ACHIEVING HIGHER PERFORMANCE IN TERTIARY EDUCATION

I. INTRODUCTION

The significance of education, especially tertiary education, to the well-being of national economy and society is acknowledged by all countries. Consequently, all countries, other than the very poorest, have seen a major expansion in tertiary education. Increasingly too, major international development institutions that used to focus on primary education have turned their attention to the provision of tertiary education.[1]

Amongst developing countries, Malaysia's success in publicly provided education has elicited much praise, though there have been long-standing concerns over how the nation's policy makers have dealt with minority language education and in particular with the provision and funding of vernacular schools. Today, except for some pockets of under-enrolment, notably among the Orang Asli of the Peninsula and the Penan of Sarawak, primary school enrolment is virtually universal, while secondary school enrolment has climbed rapidly over the past twenty years.

The country's record in publicly provided tertiary education (ISCED '97 Levels 5 and 6) is more mixed. While there has been a massive expansion in public provision and enrolment has climbed rapidly, this has been marred by significant inequities in admissions with concomitant ethnic discord, and clear signs of a decline in quality. Although the resulting tension over admissions has been partially alleviated by the expansion of private tertiary education locally, this has proven to be very expensive for parents. Access to foreign tertiary education has also grown and constitutes a major financial burden to families as well as a drain on the country's financial resources. Even in the United States, a country often identified with privately funded tertiary education, almost 80 per cent of students in tertiary education are in publicly funded institutions.

Due to the key role of tertiary education in the personal advancement of young Malaysians and the country's economy, questions of access and affordability are not only important to individuals and families; they are also important for the society and nation at large. At the same time, issues of performance, relevance and quality carry

[1] See, e.g., World Bank (2000), *Higher Education in Developing Countries: Peril and Promise*; World Bank (2002), *Constructing Knowledge Societies: New Challenges for Tertiary Education*. Also, the annual OECD reports on education published under *Education at a Glance (EAG)*. The Malaysian government clearly recognises the importance of tertiary education as seen in documents such as the Knowledge-based Economy Master Plan of 2002, and in the recent Malaysia Plans. A high quality tertiary education system producing highly skilled graduates has been identified as one of the critical conditions of success of the drive to build a bio-technology industry. Of particular relevance is Chapter 4(III) of the 8th Plan.

major implications not only for individual employability and outcomes but also for the country as a whole in terms of national economic advancement and competitiveness.

This Centre for Public Policy Studies paper does not cover all of these issues. Instead, it focuses on two issues of recent public concern: namely access, and the performance and quality of our tertiary institutions with regards to their output, that is, outcomes. Questions of access are, as noted, an annual ritual, yearly re-opening old ethnic sores. Questions of performance and quality (and outcomes) have emerged in two forms: the quality and employability of graduates, and the quality and productiveness of staff.

The paper presents some indicators on employability of graduates and productiveness of staff, as well as some data on consequences of admissions policy and practice over the past thirty to thirty-five years. [2] The data on the consequences of admissions policy and practice should be read in conjunction with the tables in the introduction to the accompanying brief "Towards Equity for Bumiputera Minorities: The Case of the Penan" to obtain a fuller picture.

II. TERTIARY EDUCATION PERFORMANCE AND ACCESS

In Malaysia, tertiary education is largely publicly funded and provided. Affordability of publicly provided tertiary education in Malaysia is not an issue, aside from some inefficiencies; indeed, it may well be the case that there is an insufficient level of contribution from beneficiaries, with some corresponding inequity, given that only a minority of persons gain access to tertiary education which provides them with access to higher income occupations and status. But precisely because of this, questions of equity of access loom large, especially today when democratic ideas have taken root all over the world, including centrally, the notion of equal citizenship rights and the claim to equal treatment from government.

Evidently, expenditure on tertiary education is not getting the desired results on a number of criteria. Two key criteria are research performance and student outcomes.

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[2] Different countries commit different levels of inputs and achieve different levels of efficiency and outcomes, without any clear-cut relationship between inputs, efficiency and performance/outcomes.[2]

This is evident from the OECD's annual *World Education Indicators* publication, which covers Malaysia and a number of other developing countries, as well as its *EAG*. It was also very clearly shown in a report for the U.S. National Center for Higher Education Management Systems: Kelly, P.J. and D.P. Jones (2005), *A New Look at the Institutional Component of Higher Education Finance: A Guide for Evaluating Performance Relative to Financial Resources*.

Table 1 shows the proportion of central government expenditure on education for Malaysia, Thailand and Singapore as a percentage of GDP as a backdrop to the research performance and outcomes comparisons below. Table 2 provides a comparative picture of per capita public expenditure (current expenditure) on education at different levels as a percentage of per capita GDP, suggesting that there is apparently a gross inefficiency in Malaysian tertiary education.

Table 1: Public Expenditure on Education (% of GDP)

Country	1990	2000	2002
Malaysia	5.1	6.2	8.1
Singapore	3.1	3.6	4.1
Thailand	3.5	5.2	4.6

Source: World Bank, WDI 2005; OECD/UIS, World Education Indicators 2005; Singapore, Ministry of Education (for 2000 and 2002).

Table 2: Expenditure per Student (% of GDP per capita), 2000[3]

Country	Primary	Secondary	Tertiary
Malaysia	12.8	22.3	83.3
Singapore	7.9	12.9	33.5
Thailand	16.5	11.7	33.0

Source: World Bank, WDI 2005, for Malaysia and Thailand. For Singapore, computed from Ministry of Education Singapore figures for Government Recurrent Expenditure on Education per Student (from http://sam11.moe.gov.sg/esd) and Singapore GDP per capita from the Singapore Dept of Statistics.

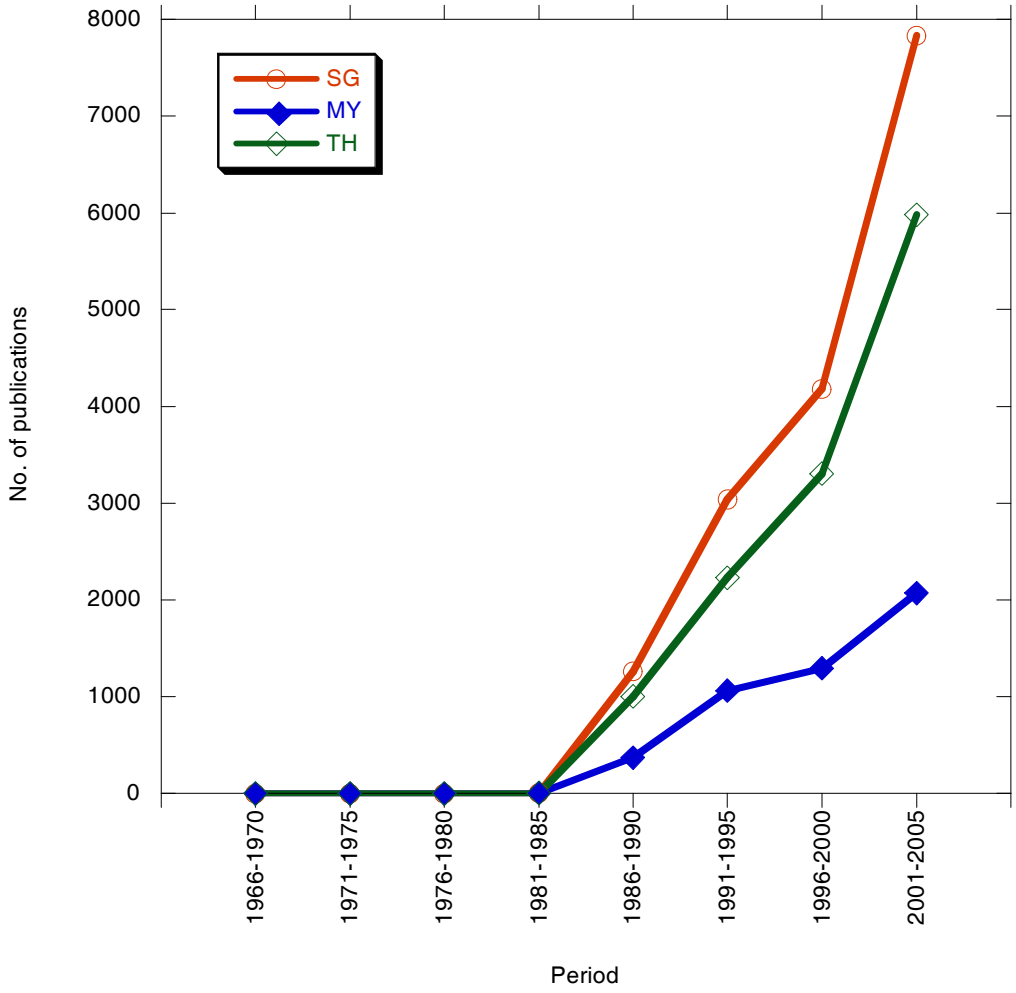
When these figures are compared with gross enrolment ratios, especially at tertiary level, the degree of inefficiency becomes even more stark. Thus, UIS statistics for 2000 show that the gross enrolment ratio at tertiary level for Malaysia was 28 per cent, compared to Thailand's 35 per cent.

Figure 1 shows the number of publications in the bio-medical field as sourced from the country affiliation of any of the authors for Malaysia, Thailand and Singapore. This is a crude comparison. However, in all three countries, until very recently the bulk of bio-medical research is conducted within tertiary institutions of learning, or institutes associated with them. While all three countries allocate an equivalent proportion of their central government expenditure to education, results in one area of

[3] The WDI notes to this data define expenditure per student as follows: Public expenditure per student is the public *current* spending on education divided by the total number of students by level, as a percentage of GDP per capita. It is unclear whether the public current spending includes public spending on students outside the country – see, e.g., UNESCO Institute of Statistics (2003), South and East Asia Regional Report (on education), Sec 4. However, it should be noted that by 2000, the government had severely curtailed the sponsoring of students abroad.

concentration in all three countries, the bio-medical sciences, have not only not been equivalent, but Malaysia is clearly falling behind. Given the country's declared commitment to the development of bio-technology and bio-medical sciences generally, this should be a matter of concern, especially since the two neighbouring countries in question are our most important regional competitors in this area. Thus, from about the same starting pointing, the three countries begin to diverge after 1985, with Thailand making a good effort in keeping up with Singapore on a country basis (but not on a per capita population basis), and Malaysia falling behind both countries, although keeping up with Thailand on a per capita population basis.

Figure 1: Number of biomedical publications by country and period



Source: Derived from NCBI, PubMed on country affiliation of authors

Factoring in other variables, such as R&D expenditure and total R&D personnel paints an even worse picture for Malaysia, with Thailand much further ahead, as can be seen in Table 3.

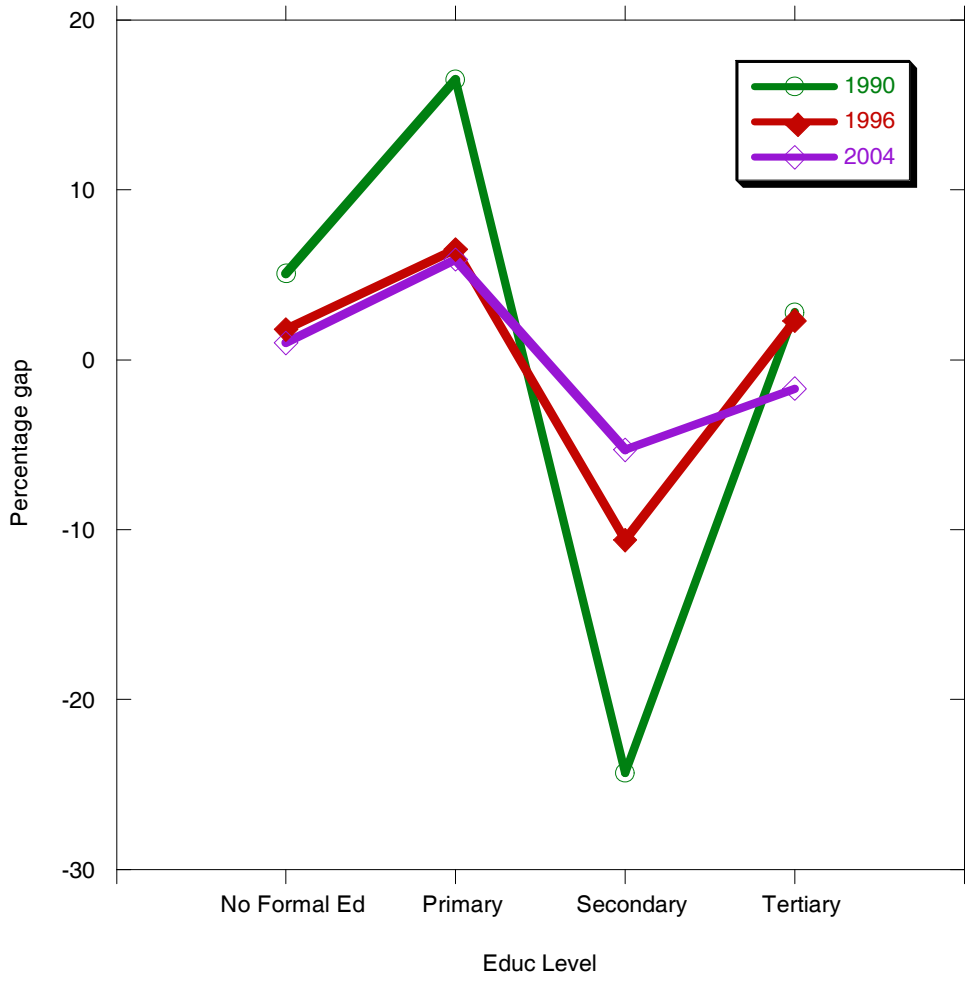
Table 3: R&D expenditure and personnel, Malaysia, Singapore and Thailand

	R&D Exp/GDP (%)			R&D Researchers per million pop.		
	1996	2000	2002	1996	2000	2002
Malaysia	0.22	0.49	0.69	89.64	276.02	294.47
Singapore	1.38	1.93	2.15	2481.74	4139.62	4351.64
Thailand	0.12	0.25	0.24	102.38	172.92*	289.45**

Source: World Bank, WDI 2005.
* refers to 1999; ** refers to 2001

For student outcomes, we use employability as a measure. As a simple indicator, we calculate the difference in the proportion of a particular educational level in the labour force to its proportion amongst the unemployed. Thus, a positive value means that the proportion of that educational group amongst the unemployed is lower than its proportion in the labour force, suggesting better employability; conversely, a negative value means that the proportion of that educational group amongst the unemployed is higher than its proportion of the labour force, suggesting poorer employability. Figure 2 summarises this data for the years 1990, 1996 and 2004, while Table 4 shows the percentage distribution of the labour force and the unemployed by educational attainment for the same years.

Figure 2: Percentage gap between proportion in the labour force and proportion amongst the unemployed, Malaysia, 1990-2004



Source: Dept of Statistics, Labour Force Survey, v.y.

Table 4: Percentage distribution of the labour force and unemployed by educational attainment

	Labour Force			Unemployed		
	1990	**1996**	**2004**	**1990**	**1996**	**2004**
No Formal Ed	9.6	7.0	4.0	4.5	5.2	3
Primary	33.8	25.6	19.1	17.3	19.1	13.2
Secondary	51.0	55.3	57.6	75.3	65.9	62.9
Tertiary	5.6	12.1	19.2	2.8	9.8	20.9

Source: Dept of Statistics, Labour Force Survey, v.y.

It should be noted that this is not necessarily an indicator of the quality of training or education, and obviously does not mean that less education is better than more. It is however a potential indicator of a mismatch between training/education and the labour market. It may also be an indicator of credentials inflation, resulting in a shift of a lack of employability from secondary to tertiary level, and a shift of

employability away from those with less than secondary education. This is indicated by the apparent increased employability of those with secondary education, and the decreased employability of those with tertiary education, on the one hand, and with primary or no formal education, on the other. It suggests that, despite official statements and the complaints of employers, the labour market has not become that much more sophisticated with regards to the need for more education, at least at the tertiary level. This is indicated by the decline in the proportion of the unemployed with ISCED '97 Level 4 (post-secondary non-tertiary) qualifications, covering primarily those in certificate-level skills training institutes, seen in Table 6a and 6b, below, while the proportion going to skills training institutes have increased.

What is clear is the deteriorating situation for the tertiary educated, going from 1990 to 2004, to the point that those with tertiary education comprised 21 per cent of the unemployed in 2004. Moreover, there is a gender issue too, as can be seen from table 5 below – women with tertiary education constitute almost a third of unemployed women.

Table 5: Percent of unemployed by educational attainment, 2004

Educ Level	**Total**	**Male**	**Female**
No Formal Ed	3.0	3.0	3.0
Primary	13.2	15.9	9.1
Secondary	62.9	65.7	58.5
Tertiary	20.9	15.4	29.5

Source: Dept of Statistics, Labour Force Survey 2004

But, regardless of gender, there has been a rapid increase in the proportion of unemployed with tertiary education, and a correspondingly rapid increase in the numbers, from just over 10,000 in 1995 to just under 58,000 in 2003 as well as a deteriorating situation for those with ISCED '97 Level 3 (upper secondary) education. Table 6a and 6b summarises.

Table 6a: Percentage of unemployed by educational level, 1995-2003

ISCED 97	1995	1996	1997	1998	1999	2000	2001	2002	2003
X	4.4	5.3	4.9	3.3	2.4	3.5	2.9	4.0	3.6
1	16.5	19.1	17.4	16.0	15.2	15.3	13.4	13.5	12.4
2	29.1	29.8	24.7	27.6	26.5	22.8	23.9	19.8	19.7
3	41.2	36.0	41.6	40.3	41.9	43.2	45.1	44.5	45.5
4	4.7	5.0	5.4	4.2	3.9	4.0	3.8	4.0	3.3
5A-5B	4.2	4.8	6.0	8.6	10.1	11.2	10.9	14.4	15.6

Source: ILO, Labour Statistics Database

Table 6b: Number of unemployed by educational level, 1995-2003 ('000)

ISCED 97	1995	1996	1997	1998	1999	2000	2001	2002	2003
X	10.8	11.4	10.5	9.4	7.6	10	9.8	13.6	13.4
1	40.9	41.4	37.3	45.5	47.7	43.8	46	46.4	45.7
2	72.2	64.6	53.1	78.5	83.2	65.5	81.8	67.9	72.7
3	102.2	78.1	89.4	114.4	131.3	123.8	154.3	152.7	168.2
4	11.7	10.8	11.7	11.9	12.2	11.5	13.1	13.6	12.1
5A-5B	10.3	10.5	12.9	24.3	31.7	32.2	37.4	49.4	57.8

Source: ILO, Labour Statistics Database

The situation in Malaysia is broadly comparable with that in its two neighbours, Singapore and Thailand, which straddle Malaysia in terms of per capita GDP and economic structure. For Singapore, in 1996, the gap, as defined above, was similar to Malaysia's in 2004, but by 2001, the situation had improved. For Thailand, the gap widened between 1996 and 2001.

Table 7: Percentage of labour force/employed and unemployed with tertiary education, Singapore and Thailand

		1996	2001
Singapore	Labour Force	30.6	37.9
	Unemployed	31	32
Thailand	Employed*	7.7	11.9
	Unemployed	13.6	19.2

Source: World Bank, World Development Indicators, 2005; *National Statistical Office, Labour Force Survey, Figures for 1st Quarter of the year

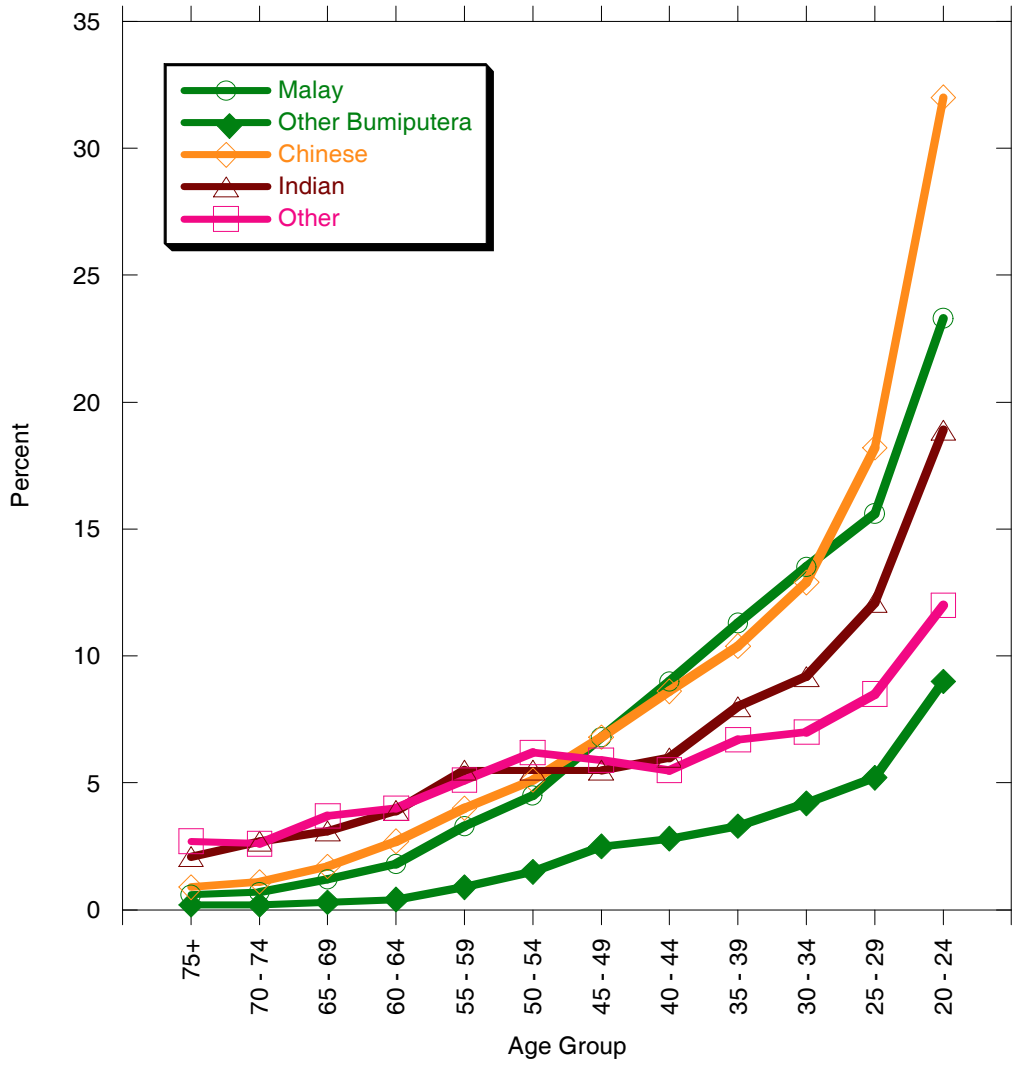
Thus, while there is evidently a growing gap, it is not yet alarmingly large. What bears watching, however, is that the gap is turning negative.

With regard to access, the major expansion in tertiary education over the past four decades has resulted in an increase in the proportion of the relevant age cohort going on to tertiary education from less than one per cent in the 1960s to over seven per cent by the end of the 1980s. Even in a context of massive expansion, it is differential access, perceived or real, that determines the responses of the population, especially if that differential access is perceived as determined by ethnicity and there is a sense of exclusion or, worse, of denial of opportunity. Thus, annually, the country goes through an experience that has had negative impact on inter-ethnic relations. This is the annual process of university admissions when students with good results do not gain

admission into the public universities or do not get acceptance into a programme of their choice, to the point of requiring the intervention of the Prime Minister to manage the situation.

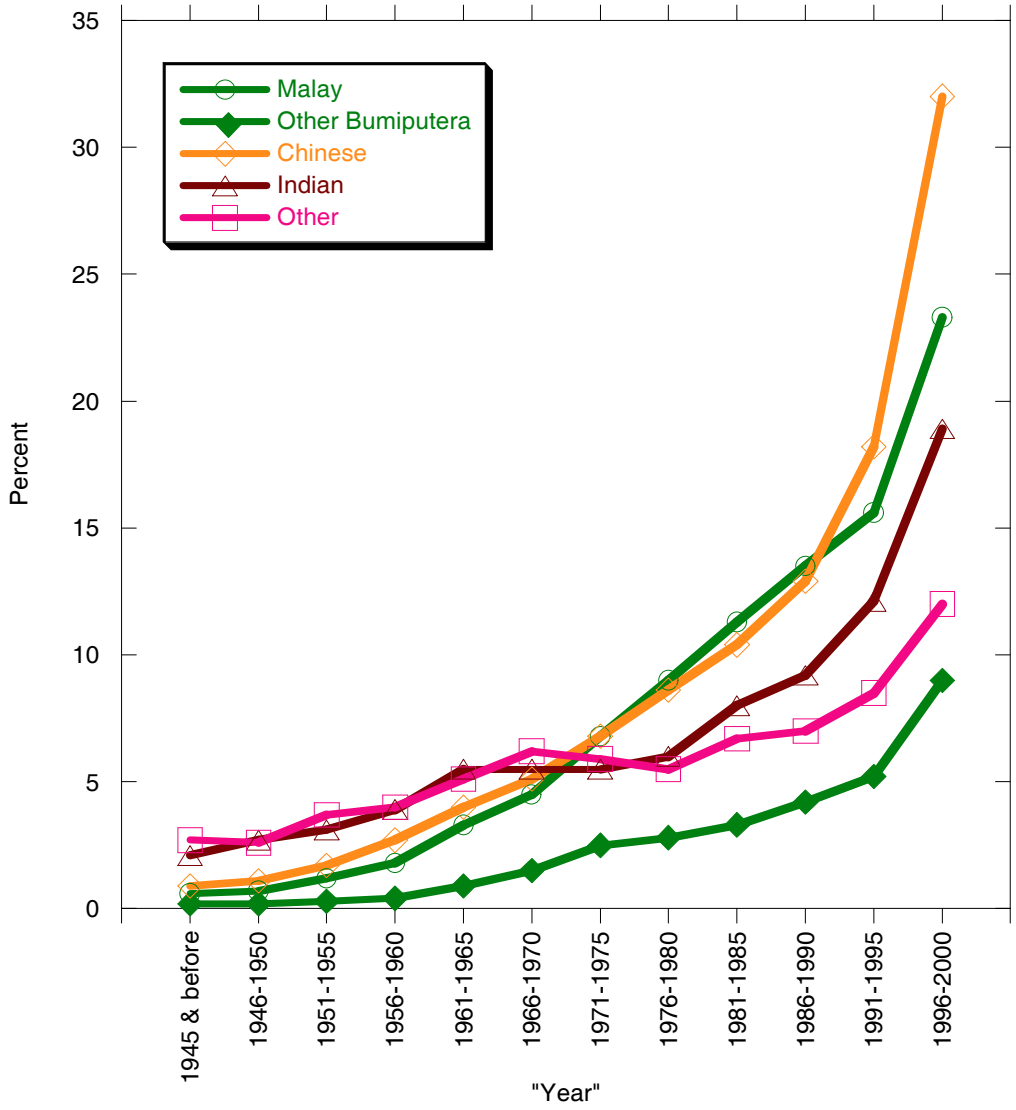
The background to this has been the historical experience of the practice of the NEP with regards to admissions to tertiary education. Figures 3a and 3b below maps out – "tertiary" in the Census covers "polytechnic, college and university", i.e. all programmes of 2 years and more duration – this historical experience over the past fifty years, using the Census 2000 data, and using age-group as a proxy for time. It presents a picture of the downward shift of the trend line of some groups, specifically the Indians and "Others", and, to a lesser degree, the Chinese. As will be shown, it is highly probable that there would have been a more noticeable downward shift of the Chinese trend line if not for their capacity to seek out tertiary education outside the country; an option less available to Indians and "Others". However, it is also likely that these differential shifts in trend lines are pointers to the relative bargaining power of the different ethnic groups, and points to the politicisation of admissions. These shifts in trends start at a point in time coinciding with the introduction of the NEP (cf. Figures 3a and 3b), and the cross over of the participation rates of Malays and Chinese in tertiary education explains the sharp ethnic edge to disputes, given that the universal pattern is for a higher income group to have higher participation rates than a lower income one. The cross over in the participation rates of Chinese and Malays in the 1990s also explains the dissipation of some of the ethnic edge, and can be attributed to the rapid growth of private colleges and a second round of expansion of the public universities. The shift in the trend line of Other Bumiputera reflects events in Sabah and Sarawak and can be partially attributed to the expansion of the timber industry in the 1970s as well as to their disadvantaged status.

Figure 3a: Percentage with tertiary education by age group and ethnicity, 2000



Source: Dept of Statistics, Census 2000

Figure 3b: Percentage with tertiary education by "year" and ethnicity



Source: Dept of Statistics, Census 2000

Note that Figure 3b is simply Figure 3a, but with "Year" imputed to the Age Group on the assumption that the vast majority undergo their tertiary education when they are between the ages of 18 and 24. Given the five-year age groups, this imputation is imperfect but nevertheless provides an adequate indicator.

This situation has resulted in a significant loss of foreign exchange[4] and a potential and actual loss of highly educated and skilled personnel, particularly Chinese, as they resort to seeking out tertiary, mainly university, education outside the country from which some do not return. This can be seen from Table 8 which takes the equivalent age cohort from the 1991 Census and compares it to 2000 Census, i.e., the 20-24 age cohort in the 2000 Census would have been the 11-15 age cohort in the 1991 Census. Given that the death rates of people in the age cohorts of interest are very low, little is lost in a direct comparison of these age cohorts. In principle, their numbers should be close to one another, and any significant difference can be attributed to departure from or return to the country, since it is unlikely that any significant number of in-migrants, particularly non-Malays, would have gained citizenship. The comparison is both disturbing and encouraging – disturbing because it shows the large number who have had to look for tertiary education opportunities elsewhere, and encouraging because it suggests that significant numbers return upon completion of their tertiary education. However, with the globalisation of the professions and of highly skilled workers, it should not be assumed that this pattern will continue to hold in the future.

Table 8: Comparison of equivalent age cohorts for 1991 and 2000

Age Group	Malay	Chinese	Indians	Others
15 - 19	4.1%	1.9%	5.1%	-67.1%
20 - 24	-2.1%	-13.5%	-0.5%	-71.2%
25 - 29	1.1%	-5.3%	1.7%	-68.0%
30 - 34	9.2%	14.8%	6.6%	-65.7%
35 - 39	9.6%	11.6%	5.7%	-65.7%
40 - 44	10.2%	9.8%	5.8%	-64.1%
45 - 49	4.2%	2.5%	1.1%	-68.6%
50 - 54	5.4%	2.3%	-1.7%	-71.6%

Source: Dept of Statistics, Census 1991 and Census 2000

Note: The total unadjusted population of the equivalent age cohort in 1991 was subtracted from the total unadjusted population of the age cohort in 2000 and computed as a percentage of the total unadjusted population of the equivalent age cohort in 1991. In principle for the younger age cohorts, this should come out negative and close to zero for the younger age cohorts, and negative for the older age cohorts (due to deaths). However, in practice, this can never be the case due to enumeration errors in the census, and there is insufficient data to correct for the enumeration errors given the need to use the single age counts for the 1991 Census in order to derive the equivalent age cohorts to the 2000 Census. From the enumeration errors for the five-year age cohorts in the two censuses, it is estimated that a +/-5% would fall within the margin of enumeration error. Taking all this into account, the pattern is still quite clear. For the Chinese, there is a huge drop in the enumerated population of the 20-24 age cohort in 2000 from the corresponding 11-15 age cohort in 1991, precisely the age cohort that would be eligible for tertiary education in 2000, and a huge increase increase in the 30-34 age cohort of 2000 from the corresponding 21-25 age cohort in 1991, precisely the age cohort that would have been in tertiary education at the

[4] For 1995, it was reported Malaysians studying abroad cost the country about USD800 million in currency outflow, amounting to almost 12 per cent of the country's current account deficit. G. Silverman, Silence of the lambs, *Far Eastern Economic Review*, Nov 14 1996, as cited in C. Ziguras (2003), The Impact of the GATS on Transnational Tertiary Education: Comparing Experiences of New Zealand, Australia, Singapore and Malaysia. *The Australian Educational Researcher*, 30(3): 89-109.

time of the 1991 census. It is not so clear for the Malay 20-24 age cohort in 2000, but that is because of the change in policy of sending bumiputera abroad for tertiary education, whereas the increase in the 30-34, 35-39 and 40-44 age cohorts in 2000 can be accounted for by the previous policy of sending bumiputera abroad for tertiary education. In the case of Indians, the differences largely fall within the margin of enumeration errors suggesting their lack of capacity, as a collective, to send their children abroad, corresponding with the depressed trend line. The major decline in "Others" suggests either a change in definition or, more probably, significant out-migration of whole families.

It might be suggested that the spurt in tertiary education participation of Chinese in the 1990s indicates that there is no need to modify public policy, just to be more liberal towards the establishment of private colleges and universities, especially under 3+0 systems. This would be short-sighted and inequitable. Short-sighted because it is clear that the training and education of highly skilled S&T personnel is going to have to come primarily from the public institutions for some time to come; inequitable because all public institutions are funded through tax revenue, and also inequitable in view of the depressed pattern of Indian tertiary education participation.

With regards to the notion of education as business, it might be noted that even the great private non-profit universities of the U.S., e.g., Harvard University, receive public funds, as do private institutions in Malaysia, through the student loan schemes, as well as through eligibility for government R&D funding. Additionally, with regards to their own endowments, care is taken to keep the business and educational side at some distance, with the business side ending up providing substantial subsidies to the education operations; thus, even full fee-paying students are covered by a substantial subsidy. It should also be noted that the for-profit colleges in the U.S. derive a substantial component of their income from government funded financial aid to students. Additionally, the recently reported problems with a number of the for-profit higher education institutions that emerged in the 1990s should be a salutary lesson.[5]

III. RECOMMENDATIONS

Student Admissions and Programme Issues

1. Terminate the policy and practice of having some public tertiary institutions open to only specific ethnic groups. This would be in line with the policy thrusts for HRD spelled in the 8th Malaysia Plan, specifically, 4.65, to expand the supply of highly skilled and knowledge manpower and to increase the accessibility to quality education and training.
2. Introduce greater competition and outreach among public tertiary institutions by decentralising the admissions process to the institution, and tying some proportion of the funds allocated to public tertiary institutions to actual *enrolled* numbers. This would go some way towards realising another of the policy thrusts of the 8th Plan, namely, to improve the quality of education and training delivery, as enrolment, under the proposed recommendation, would be a result of applicant choice based on their assessment of the best quality they

[5] See, e.g., Eryn Brown, Can For-Profit Schools Pass an Ethics Test?, *New York Times*, Dec 12 2004. The Higher Education Act in the US was also amended because of problems with for-profits in the late 1980s and early 1990s. It might be noted that Malaysia has had its share of problems, especially with post-secondary non-tertiary institutions, which mushroomed to take advantage of the SDF and other allocations.

can get amongst the available options, thus placing some pressure on providers to enhance their attractiveness.

3. Set out clear and transparent criteria of admissions applicable to all public tertiary institutions. The criteria should include a weighting for socio-economic and geographical/regional background to compensate for socio-economic and geographical/regional disadvantage. Such a system has the advantage that, while nominally non-ethnic, it will in practice compensate for significant ethnic disparities resulting from socio-economic status and geographical/regional location; it will thus address an issue of concern in a manner that will not generate resentment other than among the most mean-spirited.
4. Introduce/expand the provision of scholarships for academic excellence, to be applied to the top 5 per cent of applicants/enrolees in selected fields assessed as critical to Malaysia's social, cultural and economic needs and future. Such scholarships should be free of any bond other than the condition of service in the country. Continued tenure of these scholarships must be contingent on performance. Note that this applies to the top 5 per cent of applicants/enrolees as scored on the admissions criteria set out in the previous recommendation.
5. Introduce a provision for scholarships to the next 5 per cent of applicants/enrolees in selected fields assessed as critical to the civil service. These scholarships carry a bond to serve in the civil service for twice the duration of the scholarship. Again, continued tenure of these scholarships must be contingent on performance. Such a practice will ensure a supply of high quality personnel for the civil service, an issue addressed in the accompanying paper "Towards a more representative and world class civil service".
6. Introduce/expand a loan scheme for all others that will be discounted in proportion to academic achievement, that is, achievement of highest honours will result in a conversion of 80 per cent of the loan to a scholarship, and so on. This addresses issues of affordability, while simultaneously factoring in an incentive to performance.
7. Scrap STPM and matriculation and make the SPM the basic qualification for admission to tertiary education, with minimum scores for admission to diploma and degree programmes. Establish clear criteria for transitions from diploma to degree programmes. Alternatively, there can be a uniform entrance examination, eligibility open to all in their SPM year. This recommendation must be implemented in combination with the next, and is not to be a stand-alone recommendation.
8. Re-introduce the four-year undergraduate degree programme to take account of the democratisation of tertiary education and the resultant lower capabilities of applicants/enrolees. This should be combined with a system of advanced placement, granting credits to those who qualify, thus enabling them to graduate in a minimum of three years, if they so desire. Combining this with the previous recommendation would mean that students would not enter the labour market any later than they now do under the 3-year system, but it would have the advantage of that additional year in the undergraduate programme which, faculty members suggest, is needed by many students for their intellectual maturation. This recommendation should be combined with the next.

9. Introduce a five-year Master's programme in selected fields assessed as critical to the country's needs with stringent qualifying criteria to be assessed in the third year of the four-year degree programme. This will tempt the better performing students to gain that extra qualification, and a well-taught Master's would equip them with the additional skills and capabilities for the kind of economy envisaged both by the Knowledge-based Economy Master Plan as well as Vision 2020.
10. Require all public tertiary institutions to conduct at least biennial tracer studies, including a component on course assessment, with the results to be made public. All institutions must be required to address issues emerging from the tracer studies, for instance, the employability of their graduates, the performance of their graduates five years or ten years post graduation, the relevance of the courses they took, etc. With regards to course assessment, such a retrospective assessment may be more meaningful than course assessments conducted at the end of a course, as the students will have had some real-world experience against which to judge their education/training.
11. If not already institutionalised, require all public tertiary institutions to conduct five-yearly reviews of their programmes. In critical, fast-changing fields, this should become biennial reviews. While 'the market' must not be the sole determinant of tertiary education programmes, it cannot be ignored.

Recruitment and Assessment of Faculty

1. End all explicit or implicit quotas in the recruitment and promotion of faculty as it is ridiculous to entrust the higher education of our young to any but the most qualified. Thirty years ago, there may have been reason for some fast-tracking. Today, and for some time now, there can be none. Additionally, fast-tracking young bumiputera, specifically Malay, faculty, especially into administrative positions, is an almost certain way of stunting their academic growth as teachers and researchers, since both skills are acquired over time and through practice.
2. Re-vitalise the culture of collegiality in public tertiary institutions, and reverse the trend towards administrative and managerial dominance, deriving from a misconceived notion of education as business, and re-introduce an administrative culture of service to the core functions, staff and clientele of these institutions.[6] A means of doing so would be to return substantial teeth to an elected university senate, in the case of universities, and to leave the appointment of persons to the university or equivalent council to the institutions themselves, with the proviso that university or equivalent councils are to act as advisory bodies, thus specifying the kind of persons appropriate to be in such councils. The recent move to have a search committee for vice-chancellors of universities is also welcomed. However, it would be preferable

[6] Molly Lee, former of Universiti Sains Malaysia's Centre for Education Studies, currently with UNESCO Bangkok, has written extensive on this. See, e.g., Lee (2003), The Changing Academic Workplace in Malaysia: Between Bureaucratic and Corporate Culture, accessed at: http://www.ntesu.org.za/html/conference/papers/lee.pdf;

if the search committee were decentralised to the institutions concerned, with representatives from the senate and the council serving on them.

3. Introduce student assessments of faculty performance using criteria arrived at by consensus of students and faculty, with the results of such assessments being made available to the public in a summary form by department. While many tertiary institutions institute some such practice, the status of the assessment is uncertain, with poorly constructed questionnaires, for the most part left unanalysed, and so on. This should be something to which the faculty devote some of their academic and research expertise, with comparable and validated questionnaires across disciplines and institutions. The requirement to make the results public will likely mean that the exercise is taken more seriously, while the provision of results in summary form at departmental level should mitigate unnecessary fears. On the individual staff level, the use of such assessments for administrative or promotion purposes should be a matter of discussion and not unilaterally decided by administration, as there are debatable issues to be considered with regards to at least some dimensions of student assessment of faculty performance in the classroom, e.g., on some dimensions assessment may be unduly influenced by whether students perceive a professor to be an easy grader which may have little bearing on the quality of instruction.
4. Introduce/refine administrative assessments of faculty performance. The impetus behind the now-defunct SSB could be adopted here but without the rancour, and with an emphasis on academic performance. The criteria should be arrived at in consultation with the faculty, taking account of type of institution and primary duties of the faculty. Wherever possible, it should also be tailored individually. These criteria should be written into the contract of service and made into explicit and transparent grounds for termination of service for non-fulfilment.
5. Peg starting salaries of faculty to the appropriate benchmarks within the country and, where feasible, internationally. At the moment, starting salaries at tertiary institutions are unattractive to any bright, ambitious graduate, given the starting salaries for graduates in the labour market. In the time it takes to get a Ph.D., a bright young graduate would have advanced to a point where s/he would be earning a substantially higher income. Of course it is not suggested that the starting salaries at publicly funded tertiary institutions should match those at the equivalent level in the private sector; they don't have to be, as there are (or should be) compensating non-financial rewards to employment in a tertiary education institution.

IV. INSTITUTIONAL-POLITICAL ISSUES

1. All the above recommendations with the exceptions of that regarding the STPM/matriculation, scholarships, and salaries fall within the purview of the Ministry of Higher Education. The issue of opening up admissions to all tertiary institutions will also require negotiation with some other agencies, e.g., MARA, but a compelling argument for it is the overall benefit to the country.

2. Some of the recommendations falling solely under the purview of the Ministry of Higher Education should be uncontroversial. For instance, it is hard to see what resistance there can be to the conduct of appropriately designed tracer studies. However, where such recommendations require the tertiary education institutions to take action, it is best that they, administrative and academic staff, be fully consulted – not directed – so that they take ownership of such actions. Needless to say, the required financial and other resources will have to be provided for them to act. The recommendation pertaining to terms and conditions of service should also be relatively uncontroversial – provided there is full consultation with academic and administrative staff – and need not run afoul of the JPA as it represents one route towards the realisation of some of the objectives of corporatisation.

3. Nevertheless, it can be anticipated that there will be resistance to quite a number of the other recommendations. High up on the list of concerns will likely be what the changes to admissions, namely opening up all tertiary institutions to everyone, will do to ethnic balances. In the first place, it should be noted that the recommendation pertaining to admissions criteria is in the spirit of the principles of the NEP, specifically of growth with equity. In the second place, the current demographic situation in the country should make it evident that it will not drastically alter the ethnic balances: non-Malays, specifically Chinese, have undergone a sharp demographic transition which is not about to be reversed. The recent experience with the apparently meritocratic admissions practice should also be enough of a pointer to allay fears of a gross shift in ethnic balances. On the plus side, decentralising admissions will take care of the issues that crop up every year, with such rancour, will introduce a desired degree of competition among the various institutions, and will provide the kind of feedback to the Ministry of Higher Education to allow more effective allocation of resources.

4. Scrapping of STPM and matriculation will require the consent of the Ministry of Education. However, the signals are already there that a substantial number of SPM graduates by-pass STPM and go into either diploma courses in the public tertiary institutions as a route towards a degree, or into the private tertiary institutions. The poor transition rates to STPM are a good indicator of this. Furthermore, even in the original home of the STPM, Britain, there has been a call to scrap A-Levels given its devaluation as a signal.[7] Additionally,

[7] See, e.g., Polly Curtis, Cambridge calls for end of A-levels, *The Guardian*, Feb 21 2005; Matthew Taylor and Michael White, Fresh calls to scrap A-levels as pass rate set to rise again, *The Guardian*, Aug 15 2005; Rebecca Smithers and Matthew Taylor, A-levels becoming 'just a leaving certificate', The Guardian, Aug 19 2005 in which it was reported that "universities prepared to begin entrance exams and tests". See also, Michael Prowse, Time for A-levels to pass into history, *Financial Times*, Aug 17 2005, which contained, *inter alia*, the following: "The irony is that the much-revered gold standard was never worth defending. A-levels were designed for the convenience of university dons rather than with young people's needs in mind. It suited a maths don at Cambridge, say, to have schools coach his prospective students exclusively in maths and physics, because they would arrive knowing rather a lot about his subject. The fact that their overall education would be lousy because it was so narrow was not of the slightest concern to him…For decades, England and Wales have flouted

as noted by Prowse, cited in the preceding footnote, the STPM and matriculation are so narrow as to place in doubt its wisdom as a qualifying test for the kind of tertiary education that will be increasingly necessary for the emerging global economy, not to mention its doubtful contribution to citizenship. It is therefore time that the Ministry of Higher Education and the Ministry of Education conduct an assessment of the utility and purpose of STPM/matriculation and seriously consider the use of the SPM as the base qualification for all tertiary education or, alternatively, the use of a country-wide entrance examination along the lines of the U.S. SATs.

V. CONCLUSION

1. Given the public resources the country pours in tertiary education, we should be seeing a higher rate of enrolment and a higher level of quality. While the country has seemingly been able to afford the inefficiencies to date, it is evident that we are moving into a much more competitive era in one of the most competitive regions in the world. We therefore need to iron out these inefficiencies, raise the level of enrolments and the quality of output.
2. Privately funded and privately provided tertiary education cannot be the answer. It may be a partial answer to the ethnic acrimony, but it cannot be the answer to the educational and skills needs of the country, and it raises significant issues of access, equity and affordability. This brief has not analysed this matter, but it may be sufficient to point out that, with a few exceptions, private tertiary education in this country has generally provided low-cost programmes, while the country's needs are increasingly in those areas that require high-cost programmes. For example, the training of a bio-medical or life scientist is a high-cost endeavour and will always require a significant degree of subsidy.
3. Thus, publicly funded and provided tertiary education will have to bear the brunt of responsibility for the education and training of our citizens, especially of the highly skilled. If for no other reason, this should be evident from the distribution of personnel by qualifications in the private tertiary institutions where, in 2000, only 4 per cent had Ph.D.s, and 26 per cent had a Master's degree.[8]

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international educational norms in the most egregious way. Pupils in their last years of secondary school have typically studied only three A-levels, often choosing bizarre combinations. They have not been required to study maths, or a science, or their nation's literature, or a foreign language. They have dropped difficult subjects such as physics (entrants down 55 per cent since 1984) and taken up softer options such as sociology, psychology and media studies. The long-term effect has been to degrade the quality of teachers as well as of students. Britain is desperately short of maths, science and foreign language teachers largely because dwindling numbers of students opted to study these demanding subjects in the 1980s and 1990s. The anarchic choices of one generation have become constraints on another."

[8] Molly Lee (2004), Restructuring Higher Education in Malaysia. In today's context, the Ph.D. is the basic 'licence' for university-level teaching and research, especially in science-related fields; it is the equivalent of the basic apprenticeship. It is thus hard to

4. Publicly funded and provided tertiary education has, however, been overly concerned with gate-keeping at the point of entry, especially with regards to ethnic balances, and been insufficiently concerned with gate-keeping at the point of exit, with regards to quality issues. Doing so has resulted in unnecessary self-inflicted wounds. This report has presented a number of recommendations that seeks to shift the balance of attention to output and outcomes and towards liberalisation of the point-of-entry.
5. At the same time, the report also seeks to address concerns over the performance of faculty and the ability of the public tertiary institutions to attract, keep and reward the desired quality of personnel. In this regard, the desired quality must clearly be measured against teaching and research considerations. To some degree, we are currently paying the price of an overly-politicised system of recruitment and reward, with too much weight upon administrative considerations. This has resulted in institutional structures and a hierarchy of command and control that are inimical to high performance tertiary institutions. Institutional structures, once in place, have a high inertia. The recommendations seek to provide a sufficient impetus to overcome this inertia.
6. Finally, while this report is in no position to conduct a full-fledged financial analysis, it would appear that, given the quantum of expenditure on public tertiary education, the above recommendations would entail few additional financial resources, but instead a re-allocation of existing resources, and a re-examination of current expenditures with an eye to eliminating waste. That huge percentage falling under the category of other recurrent expenditures is amongst the highest in the world!

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see how, given the distribution of personnel in the private tertiary institutions, they can be expected to produce the requisite personnel with the required level of expertise and knowledge, envisioned in the 8th Plan. In comparison, in the public institutions, 22 per cent had Ph.D.'s, and 72 per cent had Master's, in 2000 (Lee, *ibid*.). This is of course no guarantee of quality of teaching and research, but it does at least exhibit a minimum level of qualification.