with many students who did not meet the statutory entrance requirements for degree studies. Further important indicators of inequalities in the system can be seen in the production of graduates on 'research tracks'. In 1993 the HWUs produced 7,5 honours graduates for each HBU honours graduate and 17,2 masters and doctors graduates for each HBU graduate in the same category.

Throughput rates, the measurement of the proportion of enrolments graduating in any given year, is one of the internationally accepted indicators of the efficiency of higher education. A low throughput rate indicates a high drop out rate, and/or a high failure rate, or a high proportion of part-time students. The normative efficient throughput rates in Table 4 are esti-

Table 3: Outputs of graduates by universities (1986 and 1993)

	HBU contact		HWU contact	
	1986	1993	1986	1993
Undergraduate diplomas	2271	5453	1032	730
Undergraduate degrees	2695	5341	13511	17792
Postgraduate diplomas plus				
bachelors degrees	752	1440	3931	4104
Honours	300	636	3495	4755
Masters	89	161	2215	2970
Doctors	15	33	447	543
Total	6122	13064	24631	30894

Sources : Department of National Education (1995) : 'Education in RSA 1993'.
 Department of National Education (1989) : 'Education in RSA 1986'.

Table 4: Throughput rates for universities (1990)

	Contact HWU	Contact HBU	Normative efficient throughput rates
Three-year bachelors degrees	21%	12%	20-30%
Honours degrees	60%	30%	50-80%
Masters degrees	18%	8%	30%
Doctoral degrees	17%	6%	20%

Source: Bunting, I (1994), *A Legacy of Inequality*, UCT Press, Cape Town.

mates based on the average of rates attained by some institutions. The disparity between HWUs and HBUs runs through all the programme levels, from three-year bachelors degrees to honours, masters and doctoral degrees.

These differences reflect the problems which the HBUs have faced in dealing with greater proportions of educationally disadvantaged students, high student-lecturer ratios and insufficient capacity to cope with the students' educational needs.

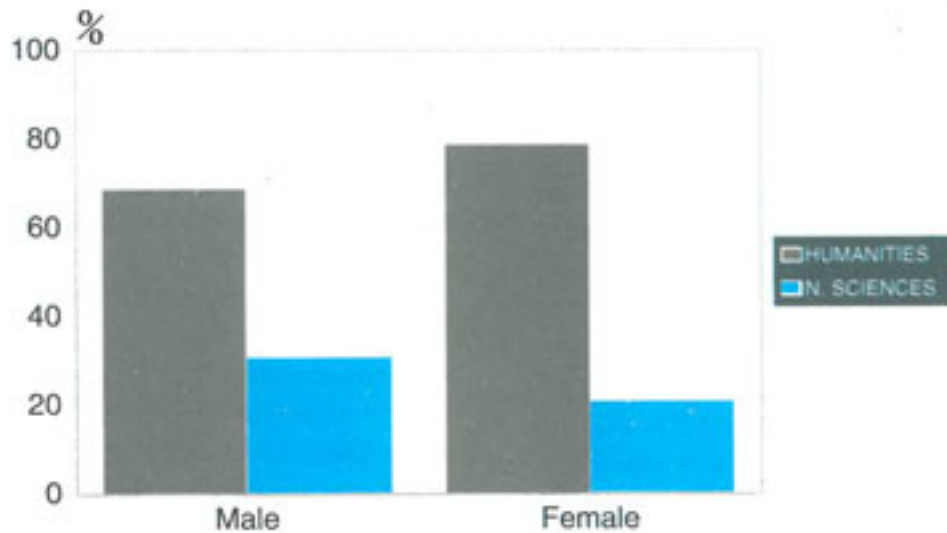
The average throughput rate at technikons is much worse than that at universities. In 1990, for three-year diplomas, historically white technikons (HWTs) had a throughput rate of 15% compared to historically black technikons' (HBTs) throughput rate of 9%. An efficient throughput rate for these diplomas is considered to be about 20%.

In comparison with the stark racial inequalities in student access to higher education, the universities appear at face value to have been less marked by gender inequalities. In 1993, female student enrolments constituted 49% in universities. Gender inequalities in higher education were particu-

larly evident in the technikon sector where only 30% of students were women. However, this overall trend at the universities masks the significant underrepresentation of female students in the broadly defined field of the natural sciences and at postgraduate level. As indicated in Figure 3, in 1993 for example only 21% of female students at universities and technikons were enrolled for natural science degrees and diplomas, against 31% for male students.

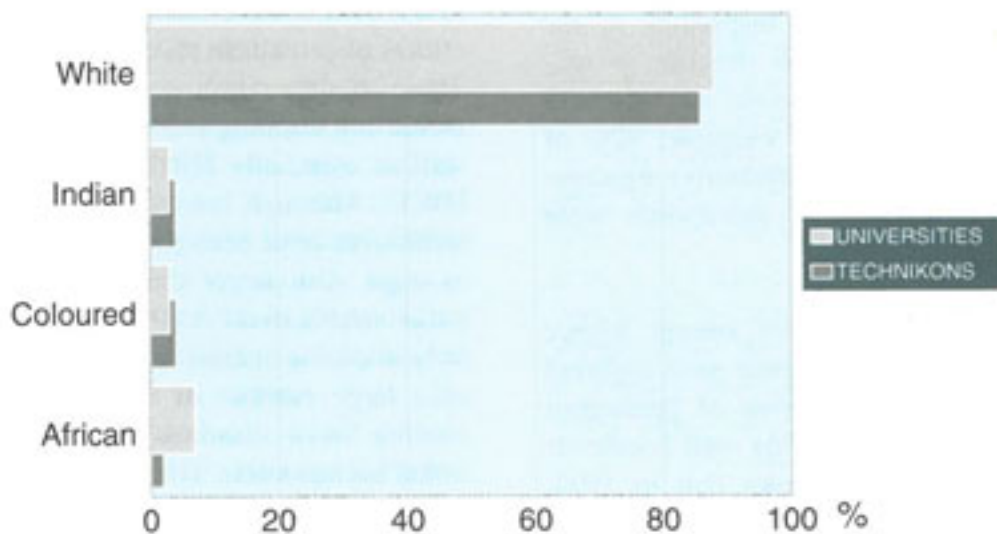
Although gender imbalances are less serious in the broad areas of health and biological sciences, women have an unacceptably low participation rate in the physical sciences, engineering and technology areas. In undergraduate engineering programmes, for example, there are 12 males for every female. Moreover, a significant proportion of African women are enrolled for part-time studies in education, languages, the social sciences and humanities at UNISA and VISTA. It is therefore not surprising that African women are particularly underrepresented in those professions which require training in the natural sciences, applied natural sciences and technology.

Figure 3: Full-time equivalent enrolments in humanities and the natural sciences in universities and technikons by gender (1993)



Notes: For sources see Figure 2.

Figure 4: Permanently appointed academic staff by population group (1993)



Notes: 1. Source: Department of Education (1995): 'Education in the RSA 1993'.
 2. A permanently appointed staff member is an employee who is contributing to an institutional pension fund.

3.5 Staff

The staff composition in higher education does not reflect demographic realities in South Africa. Figure 4 shows that in 1993, 87% of academic (research/teaching) staff at universities and technikons were white. This reflects the apartheid inequalities apparent in the broader society.

The higher education sector in South Africa is highly stratified in terms of race and gender. The trend is that the greater the prestige, status and influence particular positions have, the greater the extent to which they are dominated by whites and men. Positions which on the other hand have a lower status and prestige, and which wield little influence, tend to be filled primarily by blacks and women. Most African staff are concentrated at the bottom of the employment ladder. Most are employed as service staff, whereas most whites are employed as academic staff or in senior administrative posts. These disparities in the overall employment structure of universities and technikons increase with rank. In 1990, for example, 92% of the executive/administrative management members of universities were white.

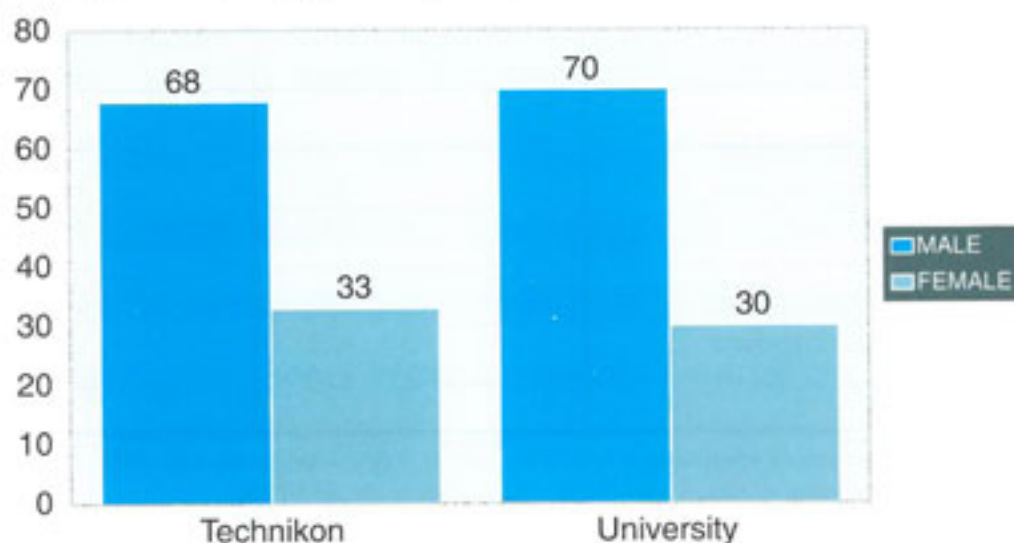
Gender inequalities among higher education staff become most apparent when the distribution of permanent research and teaching staff is considered. Figure 5 shows that in 1993, 68% of total academic (teaching/research) staff employed were men compared to 32% women. These disparities increase with rank, so much

so that it is at the senior levels that the absence of women is most conspicuous. In 1992, across the universities, 26% of all senior lecturers, 15% of associate professors and only 6% of professors were women.

There are two broad reasons why the staff position of blacks and women should be of great concern to higher education institutions. The first reason is a moral one, following from the demands of equity. The second reason is of a strategic nature. In a world where talent is spread evenly among people, no organisation or system can thrive when it relies only on a small segment of its potential skills base.

Tables 5 and 6 indicate that in most universities and technikons, the growth of their staff complements between 1988 and 1993 did not keep pace with growth in student enrolments. This is due, at least in part, to the introduction of a-factors (discussed in further detail under funding) in the subsidy formula to counter the effects of growth in student numbers. These figures seem to indicate an increasing teaching load for academic staff at especially HBUs, HBTs and HWTs. Although innovative teaching techniques have been adopted at HBIs to cope with larger class sizes, the unfavourable trend at HBIs is particularly alarming against the background of a large number of their students coming from disadvantaged educational backgrounds. The high student-staff ratios have often been given as one of the primary reasons for the low research output of HBUs.

Figure 5: Permanent research and teaching staff at universities and technikons by gender (1993)



Source: Verwey, CT. (1995): *Trends in Higher Education, 1988-1995*, DBSA.

The discussion above suggests that the barriers to full and equitable involvement in higher education faced by women and black people are many and complex. Broader social constraints on women (such as family demands and responsibilities) and the constraints imposed on black people by apartheid will need to be taken into account in developing new policies. There are indications that the climate at some South African campuses is not always conducive to the social accommodation and integration of a diversity of groups. Experiences by female and black students and staff in particular suggest that conditions at institutions often do not facilitate the full participation of members of all social categories and groups. An aggravating factor and additional concern in this connection is the level of sexual harassment and violence, including rape, which occurs on campuses. Higher education institutions are only slowly beginning to realise that their

traditional structures and practices may not be supportive of a more diverse student and staff population and that they have to be re-examined in the context of a democratic South Africa.

3.6 Research and research outputs

The research outputs of the university and technikon sectors (see Table 7) offer further evidence of unjustifiable inequalities in the higher education system. If the production of research articles and completion of masters and doctors degrees are used as the indicators of research activities, then it is obvious that most of South Africa's research productivity is concentrated in the historically white universities, despite the previous government's policy requirements that universities should be considered to serve separate racial groups but be equal and that technikons should engage in develop-

Table 5: Comparison of changes in 1993 of full-time equivalent students and full-time equivalent academic staff totals on base of 1986 = 100

	Weighted FTE students	FTE academic staff
Universities		
Historically white contact	115	107
Historically black contact	220	124
Distance	141	115
Technikons		
Historically white contact	182	100
Historically black contact	491	155
Distance	642	1245

Notes: 1. Sources : Department of Education (1995) : 'Education in the RSA 1993'.
 Department of Education (1989) : 'Education in the RSA 1986'.
 2. The FTE student totals used for this purpose have been weighted according to the levels employed in the current subsidy formula. This has become a standard for statistics of this kind.

Table 6: Ratios of weighted full-time equivalent students to full-time equivalent academic staff (1986-1993)

	1986	1993
Contact institutions		
Historically white universities	14	15
Historically black universities	14	26
Historically white technikons	16	23
Historically black technikons	7	23
Distance institutions		
Universities	40	49
Technikons	63	32

Notes: Sources as for Table 5.

mental research.

These figures highlight the overwhelming dominance which the historically white universities appear to have in all fields of research. In 1993, this group of universities employed 51% of the permanently appointed academic (teaching/research) staff in the university and technikon sectors,

but produced 83% of research articles and 81% of all masters and doctors (or equivalent) graduates.

An additional concern, relating to the effectiveness of research in South Africa, is that it is not sufficiently connected to the needs of society. The Green and draft White Papers on Science and Technology discuss the

Table 7: Research outputs (1993)

	Research articles published	Masters and doctors graduates or equivalent
Universities		
Historically white	4391 (83%)	3513 (81%)
Historically black	367 (7%)	197 (5%)
Distance	486 (9%)	518 (12%)
Subtotal	5244 (99%)	4228 (98%)
Technikons		
Historically white	50 (1%)	80 (2%)
Historically black	3 (0%)	4 (0%)
Distance	2 (0%)	1 (0%)
Subtotal	55 (1%)	85 (2%)
Overall total	5299 (100%)	4313 (100%)

Source: Pouris, A (1996): *The State of South African Academic Science*. Report commissioned by the CUP.

extent to which South African research has failed to keep up with the research demands of technological progress and to address, in particular, the social and economic needs of the majority of the population.

3.7 Governance

The apartheid structure of own affairs divisions and homeland government arrangements was superimposed on the three subsectors of higher education. Universities, technikons and teacher training and other vocational colleges were racially segregated and placed under the control of different departments, usually for different racial groupings. These arrangements were the following:

- Co-ordination of the higher education system in the old South Africa was the responsibility of a department of national education. The main function of this department, rather than being a

line department in the sense of having other education departments or individual higher education institutions reporting to it, was to monitor and set financial and academic norms and standards. Given the ideological distinction of apartheid policy between general affairs and own affairs it could not deal with anything more than these general issues of norms and standards.

- Three departments of education carried separate responsibilities for universities, technikons and colleges for whites, coloureds and Indians respectively.
- One department of education and training was responsible for some universities, some technikons and some colleges for Africans.
- Six departments of education were responsible for some tech-

nikons and some colleges in the six self-governing territories.

- Four departments of education were responsible for universities, technikons and colleges in the independent states of Transkei, Bophuthatswana, Venda and Ciskei.

These divisions resulted in a gross fragmentation of the higher education system. A consequence was that the effectiveness and efficiency of the system suffered badly through a lack of co-ordination, common goals and systematic planning. No clear strategy dealing with the main elements such as the size and shape of the system, social and economic needs, overall funds available, growth rates and the elimination of unnecessary and wasteful duplication was provided.

Apart from this, the authoritarian nature of the Nationalist government and the ever-escalating conflict around apartheid polarised the relationship between some higher education institutions and government, resulting in a sharp state-civil society dichotomy. In trying to deal with this situation the governance model for historically disadvantaged institutions led to more state control. Control by legislation was backed up by central government administrative and executive powers with respect to composition of management, administrative and academic structures, access, student affairs, and funding, as well as the appointment, in some cases, of all senior members of staff.

In contrast, the Van Wyk de Vries

Commission (1974) recommended strong institutional autonomy for the historically white institutions, which achieved a remarkable degree of self-regulation in the 1980s. The subsequent model for HWIs contained elements of weak state supervision, particularly in terms of growth and funding. Weak supervision was gradually supplemented with irregular state interference, especially when the agendas of the government and higher education institutions diverged. Since 1988, this happened not only in HWIs but also in HBIs when the latter obtained greater formal autonomy. South Africa thus experienced all three models of higher education-government relations: state control, state supervision and state interference (for an elaboration of the models, see the chapter on governance).

A further characteristic of governance frameworks was the absence of fully representative structures at a national and institutional level. At the national level a statutory 'buffer' body, the Advisory Council for Universities and Technikons (AUT), and two statutory 'interest' bodies, the Committee for University Principals (CUP) and the Committee for Technikon Principals (CTP), are consulted by the Minister on a range of matters, but they are unrepresentative of all stakeholders, with staff and students being unrepresented.

The main functions of the CUP and CTP have been to promote the collective interests of the university and technikon sector and to provide a framework for interuniversity and

intertechnikon discussions, especially concerning policy issues.

Democracy and participation have also been severely limited within individual higher education institutions. At some institutions there is a lack of clarity about the roles and responsibilities of councils and executive managements which has led at best to an uneasy balance of power and sometimes weak institutional leadership, and at worst to serious instability resulting on occasions in calls for direct government intervention.

Representation of staff has in many cases been weak and in others almost non-existent, except in respect of narrowly defined academic matters, principally through the senate or academic board structures. Students' participation in institutional governance has in many cases been extremely limited and in others, totally non-existent.

3.8 Funding

3.8.1 Financing higher education: a macroperspective

A major negative legacy of the apartheid era has been an economy which grew at a rate of less than 1,2% a year during the 1980s and 1990s and which saw per capita income drop in real terms by about 18%. Nevertheless, education's share of government expenditure actually increased during these decades. For example, in the 1990/91 fiscal year, 20,9% of government expenditure was allocated to education services (or 6,1% of GDP).

By the 1995/96 fiscal year this proportion had increased to 21,3% of government expenditure (or 6,6% of GDP).

In 1995/96, 24,9% of government expenditure on education (1,2% of GDP) is expected to be spent on higher education (universities, technikons, teacher education and other vocational colleges). Total government plus private expenditure on higher education is expected to amount to R9,5 billion or 1,9% of GDP for the 1995/96 fiscal year, of which the contribution from private sources is expected to be R3,9 billion.

The increases did not, however in real terms match growth rates in enrolments which for the period 1991-1995 were about 4% a year for primary plus secondary education and 8% a year for higher education.

The following funding approaches apply at present in South Africa's higher education system: full funding of all activities, budget funding and formula funding. These three funding approaches and their implications for developing a new funding framework for higher education are fully dealt with in the chapter on funding.

The emphasis in the remainder of this chapter is on the funding of universities and technikons and the accompanying funding inequalities and inefficiencies which emerged in these sectors of higher education during the 1980s and early 1990s.

3.8.2 Funding of universities and technikons in the old South Africa

Because of the poor management information structures within many institutions and education departments, little or no detailed information is available on the financial state of higher education institutions in the college sector or former independent homelands. Of South Africa's 21 universities and 15 technikons, accommodating approximately 75% of all public higher education students in the country, a reasonably clear picture of only 17 universities and 12 technikons can be given.

In 1983 a new funding formula, which is described more fully in the chapter on funding, was introduced for the white universities. The black universities were funded according to a mixture of budget funding and funds deriving from a different formula. In 1985 all universities, excluding the TBVC universities, were placed on the same formula as that applying to white universities as a consequence of pressure for uniformity. This funding formula was not designed to take into account pressures put on the system by increasing political turbulence and student unrest. Neither was it designed to cope with the accelerated growth in student enrolments at black institutions. The subsidy formula was furthermore not designed to take into account the circumstances in which these black institutions were established, nor the consequent effects of their special circumstances.

These factors, together with the severe resource constraints experienced by the previous government in funding social services, led to the introduction of the so-called a-factors by which funds generated by the subsidy formula were adjusted. These adjustments varied across institutions. In 1993, a revised subsidy formula was introduced which included some measures for dealing with unusually high growth in student enrolments.

In 1987, a subsidy formula for technikons was introduced which represented a scaled down version of the subsidy formula for universities. Applying this subsidy formula to all technikons meant that the black universities' problems were also experienced by the black technikons. In 1993, a revised subsidy formula for technikons was developed which sought to reflect the policy distinctions between universities and technikons.

The mechanical way in which a subsidy formula designed for one set of circumstances was applied to a totally different set of circumstances led to difficulties. The result was the effective discontinuation of the subsidy formulae for universities and technikons through the introduction of a-factors. The ensuing funding inconsistencies gave rise to serious distortions and inequalities within and between the university and technikon sectors. Some of these are discussed below.

Table 8: Some income inequalities for HWUs and HBUs (1993)

	HWU	HBU
Subsidy and tuition fee income	63%	73%
Income from investments, donations, grants and contracts	20%	14%
Other income (including residence fees)	17%	13%
Tuition fee income per enrolled FTE student	R 4 400	R 3 500
Subsidy income per enrolled FTE student	R 10 200	R 6 600

Source: Reports from National Commission on Higher Education Task Group on Higher Education Finances (1996).

3.8.3 Funding formulae and inequalities within and between the university and technikon sectors

In this section a broad and generalised distinction will be made between aggregated historically white institutions and historically black or disadvantaged institutions. The report of the Financial Task Group of the Commission provides a detailed breakdown of these two categories.

Income inequalities

Table 8 indicates that the relative inability of HBUs to generate income from investments, donations, grants and contracts compared to that of HWUs has given rise to a greater reliance on subsidy and tuition fee income by HBUs. In the absence of a national student financial aid scheme, many students from economically deprived backgrounds have been unable to pay tuition fees leading to disastrous consequences, especially for the HBUs which, in addition, have not been able to set tuition fees at the

levels of the HWUs.

The subsidy formula for universities and technikons is described fully in the chapter on funding. It includes higher weightings for postgraduate/postdiploma students and takes into account output factors such as successful students and research outputs. In addition, students in the broad grouping of the natural sciences have a higher weighting than other students. Together with the application of a-factors, this gave rise to the subsidy formula income disparity reflected in Table 8. The difference is largely due to the differences between the HWUs and HBUs with regard to successful students, numbers of postgraduate students, quantity of research output and numbers of students in the natural sciences.

Despite such inequalities and the difficult environments in which many HBUs have been operating, they were able to increase their total income between 1988 and 1993 by 23% (measured in 1988 rands) compared to 5% for HWUs.

Table 9: Expenditure inequalities for HWUs and HBUs (1993)

	HWU	HBU
Personnel expenditure per FTE enrolled student	R 12 200	R 7 600
Fixed asset expenditure per FTE enrolled student	R 2 000	R 1 300

Source: Reports from National Commission on Higher Education Task Group on Higher Education finances (1996).

Expenditure inequalities

Personnel expenditure for HWUs in 1993 amounted to 59% of their total expenditure compared to 56% for HBUs. The large difference in personnel expenditure per full-time equivalent (FTE) enrolled student between HWUs and HBUs reflected in Table 9, in the case of research/teaching staff, is probably due to differences in qualification levels of academic staff. The seemingly low levels of fixed asset expenditure indicate that both categories of universities are experiencing difficulties in maintaining their productive infrastructures.

In the case of technikons, less significant differences occur in the personnel expenditure per FTE enrolled student between HBTs and HWTs, while fixed asset expenditure per FTE enrolled student shows a similar trend to that for universities.

Measured in 1988 rands the expenditure of HWUs between 1988 and 1993 increased by about 11% compared to a figure of 33% for HBUs. Since these figures exceed the corresponding increases in total income for HWUs and HBUs respectively, both categories must have been retaining a far smaller proportion of their income in 1993 than in 1988.

3.9 The funding formula and inefficiencies in the South African university and technikon system

Inefficiencies in the university and technikon system have arisen from the application of the subsidy formula. These inefficiencies mainly relate to the general failure of the incentives built into the subsidy formula to achieve certain policy objectives such as increasing the number of students in the broad grouping of the natural sciences compared to the number of other students.

In addition, inefficiencies occurred in the university and technikon system because of the fragmented and divided government administration of institutions in the 1980s and early 1990s. This fragmentation contributed to an inability in government to target funding for universities and technikons in accordance with agreed policy objectives. Furthermore, the subsidy formulae were not designed to deal with unnecessary overlapping and duplication in academic activities between universities on the one hand, technikons on the other hand, and between universities and technikons.

3.9.1 A general assessment

Analysis of the financial statements of the 17 universities and 12 technikons included in the discussion above, indicates the following:

- The perception that a financial crisis existed in these institutions in the period up to 1993 is not supported by the facts, except in the case of possibly one institution. Between 1988 and 1993 almost all higher education institutions were able to retain substantial proportions of their income and were able to build up their long-term investments. It should be noted that some of the reserves arose from donations which stipulated that only interest could be spent.
- Financial inequalities between historically white and historically black institutions, particularly in the university sector, were nevertheless evident. For example, black institutions were more reliant than white institutions on government subsidies and tuition fees as sources of income. As the real values of these subsidies fell, black institutions had to raise tuition fees while having to enrol increasingly large numbers and proportions of financially disadvantaged students, despite not having adequate financial aid mechanisms in place. These black institutions had to deal increasingly with the problem of unpaid fee debts and as a consequence lower amounts were available to fund their operations.
- The HBIs will probably not be able to increase their income substantially from private sources (for example, from tuition fees, donations, contracts) in the short and medium term. Specific measures to promote equity and improve quality in these institutions will almost certainly have to be funded from government sources.
- Some evidence exists that the infrastructure of the higher education system has been running down. The proportion of expenditure devoted to fixed asset purchases and to building renewal and maintenance appears to have declined steadily in the years up to 1993.
- Some institutions in the higher education system may have spare student capacity, while others are carrying student loads far above their existing capacity. In all cases, the short academic year indicates an underutilisation of physical facilities.
- The balancing of budgets at universities and technikons has been attained at the cost of declining conditions of employment, both in terms of remuneration and student/staff ratios and the inability to maintain the state of buildings, equipment

and library collections. Quality staff, both academic and administrative, are difficult to recruit and retain, while equipment and library collections are not up to the requirements of modern higher education. This has occurred during a period when greater numbers of black students from educationally disadvantaged backgrounds are entering higher education. 'Factors of production' in higher education - library collections, buildings and equipment - are now substantially below the quality and requirement levels they were at a decade and a half ago.

3.9.2 Post-1993 period

The interim period since the inauguration of the government of national unity in May 1994 has resulted in dramatic transformations in South Africa. Most organised constituencies in the higher education system have agreed on a need for change and in some cases, such as the student constituency, demanded radical restructuring. The central stakeholders - students, staff and management - agree that the crucial issues to address are equity, financial resources and governance.

Notwithstanding this consensus, competing interests see this change occurring at different rates and in different ways. These competing demands of different constituencies have led to a high degree of turbulence and instability during this interim period.

The following are some of the major

changes occurring:

System

The access of African students to universities and technikons has increased markedly from 1993 where only 32% of the total enrolled students were African and 55% white, to 1995 where 53% of the total enrolled students were African and 35% white. Despite this increase in the total percentage of enrolled students, there was no major shift in the balance of participation rates of either the 18-21 or the 20-24 age cohorts. In 1995, whites had a participation rate in the age group 20-24 of almost 70% compared to Africans whose participation had increased to 12%.

Technikons started offering B.Tech degrees in 1993.

Technikons have recently adopted the same university staff categories such as professors in appointing their staff.

There has been no significant shift in the racial and gender disparities among research and teaching staff. By 1995, African staff still constituted only 11% of the total research and teaching staff, whereas whites constituted more than 82%. Of concern is the underqualification of staff, particularly those at HBIs. The problem is exacerbated by many competent staff having left higher education institutions for positions in government or the private sector. On the other hand an influx of international academics, including returned exiles, took academic and management positions at

higher education institutions.

Governance

A new Ministry of Education was established with a single education department. A White Paper on Education and Training was published and argued for an education system renewed in line with the principles of the Reconstruction and Development Programme. Two other important events for higher education were the publication of the SAQA Act and the New Labour Relations Act.

The proposed but not yet implemented National Qualifications Framework is based on a system of credits for achieved learning outcomes and aims to develop a comprehensive qualification structure and an integrated approach to education and training.

A buffer body such as the Advisory Council on Universities and Technikons has had its membership widened by the inclusion of a number of new ministerial appointees.

Regional co-operation initiatives have increased among higher education institutions in regions such as KwaZulu-Natal, Free State and the Western Cape.

Many individual institutions have begun making changes such as reconstituting their councils, changing their Acts, establishing transformation forums and initiating regional and cross-institutional co-operation.

Funding

Adjusted subsidy formulae for universities and technikons came into operation in 1993. The adjusted formulae sought to solve some of the major problems experienced by these institutions with the previous formulae. These adjustments brought about a greater measure of stability in financial planning by these institutions and in the annual subsidy allocations made to them. Nevertheless, despite these adjustments the financial inequalities between HBIs and HWIs were not resolved.

While 1994/95 was a period of stabilisation for universities and technikons in the 'old' South Africa, it was one of destabilisation for the TBVC universities and technikons. The TBVC universities, which were previously funded by budget funding, were shifted to formula funding. They were no longer funded simply on the basis of their annual needs but in terms of the input and output variables contained in the revised subsidy formula for universities. In most cases, this shift from budget to formula funding meant a significant reduction in their income. In some cases additional funds were provided to avoid a financial crisis.

For universities and technikons in the 'old' South Africa increases in the a-values in 1996 have meant a substantial increase in income. For the TBVC universities and technikons, however, these increases were not sufficient to meet their immediate financial needs. Due to the inability of students to meet the rising costs of higher educa-

tion students accumulated debts which are still owed to institutions.

The high level of financial and professional support which South African institutions have received from the international community has assisted the development of universities and technikons and has compensated in part for the shortfalls in public funding.