

## SINGAPORE

Monday, September 1, 2008

# Global education attracting global talent

**A**n independent city state for more than four decades, Singapore has compensated for its lack of natural resources by making its people its greatest asset. Consequently, the future of Singapore has been inextricably linked to education, and this remains as true today as it has been throughout the dramatic socio-economic success story of its free and open economy over the last 45 years.

"We try to capitalize on what there is by making decisions over a much longer time frame and with an overall strategic view of where we want Singapore to be headed," says Dr Ng Eng Hen, Minister of Education, emphasising the long-term planning that has seen Singapore grow its economy more than 7 percent per annum and its per capita income to US\$49,800, the eighth highest in the world.

In the early years, Singapore's polytechnic institutes helped to establish the country's global competitiveness in areas such as electronics manufacturing and oil refining. When globalization became the dominant undercurrent of the 1990s, Singapore developed a deliberate global focus to its higher education.

Now that focus has shifted to high-value knowledge creation and innovation, and heavy investment in research and development (R&D). The public universities, the National University of Singapore (NUS) and Nanyang Technology University (NTU), have established global reputations in a variety of fields, attracting researchers and students from around the world and fuelling a culture of innovation and scientific excellence.

The first privately funded university opened in 2000. Modeled after the Wharton School, the Singapore Management University (SMU) offers US-style undergraduate and postgraduate



Education has played an integral part in Singapore's remarkable socio-economic success since independence in 1965.



**NG ENG HEN**

Minister of Education

programs in business, accountancy, law and economics.

In 1997, the government of Singapore announced the objective of attracting 10 world-class universities to Singapore by 2008, to set up centers of excellence in education and research with strong industry linkages. This was achieved five years ahead of schedule.

Today Singapore hosts no less than 16 leading international institutions,

including INSEAD, Duke, the University of Chicago Graduate School of Business, Cornell University, New York University's Tisch School of Arts, University of Hawaii and DigiPen Institute of Technology.

It now finds itself located in the midst of the world's fastest growing student market. By 2025, the region is projected to account for 70 percent of the global demand for international higher education. The Global Schoolhouse Vision launched in 2002 envisions Singapore as a world-class education hub offering a diverse and distinctive mix of quality education

to students and faculty from around the globe.

"We believe that Singapore is well-placed to seize a strong position in the growing Asian market," says Aw Kah Peng, Assistant Managing Director of the Singapore Economic Development Board. "We have a quality education brand name, a safe environment and good quality of life, and a unique East-meets-West cosmopolitan environment." US institutions are welcome to set up a presence, she adds.

Singapore is taking a cluster approach to developing niche education offerings, such as tourism and hospitality education as well as digital and new media education. It is also positioning itself as a biomedical hub for the region. The government has committed US\$8.5 billion for R&D for the period of 2006-2010, with a heavy flow toward biomedical grants.

## Singapore

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## SINGAPORE

# A small country with big dreams

**Development of science and technology is key to the creation of a prosperous and vibrant Singapore built upon a knowledge-based economy**

**A**lmost three decades ago, and with very little infrastructure in place, Singapore set itself the goal of becoming a world leader in science and technology. Today it is working towards raising R&D spending relative to GDP to three percent – a target the European Union has given itself until 2015 to achieve.

And it is on track, with \$9.6 billion invested in R&D for the five-year period 2006-2010, and current spending relative to GDP at about 2.4 percent.

Singapore's lead agency for fostering world-class scientific research and talent is the Agency for Science, Technology and Research (A\*STAR). The agency

actively nurtures public sector R&D in biomedical sciences, physical sciences and engineering, with a particular focus on fields essential to Singapore's manufacturing industry and new growth industries.

It oversees 14 research institutes and six research consortia/centers and supports extramural research with the universities, hospital research centers and other local and international partners.

Most of A\*STAR's research institutes are headquartered at Biopolis and the soon-to-be-opened Fusionopolis, research hubs dedicated to biomedical sciences, and physical sciences and engineering respectively.

With high-tech facilities and



Nurturing the next generation of scientists is a major part of A\*STAR's work.

public and private laboratories working alongside one another, Fusionopolis will be a place where different disciplines can integrate, says Lim Chuan Poh, A\*STAR's Chairman. "You need scientists, business and creative types all in one small location so that they spark and make things happen."

At the heart of A\*STAR's knowledge intensive work is human capital, which is why the agency has put as much into bringing top scientists to Singapore as it has into building the physical infrastructure of Biopolis and Fusionopolis. Singapore's strong funding for R&D and its pro-science laws, along with the environments and facilities offered by Biopolis and Fusionopolis, have allowed A\*STAR to attract some of the biggest names in science from around the world.

A\*STAR is also dedicated to nurturing the next generation of scientific talent. By 2010, it will have given out some 1,000 Singaporean PhDs.

The Singapore International Graduate Award (SINGA), a collaboration between A\*STAR,

the National University of Singapore (NUS) and the Nanyang Technological University (NTU). It gives international young talent and aspiring scientists the opportunity to obtain their PhDs in the fastest growing region in the world.

"There are 3.3 billion people within a seven-hour flying radius,"

says Lim Chuan Poh. "It's unlike working in research in Boston, an established environment. This is a new environment and it is very dynamic."

PhD training will be carried out in English at the scholarship recipient's chosen lab at A\*STAR research institutes, NUS or NTU. Research areas fall broadly under two categories: biomedical sciences, and physical sciences and engineering. Upon successful completion, students will receive a PhD degree from either NUS or NTU.

SINGA covers full tuition and offers an attractive monthly stipend for four years of PhD studies. To apply or learn more about SINGA, visit [www.singa.a-star.edu.sg](http://www.singa.a-star.edu.sg).



**LIM CHUAN POH**  
Chairman of A\*STAR

## SINGAPORE

# Attracting opposites

World-class education, leading degree programs and elite researchers are brought together in an international environment that might just be the key to understanding Asia

**F**ifty-three years ago, people from all walks of life donated money to start Nanyang University, the first Chinese-language university outside China.

More than half a century later, Nanyang Technological University (NTU) is a multi-cultural research university, combining a cultural focus with science and technology. Today, this research-intensive university, ranked among the top 25 technology universities globally, is home to over 29,000 students and one of the largest engineering schools in the world. While most lessons are conducted in English, NTU also conducts six Master's programs in Mandarin Chinese.

Thriving on the contrast of cultural heritage and emerging technology, NTU has combined links with China with strong research partnerships with the likes of MIT, Stanford, Rice, Caltech and some 200 other institutions worldwide. "We enjoy pairing opposing things and trying to make them work together," says NTU President Dr. Su Guanqing.

That sense of contrast is palpa-

ble on the NTU campus. In addition to the ethnicities that make up Singapore's population, NTU is home to over 8,000 international students and 1,500 international faculty from over 40 countries.

A growing number of top-level students outside Asia are turning to NTU, attracted by the combination of a global curriculum, top funding and access to Asia's increasingly important emerging giants.



**DR. SU GUANQING**  
President of Nanyang  
Technological University

A West Point graduate and Fulbright Scholar, Daniel Vallone recently completed NTU's Master of Arts in Contemporary China. "NTU has enriched my understanding of China in ways that similar programs in other countries cannot."

The fluidity of funding and frenetic pace of innovation is luring early-career scientists to NTU. In June, NTU placed international adverts to recruit young researchers. The university has since received more than 400 applications. Ten of these will eventually be offered assistant professorships and will receive \$735,000 over the next three years for their research. Last year Bertil



NTU's research strengths include biomedical sciences, water technologies, digital media and nanoelectronics.

chips, consuming over 100 times less energy than current models and costing less to produce.

NTU has also invested \$2.206 million to establish the Institute for Media Innovation, bringing together 100 faculty and researchers from its four colleges and the National Institute of Education for interactive digital media research with a prominent international network.

NTU is now taking a lead role in the city-state's five-year plan to invest \$1.765 billion in the niche areas of biomedical sciences, environmental and water technologies and interactive and digital media areas which closely correspond to NTU's existing research strengths.

With the influx of foreign attention on NTU, Dr. Su notes a shifting educational paradigm, particularly in the U.S. "There is a growing need to send students out into the world," says Dr. Su, who recently signed student-exchange agreements with leading U.S. universities. "Traditionally, science and technology students stay in America. With the growth and innovation in Asia, that is starting to change. NTU can play a role in that shift."

Andersson, former Chief Executive of the European Science Foundation and current Nobel Trustee, joined as Provost.

Andersson, who was drawn to NTU by the lack of obstacles in creating research programs, helped assemble a "dream team" of experts for the university's new Earth Observatory of Singapore project. Enabled by a \$110 million grant, the center will focus on hazards such as earthquakes, volcanoes and climate change.

Another recent project is the Institute for Sustainable Nanoelectronics, a joint initiative with Rice University. Funded by NTU and headed by Rice computer science professor and visiting professor at NTU Krishna Palem, the Institute is designing and developing the "next generation" of embedded

**NANYANG TECHNOLOGICAL UNIVERSITY**

**Singapore's Science & Technology University**

• College of Engineering • Nanyang Business School • S. Rajaratnam School of International Studies  
 • College of Science • College of Humanities, Arts, & Social Sciences • National Institute of Education

www.ntu.edu.sg

## SINGAPORE

# A national university for the world

The National University of Singapore is positioning itself as the intellectual nerve center for a rising Asia

**P**erched atop Kent Ridge, the National University of Singapore (NUS) commands a panoramic view of a striking Asian success story. Once a quiet village, the tiny island of Singapore is now one of the world's most dynamic economies, situated at the crossroads of shifting geopolitical balance. The success of NUS - ranked 33rd in the world and 4th in Asia by the Times Higher Education Supplement 2007 - has both mirrored and driven this socio-economic revolution.

"The concept of a knowledge port is our aspiration," says NUS President, Professor Shih Choon Fong, gesturing towards the Port of Singapore, the world's busiest container port. "We've moved from a container port to a knowledge port, metaphorically speaking. A container port is all about goods but a knowledge port is all about people. NUS is here to create talent for the world and to attract talent from around the world. Talent is free to come and go, but while they are here they create value for themselves and for Singapore.

"NUS' efforts to build a global learning community par-



Prof. Shih Choon Fong, President of NUS, Mr. Tony Blair and Prof. Kishore Mahbubani, Dean of LKY School, at the "Crisis in Global Governance: Challenges and Solutions" lecture on 9 Nov 2007 in Singapore.

allel the global outlook that is very much part of the Singapore psyche," continues the professor, who, after 30 years in the U.S., was lured back to Singapore by what he sees as a shifting center of gravity in the world of academic excellence.

NUS' globally-oriented education is underscored by the ample opportunities for overseas exposure it offers students. Through the NUS Overseas Colleges and study abroad programs, the University plans to see half of their 31,000 students venture overseas in the coming years. Reciprocally, NUS was recently named "Best Host for

International Students" by the Singapore Tourism Board.

"Singapore was global before the term "globalization" became fashionable," says Prof. Shih. "As a tiny city state, globalization is a necessity, not an option. With globalization, size matters less. Small size can be leveraged to be more nimble and agile."

Using this agility at the global level, NUS is a major player in a number of leading international academic and research networks, such as the Association of Pacific Rim Universities and the International Alliance of Research Universities. "These linkages are the bridges across disciplines and

institutions, as well as communities, cultures and continents," states Professor Shih.

Continuing to build on a model of collaborative networks, NUS employs a research strategy of multi-disciplinary alliances across the globe. This model has seen the establishment of NUS Overseas Colleges in some of the world's other innovation hubs - Silicon Valley, Philadelphia's Bio Valley, Shanghai, Stockholm and Bangalore - and has resulted in over 400 teaching and research collaborations with leading universities from around the world.

Dubbed a "research university with an entrepreneurial dimension," NUS' model has resulted in more than 1,000 invention disclosures, 381 patents, 219 technology licenses, and more than 70 spin-off companies.

In the push towards global excellence in research, NUS has now embarked on an initiative to grow 10 great programs in 10 years. A start has been made with two Research Centers of Excellence—the first in quantum technologies and the other in cancer research, as well as specific focuses on environmental science and clean energy, biodiversity and biomedicine, water desalination technology and translational medicine.

## Power is shifting to Asia. Are you?

Meet the next generation of Asian leaders here at the Lee Kuan Yew School of Public Policy, a graduate school of the National University of Singapore. Gain unique insights into one of the most dynamic regions in the world with our three

Masters degrees in Public Policy, Public Administration and Public Management. And you also have the invaluable opportunity to study at Columbia University, the London School of Economics, Sciences Po, Paris and the Harvard Kennedy

School. The School offers generous scholarships on a competitive basis.

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**Excellence in biomedicine**

NUS, ranked first in Asia for life sciences and biomedicine, is also an integral part of the Singapore government's bid to become a biomedical hub for Asia. Accordingly, the university recently teamed up with the renowned Duke University medical school to forge the Duke-NUS Graduate Medical School, Singapore.

With a maiden intake of 26 students in August 2007 and another 47 students this year, Duke-NUS has already attracted some of the leading names in medical education, including Dr. Ranga Krishnan, the Chairman of the Department of Psychiatry at the Duke University School of Medicine and the Dean of Duke-NUS.

One of a few select medical schools in Southeast Asia to offer a graduate medical degree where students begin their medical studies after earning a bachelor's degree, as they do in the U.S., Duke-NUS also differentiates itself through its focus on research and hands-on experience. Students will cover basic science in one year instead of two, begin caring for patients a full year earlier than their peers at other medical schools, and devote an entire year to independent scholarship and research. "This is unique and essentially geared towards producing a new breed of physician scientists for the biomedical age," says Dr. Krishnan.

**LEE KUAN YEW SCHOOL OF PUBLIC POLICY****New leaders for a new Asia**

NUS is leveraging on its diversity and strategic global positioning in the public policy arena through its Lee Kuan Yew School of Public Policy (LKY School). In tandem with the growth in size and influence of Asia itself, LKY School is the fastest growing school of public policy in the world and quickly becoming one of the most prominent.

Having begun in August 2004

with 50 students, LKY School currently has close to 300 students.

**Generous Scholarships**

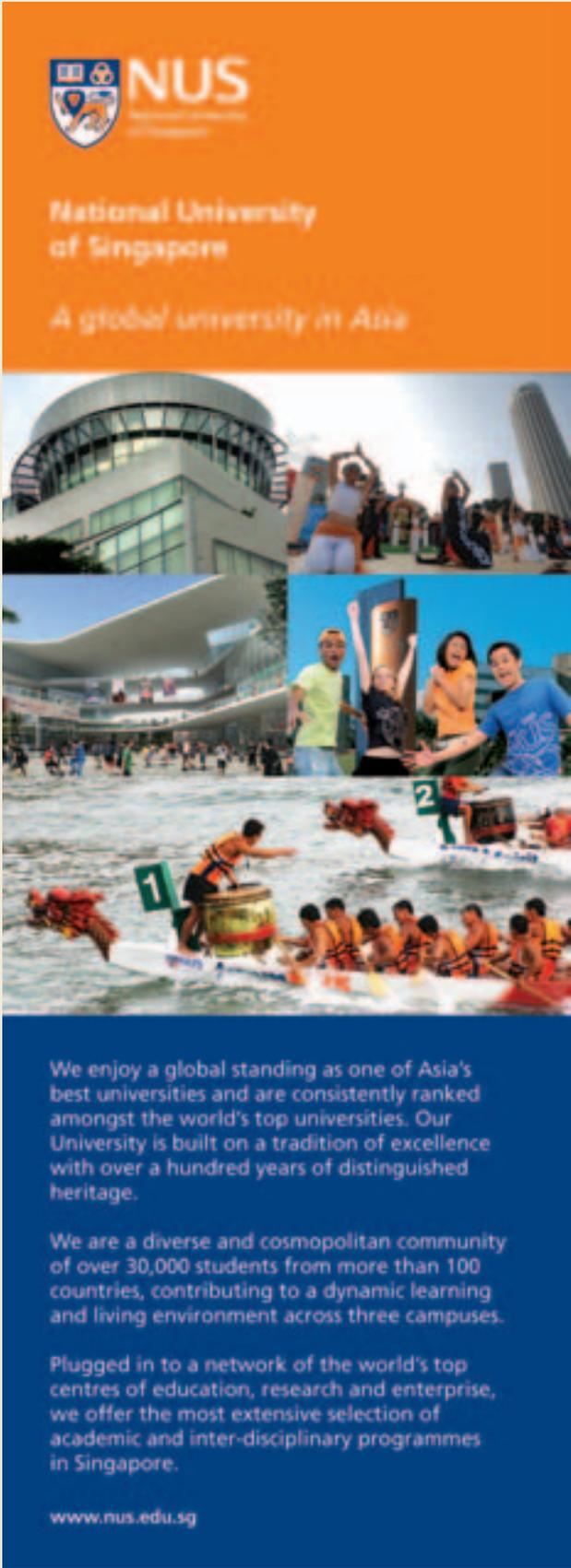
Drawing on the best of East and West, 80% of students come from abroad and 65% study on scholarships, making it one of the most diverse – as well as one of the most generous – public policy schools in the world. Currently, the School confers Master degrees in Public Policy, Public Administration and Public Management as well as a PhD and executive education options such as the Senior Management Program in Leadership & Governance, developed jointly with Columbia University.

**Partnering with the best in the West**

The School was set up in partnership with the Harvard Kennedy School (HKS). Qualifying MPM candidates spend a semester studying at HKS. In 2007, LKY School joined the Global Public Policy Network, an elite club of only three other public policy schools in the world: Columbia University, London School of Economics and the Institut d'Etudes Politiques de Paris (Sciences Po). This allows a number of students to spend a year at any of these schools and obtain a dual degree from LKY School and one of their partner institutes.

LKY School's growth is being spearheaded by Prof. Kishore Mahbubani, dean of the School and Professor in the Practice of Public Policy. Named one of the top 100 public intellectuals in the world by *Foreign Policy* magazine in 2005, Prof. Mahbubani is a two-term Ambassador to the UN, a former President of the UN Security Council and an increasingly recognized global thought leader.

"We hope to play a significant role in shaping Asian public policy by boosting good governance in the region and beyond," says Prof. Mahbubani.



**NUS**  
National University of Singapore  
A global university in Asia

We enjoy a global standing as one of Asia's best universities and are consistently ranked amongst the world's top universities. Our University is built on a tradition of excellence with over a hundred years of distinguished heritage.

We are a diverse and cosmopolitan community of over 30,000 students from more than 100 countries, contributing to a dynamic learning and living environment across three campuses.

Plugged in to a network of the world's top centres of education, research and enterprise, we offer the most extensive selection of academic and inter-disciplinary programmes in Singapore.

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