

Autonomous Universities

Towards Peaks of Excellence

Preliminary Report of the
Steering Committee to Review
University Autonomy, Governance and Funding

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Executive Summary

1. In an increasingly competitive global university landscape, our three publicly-funded universities – the National University of Singapore (NUS), Nanyang Technological University (NTU) and Singapore Management University (SMU) – will require more autonomy so that they can better respond to the opportunities and challenges they face, and hold their own against universities overseas. Increased autonomy will also enable them to differentiate themselves and chart their own strategies towards achieving peaks of excellence.

2. In April 2004, Deputy Prime Minister, Dr Tony Tan and Minister for Education, Mr Tharman Shanmugaratnam led a study trip to learn about the governance models in three US universities. One key learning point was that for autonomy to succeed, we will need to nurture a culture of ownership by the stakeholders in our universities. This requires a mindset change which will take time and will be difficult to achieve if there is no overt change in the status of the universities.

3. A Steering Committee chaired by Permanent Secretary (Education), LG (NS) Lim Chuan Poh, and including the Presidents of the three universities, was set up to undertake a review of University Autonomy, Governance and Funding (UAGF).

TOWARDS AUTONOMOUS UNIVERSITIES

4. The UAGF Steering Committee believes that each university has the potential to excel and that excellence flows out of greater competition. Rather than artificially tiering the universities, we propose to grant greater autonomy to all three publicly-funded universities, especially NUS and NTU, to empower them to chart their own directions and build on their areas of strength to achieve their own peaks of excellence.

5. We recommend that NUS and NTU be corporatised as not-for-profit companies limited by guarantee. This is similar to the status of SMU. As corporate entities, NUS and NTU will no longer be constrained by the operational regulations imposed on statutory boards. They will have much more administrative and financial autonomy to explore different ways to build

up teaching and research excellence, raise their international standing and enhance their students' experience.

6. More importantly, corporatisation sends a strong signal that the university belongs to its stakeholders, not the Government. We need to inspire a mindset change and encourage university stakeholders to take greater ownership and play a more active role in charting the university's directions, instead of looking to the Government for guidance.

7. With MOE easing institutional control over the universities, both the Council and management will have to take on greater responsibility for the key decisions affecting the university. With greater financial autonomy over the use of public funds, the universities can decide on trade-offs between investing in manpower and infrastructure or teaching and research as they deem fit. To go beyond financial autonomy, universities should also seek to become financially more flexible and robust, through actively seeking alternative sources of funding to support their missions and goals. In the area of admission, we recommend that over time, NUS and NTU be granted even more autonomy to admit a higher proportion (than the 10% in 2004) of their intake based on their own independent admission criteria.

UNIVERSITY GOVERNANCE

8. Before our universities take such a major step towards corporatisation, we need to ensure that the necessary internal systems and processes are in place and most importantly, people of the right quality and commitment are prepared to take up the challenge to steer the universities in the years ahead. However, apart from the Minister for Education appointing the Council, there is no need for the three universities to have identical internal governance structures.

9. With an autonomous set-up, the university Council will have to view its roles differently. It has to operate more like a board of trustees that will take greater ownership of and play a stewardship role in the development and growth of the university. The committee structures within the Council might need to be strengthened in view of its enhanced role.

10. Existing strictures on the size and composition of the Council can be revised so that members are selected on the basis of their expertise and expected level of contribution. Learning from the US examples, our

universities should also endeavour to seek out capable alumni who have the passion and dedication to serve as Council members.

11. As MOE grants greater autonomy to the universities, the university leadership should also seek to empower the Deans, Department Heads and faculty members to engender a culture of ownership and initiative that will permeate all levels within the university. Faculty could be actively engaged in various levels of decision-making in areas such as curricular matters and academic quality. Students and alumni could also have a hand in shaping university policy. It is also critical for each university to cultivate a strong support network around itself by strengthening communications and building up a deep sense of community among all the stakeholders.

ENHANCING UNIVERSITY ACCOUNTABILITY

12. As we devolve greater autonomy to the universities, we need a clear accountability framework to provide assurance that Government funding for the universities is well-utilised and properly directed towards the achievement of national objectives. The proposed enhanced accountability framework comprises the following three components:

- a. A Policy Agreement signed between the university and MOE;
- b. A Performance Agreement signed between the university and MOE; and
- c. MOE's Quality Assurance Framework for Universities (QAFU).

13. The Policy Agreement enables MOE to provide strategic direction and guidance for the university sector as a whole, and demarcates the boundaries of the universities' autonomy. The first section articulates MOE's strategic vision and overall plans for the development of the university sector to serve as 'signposts' to guide the universities in formulating their own goals. The next section stipulates the key policy parameters set by MOE within which the universities must operate in order to receive Government funding. MOE and the university will work out a set of broad guidelines on the procedures to follow and penalties that will apply should any part of the Policy Agreement not be adhered to.

14. The Performance Agreement will be formulated by the university and agreed upon by MOE. It articulates what each university sets out to achieve in the areas of teaching, research, service and organisational development over a five-year period. Apart from the strategic goals and desired outcomes, the Performance Agreement will also spell out specific targets and key performance indicators for each of the university's strategic goals. In addition, MOE and each university will work out and agree on the number of graduates to be trained by the university in return for the financial resources that MOE will provide on an annual basis. The Performance Agreement should also spell out the performance management process in relation to the targets. This Agreement will be reviewed and updated during the five-year period.

15. Under the proposed enhanced accountability framework, QAFU will have an additional role to play in providing the ex-post accountability element to complement the Performance Agreement. The universities will have to submit annual progress reports, as well as undergo a five-yearly on-site external validation by an MOE-commissioned external review panel.

INVESTING IN OUR FUTURE

16. In order for our three publicly-funded universities to develop into world-class institutions, we need to adequately resource them, even as they seek alternative sources of funding. The Government will continue to be the principal source of funding for all three universities.

17. In the spirit of financial autonomy, universities can be allocated a one-line fungible block grant comprising streams of funds for their operating, research and development expenditure. This will enable the universities to derive greater value from the funding as they can internalise the trade-offs and opportunity costs of all their endeavours.

18. In line with the shift to output targets for undergraduate education, we propose that MOE fund the universities based on graduate output numbers, rather than enrolment. Within this framework, universities can decide on the number of students they wish to admit and on policies such as student transfers and the maximum duration of candidature, while continuing to be mindful of the need to maintain student quality. To incentivise cost-efficiency, we recommend that a common grant be allocated to the three universities for each graduate in a particular discipline. However, different disciplines will

be assigned cost weights and funded at different rates, in recognition of the cost differentiation between the different faculties.

19. For postgraduate coursework (PGC) programmes, students are already degree holders with the means to find employment and support the cost of their further education. Hence, we are of the view that more PGC courses should be run without Government subsidy, and universities be given autonomy to set tuition fees for these courses. Nevertheless, MOE and the relevant economic agencies like EDB may fund 'strategic' programmes that are aligned with our national priorities.

20. We propose a new development funding framework comprising two funding streams – one stream for strategic projects (i.e. those for capacity-building and meeting national objectives) which will continue to be funded by MOE under the Debt-Grant framework, and the other consisting of an annual sinking fund contribution from MOE for future renovation and redevelopment projects. The universities will have financial autonomy over the usage of their sinking fund, such as to exercise trade-offs between investing in infrastructure and manpower needs. However, the amounts used for non-asset replacement purposes should eventually be returned to the sinking fund to ensure that sufficient funds are set aside for future asset replacement.

21. To diversify their income streams, the universities should look to other sources such as full-fee paying foreign students, donations/gifts, endowment income and industry contributions. At the same time, the universities can explore debt instruments as an alternative source of financing, so as to make full use of the greater financial autonomy accorded by MOE to engage in longer term financial planning. To incentivise donors to come forward and give a boost to the budding philanthropic culture in Singapore, we propose that MOE continue to match endowment donations on a dollar for dollar basis. Universities should also nurture a sense of ownership and culture of contributing to the universities among their students. These efforts should be sustained even as the students become alumni and progress in their careers.

PROMOTING RESEARCH EXCELLENCE

22. Given the limited pool of research funds, MOE's research funding framework should be performance-driven to ensure value-for-money, and focus on research quality rather than quantity. In addition, MOE should

concentrate resources in niche areas to enable our universities to achieve peaks of research excellence.

23. To encourage more Singaporeans to pursue research careers, we propose that MOE continue to provide a capitation grant for each local student enrolled in postgraduate research (PGR) programmes. Universities can be given autonomy to set tuition fees for PGR programmes.

24. The Research Scholarships and Studentships which currently form part of Tier 1 of MOE's Academic Research Fund (AcRF), and the capitation grants for Singapore Permanent Residents and foreign PGR students can be channelled into a Research Scholarships Block (RSB) to fund research scholarships. The RSB will be allocated to the three universities in proportion to the PGR graduate output produced. The universities will have full autonomy to decide on the internal re-distribution of the RSB.

25. We recommend that an institutional review be conducted by an MOE-appointed Research Quality Review (RQR) Panel once every five years to assess the overall quality of the university's research, as well as to ensure accountability for the research funding provided by MOE.

26. We propose that MOE continue to allocate the remaining funds under the current Tier 1 of the AcRF as a block grant to the universities, but not on the present historical basis. To incentivise research excellence, the recommendations of the RQR Panel can be used to inform the allocation of Tier 1 funding between the universities for the next five years following the review.

27. The existing Tier 2 of the AcRF, which funds research projects on a competitive, peer-reviewed basis, can be retained. However, principal investigators who have previously been awarded a Tier 2 grant will be required to report on the research work funded by their previous grant, if they wish to submit a new grant proposal. The report will then be used to inform the grant award decision.

28. We further recommend that MOE sponsor the establishment of Centres of Excellence (or Centres in short) in our universities. Each Centre will receive funding of between \$2-3 million a year for six years. For a start, we propose to identify one to two Centres with a science and technology focus. NUS and NTU will be approached to submit at least one proposal each to set up a

Centre. An external review panel appointed by MOE will evaluate the proposals and make a recommendation on the ones to be awarded. It will independently assess the progress of the Centres before recommending whether funding should be continued.

29. Our universities need to have access to multiple sources of funds. However, external research sponsors usually only cover the direct costs of research but not the indirect research costs like research-related administrative costs and overheads. Hence, we recommend that the universities make every effort to recover as much of their research costs as possible from external research sponsors.

ENSURING ACCESS AND AFFORDABILITY

30. As the benefits of university education accrue primarily to the individual, it would be reasonable to ask undergraduates to bear a larger share of the cost of their education. As students benefit not just from the teaching provided, but also the facilities in which they learn, they should also contribute towards the infrastructure costs which are currently wholly borne by the Government.

31. Universities will be allowed to charge different tuition fees for different courses. Students should be prepared to pay a premium for enhancements to their learning experience, or for courses which are more costly to mount. Furthermore, as graduates from different courses have different earning potential, we should not expect students in less marketable disciplines to subsidise those who are able to command higher salaries.

32. Nevertheless, the Government will continue to ensure that university education remains affordable for Singapore citizens and Permanent Residents, even as the student's share of the cost of university education increases. For NUS and NTU, we propose that MOE set a cap on the tuition fee increase in any given year at 10% over the previous year's tuition fees, so as to keep the increases manageable. All three universities should also keep MOE informed of any proposed tuition fee increase at least six months in advance. They should also make known to students at the outset the schedule of projected tuition fees over the normal duration of each course, to help students and their families plan for the costs of the education.

33. We will continue to practise a needs-blind, merit-based policy for university admission. Once the students are admitted, universities should ensure that adequate student financing is provided so that they have the necessary resources to contribute towards their education. We recommend that our universities set up a Student Financing Office to assess students' needs in greater detail before customising an appropriate student financing package which can comprise a combination of loans, bursaries, scholarships and/or work-study.

34. We propose to increase the quantum that students can borrow under the existing tuition fee loan scheme from the current rate of up to 80% of the tuition fees to 90%. This will allow students to minimise any increase in cash-outlay during the course of their study as tuition fees increase.

35. To help needy students keep their debt burden at a more manageable level, we propose that MOE offer a bursary that will be awarded on a means-tested basis. The bursary will be funded by the Government and administered by the universities, as part of the commitment to the public that no deserving student will be denied a university education because of financial difficulty.

CONCLUSION

36. Even after the UAGF Steering Committee's recommendations are accepted by the Government, further discussion and planning by the universities will be required. The recommendations are likely to be implemented no earlier than 2006.

37. Notwithstanding their short histories, our universities have made significant progress and reached the stage of development where they are regarded among the best in the world. They can and should be given more flexibility to differentiate themselves and carve out their own niches of excellence. We believe that greater autonomy will create opportunities for the stakeholders to take on greater ownership of our universities. At the same time, greater autonomy will also engender a more entrepreneurial spirit in the universities and encourage them to seize the opportunity to achieve their own peaks of excellence. An excellent university sector will be fundamental to the success of Singapore as a talent hub and knowledge-based economy.

Chapter 1 Introduction

- 1.1 Our three publicly-funded universities are vital national institutions. They support Singapore's economic development through their dual missions of training graduate manpower and creating knowledge through research. Hence, it is crucial that our universities are able to adapt swiftly to the changing global landscape and respond nimbly to new challenges so as to remain relevant in the new knowledge economy.

BACKGROUND

- 1.2 In April 1999, a Steering Committee was established to review the governance and funding of the two public universities in Singapore, the National University of Singapore (NUS) and Nanyang Technological University (NTU). The objective of the University Governance and Funding (UGF) review was to ensure that the policies and structures for governance, funding and staff management were aligned with the universities' missions, goals and objectives.
- 1.3 The Committee recommended that the key to helping NUS and NTU achieve their vision of becoming world-class institutions was to give them greater operational autonomy along with greater accountability. Following the UGF Review in 2000, NUS and NTU were given considerable autonomy in their operations, particularly in the areas of internal governance, block budgeting, and staff remuneration and appraisal. Annex C provides a summary of the key recommendations of the UGF review.

THE NEW UNIVERSITY LANDSCAPE

- 1.4 In 2003, the Committee to Review of the University Sector and Graduate Manpower Planning¹ recommended that NUS be transformed into a multi-campus university, NTU develop into a comprehensive university with three new schools, and SMU continue

¹ The Committee's recommendations were accepted by the Government on 28 May 2003

with its planned expansion. These are part of the Government's plans to provide more opportunities for Singaporeans to study in a publicly-funded university. The Government is committed to making available more university places so that by 2010, 25% of each primary one cohort can enter a publicly-funded university, compared to 21% today.

- 1.5 Separately, EDB is encouraging foreign universities to establish branch campuses in Singapore as part of the plan to develop Singapore into a Global Schoolhouse². The University of New South Wales (UNSW) will be the first foreign university to do so and will begin operations here in AY2007. This will provide even more opportunities and choices for Singaporeans to receive a university education locally.
- 1.6 The university landscape will become more dynamic and competitive. With more players in the market, NUS, NTU and SMU will face increasing competition in their efforts to attract the best students and faculty. Our three publicly-funded universities should be given more autonomy so that they can better respond to market changes and hold their own against foreign universities here and overseas. Increased autonomy will also enable our universities to differentiate themselves and chart their own strategies towards achieving peaks of excellence.

UNIVERSITY AUTONOMY, GOVERNANCE AND FUNDING REVIEW

- 1.7 In April 2004, Mr Tharman Shanmugaratnam, then Acting Minister for Education, announced the setting up of a Steering Committee chaired by then 2nd Permanent Secretary (Education), LG (NS) Lim Chuan Poh, and including the Presidents of the three universities, to undertake a review of University Autonomy, Governance and Funding (UAGF). The composition of the Committee is as shown at Annex B.
- 1.8 This review builds upon the 2000 UGF Review, to see how we can transform our publicly-funded universities into autonomous universities. The terms of reference of the Steering Committee are as follows:
 - a. To recommend an appropriate model of autonomy for Singapore's publicly-funded universities that will enable them to

² The Global Schoolhouse initiative was officially launched by Minister for Trade and Industry BG (NS) George Yeo on 16 August 2003.

respond to the opportunities and challenges of a more competitive university landscape and to achieve global excellence;

- b. To review the governance structures and framework of accountability of the universities that should accompany and support university autonomy; and
- c. To recommend a framework of university funding that will sustain the universities and enable them to achieve teaching and research excellence, while ensuring access to a university education by all deserving students.

REVIEW SCOPE AND METHODOLOGY

- 1.9 To kick off the review, Deputy Prime Minister and Co-ordinating Minister for Security and Defence, Dr Tony Tan and Minister Tharman led a delegation to the US in April 2004 to learn about the different governance models in three US universities. The learning points from the trip are discussed in Chapter 2.
- 1.10 The Steering Committee held a total of seven meetings from May to October 2004. A Working Committee comprising representatives from MOE, MOF and the three universities was also set up to support the work of the Steering Committee. During the course of its deliberations, the Steering Committee consulted extensively with prominent overseas academics and university administrators whom the Steering Committee appointed as resource persons. Annex D provides a summary of the resource persons' comments.
- 1.11 Apart from the regular meetings of the UAGF Steering Committee, DPM Tan and Minister Tharman also met with the Councils/Board of Trustees and senior management of the three universities to discuss the issue of university autonomy. The first series of dialogue sessions took place in June 2004, followed by a second round in October 2004.
- 1.12 The preliminary report and recommendations of the Steering Committee will be discussed at the 5th International Academic Advisory Panel (IAAP) meeting held from 11-14 January 2005 in Singapore.

Chapter 2

Lessons from US Study Trip

INTRODUCTION

- 2.1 From 11-16 April 2004, DPM Tan and Minister Tharman led a delegation comprising officials from MOE, NUS, NTU and SMU to visit three US universities: a private university – the Massachusetts Institute of Technology (MIT), and two public universities – the University of Virginia (UVA) and the University of Michigan at Ann Arbor (UM).
- 2.2 The objectives of the study trip were two-fold:
- a. To gather insights into the practice of autonomy in US universities; and
 - b. To better understand how US universities are accountable to their stakeholders given their level of autonomy.

EXTERNAL GOVERNANCE

- 2.3 Private universities like MIT generally operate independently of the State and Federal governments. They have full autonomy to set their own tuition fees, intake numbers, admission standards and policies for human resources and finance. Their interaction with the government is limited to areas such as competitively-won research funding, Federal loan and scholarship programmes, and the implementation of certain policies like affirmative action for minority groups.
- 2.4 For public universities which receive State funding, there are different arrangements and varying degrees of freedom from State control. Some, like UVA, are agencies of the State, and have to adhere to State regulations on procurement and personnel. They are obliged to take in the number of in-state students allocated to them, and also have to seek the State's approval to increase tuition fees and undertake capital projects. At the other end of the spectrum are those that function very much like private universities. UM has an unusual degree of constitutional autonomy from the State – neither the Governor nor the State legislature can dictate its policies.

- 2.5 Of interest is the move by UVA to establish a new relationship with the State of Virginia by enacting legislation for UVA to be transformed into a 'Chartered University'. This means that UVA will be a public corporation, but not be subject to the operational constraints of a State agency. UVA will have the institutional autonomy to set tuition fees, and decide on personnel matters, procurement and capital project regulations. As a 'Chartered University', it will negotiate a contract with the State on its deliverables, including its commitment to provide financial assistance so that needy students will not be deprived of an education at UVA.

INTERNAL GOVERNANCE AND CULTURE

- 2.6 A common feature across the different models in the three US universities is the culture of ownership and commitment evident at all levels: the Board of Trustees, the university leadership and key administrative staff, and an active, involved faculty. There is a culture of mutual trust and collegiality among all these players.
- 2.7 The delegation was particularly impressed with the amount of time and energy devoted by the trustees of these universities. This characteristic is present regardless of the size of the Boards (e.g. MIT has a board known as the MIT Corporation with 79 members, UVA has a 16-member Board of Visitors while UM has an 8-member Board of Regents). The trustees see themselves as the stewards of the long-term future of the institution and its deployment of resources. They also help in fund-raising to build up the university's endowments.
- 2.8 Many of the trustees are alumni who feel a strong sense of identification with and gratitude to the institution. Motivated by their loyalty, they are willing to take on themselves the responsibility of raising the standing of their alma mater and giving towards its support.
- 2.9 In addition, the delegation learned about other key elements of good governance in these US universities. There are clear lines of responsibility and good channels of communication among the trustees, university leadership and faculty. The governance structure allows for an interplay of top-down and bottom-up initiatives – with clear priorities and directions set at the top balanced against a free play of ideas and initiatives on the ground. The universities are also

actively engaged in outreach to alumni, industry partners and society at large to garner support for their goals.

- 2.10 In the same way, our three publicly-funded universities should work towards building up a strong alumni network who feel a sense of ownership, and who are willing and able to serve actively on the Councils. The universities will also require stronger internal capacities, for instance in financial planning, capital management, and administration of their own systems of student admissions, financial assistance and tuition fees. This should be coupled with a clear framework to ensure that our universities remain accountable to the Government and the public good.
- 2.11 Ultimately, the pace at which the Government devolves more autonomy to our publicly-funded universities will have to match the pace at which these universities are able to find the right people who can take on the role of guiding the development of the institution and safeguarding its interests.

FINANCIAL AUTONOMY

- 2.12 All the US universities the delegation visited, including the two public universities, rely on funding from tuition fees and private sources such as endowment and gifts for the bulk of their resources. This has, *inter alia*, granted the public universities significant freedom from reliance on State funding which constitutes less than half of their operating budget. The financial autonomy enjoyed has allowed them to hire top faculty to provide quality university education and perform cutting-edge research. In addition, US universities are able to issue bonds to finance their major capital projects.
- 2.13 A useful lesson from the visit is in the area of financial aid. Each student who is offered a place in the university is evaluated individually to determine his level of financial need and a comprehensive financial aid package (comprising scholarships, grants, loans and work-study) put together for him where necessary. The universities have well-staffed financial aid offices to advise the students on their eligibility for financial aid. At MIT, there is a clear philosophy that every family and student should contribute something towards the cost of the education. Besides grants and loans, all students receiving financial

aid are also offered opportunities for work-study to pay for part of their cost of university education. Indeed, most of the needy students do so.

- 2.14 The delegation noted that the US universities have a needs-blind admission policy. Students from lower income backgrounds need not be excluded if the institution is committed to providing high financial aid to meet the full need of students so that anyone who is admitted into the institution is able to afford the education. The universities can re-channel the tuition revenue earned from those who can afford to pay high tuition to help the needy students via financial aid.
- 2.15 Similarly, with greater autonomy, our universities must ensure that admission continues to be needs-blind. We can explore different avenues to provide financial aid so that no Singaporean is deprived of an opportunity for an education in our publicly-funded universities because of financial difficulties.

CONCLUSION

- 2.16 There is no doubt that our publicly-funded universities can learn from the way the US universities operate and their trustees, management and faculty interact. While the trip has provided useful insights into the different governance models and shown how greater autonomy can help the universities achieve excellence, we will have to modify and adapt the US models to suit our local circumstances, especially as we are a small country.

Chapter 3

Towards Autonomous Universities

CURRENT SITUATION

- 3.1 Our three universities have achieved much in a relatively short period of time. They are among the best universities in the region and have done well in providing quality education for undergraduates, producing the required graduate manpower to meet the needs of our economy, carrying out rigorous research and creating knowledge. We are very proud of our universities' achievements, yet we have to ensure that they continue to improve and enhance their quality, especially in a fast-changing and increasingly competitive university landscape.
- 3.2 NUS and NTU are currently statutory boards³ under the purview of the Ministry of Education, and subject to Civil Service rules and guidelines such as finance and human resource practices. SMU, on the other hand, is not subject to such rules and guidelines as it is a private company limited by guarantee⁴. It enjoys more autonomy and flexibility to strategise, innovate and compete with other universities. SMU, in receiving Government funding for its operating and development expenditure, is subject to MOE's conditions of funding and deliverables as spelt out in the Private Institutions Management Framework (PRIMF)⁵.
- 3.3 The autonomy enjoyed by SMU has worked well over its relatively short history of four years and created a different model for university education. SMU's successful experience demonstrates that NUS and NTU may similarly benefit from greater autonomy to differentiate themselves in an increasingly competitive university landscape.

³ NUS and NTU are established under the NUS and NTU Acts respectively.

⁴ While SMU is incorporated under the Companies Act, it is also governed by a separate SMU Act.

⁵ Please see para 5.5.

TOWARDS AUTONOMOUS UNIVERSITIES

- 3.4 In the new global university landscape, our universities have to build up their own institutional character and distinguish themselves so as to compete effectively with other universities. While the guidance of the Government has successfully laid a firm foundation for the university sector and facilitated the growth of the universities, the time is now right for the Government to allow the universities to chart their own way forward to better respond to the rapidly changing and competitive environment.
- 3.5 We recognise that it is not possible to achieve true excellence without the test of competition. A centralised and top-down directed approach is very effective in bringing about a clearly defined desired outcome. The same approach is, however, cumbersome when there is a need to respond to a dynamic environment. While continuing with this same approach appears to be less risky, it may inadvertently hold back our universities at a critical juncture. They run a longer term risk of being superseded by other universities in the region and missing a window to attain a position of enduring eminence in the region and globally.
- 3.6 We believe that each university has the potential to excel. Rather than artificially tiering the universities, we propose to grant greater autonomy to all three publicly-funded universities, especially NUS and NTU, to empower them to chart their own directions and build on their areas of strength to achieve their own peaks of excellence. With the increased freedom, they may also be more motivated to take ownership and lead the charge, and not wait to take the cue from the Government.
- 3.7 Moving forward, we envisage that our three universities can become **autonomous** publicly-funded universities which:
- a. foster **a greater sense of ownership** and inspire **a sense of belonging** among their stakeholders, namely, the university Council, senior management, faculty, staff, students and alumni so that they can each feel a personal stake in the success of the university and play a more proactive role in helping the universities achieve their missions;

- b. are able to **differentiate themselves** from their competitors and **achieve peaks of excellence** in specific niche areas at world-class level; and
 - c. are **nimble-footed and entrepreneurial** to respond to market changes and hold their own against overseas universities in a globally competitive university landscape.
- 3.8 We recognise that the devolution of autonomy to our universities is a complex process which has to be carefully managed. While MOE and the universities can put in place the systems and processes, the key factor for autonomy to succeed is to have the right people in place to lead the universities. Good leadership is critical to provide the vision and set the direction for the universities to achieve their own peaks of excellence and differentiate themselves from other universities. Most importantly, good leadership can mobilise the stakeholders to step forward to rally behind the universities in this endeavour.

ENGENDERING A MINDSET CHANGE

- 3.9 We recommend that NUS and NTU be corporatised under the Companies Act as not-for-profit companies limited by guarantee. This is similar to the structure of SMU. The greater autonomy enjoyed as corporate entities will give NUS and NTU more room to explore different ways to build up teaching and research excellence, raise their international standing and enhance their students' experience.
- 3.10 The operational regulations imposed by the central ministries such as MOF to maintain parity with other statutory boards can be lifted if NUS and NTU are corporate entities. NUS and NTU can then have more flexibility to adopt the best practices of top global universities in areas like procurement and recruitment of faculty. The two universities will also enjoy greater freedom in their financial management and capital budgeting, which in turn will allow them more room to make strategic investment decisions.
- 3.11 What is more important than the operational flexibility that corporatisation confers is the mindset change it can engender. Corporatisation sends a strong signal that the university belongs to its stakeholders, not the Government, and that it can operate more

independently. The intention is to inspire a culture change and encourage university stakeholders to take greater ownership of and exercise more responsibility over the use of their own resources. They will then play a more active role in charting the university's directions, instead of looking to the Government for guidance.

- 3.12 It could be argued that corporatisation is not a necessary step for greater ownership. There are public universities in the US like the University of Michigan and University of Virginia whose stakeholders have a strong sense of belonging and attachment to their institutions, but this could be attributed to their longer history and particular circumstances. The mindset change is more difficult to achieve for NUS and NTU if there is no overt change in the status of the universities.
- 3.13 Both NUS and NTU welcome corporatisation and see it as a necessary step to accelerate the mindset change among the faculty, staff, students and alumni. As corporate entities, the universities will have a greater impetus to be self-reliant and catalyse a profound change in culture.
- 3.14 Nevertheless, the universities have to be mindful of their missions as public institutions and their responsibility to the public good, even as they are given greater freedom to pursue their own goals and establish their reputations.

PROPOSED SCOPE OF AUTONOMY

- 3.15 Arising from corporatisation, there will be a new relationship between MOE and the universities as we move towards gradually easing institutional control. Based on our experience with SMU and the learning points from our study of several overseas universities, we are of the view that greater autonomy can be devolved to our universities in the following areas:
- a. **University Governance** – Both the university Council and leadership must take on greater responsibility for and ownership of the key decisions affecting the university. They must set clear strategic directions and priorities, as well as allocate limited resources optimally. Good governance also involves a culture

of mutual trust and collegiality among Council members, management and faculty.

- d. **Funding and Financial Autonomy** – The Government will remain the principal source of funding for our three universities. In addition, the universities should actively seek alternative sources of funding such as gifts/donations and industry funding to support their missions and goals. With greater financial autonomy, the universities can decide on trade-offs between investing in manpower and infrastructure or teaching and research as they deem fit. They can also determine their own tuition fees, including the option of differentiating tuition fees for different courses. With more funding sources, the universities must ensure the most effective use of their resources.
- e. **Student Admission** – In Feb 2004, the University Admission Committee recommended that, for a start, NUS and NTU be given the flexibility to determine the profile of up to 10% of its intake using independent criteria. There is scope to allow more autonomy in student admission over time such that the universities can decide to admit a larger proportion of their intake based on independent admission criteria.
- f. **Intake Planning** – The National Manpower Council (NMC) has, with effect from 2004, set output targets in clusters of disciplines for the universities. This is to ensure that the graduate manpower produced is aligned with national objectives and meets the needs of the economy. However, universities can be given flexibility to take in foreign students over and above the output targets on a full-cost basis.
- g. **Human Resources** – NUS and NTU can be granted full autonomy over the appointment and promotion of all faculty, including full professors. They can also have full autonomy to determine the remuneration packages, including welfare benefits and performance bonuses, for all faculty and staff. This will enable them to tailor competitive remuneration packages to better attract and retain top faculty, especially in an international marketplace.

THE NEED FOR GREATER ACCOUNTABILITY

3.16 As publicly-funded institutions, the universities will be accountable to the Government for the responsible utilisation of public funds in pursuit of national objectives. In 2003, MOE set up the Quality Assurance Framework for Universities (QAFU), which involves each of the three universities conducting its own assessment which is then externally validated by a review panel commissioned by MOE. Moving forward, as greater autonomy is granted to our universities, we need to enhance the accountability framework so that the universities can meet national objectives while having the flexibility to achieve peaks of excellence. To this end, we propose that the enhanced framework include Policy and Performance Agreements signed between MOE and each university through which the latter agrees to abide by broad policy parameters and conditions of funding, and deliver the outcomes and deliverables negotiated. The proposed framework is described in Chapter 5.

CONCLUSION

3.17 Before the universities take such a major step towards corporatisation, we are mindful of the need to ensure that the necessary internal systems are in place and most importantly, the right people, especially those on the Council, are prepared to take up the challenge to steer the universities in the years ahead. This will be discussed in the next chapter.

Chapter 4

University Governance

INTRODUCTION

- 4.1 Our universities are key public institutions that serve the people of Singapore. We believe that they can and should continue to perform this role as they become more autonomous, and are eventually corporatised. At the same time, it is crucial for MOE and the Government to continue providing the necessary help and resources to the universities.
- 4.2 As MOE devolves greater autonomy to our universities, it will need to ensure that the universities are ready to take on greater ownership of the decisions they make, and to be accountable to their stakeholders and the public. Systems, processes, and most importantly, people of the right quality and commitment must be in place within the university to take on these responsibilities.
- 4.3 We are of the view that the university governance structures comprising the Council, university leadership and Deans should be empowered to achieve their strategic missions and goals. In addition, the university leadership must strive to run their institutions which are primarily funded by tax-payers' money, in an efficient and cost-effective manner.

AN ENHANCED ROLE FOR THE UNIVERSITY COUNCIL

- 4.4 With an autonomous set-up, the university Council will have to view its roles differently. It is likely to operate more like a board of trustees that will take greater ownership of and play a stewardship role in the development and growth of the university.
- 4.5 Given these responsibilities, we recommend that the Minister for Education continue to appoint the Council members of NUS and NTU, and the Board of Trustees of SMU. Beyond this, MOE should allow each university to determine the most appropriate internal governance structures to achieve its mission and goals.

- 4.6 We recommend that the Council of an autonomous university play the following main roles:
- a. Provide leadership and guidance on the strategic directions for the university to ensure that it furthers the objectives for which it was instituted;
 - b. Appoint and appraise the President; and
 - c. Ensure the responsible use of the university's resources and enhance their value.
- 4.7 To bring about an even more effective Council, we propose revising the existing strictures on the size⁶ and composition of the Council which was set up to ensure representational membership. Instead, the Council members should be selected on the basis of their expertise and expected level of commitment and contribution to the Council.
- 4.8 From our observation of the US universities' experience, the majority of the universities' trustees are alumni who feel a strong attachment to their alma mater and feel a personal responsibility to ensure the continued success and growth of the institution. Our universities should also endeavour to seek out alumni who have achieved success in various fields and who have the passion and dedication to serve as Council members of the university.
- 4.9 We also recommend that the term of office and process for re-appointment of the Council be reviewed. Council members should serve for a sufficiently long period such that they have time to understand the issues facing the university and be able to contribute effectively. On the other hand, there has to be planned self-renewal of the Council. We suggest that each university surfaces, via its Nominations Committee, candidates for MOE's consideration. The timing for new appointments and re-appointments should be on a staggered basis so that there is a combination of old and new

⁶ The current maximum size of the Councils/Board ranges from 16 to 19 members as stipulated in the NUS and NTU Constitutions and SMU's Articles of Association.

members to provide a balance of institutional memory and fresh perspectives.

- 4.10 In addition, the current committee structures within the Council might need to be strengthened in view of its enhanced role. With more matters within its purview, the Council may wish to re-examine the number and composition of the committees required to effectively carry out its work.
- 4.11 The universities could also consider creating different categories of Council members to provide proper recognition for their contributions to the university, or to accommodate those who are willing to contribute in specific ways (e.g. fundraising) but are not able to commit to being full Council members. For example, the title "Emeritus Member" could be conferred on those who have served a minimum number of terms, and the title "Associate Member" on those who serve in a specific area.

INTERNAL GOVERNANCE

- 4.12 We agree that there is no need for the three universities to have identical internal governance structures. Diversity should be encouraged especially when the universities are inherently different. Each university should review how its internal governance structure will operate to suit its particular needs and character.
- 4.13 We are of the view that the granting of greater autonomy does not only concern the relationship between MOE and the Council or university leadership. The university leadership should also empower the Deans, Department Heads and faculty members to engender a culture of ownership and initiative that will permeate all levels within the university.
- 4.14 To build strong institutions, there should be a balance between top-down directives and bottom-up initiatives. We believe that faculty and staff will not have a stake in the success of their institution if they do not feel empowered to influence the decisions and directions. To promote a spirit of collegiality and mutual respect, there could be more avenues and forums for faculty views to be represented. Faculty

should be actively engaged in various levels of decision-making in areas such as curricular matters and academic quality. Students and alumni should also be involved in shaping the culture and character of the university.

- 4.15 More importantly, for excellence to be achieved, the university community will need to accept that funding and other resources cannot be distributed in an egalitarian fashion across the entire faculty as there will be an inevitable dilution effect. To maximize the impact of limited resources, they have to be channelled to those who can contribute more to the success of the institution. This calls for more rigorous and transparent procedures for performance appraisal and the allocation of resources. Should disputes arise, there should also be avenues for appeal and redress.
- 4.16 Finally, in the new landscape of autonomous universities, it is critical for each university to cultivate a strong support network around itself. In this respect, the Council can help the university to cultivate external constituencies and seek out alternative sources of funding. In addition, the university will also need to strengthen communication lines and build up a deep sense of community so that all the stakeholders – faculty and staff, students and alumni, donors and well-wishers – identify with the university and are fully committed to its development.

Chapter 5

Enhancing University Accountability

5.1 NUS, NTU and SMU are all heavily funded by the Government. Correspondingly, there is a need for a clear accountability framework to provide assurance that Government funding for the universities is well-utilised and properly directed towards the achievement of national objectives. As we devolve greater autonomy to our universities, we recognise the need for even more accountability for the use of public monies.

CURRENT ACCOUNTABILITY FRAMEWORK

5.2 Currently, our universities have their own internal quality assurance structures, processes and systems. NUS and NTU have established the University Committee on Educational Policy and the University Academic Audit Committee respectively to look into the various aspects of academic activities, including academic evaluation and effective coordination across disciplines. SMU has an Academic Affairs Committee to oversee the development and implementation of its degree programmes and curricula, as well as monitor the quality of academic activities and maintenance of standards in teaching.

5.3 In line with best practices in overseas universities, our publicly-funded universities invite visiting committees and international advisory panels to review their curricula, teaching approaches and assessment processes on a regular basis. These committees and panels, comprising industry leaders, senior government officials and eminent academic staff, act as a good sounding board for and provide strategic advice to the universities.

5.4 Following the Government's acceptance of the recommendations of the University Governance and Funding Review in 2000, MOE put in place a Quality Assurance Framework for Universities (QAFU) in 2003. QAFU is a developmental tool for institutional self-learning and quality enhancement in our universities. It involves a self-assessment against

32 institutional goals⁷ and self-selected performance indicators across the five areas of focus – governance, management, teaching, research and service. Once every three years, there is an on-site external validation by an MOE-commissioned external review panel which will submit an evaluation report to MOE that confirms good practices and identifies areas where quality improvement is needed in the university.

- 5.5 Apart from QAFU, SMU as a publicly-funded private university has to comply with the Private Institutions Management Framework (PRIMF), an agreement signed between MOE and SMU that stipulates the policy guidelines by which SMU must abide in order to receive public funding. Under PRIMF, three main forms of accountability are required by MOE of SMU – audits and external review; provision of information required by MOE; and submission of regular reports to MOE.

OVERSEAS ACCOUNTABILITY FRAMEWORKS AND PRACTICES

Quality Assurance

- 5.6 Generally speaking, countries where the university sector is primarily state-funded have in place similar systems of quality assurance that provide the Government and the public with information on the quality of their universities. The UK has a Quality Assurance Agency for Higher Education which assesses quality in higher education to ensure that public funding provided is supporting quality education at the universities. Its institutional reviews, conducted in six-yearly cycles, assess the adequacy and effectiveness of the universities' internal quality assurance systems, on behalf of the higher education funding councils in the UK. Similar quality assurance systems can be found in Hong Kong, viz. the University Grants Committee, and in Australia, viz. the Australian Universities Quality Agency, which carry out regular reviews of teaching, research and management in their respective universities. In Denmark, there is a Centre of Quality Assurance and Evaluation which conducts programme-based evaluation with a view to enhancing the quality of teaching and learning in the universities.

⁷ These 32 institutional goals serve as a guide to the university to cover the 5 areas of focus. The university can choose to define its goals (including the number of goals) and set its own performance indicators to fulfil these goals.

Performance Contracts

- 5.7 Some countries like Denmark, Finland and Switzerland have an arrangement where the universities sign a performance contract with the government to deliver certain outcomes in return for public funding and operational autonomy.
- 5.8 Following the 1999 report *University Performance Contracts for Denmark's Universities – Greater Autonomy, Stronger Universities*, the Danish Government set the goal of entering into performance contracts with the universities. These contracts are “a management reform offering greater latitude and a more flexible scope for action to the universities in relation to the challenges they are facing”. Each university sets its own goals and action plans in the performance contract. By March 2000, all ten universities had each signed a performance contract with the Ministry of Education and Ministry of Research & Information Technology.
- 5.9 In Finland, the higher education system has progressed towards management by results from the late 1980s onwards. Since 1998, the Ministry of Education has negotiated three-year performance agreements with each Finnish university on a set of general and specific objectives, and the resources needed for their implementation. The general objectives relate to the quality and impact of education and research, the number of degrees to be awarded and where needed, policy guidelines in areas such as admission and the structural development of the university. As for specific objectives, the performance agreement also details outcomes for each university such as the target number of degrees in each field of study.
- 5.10 In Switzerland, the Swiss Federal Council assigns a performance mandate to the ETH Board, which in turn manages the two Federal Institutes of Technology and four research institutes on the basis of this mandate. The mandate is essentially a four-year agreement, listing the measurable goals which the ETH Board is committed to achieving. At the same time, it is also used as the basis for determining the budget for the ETH Board. Annual Activity Reports are prepared to account for the use of financial resources allocated by the Federal Government. A

Final report is prepared at the end of the four-year period to report on the fulfilment of the Performance Mandate.

A COMPREHENSIVE ACCOUNTABILITY FRAMEWORK FOR UNIVERSITIES

- 5.11 With the proposed move towards an autonomous university landscape, we must ensure that there is sufficient assurance that our three publicly-funded universities are indeed achieving what is expected of them. Currently, the universities are not held directly accountable for the achievement of specific pre-determined outputs and outcomes. We are of the view that a mechanism to do so will be critical as we transit into the proposed corporatised model for NUS and NTU, which will result in, *inter alia*, the lifting of direct regulatory controls, and the allocation of a one-line block budget to the universities.
- 5.12 Hence, we propose an enhanced accountability framework for the autonomous universities comprising the following three components:
- a. A Policy Agreement signed between the university and MOE;
 - b. A Performance Agreement signed between the university and MOE; and
 - c. MOE's Quality Assurance Framework for Universities.
- 5.13 The proposed accountability framework hinges on the Policy Agreement, which stipulates, on an ex-ante basis, the key policy parameters set by MOE which the universities must agree to abide by in order to receive Government funding.
- 5.14 Each university will be required to articulate its own strategic goals and desired outcomes over a five-year period under the Performance Agreement, which is an ex-ante declaration of what each university sets out to achieve in the areas of teaching, research, service and organisational development.
- 5.15 To complement the Performance Agreement, QAFU imposes ex-post accountability on the universities through annual progress reports, as well as a five-yearly on-site external validation by an MOE-commissioned external review panel.

Policy Agreement

- 5.16 We recommend that as the principal funding agency, MOE should continue to retain some oversight of the universities even while it allows them to operate as autonomous universities. This is because MOE has a strategic role in setting the overall direction for the university sector as a whole, and ensuring that our universities meet strategic national priorities.
- 5.17 Our universities must fulfil three main strategic objectives which form the backdrop of the proposed Policy Agreement:
- a. To enrich our stock of human capital by providing quality education to our undergraduates to support our economic growth, and by attracting and rooting foreign talent to our shores;
 - b. To excel in research and be an engine of new knowledge and ideas with a view to enhancing our national research capabilities and creating wealth for Singapore; and
 - c. To achieve international branding and excellence in both teaching and research, with professional and motivated faculty and staff.
- 5.18 We propose that as a pre-requisite for the devolution of autonomy to our three publicly-funded universities, each university⁸ should sign a Policy Agreement with MOE. In some sense, the PRIMF agreement signed between MOE and SMU is a precursor to the proposed Policy Agreement. Essentially, the Policy Agreement enables MOE to provide strategic direction and guidance the university sector as a whole, and demarcates the boundaries of the universities' autonomy. MOE and the universities will work out a set of broad guidelines on the procedures to follow and penalties that will apply should any part of the Policy Agreement not be adhered to.

⁸ The proposed signatories from the university are the Council Chairman and the university President.

- 5.19 The Policy Agreement will consist of two distinct parts. In the first section, MOE will articulate its strategic vision and overall plans for the development of the university sector (e.g. the strategic objectives and structure of the university sector, and the target university cohort participation rate) to serve as 'signposts' to guide the universities in formulating their individual strategic goals and objectives.
- 5.20 The second section of the Policy Agreement sets out the key policy parameters set by MOE within which the university must operate, in order to be eligible to receive Government funding. The main components of this section are as follows:
- a. Accountability systems and processes including the Performance Agreement, QAFU and financial controls such as financial audits;
 - b. Training of graduate manpower, including output target setting and achievement of graduate output targets;
 - c. University admission system (including the overall admission policy in the universities);
 - d. Funding policy (in terms of recurrent and development funding, research funding, endowment matching, budget utilisation guidelines); and
 - e. Fee setting and student financing framework (including the fee-setting processes and the means to ensure affordability and access).
- 5.21 We suggest that adjustments to the Policy Agreement can be made to take into account changing external circumstances (e.g. economic conditions) and significant changes in the university's situation. To this end, there should be an avenue for the university to propose changes to its Policy Agreement, subject to MOE's concurrence, should the need arise. Essentially, the Policy Agreement should be formulated in the spirit of granting greater autonomy and should not hamper the university's operations.

Performance Agreement

- 5.22 In a more competitive university landscape, where each autonomous university will strive to differentiate itself with different goals and foci, it is no longer tenable for MOE to adopt a 'one-size-fits-all' approach, treating all of them alike. We believe that each university is in a better position than MOE to set its own goals, priorities and outcomes, as well as to organise itself in the most effective and efficient manner to achieve them, taking into account its own unique characteristics.
- 5.23 Hence, we recommend that a five-yearly Performance Agreement be signed between MOE and each university⁹. The Performance Agreement will be formulated by the university, articulating, *inter alia*, its strategic goals and desired outcomes, and agreed upon by MOE.
- 5.24 The Performance Agreement is a declaration of the university's intent, and is not a legal document per se. Apart from the strategic goals and desired outcomes, the Performance Agreement will also spell out specific targets and key performance indicators (KPIs) for each of the university's strategic goals. These KPIs are intended to be a comprehensive and balanced reflection of the university's areas of focus. The timeframe to achieve these targets and KPIs can range from one to five years. In addition, the university will need to outline key strategies and provide detailed action plans on how it intends to achieve each of the strategic goals and desired outcomes listed.
- 5.25 For a start, the Performance Agreement can cover the following four broad categories:
- a. Academic teaching and curriculum (e.g. quality and diversity of course offerings, quality of teaching faculty, student completions and attrition);
 - b. Research outcomes and training (e.g. quality and impact of scientific research, inventions and scientific breakthroughs, supervision and training of research students);

⁹ The proposed signatories from the university are the Council Chairman and the university President.

- c. Contribution and service to the wider community (e.g. sharing of professional expertise and resources, dissemination of new knowledge, training and consultancy); and
 - d. Organisational Matters (e.g. devolution of autonomy to faculty, succession plans, setting up of Student Financing Office, Alumni Development Office).
- 5.26 The categories outlined above are aligned with the broad areas of focus under QAFU. The intention is for the strategic goals and KPIs under the Performance Agreement to dovetail with some of the existing requirements under QAFU (see para 5.4 above).
- 5.27 In addition, MOE and each university will work out and agree on the specific number of graduates for the various disciplines to be trained by the university in return for the financial resources that MOE will provide to the university on an annual basis. The output targets will be based on the manpower requirements for the economy as projected and endorsed by the National Manpower Council.
- 5.28 The process of negotiation can start in July during which each university will submit to MOE its budget proposal for the following year. MOE will discuss with each university its output targets by February of the following year and finalise the agreed output targets and level of funding by April.
- 5.29 Although MOE's funding to the universities for postgraduate coursework programmes, development and research will be separately determined (please see Chapter 6 and 7 for details), the final sum to be allocated to each university will also be reflected in the Performance Agreement. Correspondingly, the agreed targets and outcomes (as measured by the appropriate KPIs) to be achieved by the university in return for MOE's funding in each of the three areas above, will also be spelt out.
- 5.30 The Performance Agreement will also spell out the performance management process in relation to the targets. For example, if a university fails to deliver the targeted number of graduates, there will be a formula for calculating the amount that the universities should refund MOE.

- 5.31 Overall, the Performance Agreement respects the greater operational autonomy enjoyed by the universities as it allows individual universities to set their own strategic direction and goals. At the same time, the Performance Agreement serves as a crucial ex-ante accountability tool as it ensures that the universities' strategic goals and objectives are congruent with MOE's overall strategic vision for the university sector.

Quality Assurance Framework for Universities (QAFU)

- 5.32 Currently, QAFU focuses on enhancing quality in the universities' processes and outcomes, and encouraging institutional best practices. As a self-development tool, QAFU is consistent with the spirit of greater autonomy to be granted to the universities.
- 5.33 We note that the first external validation under QAFU was conducted in August/September 2004 for NUS. This will be followed by the external validation of NTU and SMU in 2005 and 2006 respectively. For the external validation, an MOE-commissioned panel visited NUS and met the Council, management, faculty, students and other stakeholders over a five-day period to validate NUS' self-assessment report. The panel has recommended to MOE and NUS the areas of improvement needed in the broad areas of governance, management, teaching, research and service on the institutional level. We also note that MOE has set aside a quality fund to incentivise and finance quality improvements by the university (on a co-sharing basis between MOE and the university) following the external validation.
- 5.34 Under the proposed enhanced accountability framework, QAFU will have an additional role to play in providing the ex-post accountability element to complement the Performance Agreement.
- 5.35 Under QAFU, the universities are already required to carry out an institutional self-assessment and submit a report to MOE. MOE has commissioned an external review panel to conduct an external validation once every three years to validate the self-assessment. In future, the universities will submit annual updates which will allow MOE to monitor the universities' progress towards achieving the set of agreed strategic goals and desired outcomes under the Performance Agreement. At the same time, the on-site external validation by the

MOE-commissioned external review panel can be scheduled to coincide with the expiry of the Performance Agreement. In this way, the external review panel will be able to not only examine the internal systems and processes of the universities, but also validate the successes achieved by the university in attaining the goals and targets set out in the Performance Agreement.

CONCLUSION

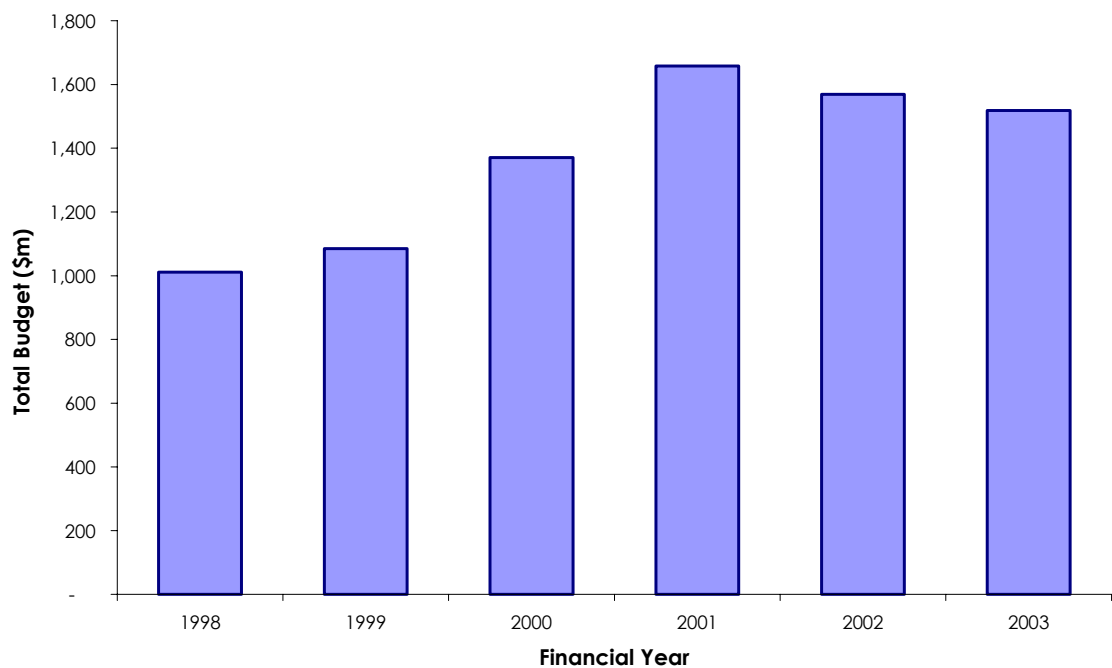
5.36 We believe that the proposed comprehensive accountability framework ensures the universities' accountability to MOE and the public, without adversely impacting their autonomy to organise themselves in their pursuit of teaching and research excellence. The framework has been intentionally designed to be sufficiently flexible to allow for continual dialogue between MOE and the universities, so that our universities can react to new challenges in their operating environment.

Chapter 6

Investing in our Future

6.1 Over the years, the Government's total spending (operating and development expenditure) on universities has been growing. Between 1998 and 2003, the budget grew 37%, from \$1.11 billion to \$1.52 billion. The increase was due in large part to a growing student enrolment.

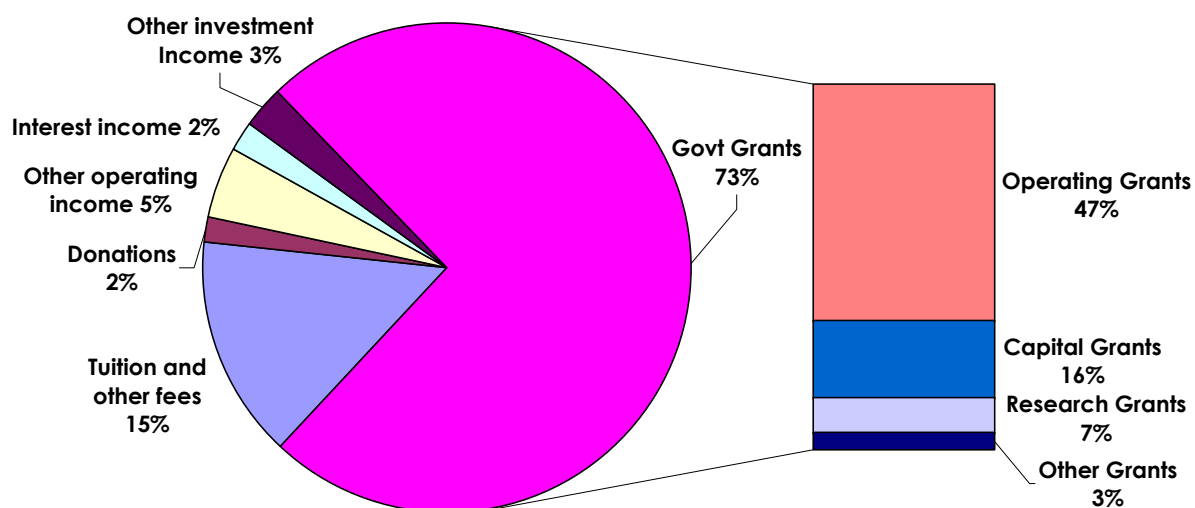
Chart 1: Total University Budget from FY1998 to FY2003



CURRENT FUNDING FRAMEWORK

6.2 Funding from MOE currently accounts for the largest proportion (about 75%) of the universities' total revenue. The three broad categories of MOE funding for the universities are recurrent, development and research funding. The other sources of revenue include tuition fee revenue, income from auxiliary enterprises, private gifts and donations and endowment fund income.

Chart 2: Universities Sources of Revenue in FY2003



6.3 This chapter focuses on recurrent and development funding for universities. Research funding will be discussed in Chapter 7.

Recurrent Funding

6.4 Recurrent funding is provided to the universities to meet the operating cost of providing university education (both undergraduate and postgraduate), which comprises expenditure on manpower and other operating expenditure.

6.5 The three universities are currently funded on a per student basis. They have different capitation rates which reflect their different historical cost structures and comprise both teaching and research components. MOE provides an annual recurrent block budget to the universities based on their actual enrolment each year and their respective capitation rates.

6.6 Following the recommendation of the 2000 UGF Review, MOE and the universities agreed on a three-year budget planning cycle where MOE will guarantee 85% of the universities' annual projected budgets in order to provide some certainty for the universities' financial planning

over a longer timeframe. In addition, since 2000, the universities have been allowed to retain operating surpluses, so as to incentivise them to be more entrepreneurial and efficient in their use of financial resources.

Development Funding

- 6.7 MOE currently provides 100% of the development funding for our three publicly-funded universities. The universities submit development project proposals to MOE and funding is approved on a project basis following an evaluation of the worthiness and cost reasonableness of each project. In the case of development funding however, the universities are not allowed to retain surpluses and they have to return any savings to MOE upon the completion of each project.
- 6.8 For Information Technology (IT) and Furniture and Equipment (F&E) projects, MOE provides a block budget which is computed based on a per capita basis, as recommended by the 2000 UGF Review. The intention is to allow the universities more flexibility in spending the funds allocated for each cycle, although they will have to work within the budget for the three or five-year cycles for IT and F&E respectively. Although the universities still need to submit individual project proposals, MOE will only evaluate each proposal based on its broad project objectives, instead of scrutinising the cost of every line item.
- 6.9 MOF introduced the Debt-Grant framework for universities in September 2004. Under the new framework, universities will finance their development projects through loans and Government grants, which will lessen the strain on the Government's immediate fiscal position as well as help smoothen the project cashflow requirements. At the same time, the new framework enables the universities to internalise the cost of capital and take on more responsibility for their capital budgeting and planning needs.

IMPETUS FOR REVIEW

- 6.10 In order for our three publicly-funded universities to develop into world-class institutions providing top-quality education and engaging in cutting-edge research, we need to adequately resource them. With adequate funding, our universities will be able to achieve peaks of

excellence to enable them to compete in the global arena for the best talents, and to invest in the latest technology for both teaching and research.

- 6.11 Nevertheless, we are of the view that the assurance of financial support alone will not be enough to transform our universities into world-class institutions. Operating within a competitive and rapidly changing landscape, our universities should be accorded sufficient financial autonomy so that they can respond flexibly and in a timely manner to shifting student demand and new opportunities in the market.
- 6.12 In addition, we strongly encourage our universities to diversify their funding sources because the less reliant they are on Government funding, the more autonomy they will have over the use of their funds and the better placed they will be to achieve peaks of excellence.

KEY FUNDING PRINCIPLES

- 6.13 We note that the Government has been, and will remain the principal source of funding for our three publicly-funded universities. At the undergraduate level, the Government is committed to subsidising university places for up to 25% of each primary one cohort by 2010, up from the present 21%. Over the next six years, it is estimated that MOE will inject an additional \$2.5 billion or an average of \$400 million annually in the university sector, primarily to fund the additional undergraduate places to achieve the higher university cohort participation rate, including the required investments in physical infrastructure. By then, the Government's investment in our three publicly-funded universities is expected to reach \$1.9 billion annually.
- 6.14 With autonomous universities, MOE's funding will be an important lever to engender the desired set of behaviours among the universities. Proper incentives will need to be built into the funding framework to drive and reward excellence in teaching and research, and to ensure that the universities continue to meet national objectives. Hence, we recommend the **first funding principle – that the allocation mechanisms for the various pools of funds should be performance-driven**, i.e. Government funding is provided to the universities in return for delivering a set of predetermined outputs and/or outcomes.

- 6.15 We recommend as a **second funding principle, that universities be given greater financial autonomy to manage their own financial resources to maximise the use of limited resources**. Therefore, funding should, wherever possible, be allocated as a block grant so as to enable the universities to internalise trade-offs and the opportunity costs of all their endeavours.
- 6.16 While MOE is committed to funding university education, we recognise that MOE has to allocate its budget among the different sectors – schools, technical education and universities, as well as to other needs. Hence, we recommend the **third funding principle – that the universities should actively look towards alternative sources of funding** to support their missions and goals. For example, we strongly encourage our universities to embark on a more concerted endowment fund raising effort by reaching out to their alumni.

A PROPOSED GRADUATE OUTPUT FUNDING MODEL

- 6.17 The 2002/3 Committee to Review the University Sector and Graduate Manpower Planning recommended that broader targets be set at the undergraduate level – in clusters of disciplines such as Engineering, Sciences and Humanities, rather than for specific faculties. It also recommended the introduction of a flexible target category for the universities to mount hybrid courses and decide on placements to better meet industry needs and student aspirations.
- 6.18 Following that review, the Government decided, with effect from 2004, to shift from setting intake targets to output targets for undergraduate education in our three universities. This was done to allow the universities to factor in university- and faculty-specific conditions such as attrition rates, in determining the intake necessary to produce the required level of graduate output.
- 6.19 We are of the view that MOE should adapt and align its undergraduate funding framework with the above changes in manpower planning, so as to ensure that the funding framework continues to incentivise the universities to meet national manpower needs. At the same time, universities should be provided with the financial autonomy to decide how best to train and produce their graduates, so long as manpower targets are achieved.

- 6.20 To this end, we propose that MOE fund the universities based on graduate output numbers, rather than enrolment. Conceptually, in such an output-based funding model, the universities can be viewed as 'suppliers' of graduate manpower. The Government, as a 'buyer', then funds the universities to produce a pre-determined number of graduates in the different disciplines.
- 6.21 Effectively, the universities are being 'paid' to produce the agreed graduate output mix four years down the road¹⁰. If a university under-produces the graduate output at the end of four years, a corresponding amount will be offset from future payments. If a university over-produces, MOE will pay for the additional graduates, up to 10% in excess of the output targets, in line with the flexibility accorded to the universities.
- 6.22 In addition, we recommend that MOE provide additional funding to the universities to compensate them for losses arising from student attrition. The amount of attrition funding will be based on an average attrition rate which will be determined at the outset. This will incentivise the universities to keep their actual attrition below the average rate as they would otherwise have to bear the additional costs from the higher attrition.
- 6.23 We believe that the proposed graduate output funding model will allow universities the autonomy to decide how many students they wish to admit at the outset, as the cost will be internalised by the universities. In addition, since the Government funds the universities based on their graduate output produced, greater flexibility could also be accorded to the universities for policies such as student transfers within and between universities, and the maximum period of candidature in a programme during which a student enjoys Government subsidies (beyond which the student could be made to pay full tuition fees). Nevertheless, even with the output funding framework, the universities should continue to be mindful of the need to maintain student quality so as to safeguard their institutional reputations.

¹⁰ NMC output targets provided for a given year relates to graduate output to be produced 4 years later.

Using cost weights to derive the Government grant

- 6.24 We recommend a common grant be allocated to the three universities for producing graduate output in the same discipline. The reasons for this are two-fold.
- 6.25 First, the cost structures of our universities have been evolving. Competing for faculty in the same global market, and being subject to similar inflationary and other operating conditions have gradually brought the cost structures of our three publicly-funded universities more in line with one other. Hence, there is little justification to continue differentiating the grant provided to the universities based on differences in their historical cost structures. Second, applying a common grant per graduate output will incentivise our universities to keep their costs down as universities which are more cost-efficient will be able to generate an operating surplus which can then be channelled to fund other university programmes.
- 6.26 We propose that MOE fund different disciplines at different rates, in order to better meet Singapore's needs for graduate manpower. Courses that cost more, and for which there is an economic need to train more graduates (e.g. engineering courses) should be given more subsidies, relative to the more popular or less cost-intensive courses.
- 6.27 We recommend a recurrent funding formula based on different weights to be assigned to different disciplines so as to recognise the cost differentiation between the disciplines. The weights will be determined primarily by the relativities in the resources required to train an undergraduate in the different disciplines, e.g. the desired faculty-student ratio. We propose that MOE review the weights once every 5 years so as to adjust for changes in the relative cost of training for different courses.
- 6.28 Using such a weighting approach, we believe that MOE can inject a greater degree of sophistication in differentiating the subsidies for various courses. This will allow the Government to target with greater impact, subsidies for certain courses, e.g. those which require a higher amount of resources to train an undergraduate, or those which are unpopular yet whose graduates are in high demand by industry.

FUNDING FOR POSTGRADUATE COURSEWORK PROGRAMMES

- 6.29 For postgraduate coursework (PGC) programmes, we think that MOE should not distort market behaviour through its subsidy policy. 'Consumers' of postgraduate education are already degree-holders and have the wherewithal to find employment and support the cost of their further education. We believe that market pricing should therefore play a greater role in determining the supply and demand for such PGC courses. The cost of upgrading to a higher qualification should then be more fully internalised by the consumer who reaps the benefits of his postgraduate education.
- 6.30 However, we recognise that there are market externalities for some PGC courses in certain industry clusters which are strategic to our economic development, be it in manufacturing or other sectors. Such courses will still require some form of subsidy from various agencies, including MOE and economic agencies like EDB, in order to provide trained postgraduates to support these clusters.
- 6.31 Given the above considerations, we propose that more PGC courses be run without Government subsidy, and universities be given autonomy to set their own tuition fees for these PGC programmes. At the same time, we suggest that MOE and the relevant agencies such as EDB fund 'strategic' PGC courses¹¹ that are aligned with our national priorities via programmatic funding or a block grant which the universities can allocate amongst the various 'strategic' PGC courses.
- 6.32 We propose that the 'savings' generated by MOE from the reduction in funding for the PGC programmes be ploughed back into the university sector to meet other more pressing needs of the universities, such as funding additional places for undergraduate students.
- 6.33 Our universities are in favour of reducing the subsidies for PGC courses. To allow the universities sufficient time to raise tuition fees for their non-subsidised PGC programmes, we propose that the phasing out of the

¹¹ A framework to identify 'strategic' programmes will be put in place to allow universities (and involved agencies) to bid for a limited pool of funding reserved for such projects. This framework could be in the form of the universities submitting, for MOE's consideration, proposals for a PGC programme to be categorised as a 'strategic' one, and hence qualify for funding.

subsidies be carried out gradually over five years. The postgraduate students who are currently already enrolled in these PGC programmes can be subsidised until they graduate.

AUTONOMY IN PHYSICAL INFRASTRUCTURE INVESTMENTS

- 6.34 Under the existing development funding framework, MOE funds infrastructure development on a 'per-project' basis, where it becomes committed to providing universities with necessary funding once the development projects have been approved. As a result, the universities do not internalise the inherent trade-off between recurrent and development funding.
- 6.35 Since October 2004, NUS and NTU have been allowed to raise loans from Government or non-Government sources, which enhance their ability to engage in medium to long term capital budgeting and financial planning. Using debt instruments frees up much needed funds in the short term that would otherwise be needed to finance their development projects. Another recent initiative – the Public-Private Partnership scheme – allows universities to collaborate with private partners to finance, develop and operate facilities in return for a long term leasing arrangement from the universities.
- 6.36 In view of the limitations of the existing 'per project' funding model and the added financing options that are available, we propose a new development funding framework comprising two separate funding streams, viz. funding for strategic projects and an annual sinking fund contribution.

Strategic Projects

- 6.37 Strategic projects can be classified into capacity-building projects and projects to meet national priorities. These projects are crucial to meeting national objectives for the university sector as a whole and will continue to be funded by the Government.
- 6.38 We note that the funding for such projects will come under MOF's Debt-Grant framework. The funding will be based on a predetermined debt/grant ratio of 60:40, and the disbursement of funds will take the

form of a payment stream that will cover the required grant component as well as substantially, the loan and interest repayments.

- 6.39 To qualify for funding from the strategic projects stream, universities have to submit their project proposals to MOE for consideration. Essentially, the process of funding projects via the strategic funding stream closely mirrors the existing development funding framework where projects are evaluated and funded individually.

Annual Sinking Fund Contribution

- 6.40 The second proposed funding stream will be provided to the universities to build up a sinking fund for future redevelopment and improvement projects (broadly termed replacement projects). We recommend that MOE work out the annual sinking fund contribution based on the age of the buildings, the gross floor area (GFA), construction cost norms, annual construction cost inflation and the rate of return on the sinking fund investment. The annual contribution can then be allocated to each of the universities, and the portion not required for immediate asset replacement needs can be invested so that the real value of the funds will be preserved.
- 6.41 In the short term, the universities will be able to exercise trade-offs between the use of the sinking fund for infrastructure and manpower expenditure needs. The universities are well-placed to do so now that they are able to tap on debt instruments and the expertise of the private sector. However, while the universities will have autonomy over the usage of their sinking fund, they will need to plan carefully for their future asset replacements. The amounts taken from the sinking fund and used for non-asset replacement purposes should eventually be returned to the sinking fund to ensure that there are sufficient funds set aside for future asset replacement.

IT and F&E Replacement Projects

- 6.42 IT and F&E replacement projects are recurring in nature, as assets often have a fixed useful life and will be due for replacement after a predictable period of time. Hence, such asset replacement projects could be funded on a recurrent basis and be accounted for as part of MOE's operating grants to the universities. This will better reflect the

real costs of running the universities, and will also give the universities greater autonomy over asset replacement decisions. Administrative work involved in evaluating proposals is also reduced as the universities are not required to seek MOE or MOF's approval for funds that come from the recurrent vote.

AUTONOMY THROUGH A ONE-LINE BLOCK BUDGET

- 6.43 For the purpose of granting greater financial autonomy to our universities, we recommend that MOE's funding for recurrent, development¹² and research purposes be allocated to the universities as a one-line fungible block grant. This will enable the universities to internalise the opportunity costs and trade-offs of all their endeavours (e.g. between infrastructure and manpower, or between teaching and research), and maximise desired outcomes based on a fixed basket of resources. A schematic representation of the overall university funding framework is provided at [Annex E](#).
- 6.44 We believe that according the universities greater autonomy to manage their own financial resources will enable them to be responsive to market changes in a globally competitive university landscape and to engage in long-term financial planning to help them achieve their missions. However, along with the greater flexibility over funds usage, the university Council and leadership (from the CEO to the Deans) will need to shoulder a greater responsibility to ensure the most effective use of its limited resources.

DIVERSIFICATION OF FUNDING SOURCES FOR UNIVERSITIES

- 6.45 Besides Government funding, we strongly encourage our universities to seek out alternative sources of funding. Conceptually, we can distinguish between two types of revenue streams for our universities:
- a. A steady flow of revenue from MOE to cover rising costs due primarily to increasing enrolment and inflationary factors. This should preferably be a stable flow to ensure that our universities can plan ahead and strategise resource usage and investment for the long term. Within this flow, the Government will continue

¹² sinking fund portion only

to bear the bulk of the cost although we are of the view that the undergraduates should bear an increasing share (see Chapter 8); and

- b. A secondary but increasingly important flow of revenue from other non-Government sources such as full-fee paying foreign students, donations/gifts, endowment income, and industry contributions. The universities should expand this income flow to be more comparable to what other universities overseas are doing. At the same time, the universities can also explore debt instruments as an alternative source of financing, so as to make full use of the greater financial autonomy accorded by MOE to engage in longer term financial planning.

6.46 We recognise that it might not be practical to prescribe a target proportional contribution¹³ from each source of funds. Instead, after taking into account the amount of funding received from MOE, each university should determine how the balance of its funding needs could be best met.

6.47 For example, universities that have built up a strong reputation for the quality of their academic programmes could leverage on it to charge higher tuition fees. Alternatively, those that have invested time and effort in building up strong links with their alumni and other stakeholders should be able to raise more funds from private gifts and donations. It is more appropriate for each university to determine for itself, the appropriate balance/mix from each of the funding sources.

Full-Fee Paying Foreign Students

6.48 Currently, foreign students who are subsidised for their undergraduate education make up about 20% of the universities' enrolment. Besides playing an important role in providing rich cultural exchanges and adding challenging alternative perspectives to the undergraduate experience, foreign students also represent a potential source of revenue for universities, as exemplified by the Australian universities' experience.

¹³ Currently, MOE funding accounts for about 75% of the universities' operating costs, while undergraduates pay for about 25%.

6.49 Having built up a strong reputation in the regional and global markets, our publicly-funded universities are now able to command a premium in competing with universities from neighbouring countries for foreign students. As such, we suggest that our universities be given greater scope to recruit more full-fee paying foreign students so long as this is done without compromising quality. MOE will continue to fund a proportion of the foreign students, albeit adapting the funding formula to meet more specific population augmentation objectives¹⁴.

Private donations and Endowment Fund (EF) income

6.50 Unlike tuition fees, there is plausibly no limit as to how much universities can raise from private donations, and correspondingly from endowment income. In a recent UK Higher Education White Paper¹⁵, the UK government highlighted endowments as one of the key sources which UK universities could tap on to raise additional revenue. Likewise, our universities are strongly encouraged to intensify their fund raising efforts.

6.51 As at 31 Mar 2004, the combined endowment fund size of NUS, NTU and SMU stood at \$1.7 billion¹⁶. We note that private gifts and investment income currently contribute only 0.3% – 2.7% of the three publicly-funded universities' total recurrent revenue. This made up less than 1% of the universities' total recurrent expenditure in FY2002.

6.52 The Government currently matches donations raised by the universities for their endowment funds, although there is a limit on the total amount to be matched. To incentivise donors to come forward with their donations and to give a boost to the budding philanthropic culture in Singapore, we recommend that MOE continue to match endowment donations secured by the universities on a dollar for dollar basis. We also recommend that the matching limit be increased from time to time, and that the extension of the limit be processed seamlessly to allow for a greater degree of certainty on the part of the universities when sourcing for potential donations.

¹⁴ The details of the Government's funding for foreign students will be worked out separately.

¹⁵ *The Future of Higher Education*, Department for Education and Skills, Jan 2003

¹⁶ The endowment funds of NUS, NTU and SMU stood at \$935m, \$572m and \$204m respectively as at end Mar 2004.

6.53 We encourage our universities to expand their pool of donors by stepping up their fund-raising efforts directed at alumni, existing students and private companies. Universities should also nurture a sense of ownership and a culture of contributing to the universities among their students. These efforts should continue and be sustained as the students become alumni and progress in their careers.

CONCLUSION

6.54 The proposed funding framework for recurrent and development represents a fundamental shift from the way our universities are currently funded. The universities will be accorded greater financial autonomy to decide how their budgets are utilised. At the same time, the funding allocation mechanisms will be performance-driven to ensure that the universities achieve value-for-money for the use of public funds. We are confident that the new funding framework will allow our universities to better compete in the global university landscape and provide the appropriate incentives and rewards for the pursuit of excellence.

Chapter 7

Promoting Research Excellence

7.1 Knowledge creation and value generation through research has become the key to maintaining a competitive advantage in the knowledge economy. With new scientific breakthroughs occurring at the interfaces of disciplines, our universities, with their concentration of scientists and researchers across the whole range of academic disciplines will have an increasingly greater role to play in our overall national research effort.

CURRENT RESEARCH FUNDING FRAMEWORK

7.2 Currently, MOE extends two streams of research funding to the universities. The first stream is allocated via the Academic Research Fund (AcRF) while the second stream comprises various indirect components embedded within MOE's recurrent and development funding.

Academic Research Fund

7.3 The AcRF is a two-tiered research fund administered by MOE. For FY2001 to FY2003, about \$110 million was set aside annually for the AcRF, with Tier 1 accounting for 80% and Tier 2 accounting for 20% of the AcRF.

7.4 Tier 1 is given directly to NUS and NTU as a block grant to support university-level research projects awarded on a competitive basis within the university by their respective University Research Committees (URC), as well as Research Scholarships and Studentships (RSS) for postgraduate research students. Currently, Tier 1 funding is allocated to NUS and NTU based on their historical AcRF expenditure.

7.5 Tier 2 comprises performance-based funding for research projects costing \$500,000 and above. Funding is allocated between the universities through a competitive bidding process, where individual researchers submit project proposals to be evaluated by an expert panel convened by MOE. The expert panel then makes its

recommendations to the Academic Research Committee (ARC) on the projects to be funded.

Other Indirect Research Funding Sources

7.6 MOE also subsidises postgraduate research students via capitation grants provided to the universities. In addition, MOE funds the indirect research costs¹⁷ as part of the universities' operating budget, as well as the universities' physical infrastructure which is used for research purposes.

PROPOSED RESEARCH FUNDING FRAMEWORK

7.7 MOE's research funding framework for universities provides for both training of research manpower and funding for research projects. However, given that there is a limited pool of research funds to be distributed among the three universities, the focus should be on funding **research quality**, and not research quantity. In addition, it makes sense for MOE to concentrate resources in specific niche areas that will allow the universities to achieve **peaks of research excellence**.

7.8 There is also a need to emphasise **value-for-money** from MOE's research funding, without reducing institutional autonomy in the utilisation of funds for research. MOE's research funding allocation should therefore be performance-driven, such that universities are rewarded for research excellence and achieving the desired research outcomes.

Postgraduate Research Programmes

7.9 Currently, tuition fees for postgraduate research (PGR) programmes are set by MOE. As with postgraduate coursework (PGC) programmes, we believe that PGR tuition fees should also be determined based on market demand and supply conditions. Therefore, we propose that the universities be given autonomy to set tuition fees for PGR programmes, in line with the move to devolve greater autonomy to the universities.

¹⁷ E.g. Research-related administrative costs and overheads such as libraries and central computing.

- 7.10 We note that the majority of PGR students in our universities are foreigners, while only 22% are Singaporeans. To encourage more Singaporeans to pursue a research career, we propose that MOE help keep PGR programmes affordable by continuing to provide a capitation grant for each local student enrolled in PGR programmes. Support for the training of research manpower is crucial as Singapore is in the process of building up a critical mass of research manpower and needs to continue attracting more local students to take up PGR programmes.
- 7.11 We propose to combine the existing RSS, which currently forms part of MOE's AcRF Tier 1, and the capitation grants for Singapore Permanent Residents (SPR) and foreign PGR students into a Research Scholarships Block (RSB). The RSB, which will amount to about \$160 million in total annually, is meant to fund research scholarships which cover full PGR tuition fees, as well as provide students with a monthly stipend. Universities will have full autonomy to decide how they wish to allocate the money between local and foreign PGR students.

AcRF Tier 1

- 7.12 For the funding of research projects, we recognise that there is a need to continue providing universities with a pool of research funds to support new researchers who lack the track record to compete effectively with other more established researchers in an open competitive bidding environment. In addition, having a pool of research funds over which the universities can have autonomy in internal allocation will better allow them to concentrate resources so as to build up their own niches of research excellence. Hence, we propose that MOE continue to allocate the URC funds under Tier 1 of the AcRF¹⁸ as a block budget to the universities to fund research projects that are competitively allocated within the university.

AcRF Tier 2

- 7.13 Currently, about \$22 million is available under Tier 2. Essentially, Tier 2 allows for individual Principal Investigators (PIs) to surface research proposals through a bottom-up process and to compete for research

¹⁸ Less the RSS component which is now part of the RSB

funding. We recommend that the existing Tier 2 component of the AcRF be retained to fund larger scale projects and boost the research capability in our universities.

Establishing Centres of Excellence

- 7.14 To compete internationally, our autonomous universities must strive to achieve peaks of research excellence. We recommend that MOE sponsor the establishment of Centres of Excellence (or Centres in short) in our universities to focus on areas of opportunities or strategic national interest and research priority. The objective of establishing these Centres is to provide universities with additional resources to build a critical mass of researchers in specific niche areas. In addition, the Centres represent an opportunity to foster co-operation between our local universities, and achieve an international reputation for research excellence in the chosen field.
- 7.15 For a start, we propose to identify one to two Centres with a science and technology (S&T) focus. Research institutes/centres that are awarded the status of a Centre will be given additional funding of between \$2-3 million a year¹⁹ for six years, funded by MOE. The budget for the Centres will be allocated as a separate stream of funds from MOE's budget, over and above the existing amount allocated under the AcRF, representing MOE's commitment to supporting research excellence in our universities.

PROPOSED ALLOCATION & EVALUATION MECHANISMS

Research Scholarship Block

- 7.16 We propose that the RSB be distributed among the three universities in proportion to the PGR graduate output of each university. The allocation of the RSB according to PGR graduate numbers, or research degree completions, is in line with MOE'S desire to fund the universities on an outcome basis. In recognition of the difference in the time required to train a PhD student *vis-à-vis* a Masters student by research,

¹⁹ Similar schemes in Australia and Finland award their Centres additional funding in the range of \$0.6 million to \$2.3 million annually. In Switzerland, each of the National Centres of Competence in Research (NCCR) receives between \$3.5 million to \$6.8 million in additional funding annually.

the indicator for research student completions will be further weighted to place greater emphasis on PhD student completions. For this purpose, each PhD graduate will be counted as equivalent to 2 Masters by research graduates.

- 7.17 Measuring research graduate output rewards the universities for putting students successfully through their degrees. Institutions will be encouraged to keep their dropout rates low and refrain from enrolling under-qualified students into their PGR programmes. While research completions will be used as a performance indicator, universities should not lower their expectations of student performance so as to increase the number of research completions.
- 7.18 Separately, we note that linking the award of research scholarships to the award of research project grants will help ensure that the scholars are actively engaged in quality research projects. Hence, while the universities have full autonomy to decide on the internal re-distribution of the RSB once it has been allocated to them, the universities could consider adopting the above approach as a 'best practice', instead of distributing the number of RSS to be awarded 'equally' among their faculty.

Research Quality Review

- 7.19 We recommend that an institutional review be conducted by an MOE-appointed panel once every five years to assess the overall quality of the university's research, as well as ensure accountability for the research funding provided by MOE. Although somewhat similar to the Research Assessment Exercises (RAEs) in the UK and Hong Kong, there are important differences.
- 7.20 First, the proposed Research Quality Review (RQR) will not involve a comprehensive assessment of the faculty's research output, which will be tedious and time-consuming. This is logical considering that it is unlikely to be cost-efficient for Singapore to conduct an RAE-style exercise as we lack the critical mass to reap economies of scale.
- 7.21 Second, the proposed RQR will only require a single panel, unlike the RAEs in the UK and Hong Kong, where multiple, discipline-specific

panels are convened. Accordingly, the role of the RQR Panel will have to be extracted to a higher level as it will need to consider the overall research quality of the whole university across the different faculties.

- 7.22 Essentially, the RQR Panel will be expected to comment on the quality and impact of the university's research, quality of its future research plans, productivity of the Principal Investigators and quality of their faculty recruits. During the course of their work, the Panel may take into account certain metrics/indicators of research excellence (see [Annex F](#) for details).

AcRF Tier 1

- 7.23 The current practice of allocating the Tier 1 funds based on historical expenditure does not take into account the universities' research performance. To incentivise research excellence, we propose that the recommendations of the RQR Panel be used to inform the allocation of Tier 1 funding between the universities for the next five years following the review.
- 7.24 To allow the universities sufficient time to adjust and respond to the new allocation and evaluation mechanism, we suggest a transitional arrangement²⁰ whereby Tier 1 funds will continue to be allocated on a historical basis (as is currently practised) for two years after the implementation of the revised AcRF. At the end of the two years, the first RQR will be carried out. After the first review, future research quality reviews will take place once every five years.

AcRF Tier 2

- 7.25 The use of a merit-based, competitive peer-reviewed process to decide which research projects qualify for funding and which do not is a well-established practice among research funding agencies around the world²¹.

²⁰ A separate arrangement will be worked out to provide SMU with a sum of Tier 1 funding for research.

²¹ Examples of research funding agencies that award research grants via a competitive peer-review process include the National Science Foundation (NSF) and National Institutes of Health (NIH) in the US, the Research Councils in UK and the Research Grants Committee in HK.

- 7.26 The basic premise underlying the strong support for competitive peer-review is that the process is not only widely regarded as rigorous, but also engenders competition to achieve research quality and excellence. Hence, for Tier 2, we recommend retaining the existing practice of convening an expert panel to review individual research project proposals submitted by PIs and make recommendations to MOE's Academic Research Committee on the projects to be funded.
- 7.27 Pursuant to the award of each research grant under Tier 2, it is important to ensure that the PIs are held accountable for the use of the funds. Hence, we propose that PIs who have previously been awarded a Tier 2 grant be required to report on the research work funded by their previous grant, if they wish to submit a new grant proposal. The report should contain a list of quantitative output metrics as well as a short narrative of the research achievements. The key purpose of evaluating the performance in the previous project is to obtain information on the PI's performance and productivity, which will inform future funding decisions. [Annex F](#) provides more details on the proposed allocation and evaluation mechanism for AcRF Tier 2.

Centres of Excellence

- 7.28 By concentrating resources in strategically important areas, the Centres enable universities to engage in thematic research of the highest quality and improve on the international competitiveness of their research. Hence, it is crucial that the funding for the Centres does not end up being distributed equally across faculties. The university management should consult its faculty to determine the area of focus for the Centres to be put forward to MOE for consideration.
- 7.29 For the pilot phase, we propose that NUS and NTU be approached to each consider setting up one Centre with an S&T focus, in line with the S&T emphasis to support our economic development. However, the status of 'Centre of Excellence' is awarded only upon application and each university will need to put up at least one proposal for MOE's consideration.
- 7.30 The proposals submitted by the universities will be assessed by an evaluation panel appointed by MOE, with the members selected for their expertise in the specific subject discipline. Apart from reviewing

the proposals, the panel members will also conduct site visits and interview the faculty who have put up the proposal. The panel will then make a recommendation to MOE on whether the universities' proposals should be supported.

- 7.31 We recognise that there are practical difficulties in stating prospectively the deliverables that are expected of the Centres, given the unpredictability of scientific research. Nevertheless, considering the large investment in each Centre, there is a need for regular follow-up and monitoring of the progress of Centres to ensure that they are operating as planned. Hence, we suggest that each university be charged with the responsibility of monitoring the progress of its Centre, which should rightly be expected to furnish regular progress reports (including deliverables and milestones) to the university management.
- 7.32 At mid-term, each Centre will be expected to conduct a self-assessment and report the findings to the university, which will in turn submit the Centre's assessment report to MOE. The evaluation panel will be convened to review the self-assessment reports and assess the progress of the Centres before putting forward its recommendation to MOE on whether to continue funding each Centre for the next three-year period. Annex F provides more details on the proposed allocation and evaluation mechanism for the Centres of Excellence scheme.

DIVERSIFICATION OF RESEARCH FUNDING SOURCES

- 7.33 We believe that to achieve research excellence, our universities cannot afford to rely solely on funding from MOE. They need to have access to multiple sources of funds, such as other government ministries, statutory boards²² and industry. At the same time, competing for research funding in an open competitive environment will also serve to enhance the quality of university research.
- 7.34 However, under a 'dual system' of research funding, comprising both institutional or 'core' funding allocated as a block as well as competitive project funding from external research sponsors, the latter will usually only cover the direct costs of research but not the indirect

²² Examples include the Agency for Science, Technology and Research (A*STAR), the National Medical Research Council (NMRC) and the Defence Science and Technology Agency (DSTA).

research costs. As a result, more often than not, the universities end up absorbing the research-related administrative costs and overheads.

- 7.35 While the recovery of indirect research costs is a policy issue that has to be reviewed at the national level, we recommend that each university make a genuine effort to maximally recover research costs from external research sponsors, particularly in the case of contractual research from industry that is not considered to serve any academic interests. In this way, MOE's research funding can be better directed to support the full spectrum of academic research.
- 7.36 We also recommend that the universities put in place a transparent system of cost accounting to assess how the total costs incurred by the universities can be attributed to teaching or research activities. Such a cost accounting system can be used to generate different types of cost data, such as those required for determining the cost weights for the different course clusters under the proposed undergraduate funding framework. The development of this system becomes more important and relevant as we devolve autonomy to the universities.

CONCLUSION

- 7.37 Together with other Government R&D centres, our three local universities constitute a critical part of the bedrock of national research. With continued Government and MOE research funding, we are confident that the proposed research funding framework will provide NUS, NTU and SMU with the necessary incentives and resources to train research manpower and produce quality research to help develop them into world-class research universities.

Chapter 8

Ensuring Access and Affordability

8.1 The Government is committed to a needs-blind policy for university admission and ensuring the affordability of university education in our institutions. The increase in the university cohort and enhancements to achieve peaks of excellence will exert pressure on the university budgets. The key question is how to determine the student's share of the cost in as equitable a way as possible without jeopardising access for all deserving students irrespective of financial circumstances.

CURRENT TUITION FEE SETTING FRAMEWORK

8.2 NUS and NTU, in consultation with MOE, determine tuition fees for their undergraduate programmes. As a private institution, SMU has the autonomy to set its own tuition fees. Currently, all three universities charge the same tuition fee for their undergraduate²³ programmes. Undergraduates pay about 25% of the operating costs of their university courses while the Government pays the remaining 75%. The Government also bears in full the infrastructure costs of our universities.

8.3 We note that in view of the economic slowdown in 2001-2003, undergraduate tuition fees have not been revised since 2001. Singaporean students pay \$5,650 for all undergraduate programmes except for medical and dentistry programmes which charge \$16,200²⁴. However, if we wish to maintain the quality of our universities and meet rising costs, it is necessary to establish a more sustainable and equitable cost-sharing formula between the undergraduates and the Government.

COST-SHARING BETWEEN GOVERNMENT AND STUDENTS

8.4 While it is true that a highly skilled workforce enhances a country's productivity and hence its GDP, the benefits of university education

²³ Except for Medicine and Dentistry courses which have higher tuition fees because they are much more resource-intensive than the other courses.

²⁴ Currently, MOE subsidizes foreign students in the universities, which make up about 20% of the total enrolment. These foreign students pay tuition fees which are 10% higher than for local students.

accrue primarily to the individual. A relevant university degree makes the graduate more employable and allows him to earn much more during his working life than he otherwise would have. A Monetary Authority of Singapore (MAS) study²⁵ revealed that a first-degree holder earns about twice the median wage of someone with an upper secondary or diploma qualification. The premium in earning power continues throughout the worker's career and increases with working experience (please see Table 1 below).

Table 1: (Median) Monthly Wages of Workers by Educational Attainment, 2000

Education Attainment	Years of Work Experience			
	0 to 11	11 to 20	21 to 30	31 to 40
No Primary	500	1,070	1,310	1,250
Primary	820	1,570	1,700	1,770
Secondary	1,420	2,010	2,300	2,540
Upper Secondary / Diploma	1,860	2,730	3,350	3,870
First Degree	3,100	5,320	7,010	7,550
Second Degree	3,820	6,370	7,210	N.A.

8.5 We note that MOE's overall budget at 4% of GDP is distributed amongst the different sectors – schools, technical education and universities. It would not be fair to increase the subsidy for university students at the expense of the other sectors. University students already enjoy a much higher dollar subsidy from the Government. In FY2003, the average subsidy for an undergraduate was twice that for a polytechnic or ITE student, 3.5 times that for a secondary school student, and five times that for a primary school student.

8.6 Furthermore, a university student receives more years of subsidised education than students in the polytechnics and ITE do. After two years in junior college and four years in university, a graduate would have enjoyed five times more subsidy than an ITE student would have in his two years of post-secondary education.

²⁵ "Education for Growth: the Premium on Education and Work Experience in Singapore", Monetary Authority of Singapore Staff Paper No. 26, Jan 2004.

- 8.7 Unlike primary and secondary education, university education is not universal, as we believe that only those who can benefit should be admitted. Only the top 25% of each cohort will have a place in our publicly-funded universities, whereas the schools and polytechnics cater to a much larger proportion of the cohort. It would be less justifiable for university education to be heavily subsidised by general taxation. It is therefore reasonable to ask undergraduates to bear a larger share of the cost of their education.
- 8.8 We are of the view that when universities determine their tuition fees, they should take into account both the operating and development costs. As students benefit not just from the teaching provided, but also the facilities in which they learn, they should also contribute towards the infrastructure costs which are currently wholly borne by the Government.

Differentiated Tuition Fees

- 8.9 As the universities compete to enhance the learning environment with better faculty, smaller classes or more opportunities for varied experiences (including a residential experience²⁶), the students should also be prepared to pay a premium for the increased quality of education. The university that can provide a better experience for the students should be allowed to charge higher tuition fees to cover the higher costs.
- 8.10 Moreover, some courses are more costly to mount than others. A uniform tuition fee across the board means that the students in the lower cost courses could be cross-subsidising those in the more expensive ones.
- 8.11 It is also clear that graduates from different courses have different earning potential. Graduate employment surveys reveal that professional degree holders are paid a premium over general degree holders. We should not expect students in less marketable disciplines to subsidise those who are able to command higher salaries.

²⁶ In 2003, MOE's International Academic Advisory Panel strongly recommended that universities offer students a residential experience which creates a unique learning environment and is important for instilling greater pride in and loyalty to the universities.

NEW FRAMEWORK FOR SETTING TUITION FEES

- 8.12 One key consideration in the new framework for setting undergraduate tuition fees is that our universities should maintain their price competitiveness vis-à-vis their overseas counterparts. The tuition fees for local students should remain significantly lower than the fees they would be charged by overseas universities. Tuition fees for foreign students should also be competitively priced in comparison with other universities such as those in Australia .
- 8.13 Nevertheless, we are mindful that an unregulated landscape for tuition fee setting may result in inflated fees which could have adverse effects on access. The small size of our university sector and the critical role it plays in producing graduate manpower for our economy argues for a continued role for the Government in moderating fee increases. As we allow the universities a freer hand to set tuition fees, we also need to ensure that tuition remains affordable for Singapore citizens and Permanent Residents.
- 8.14 For NUS and NTU, we propose that MOE set a cap on the tuition fee increase in any given year. It would not be fair to impose large and sudden increases on students and their families who will need time to adjust. The proposed cap is not applicable to SMU as it currently sets its own tuition fees because it is a private university. For a start, we recommend that the cap be set at 10% over the previous year's tuition fees, and that the cap can be reviewed on a five-yearly cycle. In the same way that SMU keeps MOE informed of its fee changes at least six months in advance, we suggest that NUS and NTU inform MOE of their proposed tuition fee changes at least six months in advance so that *inter alia*, the impact of the fee change on affordability can be assessed.
- 8.15 We also recommend that the universities make known to students at the outset the schedule of projected tuition fee increases over the normal duration of each course. A projected tuition fee schedule is a good practice adopted by many US universities to help students and their families in their financial planning for the costs of the education. While universities are allowed to vary the tuition fees subsequently, they should refrain from deviating too significantly from what has earlier been communicated to the students.

- 8.16 We propose that there be no change to the current policy of charging national servicemen tuition fees based on the year in which they are offered a place in university rather than the year in which they enter university. Our rationale is that national servicemen should not be penalised by higher tuition fees when they enter university after fulfilling their national obligations.

A COMPREHENSIVE UNIVERSITY FINANCING PACKAGE

- 8.17 Even as tuition fees are increased, the Government and the universities are firmly committed to the guiding principle that **no deserving student should be denied a university education because of financial difficulty.**
- 8.18 We will continue to practise a needs-blind, merit-based policy for university admission. Once the students are admitted, our universities should ensure that adequate student financing is provided so that students have the necessary resources to contribute towards their education and are not unduly burdened with financial worries during the course of their study. Student Financing Schemes (SFS) should be regarded as a total package of loans, bursaries, scholarships, work-study and other schemes which comprehensively address the financing needs of students for their university education.

Existing Student Financing Schemes

- 8.19 Our universities already offer an extensive suite of needs-based, merit-based and non-merit based SFS which cater to the needs of students from different income backgrounds. There are loans, bursaries and scholarships provided by the Government, universities and wider community (details of the schemes are at [Annex G](#)). Table 2 shows that about 77% of the universities' enrolment in AY2002 took up a form of SFS.

Table 2: Undergraduates who took up SFS in AY2002

Student Financing Scheme	Percentage of Enrolment
Tuition Fee Loan (TFL)	35%
CPF Education Scheme	25%
Study Loan ²⁷ (SL)	9%
University-Administered Loans	1%
University-Administered Bursaries	1%
Other Bursaries	2%
Scholarships	13%

8.20 We are mindful that graduates should not be burdened by too high a debt upon graduation. Table 3 shows that currently, the debt burden²⁸ of a university graduate from a four-year course in Singapore is lower than the average debt burden of a graduate from comparable public universities in the US. There is scope for students to consider taking up higher loans than they are currently doing in order to pay a more equitable share of the cost of their education.

Table 3: Comparison of the Average Debt Burden of a University Graduate

University/Country	% of Graduates with Debt	Average Debt (\$\$)
Singapore	35%	18,080
University of North Carolina – Chapel Hill	24%	19,582
University of Virginia	31%	22,987
University of Illinois – Urbana-Champaign	45%	25,670
University of California – Berkeley	33%	27,802
Georgia Institute of Technology	47%	28,179
University of Michigan – Ann Arbor	39%	32,992

Source for US data: 2005 US News ranking of national universities for the class of 2003

²⁷ Students are only allowed to take up a study loan if they have already taken up another tuition fee loan. These should not be added to the total percentage of students on SFS.

²⁸ This assumes that students take out the maximum allowable tuition fee loan, i.e. 80% of the tuition fees for a four-year course with tuition fees of \$5,650 annually.

Proposed Enhancements to the Tuition Fee Loan and Study Loan Schemes

- 8.21 The Tuition Fee Loan (TFL) scheme is the most popular financing scheme and has the broadest reach as it is open to any student regardless of financial background. Students can borrow up to 80% of their tuition fees at low interest²⁹, and start repaying their loans only upon graduation.
- 8.22 As tuition fees increase, it is important that the TFL scheme retains its attractiveness by allowing students to defer the payment of substantially any increase in tuition fees till after they graduate. This is especially critical for students from middle-income backgrounds who are not eligible for other means-tested schemes, as an increase in cash outlay for tuition fees not covered by the TFL could pose a financial burden. Hence, we propose to increase the quantum that students can borrow under the TFL from the current rate of up to 80% of the tuition fees to 90%.
- 8.23 With the TFL used in combination with the means-tested Study Loan (SL) scheme, needy students are able borrow up to 100% of their tuition fees, plus a living allowance. Although they need not pay any cash during the course of their study, there will be an increase in the overall debt burden should they opt to borrow up to the full amount of their tuition fees. It is not desirable to increase the debt burden of needy students as they often face heavier financial commitments upon graduation.
- 8.24 In order to help needy students keep their debt burdens at a more manageable level, we propose that MOE offer a bursary that will be awarded on a means-tested basis. The quantum of the bursary can be subject to an annual review to take into account the prevailing economic conditions. The bursary will be funded by the Government and administered by the universities, as part of the commitment to the public that no deserving student will be denied a university education because of financial difficulty.

²⁹ The loans are interest-free until the students graduate. Thereafter, students pay interest pegged to the prevailing prime rate.

- 8.25 We also recommend increasing the number of tiers³⁰ within the means-tested schemes to cater to students who may not be from the lowest income group but who nevertheless require some financial aid. The income guidelines can be reviewed where necessary to take into consideration the rising cost of living.

Towards a Total University Financing Package

- 8.26 Financial aid should be awarded on the basis of demonstrated financial need. Overseas universities often have a Financial Aid Office which is dedicated to designing and customising financial aid packages to match the specific needs of individual students. Currently, students at our universities apply for different types of SFS separately, and there is no concerted effort on the part of the universities to match the financial needs of students to the available SFS.
- 8.27 We recommend that our universities set up similar structures (e.g. a Student Financing Office) to assess students' needs in greater detail before advising students on an appropriate SFS package which can comprise a combination of loans, bursaries, scholarships and/or work-study. With such customisation, the available pool of SFS can be more effectively utilised to cater to the financial needs of individual students.
- 8.28 We note that our three universities have already implemented work-study schemes to help students finance their education. As part of the total SFS package, the universities can consider expanding the scope of work-study schemes by sourcing for more job vacancies within and outside the campus. The universities can also explore other measures such as instalment payment plans for specific groups of students with short-term cash-flow problems.
- 8.29 Furthermore, tuition fee revenue can be used to fund direct grants to needy students. For example, MIT channels half of every dollar it receives in tuition fee revenue towards financial aid. This sends out a strong signal to the public that the university is genuinely committed to helping students with financial difficulties. With higher tuition fees for

³⁰ Currently, the SL scheme adopts a two-tier system based on the gross monthly per capita household income.

local students and a larger intake of full-fee paying foreign students, our universities should be encouraged to use the additional tuition revenue generated to enhance or introduce new financial aid for students.

- 8.30 We recognise that different universities have different cost structures and student profiles that may require the tailoring of their SFS policies. We should therefore leave each university to decide on the amount of fee revenue to be set aside for financial aid.

CONCLUSION

- 8.31 With the above enhancements to student financing, we are confident that financial difficulty will not pose a barrier to any deserving student, and that university education will remain affordable to all.

Chapter 9

Conclusion

IMPLEMENTATION TIMEFRAME

- 9.1 While timely implementation of the recommendations will enable our universities to respond to the new competitive landscape, the implementation timeframe should provide them sufficient time to react and adjust to the proposed changes to their governance structure and MOE's funding arrangements. We propose that the recommendations arising from the review be phased in gradually and implemented in stages.
- 9.2 Even after the recommendations are accepted by the Government, we envisage that they are likely to be implemented no earlier than 2006. As further discussion and planning by MOE and the universities will be required, we propose that an implementation steering committee be set up to oversee the process.

AUTONOMOUS UNIVERSITIES – TOWARDS PEAKS OF EXCELLENCE

- 9.3 As Singapore's two main universities, NUS and NTU have made great strides in providing quality education, producing well-trained graduates for our economy, and generating new knowledge. SMU, despite being a new university, has benefited from the autonomy as a private university and has similarly done well within a short span of time.
- 9.4 The current university governance model, where the major decisions affecting NUS and NTU, and to a limited extent, SMU, are made by MOE, has worked well, but it could be restrictive to the further development and growth of our universities.
- 9.5 Our universities, along with our society, have matured. They have reached the stage of development where they are ready to embrace the challenges and opportunities of corporatisation in order to catalyse a mindset change and effect a transformation of the university culture towards greater ownership. We believe that greater autonomy will engender a more entrepreneurial spirit in the universities so that they are better equipped to meet global competition head-on.

- 9.6 As the Government entrusts the universities with greater autonomy, it is crucial that the university leadership in both the Councils and management are prepared to take on the added responsibilities. Indeed, every stakeholder, from the faculty to the students to the alumni, has to feel that the university belongs to them and that they play a vital role in shaping its destiny. We will also need to make sure that the necessary systems, processes and people are in place before we devolve autonomy to the stakeholders.
- 9.7 We recognise the possible risks inherent in this bold endeavour to grant greater autonomy to NUS and NTU. To ensure that our three universities continue to align themselves with national imperatives, uphold high standards and achieve value-for-money, it is necessary to put in place a system of checks and balances through the enhanced accountability framework for the universities.
- 9.8 With a balanced system of autonomy and accountability for our three universities, we are confident that they will be able to rise to the challenge and seize the opportunity to achieve their own peaks of excellence globally. An excellent university sector will be fundamental to the success of Singapore as a talent hub and knowledge-based economy.

Annex A

Summary of Recommendations

S/N	Recommendation	Para
Towards Autonomous Universities		
1	To corporatise NUS and NTU under the Companies Act as not-for-profit companies limited by guarantee	3.9 – 3.14
University Governance		
2	To continue to have the Minister for Education appoint the Council members of NUS and NTU, and the Board of Trustees of SMU	4.5
3	To define the main roles of the Council of an autonomous university as follows: <ul style="list-style-type: none"> a. Provide leadership and guidance on the strategic directions for the university to ensure that it furthers the objectives for which it was instituted; b. Appoint and appraise the President; and c. Ensure the responsible use of the university's resources and enhance their value 	4.6
4	To revise the existing strictures on the size, composition and term of office of the university Councils, the members of which should be appointed on the basis of their expertise and expected level of commitment and contribution to the Councils	4.7 & 4.9
5	To empower the Deans, Department Heads and faculty members so as to engender a culture of ownership and initiative that will permeate all levels within the university and to have a balance between top-down and bottom-up initiatives in the universities	4.13 – 4.14

S/N	Recommendation	Para
Enhancing University Accountability		
6	<p>To introduce an enhanced accountability framework for the autonomous universities comprising the following three components:</p> <ul style="list-style-type: none"> a. A Policy Agreement; b. A Performance Agreement; and c. MOE's Quality Assurance Framework for Universities (QAFU) 	5.11 – 5.37
Investing in our Future		
7	To fund undergraduate education at the universities based on a graduate output funding model, where the universities receive a grant for every graduate they produce	6.20 – 6.28
8	To fund strategic postgraduate coursework programmes via programmatic funding or block grants, but to gradually phase out subsidies for other PGC courses over five years and give the universities autonomy to set tuition fees for these self-financing PGC programmes	6.31 – 6.33
9	To allocate MOE's funding to the universities for recurrent, development and research purposes as a fungible, one-line block grant. To fund strategic development projects via MOF's Debt-Grant framework and provide the universities with an annual sinking fund contribution for funding future redevelopment and improvement projects	6.43 – 6.44
10	To continue matching endowment donations secured by the universities on a dollar for dollar basis	6.50 – 6.53
Promoting Research Excellence		
11	To give autonomy to the universities to set tuition fees for postgraduate research programmes	7.9
12	To continue providing capitation grants to the universities for local students enrolled in postgraduate research programmes	7.10

S/N	Recommendation	Para
13	To combine the existing Research Scholarships and Studentships (RSS) component of the Academic Research Fund (AcRF) with the capitation grants for Singapore Permanent Residents (SPR) and foreign postgraduate research students into a Research Scholarships Block (RSB) to fund research scholarships	7.11
14	To establish one Centre of Excellence each in NUS and NTU, funded by MOE, to focus on areas of opportunity or strategic national interest and research priority	7.14 – 7.15 & 7.28 – 7.32
15	To carry out a Research Quality Review once every five years to assess the quality of university research and use it as a basis for allocating Tier 1 research funds under the AcRF	7.19 – 7.24
16	To encourage the universities to put in place a transparent system of cost accounting to assess how the total costs incurred by the university can be attributed to teaching or research activities	7.33 – 7.36
Ensuring Access and Affordability		
17	To allow the universities to determine their own tuition fees, including differentiated tuition fees, for undergraduate programmes, subject to a 10% cap on annual tuition fee increases	8.9 – 8.14
18	To encourage the universities to provide students at the outset the schedule of projected tuition fee increases over the normal duration of each course	8.15
19	To enhance the existing student financing schemes by increasing the quantum that students can borrow under the Tuition Fee Loan (TFL) from the current rate of 80% of the tuition fees to 90%. To provide an additional Government funded bursary to needy students and to increase the number of tiers within the means-tested schemes	8.21 – 8.25
20	To encourage the universities to set up a Student Financing Office to customise student financing packages to meet the needs of individual students	8.27

S/N	Recommendation	Para
21	To expand the scope of work-study schemes by sourcing for job vacancies within and outside the campus and put in place instalment payment plans for students with short-term cash flow problems	8.28
22	To encourage universities to set aside a portion of the additional revenue from tuition fee increases to enhance or introduce new financial aid schemes for students	8.29

Annex B**Composition of the University Autonomy,
Governance and Funding Steering Committee****Chairman**

LG(NS) Lim Chuan Poh Permanent Secretary (Education)

Members

Prof Shih Choon Fong	President, NUS
Dr Su Guaning	President, NTU
Prof Ronald Frank	President, SMU (till 31 Aug 2004)
Prof Howard Hunter	President, SMU (from 1 Sep 2004)
Prof Tan Chorh Chuan	Provost, NUS
Prof Lim Mong King	Deputy President, NTU
Prof Tan Chin Tiong	Provost, SMU
Prof Edison Liu	Executive Director, Genome Institute of Singapore
Dr Jennifer Lee	Chairperson, External Review Panel for QAFU
Mr Ravi Menon	Deputy Secretary (Policy), MOF
Mr Chan Yeng Kit	Deputy Secretary (Policy), MOE
Mr Lim Chee Hwee	Director, Higher Education, MOE

Resource Persons

Prof Linda Lim	School of Business, University of Michigan at Ann Arbor
Prof William Schowalter	Emeritus Professor, Princeton University and Emeritus Dean, University of Illinois at Urbana-Champaign
Prof Subra Suresh	Head of Materials Science and Engineering, Massachusetts Institute of Technology
Prof Jean-Lou Chameau	Provost, Georgia Institute of Technology
Dr Lee Huntsman	Emeritus President, University of Washington
Dr William Massy	Professor Emeritus of Education and Business Administration, Stanford University and President, Jackson Hole Higher Education Group, Inc
Lord Ronald Oxburgh	Chairman, House of Lords Select Committee on Science and Technology

Secretariat

Ms Veronica Chua	Deputy Director, Higher Education Division
Mr Tan Kok Yam	Assistant Director, Higher Education Division (till 30 June 2004)
Mr Ong Chun Kiat	Assistant Director, Higher Education Division (from 1 July 2004)
Mr Soh Sze-Wei	Senior Head (Policy), Higher Education Division
Ms Audrey Chen	Senior Head (Policy), Higher Education Division
Ms Maggie Ho	Senior Executive (Finance), Higher Education Division
Ms Evelyn Tan	Senior Executive (Finance), Higher Education Division

Annex C

Key Recommendations of the University Governance and Funding Review 2000

1. The key recommendations of the University Governance and Funding (UGF) Steering Committee are outlined below:

Overall

a. That the universities be given further operational autonomy, over and above what they currently enjoy, so that they can respond more quickly to changes in the environment, in return for greater accountability to ensure that public funds are properly directed towards the achievement of outcomes and used in an efficient and effective way;

Governance

b. That MOE continues to set key policy parameters while giving the universities more scope for greater operational autonomy, within a systematic accountability framework which is more comprehensive than the existing one;

c. That MOE establishes a systematic accountability framework focussing on the universities' achievement of outcomes and processes leading to the outcomes, including the introduction of an external review once every 3 years to validate the universities' internal quality reviews, with inputs feeding into decisions on funding;

d. That the role of the universities' Councils should complement the responsibilities of the CEOs in the strategic development of the institutions;

Funding

e. That the universities diversify their sources of funding by further developing their links with industry, alumni and the wider community;

f. That the universities be given more flexibility in financial management, mainly through the use of block grants and the use of a

3-year recurrent budget planning cycle. More competition should be introduced in the allocation of research funding;

g. That the universities put in place appropriate internal resource allocation systems to support and motivate Faculties, Departments and staff members in prioritising activities and achieving outcomes;

Staff Management

h. That a new remuneration system consisting of a basic component and other variable components reflecting differences in performance, responsibilities and market relativities be introduced;

i. That salary scales for basic pay be replaced by salary ranges with no automatic annual increments;

j. That the basic pay of Assistant Professors be increased by up to 20%, depending on the merit of each individual;

k. That rigorous appraisal systems be instituted to set out expectations for staff members, help the universities and the staff members assess performance, and provide the necessary information to make decisions on rewards and recognition, from annual merit increments to promotions and the granting of tenure;

l. That the universities devote more attention to staff development, including leadership development and managerial training; and

m. That efficient HR work processes be put in place to support the new staff management system.

2. The above recommendations of the UGF 2000 review have been implemented. NUS and NTU now enjoy greater operational autonomy, particularly in terms of staff remuneration and a block budget for recurrent expenditure. MOE has also put in place the Quality Assurance Framework for Universities (QAFU), and the MOE-appointed external review panel chaired by Dr Jennifer Lee has just completed its external validation of NUS in September 2004.

Annex D

Summary of Comments from Resource Persons

1. During the course of its deliberations, the Steering Committee consulted its panel of resource persons extensively. In general, there was strong support for the recommendation to devolve greater autonomy to our publicly-funded universities. The resource persons agreed that greater autonomy would allow our universities to be more competitive in the international arena and more responsive to a changing global environment.

2. The comments of the resource persons, summarised according to the key areas covered by the review, are as follows:

UNIVERSITY GOVERNANCE

3. The resource persons agreed that strong leadership was the key for autonomous universities to be successful. Therefore, it was important that autonomy, and the responsibility that came along with it, be felt at every level of leadership, from the Council members, President, senior management down to the deans and department heads.

4. The resource persons also expressed support for the recommendation to select Council members based on their competency and potential to contribute to the university. However, there were mixed reactions to having the Council members appointed by the Minister for Education, rather than by the universities themselves. One view was that while this was appropriate under the present circumstances, in the longer term, Council appointments might be entrusted to the universities themselves.

5. Another suggestion was to separate the governance exercised by the Council/Board of Trustees from fund-raising. To avoid potential conflicts of interests, one or more bodies, such as a foundation, could be set up to handle fund-raising and stewardship of these funds. For these bodies, the ability to support the university financially would then become an important parameter for member selection.

6. Many of the resource persons also expressed the view that there should be an acknowledgement of the roles played by the different stakeholders in making the university successful. For example, faculty (not just

deans and department heads) would often serve in various university committees to look into various issues such as budget, promotion and tenure, and building projects. It was also important to provide appropriate incentives to encourage faculty to be more entrepreneurial and more involved in research and economic development. Likewise, students could play an equally important role in shaping the university. Engaging the wider university community would be crucial to engendering the mindset change and cultivating greater ownership among stakeholders which had been identified as being necessary for the success of autonomous universities.

7. Several of the resource persons also pointed out that manpower planning by the Government or a central authority was generally no longer practised in most countries. Rather, the distribution of university places under most circumstances was left to market forces, i.e. student demand led by employment opportunities. Nevertheless, the resource persons acknowledged that small economies like Singapore might have special needs, and that enrolment caps might also need to be placed on expensive or facility-intensive courses such as medicine.

ENHANCED ACCOUNTABILITY FRAMEWORK

8. There was general consensus among the resource persons that one of the key issues was finding the correct balance between autonomy and accountability, as there was a natural tension between the two.

9. Several resource persons highlighted the need for the Policy and Performance Agreements to be carefully worded. On the one hand, the Agreements had to be unambiguous, while on the other, not being unduly prescriptive. For the Performance Agreement in particular, the resource persons cautioned that the key performance indicators (KPIs) should not be allowed to drive the system. Instead, we should recognise that the usefulness of the KPIs would depend on the expertise of the people interpreting them.

10. One recommendation was to rely more heavily on the use of international peer reviews, as the academic success of a university was determined by its reputation among the global community of scholars. Another idea was to set up a standing advisory body, composed largely of local business/professional people and foreign academic experts, to advise MOE on the issue of maintaining standards. The members could meet two or

three times a year and should have a fairly detailed knowledge of our local university sector.

11. In terms of financial accountability, one suggestion was for the universities to provide MOE with both annual expenditure plans, including predictions of monthly cash flow, and monthly reports of cash flow and other key financial indicators. These would not be for MOE's approval but to give MOE confidence in the university's management of its finances and in extreme circumstances, to provide early warning of the need for intervention.

PROPOSED FUNDING FRAMEWORK

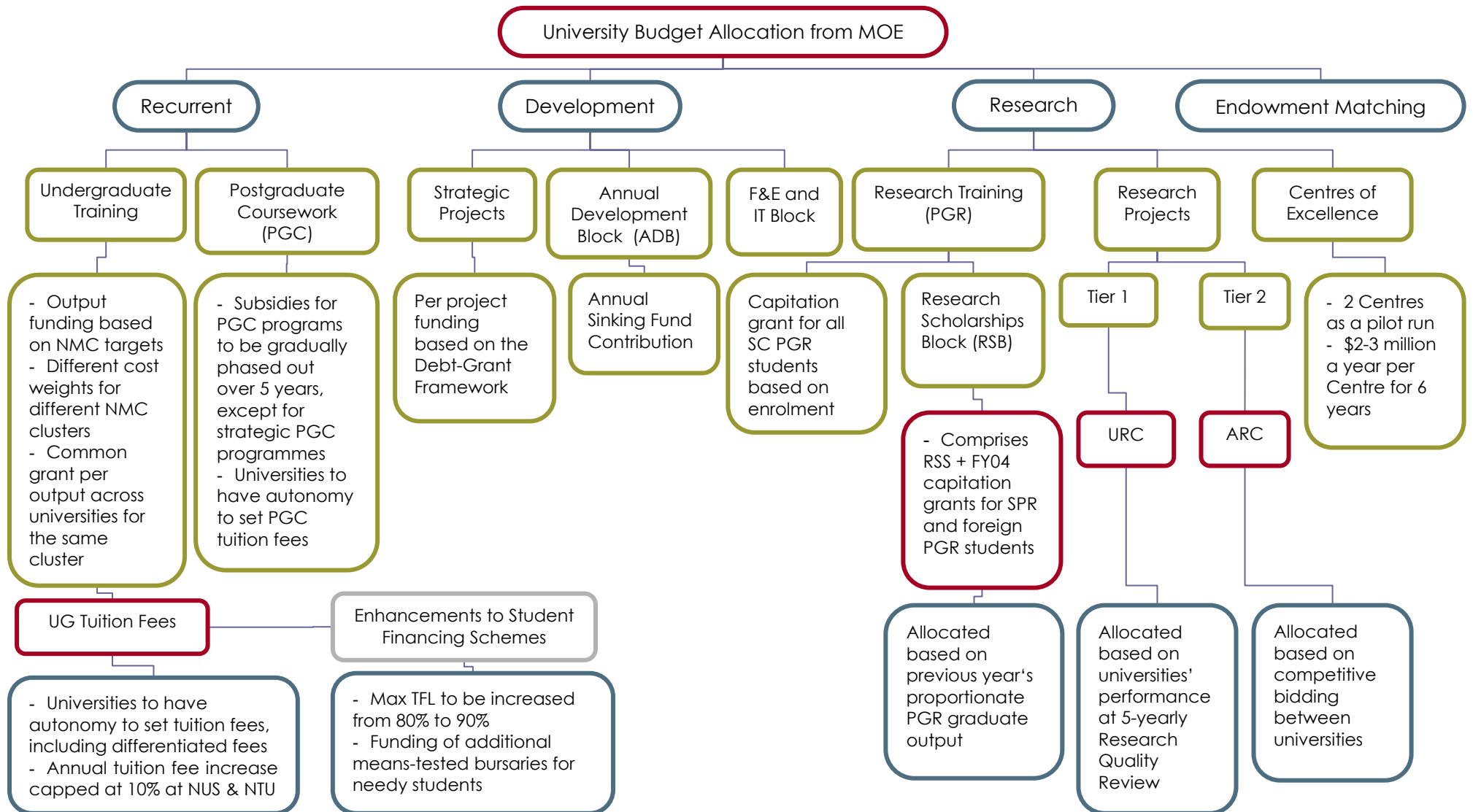
12. On the proposed undergraduate output funding model, some of the resource persons expressed concern over the potential unintended consequences. For example, since funding would be tied to the number of graduates produced, it would create incentives for universities to admit a large number of transfer students, so as to get an output grant when these students graduated after only a year or two of study.

13. Likewise, it was pointed out that the proposal to have postgraduate students pursuing coursework programmes cover the cost of their education might also lead to unintended consequences. While market-based approaches might work in professional areas, the model might not work as well for other areas of postgraduate study, such as the arts and humanities, possibly leading to their decline.

14. On the plan to have full-fee paying foreign students, some of the resource persons pointed out that some form of financial support might be necessary, as Singapore was surrounded by lower-income countries. Many of the foreign students our universities attracted were those that could not afford to go to top universities in the US or Europe, or in the case of China and India, their own premier institutions.

15. On the issue of research funding, the resource persons pointed out that the development of a national research funding infrastructure was critical if our universities were expected to recover their indirect research costs (including the cost of physical infrastructure) from external research sponsors.

Annex E Overall University Funding Framework



Annex F

Allocation and Evaluation Mechanisms for Research Funding

RESEARCH QUALITY REVIEW

1. The proposed Research Quality Review (RQR) is an institutional review conducted by an expert panel once every 5 years to assess the quality of research in the universities. The RQR Panel could comprise both local and overseas experts and be supported by a Secretariat staffed by MOE officers. The details of the review process will be worked out by MOE in consultation with the universities.

2. We recommend that the scope of the RQR encompass the following:

- a. The research quality and productivity (output) of the university;
- b. The scientific impact of university research;
- c. The management of science and science funding at the university – for instance, review and quality control systems, ethical guidelines on human research and infrastructure for technology transfer; and
- d. The quality of future research plans.

3. In their evaluation, the RQR Panel could take into account the following metrics/indicators of research excellence:

- a. Bibliometric analysis – e.g. the number and quality of publications per faculty, citation index, impact factor, and the 25 most important discoveries and papers from the university in science and technology;
- b. New research faculty supported by Tier 1 funding;
- c. Graduate student output and placement after graduation;
- d. Intellectual property rights, royalties, spin offs;

- e. Awards and prizes to school, faculty and graduate students;
- f. Amount of non-MOE research grants awarded to the university – e.g. ASTAR and NMRC grants;
- g. Contribution to society; and
- h. New science infrastructure from donations and charities.

ALLOCATION AND EVALUATION MECHANISMS FOR RESEARCH FUNDING

AcRF Tier 1

4. We recommend that AcRF Tier 1 funds continue to be allocated as a block of research funding to the universities, which will have discretion over how it is to be internally allocated. This will better allow them to concentrate resources so as to build up their own internal niches of research excellence.

5. We propose that the allocation of the Tier 1 block between universities be based on the universities' quality of research, as assessed by the RQR Panel. The RQR Panel will then put forward a recommendation to MOE on the funding allocation between the universities for the next five years.

AcRF Tier 2

6. AcRF Tier 2 supports quality research projects which address fundamental scientific, medical or social questions across any discipline. We suggest that funding continue to be awarded based on a competitive bidding process where Principal Investigators (PIs) submit project proposals to the Academic Research Committee (ARC)³¹ to seek funding.

7. Currently, each project proposal submitted is accompanied by at least two written reviews by leading overseas experts in the particular field. The project proposals are reviewed by an expert panel convened by MOE, which makes recommendations to the ARC on the projects to be funded. There are two calls for proposals a year.

³¹ The ARC is chaired by PS(Education) and comprises Deputy Secretary (Policy), MOE, President NUS, President NTU, Deputy Executive Chairman, Agency for Science, Technology and Research (A*STAR), and Deputy Chief Executive, Defence Science and Technology Agency (DSTA).

8. We suggest that the project proposals be judged on:
 - a. The importance of the research question;
 - b. The creativity/originality of the proposal;
 - c. The vision and quality (i.e. track record) of the PI(s); and
 - d. Potential for long-term benefit.

9. We propose that upon completion of the project, each PI be required to submit a report containing a list of simple quantitative output metrics as well as a short narrative of the research achievements. The PIs should articulate how their research has advanced scientific frontiers and impacted/benefited the larger scientific community. The metrics could include:
 - a. Number of publications (taking into account the quality of the journal in which they are published);
 - b. Number of research students trained (Masters and PhD); and
 - c. Number of invitations to speak at international conferences and seminars.

10. The objective of evaluating the project's performance is to provide information on the productivity of the PI, so as to inform future funding decisions. Hence, the narrative of the past research achievements in the report is crucial in the decision to award future Tier 2 grants to the PI.

Centres of Excellence

11. We recommend that MOE convene an evaluation panel which will be chaired by a scientist, to evaluate the universities' proposals to set up a Centre of Excellence. The panel will comprise a core group of members including the Chairman, with the remaining members appointed based on the subject disciplines of the proposals submitted. The universities could also be invited to nominate suitable candidates for the panel. However, the final decision on the appointment of the evaluation panel will still rest with MOE. Preferably, half of the panel members should be from overseas, one of whom

should be the Chairman of the evaluation panel so that there is some assurance that the panel will be objective.

12. We recommend that the universities be given sufficient flexibility to define the focus areas for the Centres, which could be determined in consultation between the university management and its faculty. However, before NUS and NTU submit their respective proposals, they should first submit a letter of intent (LOI) to briefly describe the key points of their proposal. The Chairman should engage in face-to-face discussions with the universities to go through the LOIs, as well as consult MOE on the intended areas of focus of the Centres. This will help to ensure that the universities do not submit proposals that deviate significantly from what is desired.

13. Once the universities' LOIs have been accepted by the Chairman, they will be invited to submit a full proposal, which should include the following:

- a. Outline of their strategic research plans, goals and milestones/deliverables;
- b. Research staff profile (including their individual research track record);
- c. Past record of research outputs and achievements;
- d. Research training plan;
- e. Future expenditure plan (on infrastructure, equipment and manpower); and
- f. Research partner and the role played by the partner.

14. Apart from reviewing the proposals, the panel members could also conduct site visits and interview the faculty who have put up the proposal. The panel will then make a recommendation to MOE on whether the Centre should be awarded. Therefore, although NUS and NTU will be invited to submit proposals to set up a Centre of Excellence each, it will not be awarded to the universities if they are unable to put up a good proposal for a Centre that is accepted by MOE and/or its review panel.

15. We recommend that each Centre receive \$2 million a year (if it involves only one university), or \$3 million a year (if it is a collaborative effort between two universities) for six years, funded by MOE. At the end of the six years, the status of a Centre lapses. However, the universities may put in a fresh application to have the status of their Centre of Excellence extended.

16. There should be regular follow-up on and monitoring of the progress of the Centre to ensure that it is operating as planned. We suggest that each university be charged with the responsibility of monitoring the progress of its Centre, which should rightly be expected to furnish regular progress reports to the university management.

17. At the end of the third year, the Centre will be expected to conduct a self-assessment and submit a report to MOE. The self-assessment report should articulate the extent to which the Centre has achieved what it set out to do (providing relevant examples where appropriate), including data on self-selected performance indicators and research outputs. The evaluation should cover both qualitative aspects of the Centre's performance and achievements and quantitative research metrics. The evaluation panel will convene to review the self-assessment report and assess the progress of the Centres before putting forward a recommendation to MOE on whether funding for each Centre should be continued for the next three-year period.

Annex G

Existing Student Financing Schemes

Source of Funding	Financing Scheme	Details of award	Eligibility Criteria
Loans			
Government	Tuition Fee Loan	Up to 80% of tuition fee payable	Available to all full-time students
	Study Loan	Covers 20% of tuition payable plus up to \$3,600 living allowance per annum	<ul style="list-style-type: none"> • Full-time undergraduates who have applied for loans offered by an organisation registered with a government agency or the maximum Tuition Fee Loan or a mixture of both, provided the total loan is at least 80% of tuition payable. • Applicant whose gross monthly per capita household income \leq \$900 is eligible to apply
Universities	University-Administered Loan	NUS : up to \$1,800 per semester NTU : \$500 to \$2,000 per annum SMU : up to \$3,000 per annum	Needy students only
	Overseas Student Exchange Loan	Max. of \$3,000 per semester	Students selected and admitted to an overseas partner university only
Community	Mendaki Supplementary Assistance Loan Scheme	<ul style="list-style-type: none"> • Those not in receipt of any subsidy can borrow up to 80% of tuition fee • Those in receipt of 70% subsidy can borrow up to 30% of tuition fee 	For full-time Malay students (who are Singapore citizens or children of Singapore citizens) who are not receiving any subsidy or who are in receipt of partial (70%) subsidy under the Tertiary Tuition Fee Subsidy Scheme

Source of Funding	Financing Scheme	Details of award	Eligibility Criteria
Scholarships			
Government	ASEAN Undergraduate Scholarship	Covers tuition and living allowance of \$4,300 per annum	For full-time ASEAN nationals only (except Singapore citizens)
	University Engineering Scholarship	Covers tuition and living allowance of \$3,500 per annum	For Singapore citizens or Singapore Permanent Residents only
Universities	NUS Undergraduate Scholarship	Covers tuition and living allowance of \$4,300 per annum	For outstanding freshmen pursuing an undergraduate course in NUS; based on academic merit regardless of nationality
	Nanyang Scholarship	Covers tuition and living allowance of \$5,000 per annum	For outstanding freshmen pursuing an undergraduate course in NTU; based on academic merit regardless of nationality
	LKY-STEP Award	One-off cash award of \$5,000	<ul style="list-style-type: none"> • For Singapore citizens and Permanent Residents who are poly diploma holders and matriculated in full-time undergraduate degree courses • Applicants must have achieved outstanding results in their poly course and have good CCA records
	Donated Scholarships	\$3,000 per award	For students with academic merit
	Alumni Scholarship	\$3,000 per award	For NTU alumni and undergraduates who are children or siblings of NTU's alumni and pursuing full-time undergraduate and postgraduate programmes

Source of Funding	Financing Scheme	Details of award	Eligibility Criteria
Community	GLC-University Scholarship	Covers tuition fees, living allowance of \$6,000 per annum and other provisions like settling-in costs, airfares, hostel allowance, and other compulsory fees charged by the university on admission	<ul style="list-style-type: none"> For undergraduates studying Science, Engineering and Technology courses only 5 types of scholarships under GLC Scholarship, namely, PRC Scholarship for SM2 and SM3 scholars (for PRC), PRC Scholarship for direct entry to university (for PRC), Sembcorp-ST Undergraduate Scholarship (for Indonesians), SIA-NOL Undergraduate Scholarship (for Indian students) and Hong Kong Scholarship (for HK students)
Bursaries			
Universities	University-Administered Bursary	NUS : \$1,500 per annum NTU : \$500 to \$3,000 per annum SMU : \$2,500 per annum	Needy students only
Community	CCC-University Bursary	\$1,000 per annum	Needy Singapore citizens with monthly household income < \$1,500
Others			
Government	CPF Education Scheme	Up to 100% of tuition fee payable	Full-time students
Universities	Work-Study Scheme	NUS : \$5-\$8.50 per hour for general work and \$20-\$30 per hour for work as student tutor NTU : \$6 per hour SMU : \$2,000 per application for 200 hours of work (i.e. \$10 per hour)	Students can apply to work part-time on campus during vacation and/or term time to carry out routine non-confidential duties or as assistants in laboratories

Source of Funding	Financing Scheme	Details of award	Eligibility Criteria
Community	Mendaki Tertiary Tuition Fee Subsidy	<ul style="list-style-type: none"> • If monthly household income is between \$2,000 and \$3,000, quantum per award is up to 70% of tuition fee • If monthly household income is <\$2,000, quantum per award is up to 100% of tuition fee 	For Malay Singaporeans only