

# THE NATIONAL WORKING GROUP: DETERMINING “FITNESS-FOR-PURPOSE”

## RESTRUCTURING THE SOUTH AFRICAN HIGHER EDUCATION SYSTEM

A set of performance measures which differed in many ways from the CHET 2000 model was developed by a National Working Group (NWG) established in April 2001 by the South African Minister of Education. The main purpose of the NWG was set out in this way:

*The National Working Group will investigate and advise the Minister on appropriate arrangements for consolidating the provision of higher education on a regional basis through establishing new institutional and organisational forms, including the feasibility of reducing the number of higher education institutions. The investigation forms part of the broader process for the restructuring of the higher education system to ensure that it contributes to social and economic development, as outlined in the National Plan for Higher Education (of March 2001). (Department of Education [DoE], 2001a:56)*

The NWG’s formal terms of reference stated that its “investigation must be guided by the principles and goals for the transformation of the higher education system as outlined in Education White Paper 3: A Programme for the Transformation of the Higher Education System” (DoE, 2001a: 56).

The NWG read these transformation principles together with the goals of the National Plan for Higher Education (DoE, 2001b), and then took as its point of departure:

*... the emphasis in the National Plan on the need to ensure that the higher education system produces high quality graduates with the appropriate skills and competencies, as*

*well as the knowledge and research required to contribute to social and economic development. In short, in line with the National Plan, the NWG focused on the need to ensure the “fitness-for-purpose” of the higher education system; i.e. the extent to which the elements constituting the structures and operations of the system are suited and well-equipped to fulfil effectively those functions which are its raison d’être, thus enhancing the quality of the higher education system. (DoE, 2001a:12)*

The NWG added that a South African higher education system that is fit for its purpose should manifest the three main properties of:

*... equity, sustainability and productivity. A restructured higher education system should be socially just and equitable in its distribution of resources and opportunities, it should meet the requirements of long-term sustainability and it should enhance the productivity of the system through effectively and efficiently meeting the teaching, skills development and research needs of the country. (DoE, 2001a:12)*

This notion that policy required higher education institutions in South Africa to have a specific set of properties played a major role in the development of the performance measures used by the NWG. The NWG claims to have used these three properties as the basis for a set of performance indicators and benchmarks designed to:

*... provide a framework for assessing quantitatively the equity, sustainability and productivity properties that in the NWG’s view should characterise healthy and well-functioning higher education institutions. (DoE, 2001a:12)*

The NWG, however, did add some cautionary notes about its selected indicators and benchmarks:

*The NWG recognises that the indicators and benchmarks do not reflect properties, such as leadership, management, performance and academic standards, which can only be assessed through qualitative judgements and peer review. The NWG also recognises that the methodology used to derive some of the indicators, such as graduation rates, is open to discussion. This is largely due to the limited availability of appropriate data because of shortcomings in the old SAPSE management information system. However,*



*despite these concerns, the NWG is convinced that the indicators provide a useful framework with which to identify some of the strengths and weaknesses of the higher education system in general and individual institutions in particular.*

(DoE, 2001a:12–13)

The key methodological assumptions which emerge from this opening section of the NWG’s report are these:

- ▶ Sets of properties which a higher education system and its constituent institutions are expected to possess can be derived from the policy-driven goals for that system.
- ▶ Quantitative performance indicators can be used to refer to both the properties which a system and its constituent institutions in fact possess, and to those which it *ought* to possess.
- ▶ Quantitative indicators which refer to properties which a system or institution ought to possess can be termed the benchmarks for that system.

The first two of these assumptions are similar to the fundamental ones underpinning the CHET 2000 methodology. These are the assumptions that sets of properties which institutions are expected to possess can be derived from national policy goals, and that quantitative indicators can be used to refer to these properties. The third assumption places emphasis on an issue not picked up by CHET 2000. This is that of evaluation: if policy goals generate properties that a system or institution ought to possess, then it must be possible to use indicators both to refer to where institutions happen to be in their move towards specific goals, and to *evaluate* this performance.

In the subsections which follow, the NWG’s sets of indicators and benchmarks will be presented and discussed in detail.

## EXPECTED FEATURES, INDICATORS AND BENCHMARKS

Table 3 offers a detailed summary of the NWG’s listing of the policy-derived features which any public South African higher education institution is expected to have, and of the indicators and benchmarks which will be used (a) to refer to the selected features and (b) to indicate whether or not the institution meets the specific “fitness-for-purpose” criterion. The table is divided into three columns which deal with (a) the broad features which SA universities and technikons are expected to have in terms of current government policies, (b) the quantitative indicators used to refer to those

features, and (c) the quantitative benchmarks linked to these indicators. (For a full version of the table, which refers also to data sources, see DoE, 2001a:61–63).

The NWG's first group of features deals with issues of equity in student and staff participation in higher education institutions. Its indicators were the proportions of students and staff by race group and gender in individual higher education institutions. Its benchmarks, in the sense of the properties that an institution ought to possess were: 40% African on-campus students and professional staff, and 50% female.

The NWG's second group of features dealt with the sustainability of the student enrolment of an institution, and of the size and shape of these enrolments. Its benchmark for sustainability was that the annual inflow of students into an institution should at least match the outflow. Its benchmark for size was that the full-time equivalent (FTE) enrolment in an institution should be at least 8 000. Its benchmarks for the shape of a university were that at least 50% of FTE enrolments should be in science and technology and business/management, and for a technikon that at least 70% of FTE enrolments should be in these fields.

The third set of features deals with the availability and qualifications of academic staff. Its benchmarks for staff availability were a ratio of at most 20 FTE students per FTE staff member in universities, and a ratio of at most 25 in technikons. Its benchmarks for staff qualifications were 50% of permanent academic staff in universities to have doctorates, and 35% of permanent academic staff in technikons to have either masters or doctoral degrees.

The fourth set of features deals with student outputs. The benchmarks were set as ratios of graduates to enrolments, with the underlying assumption that these ratios imply that at least 75% of any cohort of undergraduate or postgraduate students entering an institution should eventually graduate.

The fifth set of features deals with staff outputs. The benchmarks were set as ratios of research publications and of masters and doctoral graduates per permanent academic staff member. The benchmark for universities was set as one publication unit per permanent academic staff member per year, and the benchmark for technikons was set at 0.5. The benchmark for masters and doctoral graduates was set as the equivalent of either one masters graduate per permanent academic staff member per year or one doctoral graduate per permanent academic staff member every three years. The benchmarks for technikons was set once again as 50% of those of universities.



**TABLE 3:** The NWG’s expected features, indicators and benchmarks

EXPECTED FEATURES	INDICATORS	BENCHMARKS
<p>A SA University or technikon should have at least the following features:</p> <p><b>EQUITY</b></p> <p><b>1.</b> Its student body should reflect the equity requirement that the participation in higher education of previously disadvantaged groups should increase</p> <p><b>2.</b> Its staff body should reflect the equity requirement that the participation in higher education of previously disadvantaged groups should increase</p>	<p><b>1.</b> The % of students by race race group and by gender in the institution’s enrolment</p> <p><b>2.</b> The % of professional staff by race group and gender</p>	<p><b>1.</b> At least 40% of on-campus students are African: each gender has 50% share of contact student enrolment</p> <p><b>2.</b> At least 40% of professional staff are African; each gender has 50% share of professional staff total</p>
<p><b>STUDENTS</b></p> <p><b>3.</b> Its student enrolment should be stable, and not subject to major increases and/or declines in intakes and outflows of students</p> <p><b>4.</b> Its total enrolment should be large enough to ensure that it has reasonable spreads of students across a range of fields of study</p> <p><b>5.</b> It should be a comprehensive institution which has a balanced enrolment shape across the broad field of SET, business and management and humanities</p>	<p><b>3.</b> Institution’s combined student retention and replacement rates</p> <p><b>4.</b> Unweighted FTE enrolment total</p> <p><b>5.</b> Unweighted FTE enrolment by CESM category groupings of SET, business or management and humanities</p>	<p><b>3.</b> Retention plus replacement rate = 100%</p> <p><b>4.</b> Unweighted enrolment total = 8000</p> <p><b>5.</b> For universities: at least 50% of FTE enrolment in SET+ business/management; with at least 20% in SET and 20% in humanities For technikons: at least 70% of FTE enrolment in SET+ business/management</p>
<p><b>ACADEMIC STAFF</b></p> <p><b>6.</b> It should have student to</p>	<p><b>6.</b> Ratio of FTE students of</p>	<p><b>6.</b> Ratios of FTE students to FTE</p>

EXPECTED FEATURES	INDICATORS	BENCHMARKS
academic staff ratios which ensure that adequate numbers of full-time staff are available to serve the needs of its students	full-time equivalent academics	academic staff: (a) universities: 20 unweighted FTE students: 1 (b) technikons: 25 unweighted FTE students: 1
<b>7.</b> It should have a well-qualified academic staff	<b>7.</b> % of permanent staff with masters or doctoral qualifications	<b>7.</b> For universities: at least 50% of permanent academics with doctorates For technikons: at least 35% of permanent academics with either masters or doctorates
<b>STUDENT OUTPUTS</b>		
<b>8.</b> Its output of undergraduates should satisfy the norms set by the NPHE	<b>8.</b> Graduates/enrolments as % for 3-year undergraduate qualifications	<b>8.</b> Graduates/enrolments as % meets the NPHE benchmark of 25%
<b>9.</b> Its output of postgraduates should satisfy the norms set by the NPHE	<b>9.</b> Graduates/enrolments as % for masters and doctoral qualifications	<b>9.</b> Graduates/enrolments as % meets the NPHE benchmark: 33% masters and 20% doctorates
<b>STAFF OUTPUTS</b>		
Its academic staff should produce reasonable members of research outputs in the form of: <b>10.</b> Research publications	<b>10.</b> Ratio of subsidy publication units to permanent academic staff members	<b>10.</b> For universities: at least 1 subsidy publication unit per permanent academic per annum For technikons: at least 0.5 weighted research units per annum
<b>11.</b> Masters and doctors graduates	<b>11.</b> Ratio of weighted total of masters plus doctoral graduates to permanent academic staff members	<b>11.</b> For universities: at least 1 weighted masters plus doctoral graduates per permanent academic per annum For technikons: at least 0.5 weighted masters plus doctoral graduates per full-time academic per annum



The final feature dealt with the financial sustainability of institutions. The benchmark set was high performance over a wide range of indicators, after which institutions should be given a rating of at least “highly likely” to survive as a going concern.

EXPECTED FEATURES	INDICATORS	BENCHMARKS
<b>INSTITUTIONAL FEATURES</b> <b>12.</b> It should be financially stable and sustainable	<b>12.</b> Assessment prepared by professional DoE consultant	<b>12.</b> Assessment as “going concern” of at least 4 on 5-point scale: 5 = certain 4 = probable 3 = likely 2 = risky 1 = high risk

## APPLICATION OF INDICATORS AND BENCHMARKS

The NWG used information for 1999 and 2000 to produce, for each institution, tables which related data to the indicators and benchmarks. It then produced separate sets of averages for universities and technikons, and related these to the benchmarks for institutions. These are set out in Table 4 below.

**TABLE 4:** Data averages for higher education system (1994 & 2000)

EXPECTED FEATURE	UNIVERSITIES		TECHNIKONS	
	Average	Benchmark	Average	Benchmark
<b>1. STUDENT EQUITY</b>				
(a) % Africans in contact total	47%	40%	70%	40%
(b) % females in contact total	53%	50%	49%	50%
<b>2. STAFF EQUITY</b>				
(a) % Africans in professional staff	22%	40%	20%	40%
(b) % females in professional staff	38%	50%	39%	50%
<b>3. ENROLMENT STABILITY</b>				
Retention + replacement rate	102%	100%	104%	100%
<b>4. ENROLMENT SIZE</b>				
FTE student total	10 400	8 000	8 000	8 000

EXPECTED FEATURE	UNIVERSITIES		TECHNIKONS	
	Average	Benchmark	Average	Benchmark
<b>5. ENROLMENT SHAPE</b>				
(a) % SET plus Bus/management	44%	50%	66%	70%
(b) % Humanities	56%	20%	34%	none
<b>6. STUDENTS : ACADEMIC STAFF</b>				
Ratio of FTE students to FTE instruction/research staff	15	20	26	25
<b>7. ACADEMIC STAFF QUALIFICATIONS</b>				
% of permanent academic staff with:				
(a) doctoral degrees	41%	50%		none
(b) doctors + masters degrees		none	28%	35%
<b>8. UNDERGRADUATE OUTPUTS</b>				
3-year qualification graduates divided by enrolments	20%	25%	13%	25%
<b>9. POSTGRADUATE OUTPUTS</b>				
(a) masters graduates/ by enrolments	19%	33%	14%	33%
(b) doctoral graduates/ by enrolments	13%	20%	5%	20%
<b>10. RESEARCH OUTPUTS</b>				
Subsidy publication units divided by permanent academic staff	0.5	1	0.03	0.5
<b>11. RESEARCH AND STUDENT OUTPUTS</b>				
Masters and doctoral graduates divided by permanent academic staff (weighting: M = 1; D = 3)	0.7	1	0.1	0.5
<b>12. FINANCIAL STATUS</b>				
Rating as going concern	3.5	4	2.6	4

Notes: (1) Unisa and Technikon SA have not been included in these averages

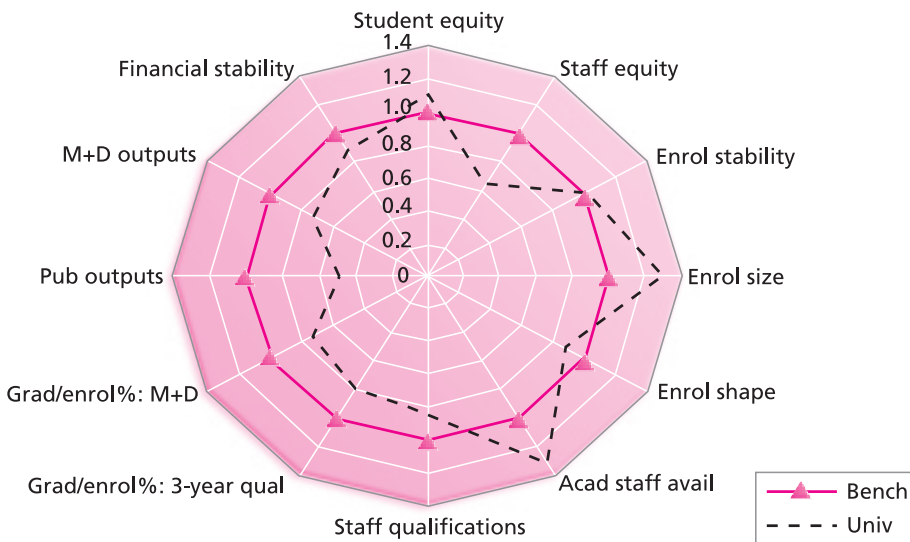
(2) These data were circulated to higher education institutions in 2001 but were not published in the NWG's formal report



The data in Table 4 were then represented by the NWG in the form of two radar graphs (see DoE, 2001a:14). Copies of these two graphs can be seen below.

These graphs were drawn after each benchmark had been taken to be a value of one, and each average had been converted to a fraction by dividing it by its related benchmark. For example, the benchmark for academic qualifications was taken to equal one, for both universities and technikons. The university average of 41% of academic staff with doctorates was then divided by the benchmark value of 50%, giving a value of 0.82 relative to the norm of one. The technikon average of 28% of academic staff with either a masters or doctoral degree was divided by the norm of 35%, giving a value of 0.83 relative to the norm of one. Similar calculations were made in respect of the other averages and norms set out in Table 4.

**GRAPH 22:** Norms and averages for universities (1999 & 2000)

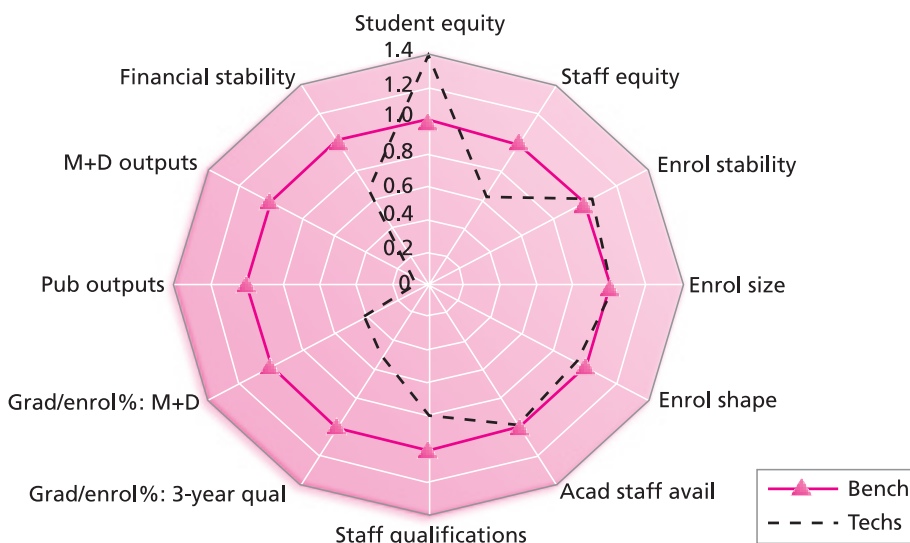


Graphs 22 and 23 were used by the NWG as ways of determining whether or not the university and technikon sectors were “healthy and well-functioning”; whether they met “fitness-for-purpose” criteria. The NWG concluded that neither sector met these requirements. It made mechanical counts of the 12 points on each graph, and said this:

*... the university sector satisfied only 4 of the 12 benchmarks, namely student equity, enrolment stability, enrolment size and staff availability. The university sector does not*

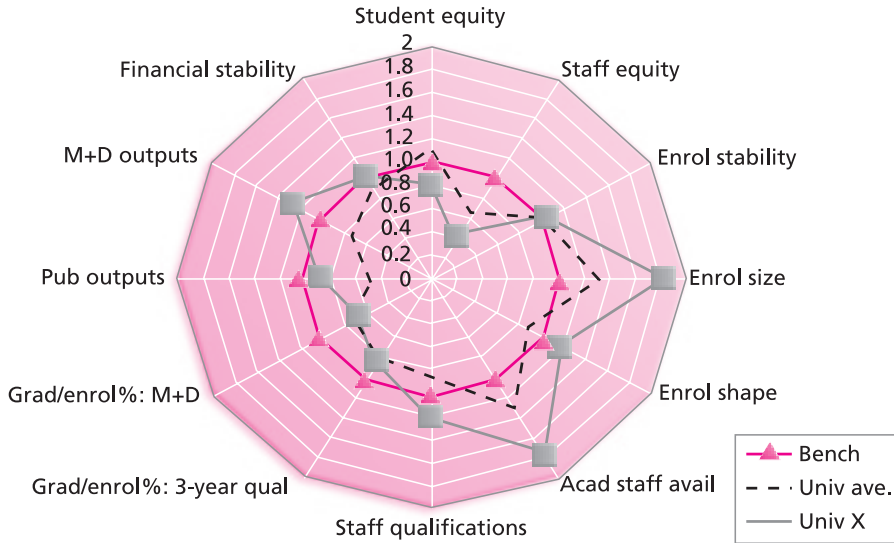
meet any of the output benchmarks, and on average its financial stability and staff equity profile is below the benchmark. ... The (radar graph) for the technikons ... is similar to that of universities. ... it indicates that the technikon sector is weaker than the university sector in relation to output benchmarks. (DoE, 2001a:13)

**GRAPH 23:** Norms and averages for technikons (1999 & 2000)

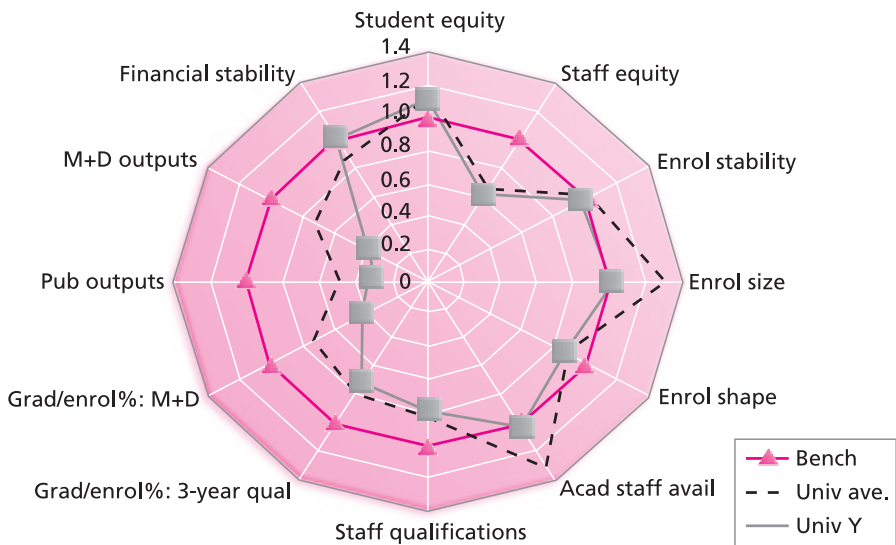


The NWG applied the same radar graph methodology in its discussions with individual universities and technikons. It did this by adding a third line to the overall summaries for universities and technikons. The new line represented that institution's data scores divided by the benchmarks for the system. These institutional radar graphs were not published, but were made available to the institutions which asked to see their radar graphs. Examples of the actual radar graphs for four universities are reproduced here. Because these graphs were not published, the institutions reflected in the graphs have not been identified. The same four institutions, however, will appear in the analyses of the universities in later sections.

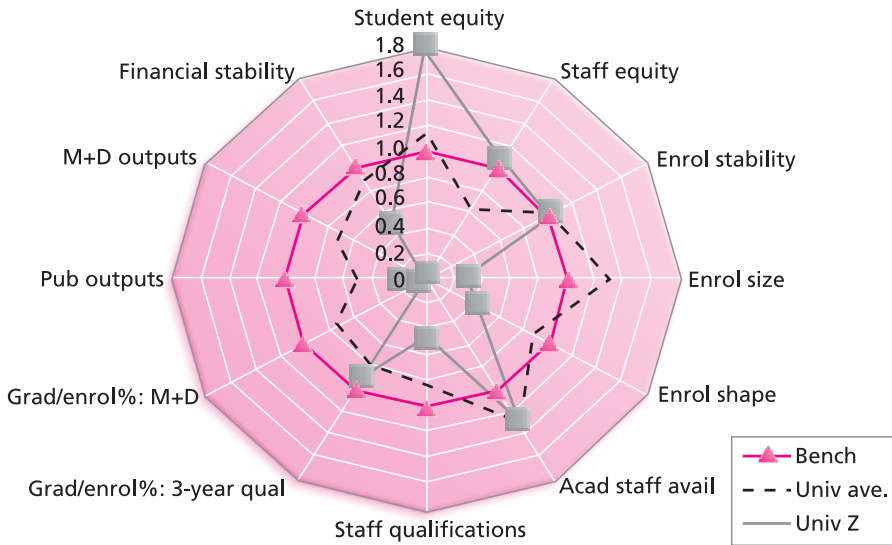
**GRAPH 24:** University X (1999 & 2000)



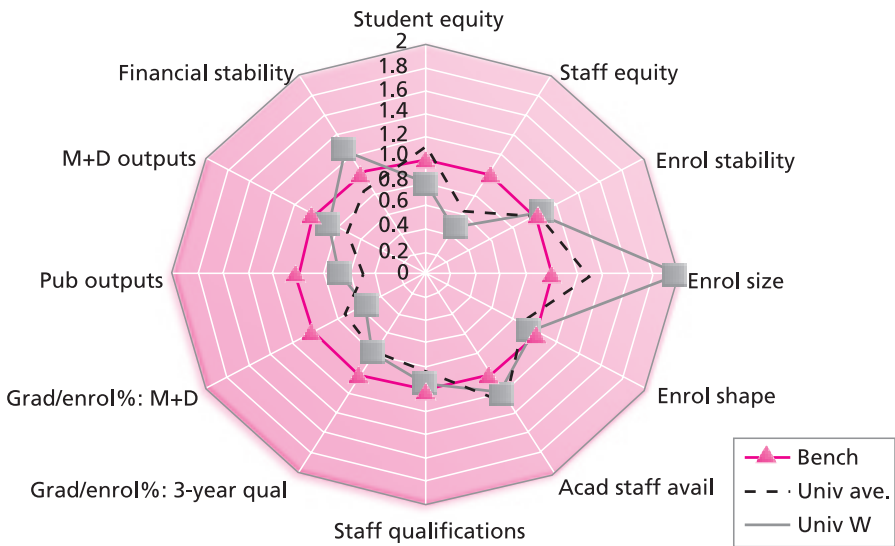
**GRAPH 25:** University Y (1999 & 2000)



**GRAPH 26:** University Z (1999 & 2000)



**GRAPH 27:** University W (1999 & 2000)



The NWG’s conclusion would have been that none of these four universities meet its “fitness-for-purpose” criteria, and that none could as a consequence be described as “well-functioning” institutions. It would have summarised the situation in the way set out in Table 5.



**TABLE 5:** Summary of institutional radar graphs

INSTITUTION	BENCHMARKS MET	PROBLEM AREAS
University X	7 out of 12	Student and staff equity; graduate through-puts; research outputs
University Y	4 out of 12	Staff equity, academic staff qualifications; graduate throughputs; research outputs
University Z	4 out of 12	Enrolment size & shape; academic staff qualifications; research outputs; financial sustainability
University W	5 out of 12	Student and staff equity; graduate throughputs; research outputs

## OBJECTIONS TO THE NATIONAL WORKING GROUP’S MODEL OF INDICATORS AND BENCHMARKS

The NWG’s systemic and institutional radar graphs generated considerable controversy after their release in 2001. Examples of the kind of objections to the NWG can be seen in a paper written by Hugh Amoore (“What we Measure”, 2001) and one written by Anthony Melck (“Indicators and Benchmarks for Universities and Technikons”, 2001).

Some of the main objections raised by Amoore and Melck can be summarised in this way:

- ▶ **Database:** A system of indicators and benchmarks requires a database which is stable, and in which there are no definitional ambiguities. The NWG used data derived from the SA higher education management information system (HEMIS), which was (in 2001) new and in need of further refinement (Melck).
- ▶ **Definitions of indicators and benchmarks:** The methodology employed by the NWG does not make sufficiently clear what the distinctions are between statistical indicators and benchmarks. It is also not clear how the NWG’s benchmarks and indicators are supposed to relate to the policy objectives to which they are linked (Melck).
- ▶ **Use of indicators and benchmarks:** Indicators and benchmarks should be developed on a time-series rather than the “snap-shot” basis adopted by the NWG.

The NWG should also have made use of qualitative indicators and benchmarks (Melck).

- ▶ **Uniform indicators and benchmarks:** Most of the NWG's indicators and benchmarks applied to both universities and technikons. The use of a single set of benchmarks for all public higher education institutions could lead to a process of homogenisation in the sectors, which would be contrary to government policy. Undifferentiated sets of norms should not be applied across the higher education sector (Melck).
- ▶ **Flawed indicators:** Some of the indicators selected are technically flawed, and cannot serve the functions intended by the NWG. Key examples are those of enrolment *stability* and *graduation rate* (Amoore).
- ▶ **Inappropriate benchmarks:** The benchmarks selected by the NWG are not appropriate for South African universities and technikons. They do not represent even reasonable aspirations for most South African universities and technikons (Amoore).

Other objections were raised to the NWG's use of indicators and benchmarks. Because they were used in a report on the restructuring of the higher education system, the NWG's radar graphs were seen as providing justification for the higher education mergers being pressed on an unconvinced higher education sector. Benchmarks simply could not be used as a basis for developing institutional matches. The unfortunate consequence of having used indicators and benchmarks to justify decisions that were in fact mainly based on geographic, equity and political arguments has been to cast performance indicators in a bad light.