Towards a Competitive Higher Education System in a Global Economy

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ACKNOWLEDGMENTS

The Thailand Social Monitor series was conceived as a tool to reflect on current situations and about selected issues in Thailand's health, education and social protection sectors. The first Social Monitor, *Challenge for Social Reform*, was launched in 1999 in response to the 1997 economic crisis. To date, seven Social Monitors have been issued.

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ABBREVIATIONS

AIT	Asian Institute of Technology
AW	Asia Week
BTF	Basic Standard Tuition and Fee Costs
CHE	Commission on Higher Education
CUAS	Central University Admissions System
EQA	External Quality Assurance
GER	Gross Enrollment Rate
GMS	Greater Mekong Sub-region
GPA	Grade Point Average
GPI	Gender Parity Index
HE	Higher Education
HEP	Higher Education Plan
ICL	Income Contingent Loan
IMF	International Monetary Fund
IQA	Internal Quality Assurance
ISCED	International Standard Classification of Education
MOE	Ministry of Education
MUA	Ministry of University Affairs
NB	National Budget
NEA	National Education Act of 1999 (Amended in 2002)
NIDA	National Institute for Development and Administration
NIETS	National Institute of Educational Testing Service
NSO	National Statistics Office
NSTDA	National Science and Technology Development Agency
OECD	Office of Economic Cooperation and Development
ONESQA	National Education Standards and Quality Assessment
OPEC	Office of the Private Education Commission

ABBREVIATIONS

R&D	Research and Development
RTG	Royal Thai Government
S&E	Science and Engineering
S&T	Science and Technology
SCI	Science Citation Index
SJTU	China's Shanghai Jiao Tong University
SLS	Student Loan Scheme
SME	Small and Medium Enterprises
THB	Thai Baht
THES	Time Higher Education Supplement
TICAL	Thailand Income Contingent and Allowance Loan
UILs	University - Industry Linkages
UNCTAD	United Nations Conference on Trade and Development
UNESCO	United Nations Educational Scientific and Cultural Organization
WEI	World Education Index

Executive Summary

The global economy has become increasingly complex and competitive. Many countries have turned to knowledge-based growth to transition from labor-intensive sectors to new and emerging economic activities that require higher skills and intellectual capital. In Thailand, higher education increasingly plays an essential role in enabling greater opportunities for economic growth and attractiveness to foreign investment. This Social Monitor provides a snapshot of the current state of the higher education sector in Thailand by examining its key characteristics, latest developments, strengths, and weaknesses. It also focuses on the extremely important relationships between higher education, research and development, innovation policies, and the private sector.

Chapter 1 addresses the question of why higher education matters in general and explores the fundamental link between gains in higher education and overall returns to society, including higher wages, enhanced productivity, and social mobility. International evidence suggests that mature higher education systems provide an enabling environment to promote the skills and capacities that enhance labor productivity and foster research and technological innovation. Human capital accumulation as it translates into technology development is recognized as a key pathway for economic expansion. In order to generate technological changes, a country must invest in preparing highly creative and skilled individuals as well as in providing the resources and adequate environment to foster technological developments. There is also evidence that Thailand has not been able to live up to its full potential in this arena and that there is certainly scope for improvement.

Chapter 2 provides an overview of Thailand's higher education system by examining the different degree streams, types of post-secondary education institutions, university admissions procedures, and the organizational structure and public agencies that govern the system. Thailand has been gradually increasing overall access to higher education, providing some universities with greater autonomy, nurturing excellence within specific academic institutions, facilitating the growth of linkages between industry and universities, and developing its Second 15-Year Long Range Plan for Higher Education that includes innovative reforms.

Executive Summary

Chapter 3 focuses on access to higher education and delves into the issues of student enrollment, equity (e.g., gender, socio-economic distribution, regional, parental education), international students, Thai students overseas, and student academic choices. Access to higher education in Thailand has experienced a positive trend over time, but serious problems remain in terms of equity. Despite real increases in the supply of postsecondary institutions to accommodate the growing demand, enrollment rates by lower-income students remain very low. Men are also significantly under-represented.

Chapter 4 analyzes the quality and relevance of the country's higher education system. How do Thailand's universities rank compared to universities around the world? What do we know about the quality of teaching and learning? What types of quality assurance practices are in place? Do graduates have the skills needed for the labor market? A number of criticisms have been made about the quality of education and relevance of Thai university graduates and their lack of comprehensive knowledge and skills. Universities typically offer narrowly-specified fields of study, equipping students with limited skills and making them unable to adapt or relate their knowledge to broader contexts. It is also clear that Thailand has an oversupply of social science graduates while lacking graduates in the fields of science, engineering, and health sciences, with a significant mismatch between the training provided in higher education institutions and the skills needed in the labor market.

Chapter 5 discusses higher education financing, governance and institutional management with a specific focus on public and privates expenditures, financial aid to students (grants, scholarships, loans, income diversification, cost-sharing), and recent efforts to decentralize management and accountability. The current financing structure remains a formidable obstacle toward reforming the structure of the higher education system since the vast majority of public institutions receive about 80 percent of their budgets from the central Government. Also, public university employees are currently civil servants, which impose higher costs and less flexibility in terms of hiring high-performance staff and firing under-performing employees. The current administrative structure of the majority of public and private institutions in Thailand is highly centralized with the Commission on Higher Education either directly supervising or regulating nearly all universities. The reality is that the overwhelming major-

ity of Thai universities are not autonomous. Increased autonomy for universities across the Thai higher education landscape is imperative for generating academic environments that are responsive and effective both for student education and building high-quality research capabilities.

Chapter 6 summarizes key findings, reemphasizes ongoing challenges discussed in previous chapters, and offers some policy orientations. No country can afford to be complacent in today's global economy and Thailand is no exception. Weaknesses in its education system, especially in higher education, are contributing to growing challenges at the macro level as evidenced by recent statistics. Several insights for moving forward and addressing the challenges include: acquiring a sense of urgency, especially in the context of Thailand's competitive neighbors; improving the quality and relevance of universities with a focus on strengthening linkages to the private sector; learning from how other countries are reforming their higher education systems, learning from Thailand's own strengths and experiences; and strengthening the overall innovation system in which higher education occupies a central role.

In short, Thailand can rightfully point to major achievements in the development of its higher education system, including the establishment of autonomous universities and increasing access through innovative open universities such as Rajabhat and Rajamangala. However, the higher education system faces many challenges in the areas of governance, financing, quality, access, and its relationship to the private sector. Without significant changes in both policies and attitudes in these areas, Thailand's future vision as a knowledge-based economy relying on highly skilled labor and technological advances to drive growth and productivity will be extremely difficult to achieve.

Chapter 1

Why Invest in Higher Education?

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Why Invest In Higher Education ?

INTRODUCTION

A strong higher education system is a foundation for sustainable growth and development. Higher education plays an important role in generating new knowledge and preparing its graduates for an increasingly global economy where knowledge has become a critical driver for economic growth and social development. Technical innovations can lead to higher productivity. Progress in the agriculture, health and environment sectors, for instance, has heavily depended on the application of basic and applied research undertaken in higher education institutions. A better skilled labor force is also able to harness new technologies, further enhancing productivity gains. Furthermore, higher education can promote social cohesion, trust in social institutions, and civil participation.

In the last 30 years, Thailand has invested heavily in improving primary and secondary education and providing the basic levels of education to all its citizens. Education has been a priority since the country changed to a constitutional monarchy in 1932, though focused attention to higher education has waxed and waned over the decades since then. The tertiary education system in Thailand faces new and diverse challenges, in terms of access, equity, and quality. Gross enrollment rates have shown impressive growth, jumping from 19 percent in the early 1990s to 50 percent in 2007 (Edstats, 2009). Educational quality improvements, however, have lagged behind despite relatively high levels of public investment—greater than 20 percent of the Government education sector budget. Furthermore, higher education spending is not equitable. Public expenditures in this subsector tend to benefit higher income groups disproportionately, as the wealthiest 20 percent of the population captures approximately 53 percent of tertiary education spending.

The strong emphasis on expanding access at lower levels of the educational ladder mirrored the economic model pursued by Thailand in the latter part of the 20th century. During the decades following World War II, like many other nations of similar economic development, Thailand took advantage of the relatively low cost of its human capital to stimulate economic growth through foreign investment in labor-intensive productive sectors. This model was successful until the financial crisis of 1997, signaling a need for change.

As global market conditions have shifted, higher education is now required both to train higher skilled workers to operate in a knowledge-based economy and promote research and development. Higher education is instrumental to the creation of the intellectual capacity on which knowledge production and utilization depend as well as to the promotion of lifelong-learning practices necessary to update individual knowledge and other skills (World Bank, 2002b). This chapter presents a brief description of the economic theories that illustrate how investment in human capital translates into higher productivity, technological development, and economic growth. The following chapters will explore in greater depth the characteristics of the higher education system in Thailand and conclude with a series of recommendations to enhance the quality, efficiency and equity of higher education provision.

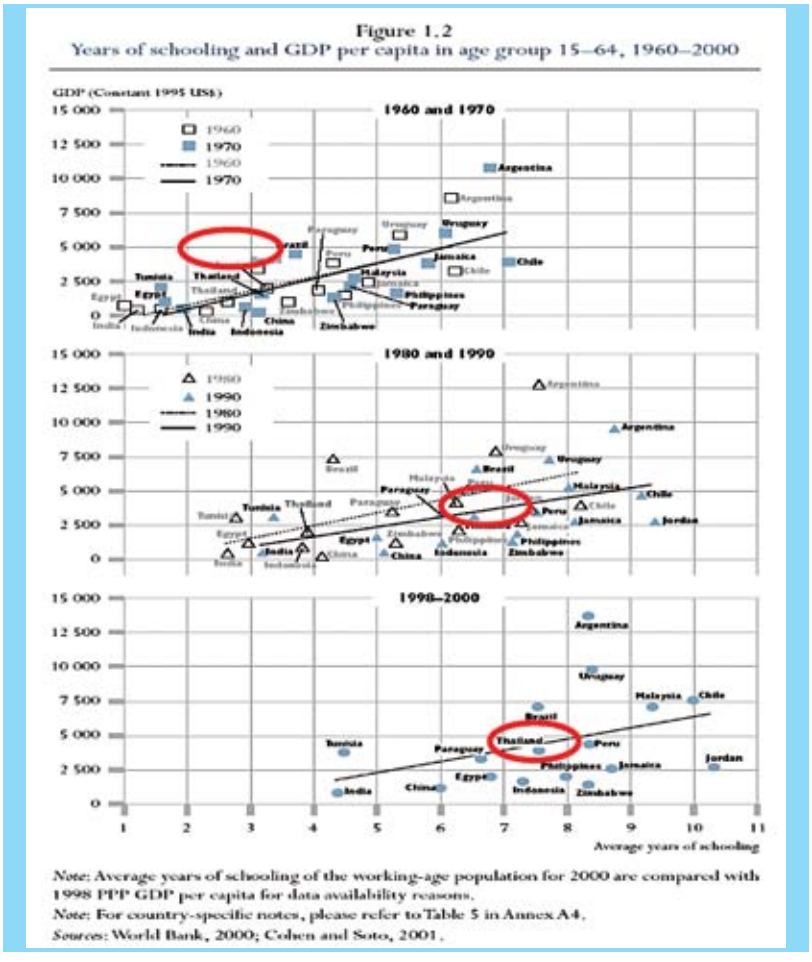
Why Invest In Higher Education ?

In the early 1960s, economists began to realize that the traditional factors of production— land and capital—were not sufficient to explain high economic growth rates in the post-war United States. This led to an exploration of alternative factors to explain economic growth. Nobel Prize winner Gary Becker (1967) conceptualized human capital theory and posited that the "additional growth" was explained mainly by the increase in the years of education and productivity of the labor force.

There is substantial international evidence about the linkages between education and economic growth for different countries and at different points in time. Figure 1.1 illustrates the positive relationship between years of education and economic growth between 1960 and 2000. This figure illustrates how Thailand doubled its GDP during this period after heavily investing in lower levels of education. In the 1960s, Thailand's population between the ages of 15 and 64 averaged fewer than three years of schooling and its GDP, measured in constant 1995 United States Dollars, was below USD 2,500 per capita. In 2000, the country more than doubled the average number of years of education to seven years, while GDP grew to approximately USD 5,000 per capita (World Bank, 2000; Cohen and Soto, 2001).

Investments in human capital have positive returns both for individuals and society, as long as the local economy is positioned to maximize its outputs—particularly highly trained, highly skilled workers. Individual benefits are measured by private rates of returns while societal benefits are measured by social rates of return.

FIGURE 1-1: YEARS OF SCHOOLING AND GDP PER CAPITA IN AGE GROUP 15-64, 1960-2000



According to human capital theory, additional years of education increase individual productivity as well as lifetime earnings. There is substantial evidence from individuals in different countries and across time that earnings for college graduate workers exceed that of high school workers (Becker, 1992; Murphy & Welch, 1992; Paulsen, 1998). In the United

States, the median annual income of high school graduates in the 1960s was over USD 30,000 (2004 constant USD) compared to around USD 45,000 for college degree holders. By 2003, this difference had increased by over USD 5,000. The median annual income of high school graduates remained constant whereas earnings of college degree holders increased to over USD 50,000 (Mortenson, 2006). Similar trends can be observed in Thailand. Table 1-1 illustrates how the labor market rewards additional years of education for a higher education graduate compared to someone who has only finished secondary education. The average monthly wage for individuals with tertiary education is more than four times larger than the average monthly wage of individuals with less education, and almost three times larger than those with secondary education. More specifically, the average monthly wage of individuals with primary education or lower is less than Baht 4,400. This is about Baht 200 per working day, slightly above the Baht 191 per day minimum wage in Bangkok. For secondary and higher education workers, average monthly wages were much higher, at 6,772 and 17,680 Baht respectively.

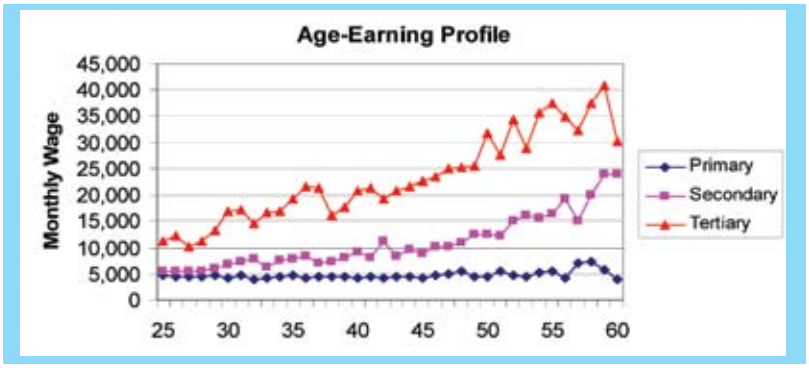
TABLE 1-1: AVERAGE MONTHLY WAGE BY EDUCATIONAL LEVEL, 2005

Education Level	Average Wage
Primary or less	4,390
Secondary	6,772
Higher Education	17,680
Unknown	17,250
Population average	**8,259**

Source: Labor Force Survey, 2005 Q4

In addition, there is evidence that this gap tends to grow wider as workers increase their labor force experience. At the age of 25, workers with tertiary education earn about Baht 5,000 more per month than workers with either primary or secondary education. The difference increases over time and by the age of retirement, workers with tertiary education receive about Baht 40,000 compared to Baht 25,000 for those with a secondary education and Baht 5,000 for those with primary education. Figure 1-2 shows that there was almost no growth in earnings over time for workers with only primary education.

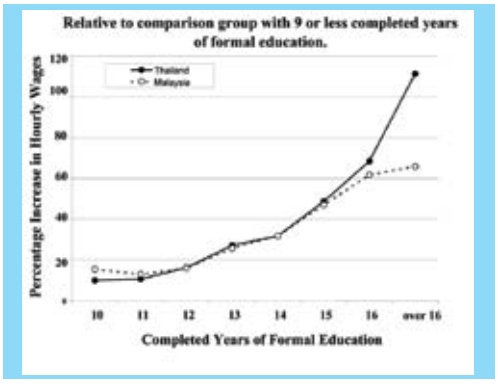
FIGURE 1-2: AGE-EARNING PROFILE FOR WORKERS BETWEEN 25-60 YEARS, 2005



Source: Labor Force Survey, 2005 Q4

Mean hourly wages in Thailand increase substantially with additional years of education completed. Evidence from firm surveys suggests that Thai employers are willing to pay a significant premium for workers with more years of educational training than employers in other countries in the region (World Bank, 2006b). Whereas the increase in mean hourly wages for a Thai worker who completed 10 years of education is 10 percent more than someone who completed 9 years, individuals who completed more than 16 years of education earned 110 percent more than those who completed only basic education. The increase in mean hourly wages for a Malaysian worker who completed more than 16 years of education was just above 60 percent greater than another worker with 9 years of education.

FIGURE 1-3: MEAN LOG HOURLY WAGE BY YEARS OF FORMAL EDUCATION



Source: World Bank, 2006b

Investments in education lead not only to private but also to social rates of return. Economists have estimated that there are substantial social benefits of additional years of education. Besides economic or monetary returns, non-monetary private returns may come in the form of improved health conditions of individuals, increased efficiency in making personal choices, expanded ability to learn new technology or better opportunities to pursue higher levels of education. Higher educational levels are also associated with reduced crime rates. For female students, longer participation in education is linked to a reduction in fertility rates and eventually net population growth, which in turn are associated with reduced poverty. More years of schooling are also associated with greater awareness about HIV/AIDS transmission and protection, an epidemic of great concern in Thailand and the region as a whole (World Bank, 2002a). In some poorer countries, it can translate into reduced water pollution, relatively more skill-intensive exports and, eventually, better protection of the environment (McMahon, 1997). One example of a social return to education is a better educated mother who heads a family that is health conscious and is better nourished.

A study on the impact of female education on the use of maternal and child health services by Thai women during pregnancy revealed that the use of delivery assistance is more likely for those who have completed at least secondary schooling (Raghupathy, 1996). A recent epidemiological survey in Thailand revealed that inequalities in specific reported diseases (such as malaria, goiter and tuberculosis) are statistically associated with low education levels (Yiengprugsawan et al., 2009). Higher education levels also tend to have important inter-generational effects. Children of highly educated parents are more likely to attend school, attain higher levels of education and have the potential for greater social mobility.

HIGHER EDUCATION, GLOBALIZATION, TRADE, AND TECHNOLOGICAL DEVELOPMENT

There is strong theoretical evidence suggesting a relationship between technological change and economic growth (Solow, 1956). Investments in capital and technology are associated with technical changes and increases in productivity (Romer, 1990). Thus, human capital accumulation as it translates into technology development is recognized as an essential pathway for economic expansion (Krueger & Lindahl, 2001; Lucas, 1993). In order to generate technological changes, a country must invest in preparing highly creative and skilled individuals as well as in providing the resources and adequate environment to foster

technological developments. Gill and Kharas (2007) expressed the importance of ideas and human capital to innovation and economic growth in their book, An *East Asia Renaissance,* in the following terms:

> Human capital accumulation is always desirable, no matter what form it takes. In economies where new ideas and innovations are key, higher education takes on a special dimension. Greater quantity and higher quality in knowledge workers—principally, but not only, scientists and engineers—will help countries absorb new ideas more rapidly and grow more quickly. Given the likely externalities and the benefits of early entry into growth industries, countries facing scarce supplies of skilled labor are also well advised to open their doors to immigration. Singapore has already taken this decision with its commitment to attracting global talent (p. 37).

A globalized economy presents both opportunities and challenges for economic gains from innovation. Knowledge may be transferred at low cost and shared with many people simultaneously. The increase in returns to technological developments provides incentives for firms to invest in new technologies. To survive strong global competition, firms are required to invest in research and development (R&D) in order to maintain their competitive advantage. The expansion of international capital markets provides opportunities for countries to access foreign investment. The connection between local and foreign firms in international trade enhances external benefits from innovations for all parties involved. Countries can benefit greatly from cooperation with trade partners as they take advantage of new knowledge partnerships and collaboration. Globalization also encourages labor movements between countries. This means that the workforce now faces competition from both the local and international labor markets.

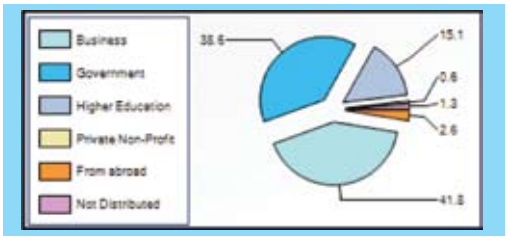
As the world moves towards a knowledge-based economy, the demands for highly skilled workers will likely continue to increase. Participation in a knowledge-based economy requires a new skills profile—in areas such as problem solving, communication, foreign language proficiency or teamwork—and stronger qualifications in technical fields—including science, technology and mathematics. The realities of a shrinking world and an expanding global economy suggest that if countries want to follow a path of growth and competitiveness, they must invest in higher educational levels for their population.

Higher education institutions play an important role not only in preparing the individuals for the workforce, but also as engines of research and technological development. New product development, innovation and technology have been conceived and generated from higher education institutions. Since the 1997 financial crisis, Thailand has embraced a shift in strategy towards greater investments in human capital as well as in R&D capacity. The development direction of the country in the past emphasized export-driven economic growth, using its comparative advantage in terms of abundant natural resources and relatively inexpensive labor. Facing increased competition from neighboring countries for foreign investment and human capital, the National Economic and Social Development Plan 1997-2002 highlighted a pressing need for enhancing technological competence in order to move up the production value chain.

In 2003, Thailand invested 0.3 percent of its GDP in R&D (UNESCO, 2007). This is well below the target of 0.75 percent established in the 8th National Economic and Social Development Plan and substantially less than countries such as Singapore and Malaysia. It is estimated that Thailand has approximately 287 researchers per 1 million inhabitants.

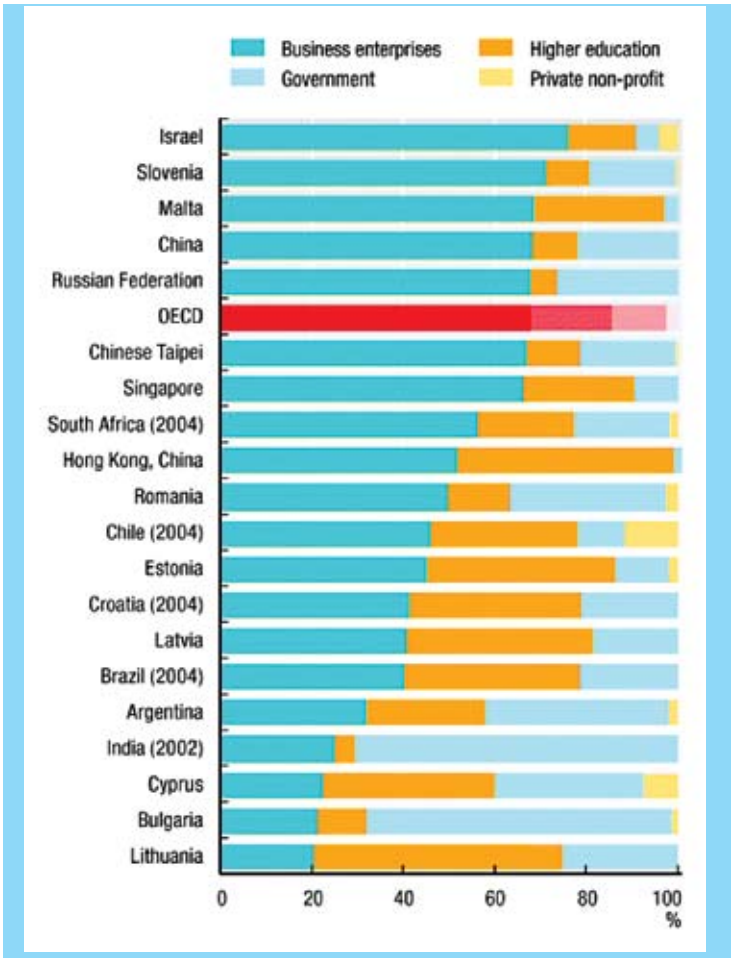
If we look at the Thai higher education system contributions to research and development as a share of expenditures, we observe that universities accounted for 15 percent of gross domestic expenditure on R&D (Figure 1-4). Government and business sector spending combined amounted to approximately 80 percent of total expenditures. Thailand's performance is at par with the OECD countries' average; however, Figure 1-5 illustrates that there is significant variability across non-OECD countries in relation to the magnitude of higher education expenditures in R&D.

FIGURE 1-4: DISTRIBUTION OF GROSS DOMESTIC EXPENDITURE ON R&D BY SOURCE OF FUNDS, 2003



Source: UNESCO, 2007

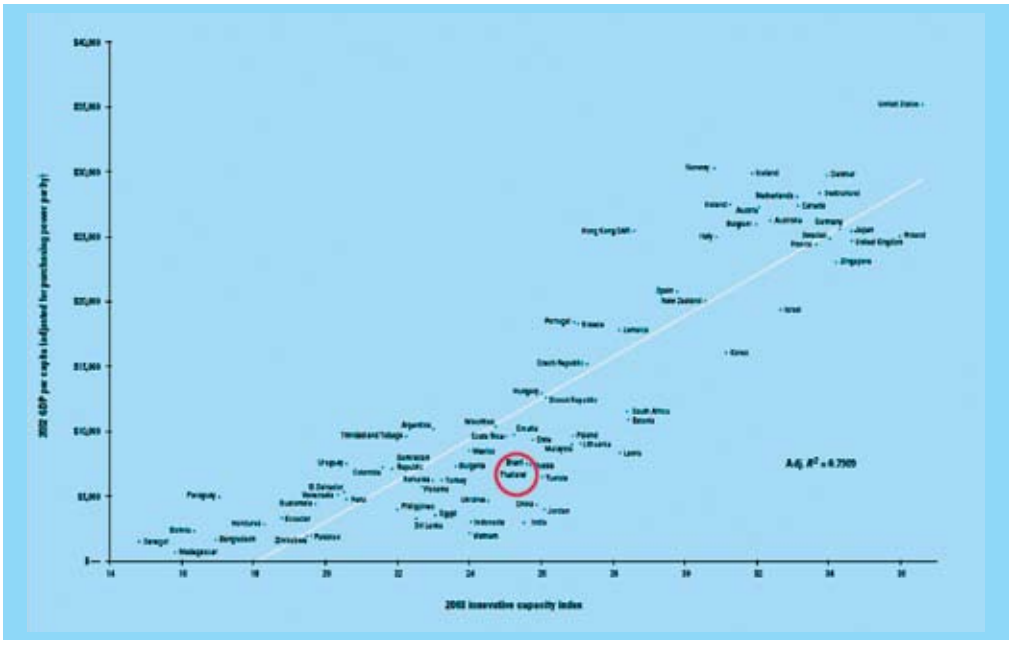
FIGURE 1-5: INTERNATIONAL COMPARATIVE R&D PERCENTAGES BY PERFORMING SECTOR, 2005



Source: OECD, R&D database, 2007: http://www.oecd.org/sti/scoreboard

Important human resource and financial constraints for research and development have not been conducive to widening the foundations of Thailand's knowledge economy engine. Porter & Stern (2004) have developed a National Innovative Capacity Index as an instrument to assess the economic application of new technologies. It is a measure of the fundamental conditions that catalyze commercially relevant innovation, such as technological sophistication and the size of the scientific/technical workforce as well as government incentives for research or policies for industry. Figure 1-6 shows the relationship between the Innovative Capacity Index and economic growth measured by GDP per capita. The upward slope suggests a positive correlation between innovative capacity and GDP per capita. Industrialized countries with high GDP per capita are clustered in the upper right corner indicating an environment propitious for innovation. In 2003, Thailand ranked 47 out of 78 countries, suggesting that there is significant scope to enhance technological innovation opportunities. Furthermore, Thailand performed in the innovative capacity index well below the predicted value for its level of economic development.

FIGURE 1-6: THE RELATIONSHIP BETWEEN THE INNOVATIVE CAPACITY INDEX AND GDP PER CAPITA



Source: Porter & Stern, 2004, p. 18

A low proportion of scientists and engineers per capita is one of several key binding constraints, where Thailand underperforms vis-à-vis its East Asian counterparts. Higher education institutions are not preparing specialists in technical fields in sufficient numbers (Table 1-2). A survey of a stratified random sample of over 1,000 Thai private sector firms involved in R&D reveals that manpower shortages in technical-scientific areas is a notable constraint for innovation. However, firms that reported using public services especially valued Government-sponsored technical trainings available as well as university laboratory services (Brooker Group, 2001).

TABLE 1-2: NATIONAL INNOVATIVE CAPACITY, SELECTED COUNTRY RANKINGS

	Innovative Capacity Index 2003		Proportion of Scientists and Engineers Index		Innovation Policy Index		Cluster Innovation Environment Index		Innovation Linkages Index		Operations and Strategy Index		Innovative Capacity Index 2002	Business Competitiveness Index 2003	GDP per capita 2002
Country	RANK	INDEX	RANK	INDEX	RANK	INDEX	RANK	INDEX	RANK	INDEX	RANK	INDEX	RANK	RANK	RANK
United States	1	36.60	4	8.44	3	5.51	2	7.59	1	7.26	1	7.80	1	2	1
Singapore	6	34.19	6	8.33	1	5.96	12	6.85	14	5.91	10	7.14	10	8	20
Taiwan	13	32.84	16	7.89	5	5.39	6	7.19	20	5.63	15	6.74	8	16	n/a
Korea	20	31.13	20	7.75	24	4.74	16	6.67	18	5.79	21	6.19	22	23	27
Hong Kong	25	28.57	64	4.54	26	4.70	15	6.72	23	5.54	11	7.08	26	19	13
Malaysia	35	26.85	59	5.07	16	5.04	18	6.47	37	4.78	31	5.48	39	26	42
China	40	25.86	43	6.30	45	3.99	26	6.20	40	4.65	56	4.71	36	46	65
Thailand	47	24.74	69	4.30	34	4.37	30	5.98	45	4.53	28	5.56	46	31	53
Indonesia	50	24.04	48	5.89	42	4.03	50	5.11	62	4.18	52	4.83	59	60	73
Philippines	61	21.99	58	5.19	65	3.41	54	5.03	79	3.59	55	4.76	60	64	67

Source: Porter and Stern, 2004, p. 3

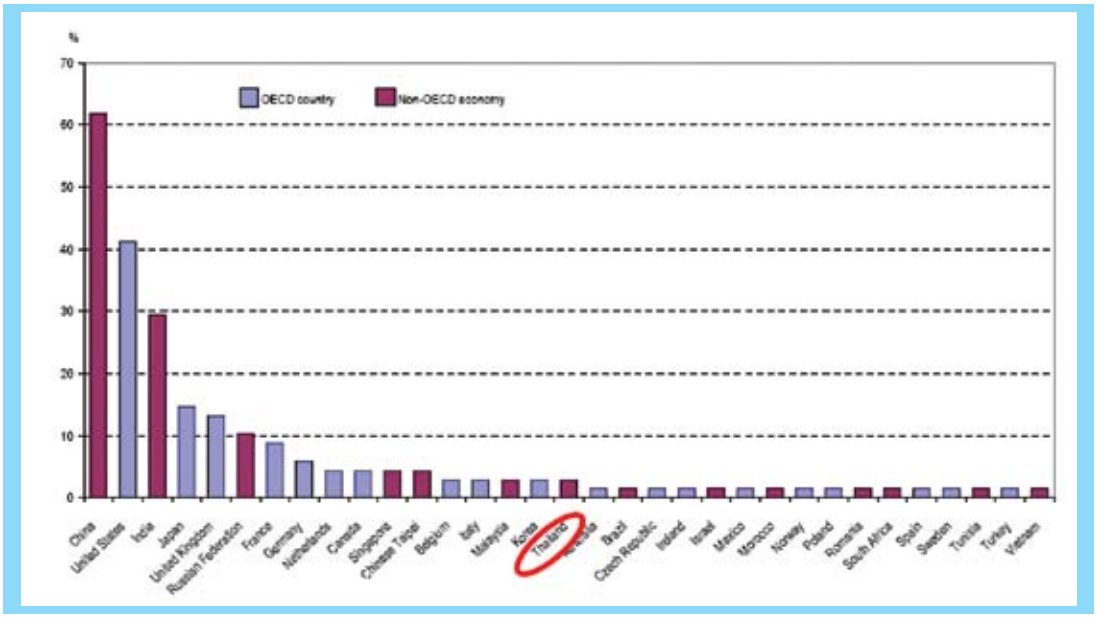
University-Industry Linkages (UILs) can also play an important role in meeting new technological challenges through: (i) training and education-related activities; (ii) provision of services and consulting activities; and (iii) research-related activities. Box 1-1 provides the example of Seagate as a successful partnership between an international technology enterprise and the university sector. However, to date, UILs in Thailand are scarce, while those in place are generally weak and fragmented (Brimble and Donor, 2007).

First, these linkages tend to involve relatively low levels of technology. Nearly 100 percent of all Thai private companies in 2007 were small and medium enterprises (SMEs) with less than 200 employees (NSO, 2007). These SMEs do not require sophisticated research but rather basic consulting and technical services. On the other hand, foreign-owned companies have relied on corporate headquarters for technical advice and inputs, instead of relying on support from local universities.

Second, UILs are largely operated on a short duration basis through individual consulting services. These arrangements are transitory in nature and tend not to be conceived as institutional partnerships. Thus, they leave no long-term benefits to participating institutions. Finally, although the Thai government has been supportive of UILs, there are no clear guidelines for structuring these collaborations, particularly in relation to intellectual property rights for research outcomes (Nezu, 2005).

Thailand could position itself to expand its R&D capabilities more aggressively, for instance, by tapping on current trends of technology outsourcing. According to OECD (2006), multinational firms have markedly expanded their investments on R&D overseas in search of new global technology solutions that tap into local knowledge networks. While OECD countries maintain primacy as focal points of research and development efforts, developing countries that can mobilize trained researchers at more affordable costs have commanded increasing attention and resourcing. China and India have been notable examples. It is estimated that 750 foreign R&D centers were established in China between 2001 and 2004. In a recent survey from UNCTAD of the largest R&D spenders, about 3 percent of respondents indicated that Thailand was an attractive destination. This is well behind China, India and the United States, but at par with other Asian economies, such as Malaysia and Korea.

FIGURE 1-7: MOST ATTRACTIVE FOREIGN R&D LOCATIONS



Source: OECD, 2007, p. 23

BOX 1-1: SEAGATE PARTNERSHIP WITH THAI HIGHER EDUCATION INSTITUTIONS

Seagate, a leading electronic company producing hard disk drives, has built a long term relationship with higher education institutes in Thailand through university-industry link initiatives. It established a training consortium of five universities to provide customized courses. This enables Seagate to employ engineers who are familiar and proficient in managing Seagate's production and high technology equipment. Universities provide facilities and teaching resources while Seagate provides trainers and assistance in curriculum development. A large number of Seagate's engineers attend this program and report remarkable accomplishments.

Seagate also participates in a government-sponsored cooperative education exchange program. Twenty to forty university graduates work in Seagate's business each year as part of their course requirement. Most students come from Suranaree University of Technology located near Seagate. The program is considered a success and benefits both universities and industry. Besides training, Seagate have set joint R&D centers with Khon Kaen University and Suranaree University of Technology.

Source: Yusuf and Nabeshima, 2007

As noted above, higher education can play an important role in enabling greater opportunities for economic growth and attractiveness to foreign investment in Thailand. International evidence suggests mature higher education systems provide an enabling environment to promote the skills and capacities that enhance labor productivity and foster research and technological innovation. There is also evidence that Thailand has not been able to live up to

its full potential in this arena and there is certainly scope for improvement. This Social Monitor explores the characteristics of the higher education subsector in Thailand. Chapter 2 provides a brief overview of higher education. Chapter 3 focuses on access to higher education, while Chapter 4 analyzes quality and relevance issues. Chapter 5 discusses higher education financing, governance and institutional management. The final chapter summarizes key findings, presents ongoing challenges and suggests selected policy implications to overcome these.

Chapter 2

An Overview Of Higher Education In Thailand

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An Overview Of Higher Education In Thailand

Thailand has a long history of higher education development. During the reign of Rama IV (1851-1868) it became clear that public education was inadequate to prepare high caliber government officials to serve the country. With this need in mind, the King laid the foundations establishing an official education system which persists to today. Education reform continued under King Rama V, with the creation of the first formal school. In 1887, the Department of Education was established to oversee schooling and religious affairs. The Department then had under its jurisdiction 34 schools in the metropolitan and provincial areas, 4 advanced/specialized schools, 81 teachers and 1,994 students.

Higher education was viewed as an avenue to modernize and professionalize the civil service. Thailand's first university, Chulalongkorn University, was established in 1916, with four departments: medicine, law and political science, engineering, and literature and science. In 1934, two years after Thailand's transition from an absolute monarchy to a constitutional monarchy, the second university, Thammasat University, was established with the mission to train future professionals and civil servants in the social sciences (law, political science and liberal arts). Three other universities were founded a few years later: Kasetsart University (1943), specializing in agricultural education; Silpakorn University (1943), specializing in Fine Arts; and Mahidol University (1969), specializing in medicine.

In this early period of university development, all higher education institutions were located in Bangkok. By the 1960s, new comprehensive universities were established in several provinces: Chiang Mai University in the north, Khon Kaen University in the northeast and Prince of Songkla University in the south. The number of institutions grew steadily in the 1960s and 1970s, with new centers of higher learning established: the National Institute for Development and Administration (NIDA), the Asian Institute of Technology (AIT)—specializing in science and engineering programs—and King Mongkut's Institute of Technology. Two open admission universities, Ramkhamhaeng University and Sukhothai Thammathirat Open University, were established to promote greater access for secondary school graduates and those already employed.

The enactment of the Higher Education Institution Act in 1981, to replace the former Private College Act (1971), intensified the development of private institutions in response to

high public demand for tertiary education. This led to rapid growth in the number of both public and private institutions—from 5 in 1967 to 166 in 2008.

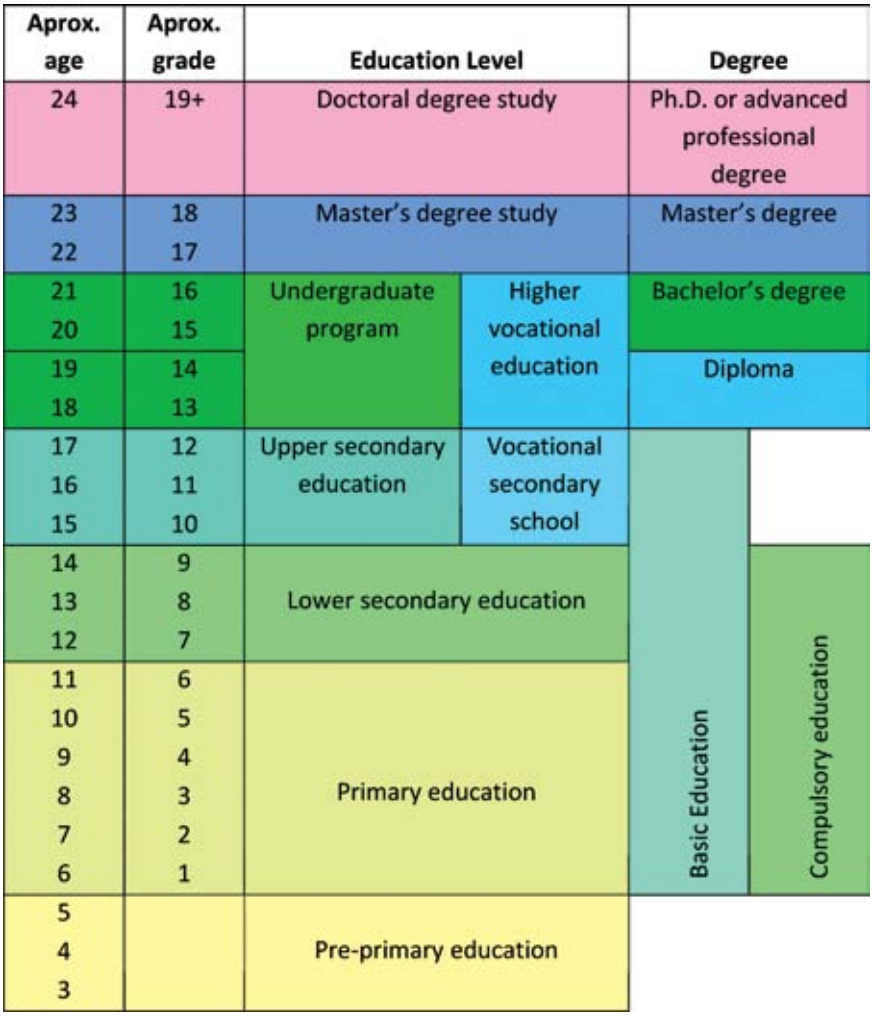
STRUCTURE OF THE THAI HIGHER EDUCATION SYSTEM

There are two main streams of higher education: diploma and degree. The diploma level is attained primarily by students who have pursued a vocational path in high school. It takes between one and four years to complete. Diploma courses are aimed at developing basic skills required to satisfy immediate semi-skilled labor market demands. Diploma holders have an option of pursuing two additional years of courses to attain a Bachelor's degree, enabling students to cross over from diploma to degree streams.

The degree level consists of undergraduate and graduate coursework. Most undergraduate degrees focus on developing general skills and providing broader knowledge. Students who attain a degree are expected to apply theories to practice in their own as well as across disciplines. The majority of these degrees are offered in four years, but those who pursue degrees in medicine and architecture normally take longer. Graduate level coursework provides students with in-depth knowledge in their specific field of study. Thailand currently suffers from a severe imbalance between undergraduate and graduate education. A small number of students enroll in Master's degree programs and even fewer in doctoral degree programs. Today, the number of doctoral graduates is inadequate to replace retiring professors since only a fraction of these graduates choose teaching as a profession. It is expected that the situation is likely to deteriorate over the next five years as the number of faculty members expected to retire will increase to around 800 per year (World Bank, 2007).

In an effort to raise the qualification of university lecturers, the Commission on Higher Education (CHE) is targeting a ratio of 50:50 between Master's and Doctoral degrees by the end of the 10th National Economic and Social Development Plan (2007 – 2011). Currently, only 24 percent of the faculty members hold Doctoral degrees in public higher education institutions. At private higher education institutions and Rajabhat universities, the corresponding figure for faculty members that hold doctoral degrees is only 13 percent and 7 percent, respectively.

FIGURE 2-1: STRUCTURE OF THE THAI EDUCATION SYSTEM



Source: Office of Education Council, 2004

Thailand's higher education system is comprised of 166 postsecondary institutions and two autonomous Buddhist Universities (Table 2-1). Public institutions can be classified into: (a) limited admissions universities, (b) open admissions universities, (c) autonomous universities and (d) community colleges. Private institutions are grouped into two categories: (a) universities and (b) colleges. During the past decade, we observe significant growth in the higher education sector. Between 2003 and 2008, 46 new higher education institutions were inaugurated, including 19 community colleges. Although roughly equivalent in terms of

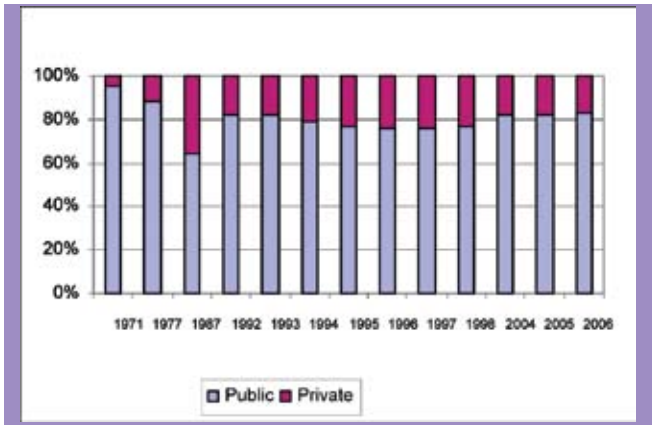
numbers (78 public versus 69 private institutions), public universities enroll about 80 percent of students (Figure 2-2).

TABLE 2-1: NUMBER OF UNIVERSITIES/INSTITUTIONS CLASSIFIED BY TYPES OF INSTITUTION

Type of Institution	2003	2004	2005	2006	2008
Public Institutions	66	67	78	78	78
Limited Admissions Universities	60	61	72	72	63
Open Admissions Universities	2	2	2	2	2
*Autonomous Universities**	4	4	4	4	11
Community Colleges			12	18	19
Private Institutions	54	56	59	65	69
Universities	26	29	30	32	40
Colleges	28	27	29	33	29
Total	**120**	**123**	**149**	**161**	**166**

*Excludes two autonomous Buddhist Universities
Source: Commission on Higher Education, 2009

FIGURE 2-2: SHARE OF TOTAL STUDENTS IN HIGHER EDUCATION INSTITUTIONS, 1971 - 2006

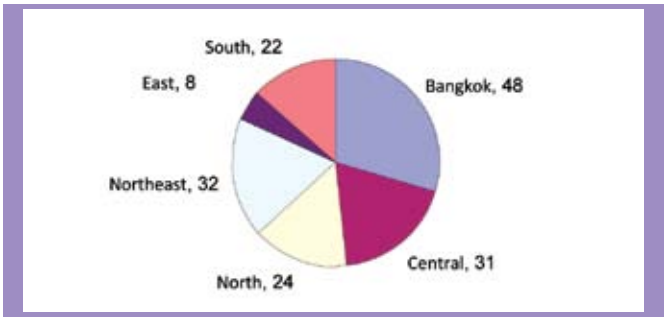


Source: Ministry of Education, 2007

Student enrollment in higher education institutions, including those attending Open Admissions Universities, increased from 1,872,000 in 2001 to 2,430,600 in 2006. This growth pattern in higher education is likely to continue as it is estimated that high school graduates will increase from 0.7 million in 2000 to 1.8 million in 2016, an increase of 150 percent in 15 years (Ministry of Education, 2007).

Almost 50 percent of Thailand higher education institutions are located in Bangkok where 10 percent of the population resides. While there has been a recent expansion of higher education access at provincial level, the east region has only a small number of institutions (Figure 2-3). Many provincial institutions also face academic staff shortages and, as a result, many qualified students, migrate to Bangkok and other big cities looking for quality higher education.

FIGURE 2-3: NUMBER OF HIGHER EDUCATION INSTITUTIONS BY REGION



Source: Commission on Higher Education, 2008

PUBLIC INSTITUTIONS

As mentioned above, there are four designated types of public institutions: limited admission, open admission, autonomous, and community colleges. Collectively, this institutional diversity serves a student population with differing motivations, expectations, and qualifications. From highly selective research universities to open enrollment distance education providers, Thai higher education has evolved in a manner that provides a wide breadth of opportunities to maximize human capital potential.

Limited Admission Universities

The majority of public higher education institutions (63 of 78) have limited admissions. Over the past 40 years, to gain admission to these institutions, high school students need to pass a highly competitive national entrance examination. However, the government recently issued a policy to expand the admission criteria to include students' high school grades. The old national entrance examination has also been replaced by a new Central University Admissions System (CUAS) (Box 2-1) and a quota system is in place for each university to

guarantee enrollment to specific groups of students from other regions, athletes, and students with special interests in the arts and music.

The creation of the Rajabhat Universities introduced an innovation in Thai higher education. These limited admission universities emerged in 2004 from the integration of 36 teacher training colleges—then known as the Rajabhat Institutes. These Institutes were upgraded to gain university status. In 2008, the 41 Rajabhat Universities countrywide continued to follow their mission in teacher preparation as well as careers in the social sciences. The Rajamangala University was established through a similar process, by merging several technical and commercial colleges. The Rajamangala campuses not only focus on science and technology education, but also offer degrees in business and social sciences. Together, these two multi-campus teaching universities dramatically expanded nationwide the educational opportunities for Thai students seeking university degrees.

BOX 2-1: CENTRAL UNIVERSITY ADMISSIONS SYSTEM (CUAS)

In 2001, the Council of University Presidents suggested that the Ministry of University Affairs (MUA) improve the admission process in accordance with the educational reform policy highlighted in the National Educational Act (NEA) of 1999. The university entrance would be based on applicants' upper secondary school academic performance and the national educational test scores administered by the National Institute of Educational Testing Service (NIETS). The new system was initially planned to be implemented in the 2004 academic year. However, the actual implementation took place in 2006 due to logistical difficulties. During the past three years, Government has been adapting the proposed formula for assessing students to balance overall schooling grades, national performance achievement tests and specialized subject area tests.

Academic Year	2006	2007	2008
Factors of Consideration	Weight	Weight	Weight
GPAX	10%	10%	10%
GPA	20%	30%	40%
Ordinary National Educational Test: O-NET	35-70%	60%	50%
Advanced National Educational Test: A-NET	0-35%		

GPAX = Cumulative grade point average for every subject in upper secondary schooling.
GPA = Grade point average in the subjects relevant to the field of university study.
O-NET = National standardized test in important subjects. The primary purpose of O-NET is systemic quality assurance. It serves as a performance indicator towards proficiency in subject area standards. In academic year 2008, students had to sit for O-NET exams in 8 subjects, but only some of these are taken into consideration for university admission.
A-NET = National standardized test in specialized subjects. The number of A-NET subject requirements may vary by university and department.

Source: National Institute of Educational Testing Service, 2005

Open Admissions Universities

Unlike limited admission universities, the two open admissions universities (Ramkhamhaeng and Sukhothai Thammathirat Universities) do not require a national examination but select students based on their own entry requirements. These universities generally cater to students who cannot gain access to limited admission universities or those who are already in the labor market. In 2005, these two universities enrolled about 40 percent of the total number of higher education students in public institutions.

Ramkhamhaeng University offers both regular on-campus classes and distance learning, while Sukhothai Thammathirat University offers only distance education courses. Along with less rigid admission requirements, these universities flexible distance mode of instruction contribute directly to their high enrollment rates as students across the country can take courses without having to relocate.

Open admission universities are playing an important role in the expansion of Thai higher education. On the other hand, quality of instruction is generally conceived as poor and remains a concern. Moreover, graduation rates tend to be low in these institutions.

Autonomous Universities

In recent years, CHE has promoted regulation concerning the administration of both public and private higher education institutions. This legal framework aims to increase both institutional autonomy and flexibility and encourage self-management under the supervision of university councils. Within the framework of the law, each public higher education institution can establish its own internal organization.

So far, seven universities have received autonomous status recently—Burapha University, Chaing Mai University, Chulalongkorn University, Mahidol University, Thaksin University, King Mongkut's University of Technology Ladkrabang and King Mongkut's University of Technology North Bangkok as well as four traditional autonomous universities established earlier.[1] At present, the government has promulgated 13 acts to safeguard the operation

[1] *Four traditional autonomous universities including: Suranaree University of Technology (1990), Walailak University (1992), Mae Fah Luang University (1998) and King Mongkut's University of Technology Thonburi (1998).*

of autonomous universities. They have been granted full status to operate as independent government agencies, receiving funding through block grants from the national budget and have full autonomy to establish their administrative structures or formulate rules and regulations relating to personnel and staffing.

In addition to these 11 autonomous universities mentioned above, there are also two Buddhist autonomous universities. These Buddhist universities were established by King Rama V to train students in the teachings of the Buddha and in the Pali language. These universities provide education to monks, novices, and lay people. They offer undergraduate and graduate degree level programs, emphasizing Buddhism and subjects relevant to Buddhism.

Community Colleges

In 2001, Thailand established community colleges across the nation as a response to growing provincial demand for higher education. The traditional obstacles to higher education access such as high cost, distance and work obligations are addressed as part of the community college mission. At these institutions, skills upgrading is also available for those already in the labor market.

Fees charged tend to be low and course offerings include 2-year associate degree programs and short-course trainings catering to local economic and social development needs. The curricula for associate degrees include: Early Childhood Education, Community Development, Local Government, Tourism Industry, General Management, Accounting, Computer, Business Computing, Business Electronics, Technology Programs in Livestock Production, Agriculture Industry, Electricity, and Auto-Mechanics.

PRIVATE INSTITUTIONS

The Private College Act of 1969 enabled private higher education providers to establish and run postsecondary institutions. In 2008, there were 34 private universities, 30 private colleges and 5 private institutes—an average of two new institutions opened each year over the last forty years. For these institutions to offer diploma and degree programs, government approvals are required. The CHE also plays an important role in ensuring quality and standards offered by these institutions. However, the institutions are independent in terms of administration, finance, and personnel.

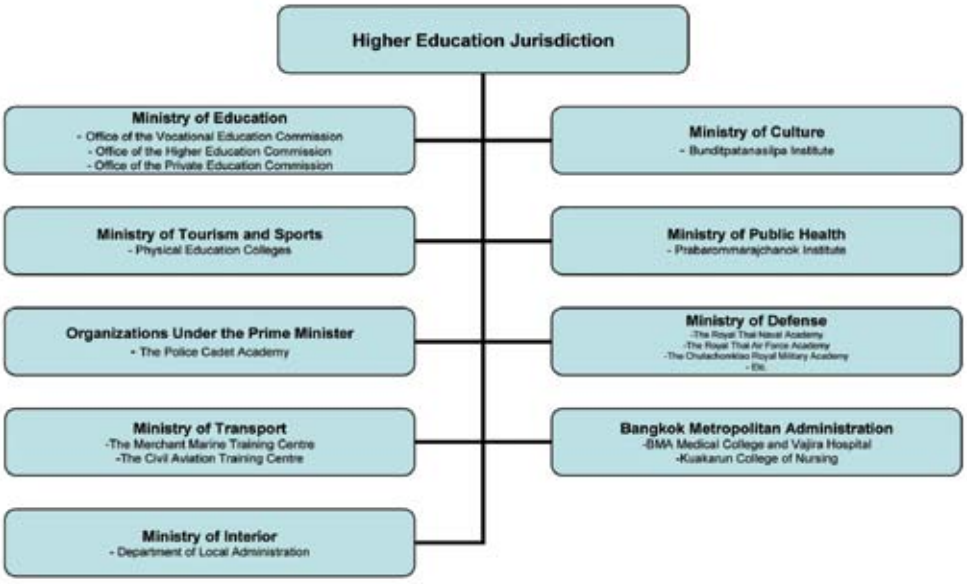
Private higher education is historically rooted in religious organizations, primarily Catholic. Over time, private instruction has expanded to encompass greater diversity of sponsoring organizations, including businesses and chambers of commerce. A more recent trend emerging in the 1990s has been the emergence of **"demand-absorbing"** private institutions that provide academic services in high-demand fields. These institutions are likely to be profit-making, small in size, specialize in technological-related subject areas and have relatively easy entry requirements (Praphamontripong, 2008).

THE ORGANIZATION OF THE THAI HIGHER EDUCATION SYSTEM

MINISTRY OF EDUCATION

The majority of higher education institutions are under the jurisdiction of the Ministry of Education (MOE). Other ministries are also involved in fulfilling the need to train human resources in specific fields and manage institutions of higher learning. They include: the Ministry of Tourism and Sports, the Ministry of Defense and the Ministry of Public Health (Figure 2-4). However, MOE accommodates 98 percent of student enrollment and plays the lead role in regulating higher education institutions and students enrollment. Within MOE, three agencies are directly responsible for higher education service and provision: the Commission on Higher Education, the Office of the Vocational Education Commission, and the Office of the Private Education Commission.

FIGURE 2-4: ORGANIZATIONAL STRUCTURE OF HIGHER EDUCATION GOVERNANCE IN THAILAND



Source: Ministry of Education, 2008

TABLE 2-2: HIGHER EDUCATION STUDENTS IN THE FORMAL SCHOOL SYSTEM, BY JURISDICTION, 2006
(Diploma and Undergraduate Degree Levels)

Jurisdiction	Number of Students	%
Ministry of Education	2,263,970	98.52%
Ministry of Tourism and Sports	6,775	0.29%
Ministry of Culture	2,140	0.09%
Ministry of Public Health	17,812	0.78%
Ministry of Interior	128	0.01%
Ministry of Defense	2,678	0.12%
Ministry of Transport	2,433	0.11%
Organizations Under the Prime Minister	1,071	0.05%
Bangkok Metropolitan Administration	893	0.04%
Total	2,297,900	100.00%

Source: Ministry of Education, 2007

COMMISSION ON HIGHER EDUCATION

Under the Ministry of Education Regulatory Act (2003), the Ministry of University Affairs was merged with the MOE, and the Commission on Higher Education (CHE) emerged as the new agency in charge of higher education. CHE administers all public higher education institutions and oversees the performance of private higher education institutions. The Commission is governed by a Board with diverse membership, including individuals from academia, the public and private sector, and local administrations. The Board has the authority to formulate policies and issue regulations in accordance with the National Economic and Social Development Plan, and the National Education Plan. Key responsibilities of the Commission include provision of resources and support, promotion of equity in higher education, and monitoring educational outcomes. The main functions of the Commission include policy setting, licensing of new private institutions, resource allocation for public institutions, financial aid, and monitoring/evaluation.

OFFICE OF PRIVATE EDUCATION COMMISSION

The Office of the Private Education Commission (OPEC) was established in 1972. It functions under the Office of the Permanent Secretary, Ministry of Education. Under the authorization of the Private School Act of 1982, OPEC provides various types of support to private schools and universities. Specifically, these include: (a) formulation of policies and rules/regulations relating to private education matters, concomitant with the modification of existing rules and regulations to ensure flexibility in favor of private education development; (b) carrying research to enhance private education development; and (c) promotion and encouragement of greater private sector involvement through various modes of support.

HIGHER EDUCATION LEGISLATION AND REFORMS

Thailand first attempt to engage in comprehensive higher education reform was in the end of 1980s when the Ministry of University Affairs prepared the first 15-year Higher Education Plan, covering 1990 - 2004. The atmosphere at that time was one of economic buoyancy and international competitiveness. But during this period, the economy underwent a deep recession followed by a long recovery period. The global and regional marketplaces also suffered a dramatic transformation during this period. Thailand faces increasing economic competition from its neighbors.

A new Constitution was promulgated in 1997 and the first National Education Act (NEA) was enacted in 1999. The NEA is considered to be the country's master legislation on education and provides a comprehensive vision for education reform.[2] But despite several efforts over the last ten years, reform in the higher education has been largely piecemeal. Two decades later, a strong message has re-emerged about the need to overhaul Thai higher education and shift its direction to promote higher quality, efficiency and effectiveness, if the country is to move forward with renewed confidence, to evolve into a knowledge-based economy and to enhance national competitiveness in the regional and global arenas.

Over the course of last year, Government has conducted a comprehensive retrospective of higher education performance and has laid out a new vision ensconced in the Second 15-Year Long Range Plan for Higher Education (2008-2022). This plan for higher education transformation covers all key aspects of higher education management, including administrative systems, teaching and learning, research promotion and higher education finance. Its main aim is providing citizens with the skills and capabilities necessary to raise national competitiveness.

[2] *The NEA highlights: unity in policy and diversity in implementing education reform; decentralization of authority to educational service areas, educational institutions and local administration organizations; setting system-wide educational and implementation standards of quality assurance for all levels of education; raising the professional standards of teachers, faculty staff and educational personnel through continuous professional development; and greater resource mobilization for education. It also promotes partnerships with individuals, families, communities, community organizations, local administration organizations, private persons, private organizations, professional bodies, religious institutions, enterprises, and other social institutions.*

The Second 15-Year Plan consists of two major parts:

The ***first*** part covers macro scenarios and the global/local socioeconomic environment impacting Thai society and the Thai higher education system. Its areas of exploration include: labor market trends in the local economic structure, globalization, information technology development, political decentralization, concerns over conflict management/resolution, the changing role of youth in a post modern-post industrialization world and His Majesty the King's philosophy on **"sufficiency economy."**

The ***second*** part of the plan deals specifically with issues related to the higher education system: the articulation with secondary and vocational education, managing the proliferation of higher education institutes, changing university governance and administration, enhancing national competitiveness, adequately financing higher education, staff and personnel development, strengthening university networks, responding to social conflicts in Southern Thailand and higher education infrastructure development.

The current reform goals focus on expanded access and improvements in quality and relevance through a tiered service-delivery system. Higher education institutions have been categorized into 4 groups, each with distinct missions and goals: (a) Community Colleges, (b) Liberal Arts Universities, (c) Specialized/Comprehensive Universities, and (d) Research/Graduate Universities (Table 2-3). Higher education institutions are encouraged to conduct a self-assessment based on key performance indicators and classify themselves under one of these four categories. This classification system will allow higher education establishments, at least in principle, to embrace a clearly defined mission that can better serve their students. Moreover, this approach could foster a more harmonious growth in the subsector that responds to diverse national economic growth and social development needs more efficiently through specialization. Government financing will be allocated on the basis of a funding formula specific to each institutional tier.

TABLE 2-3: CATEGORIES OF HIGHER EDUCATION INSTITUTIONS UNDER THE LONG-RANGE PLAN

	Higher Education Institutions			
	Community College	Liberal Arts University	Specialized/ Comprehensive University	Research/Graduate University
Degrees granted	A.S/A.A	B.A/M.A	B.A/M.A/Ph.D	B.A/M.A/Ph.D / Post Doc.
Proportion of Ph.D academic staff	10%	50%	70%	100%
Proportion of science: social science students	20:80	40:60	60:40	90:10
Link to national development needs	Strengthen community and promote sustainable development	Develop local administration organization and regional business	Manufacturing sector	Competitive industry
Characteristics of graduates	Manpower in location production sector	Manpower for driving local change	Knowledge/high productivity workers	Global leaders/ opinion makers
Service areas	Province/district	Province/region	Metropolitan big cities	Metropolitan small cities

Source: Ministry of Education, 2007

The Second 15-Year Plan is on one hand anchored on the principle of institutional autonomy, in order to foster institutions to develop efficient planning and management systems that are responsive to societal and individual demands and expectations. The directives and measures specified in the Second 15-Year Plan are now being translated into institutional long term development plans and yearly action plans. On the other hand, systemic performance will be enhanced through better governance structures, effective financing instruments, well-articulated standards and efficient university networking.

This two-pronged approach is a significant innovation in higher education administration. Its ambition is to (a) expand access to a new generation of students and steer them to careers that fulfill their individual goals and national needs, (b) promote excellence in higher education service delivery that is relevant to labor market demands, (c) foster more efficient and more equitable resource allocation mechanisms, and (d) create an institutional environment where higher education institutions are empowered to pursue their vision, within a quality assurance and accreditation framework that sets high standards and holds institutions accountable for results. The three chapters that follow provide an account of the current state of affairs along these dimensions.

Chapter 3

Access To Higher Education

THE WORLD BANK GROUP

Access To Higher Education

Who attends higher education in Thailand? This chapter illustrates key aspects of the current state of higher education in Thailand through the lens of the student experience. Who is admitted? And to what type of institutions? This chapter presents an exploration of student access issues—enrollment rates, distributional equity, and demographic differences. Access concerns underpin the human resource potential of any nation, and Thailand is no exception.

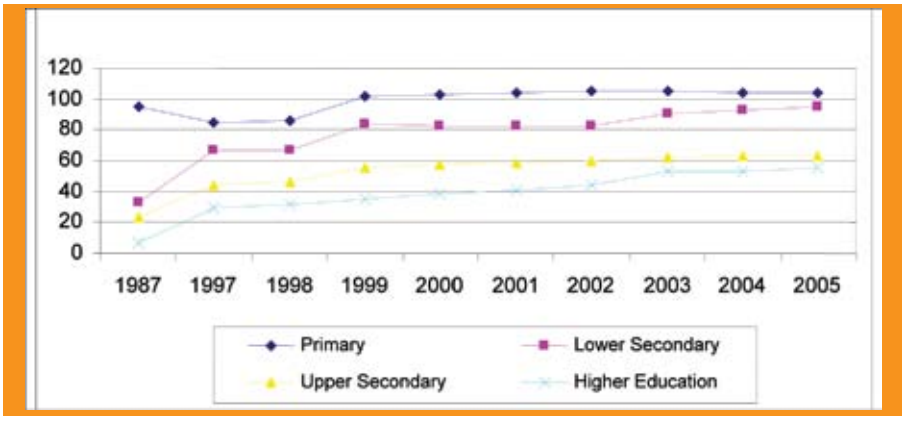
STUDENT PARTICIPATION

There has been a steady and substantial increase in student participation at all levels of education in Thailand over the last twenty years. This is the result of explicit policies and practices set by Government. The 1999 NEA established goals in terms of achieving universal lower secondary education by 2006 and universal upper secondary education by 2015.

Thailand steadily and impressively increased gross enrollment rates[3] (GER) in lower secondary (from 76 percent to over 100 percent), upper secondary (from 58 percent to 65 percent), and higher education (from 39 percent to 50 percent) between 2001 and 2007 (Figure 3.1). Student participation had been increasing steadily already in the 1990s, but stalled due to the financial crisis of 1997. In the new century, student enrollment growth recovered and continued, albeit at a slower pace. Despite high gross enrollment rates, when looking at enrollment by age group, it is noteworthy that higher education participation by the appropriate age cohort (18 to 21 years old) is only 25 percent (Makishima and Sukisiriserekul, 2003), indicating that the higher education system is significantly populated by over-aged students.

[3] *The GER is the number of pupils enrolled in a given level of education regardless of the age expressed as a percentage of the population in the theoretical age group for that level of education.*

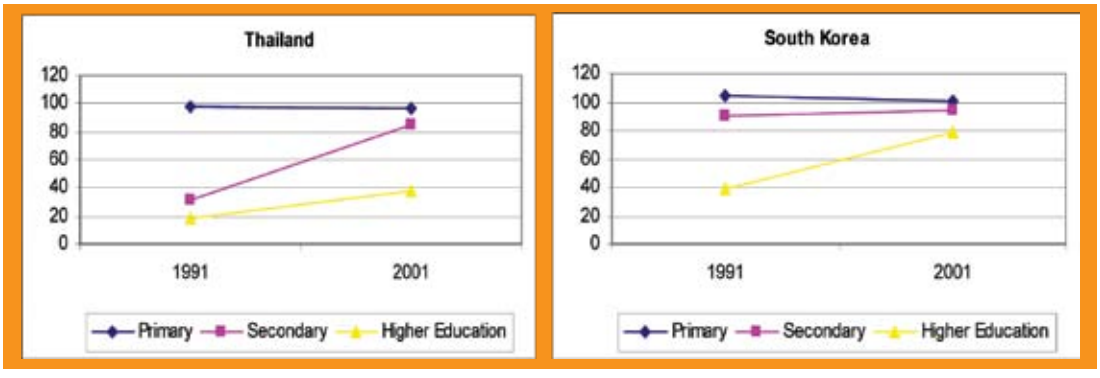
FIGURE 3-1: GROSS ENROLLMENT RATES BY EDUCATIONAL LEVEL, 1987-2005

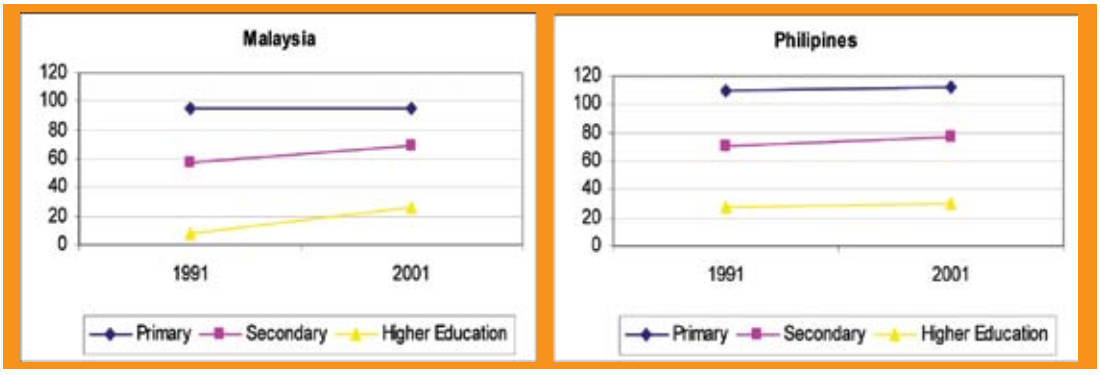


Source: Ministry of Education, 2007

Thailand's higher education GER of 50 percent in 2007 is similar to other similar East Asian economies, with the exception of South Korea which is slightly higher. Figure 3-2 presents enrollment rates in primary, secondary and tertiary education in the early 1990s and early 2000 for Thailand, South Korea, Malaysia and Philippines. The comparative data show that Thailand has done a remarkable job to increase access to secondary education. Thailand started with much lower student participation levels than all the other countries in the region and in just a decade nearly caught up with South Korea. Thailand also showed substantial progress both in terms of secondary and higher education GER in comparison to Malaysia and the Philippines. On the other hand, Thailand still lags behind OECD countries in tertiary education enrollment ratios (Figure 3-3).

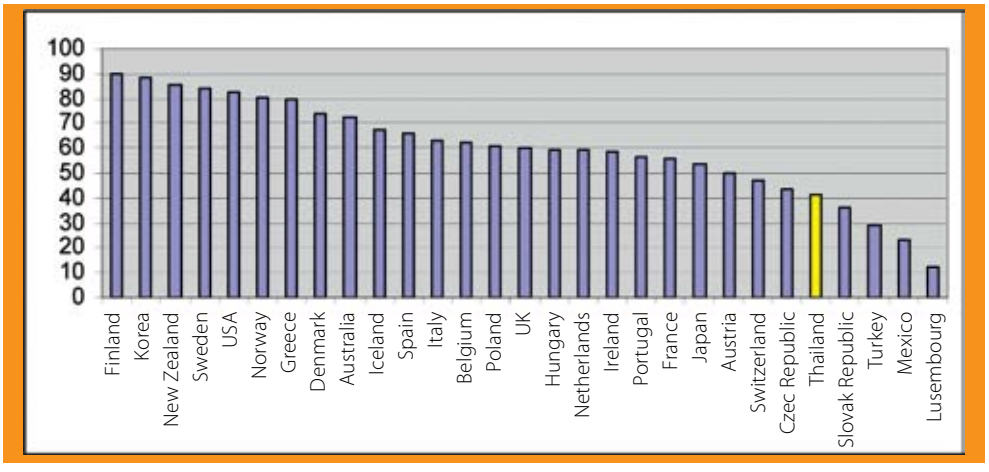
FIGURE 3-2: COMPARATIVE REGIONAL ENROLLMENTS





Source: Edstats, 2009

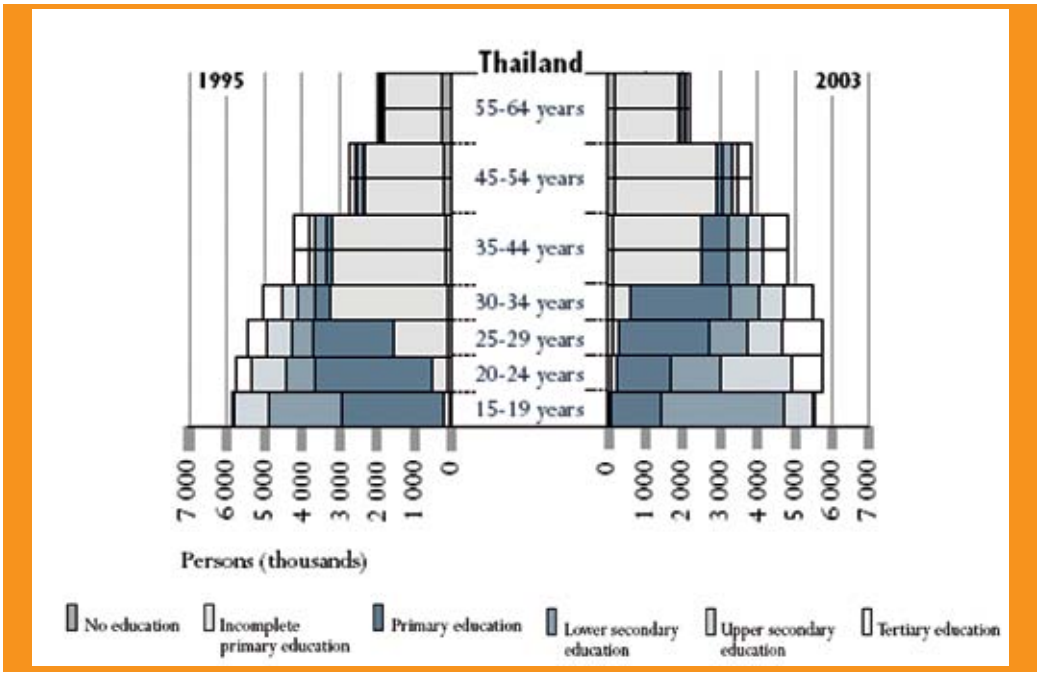
FIGURE 3-3: TERTIARY GROSS ENROLLMENT RATE IN OECD COUNTRIES AND THAILAND, 2004



Source: Edstats, 2009

Thailand's population pyramid reveals that the new generations of Thai youth and young adults are better trained and have higher levels of education than earlier generations. Between 1995 and 2003, the share of individuals between 35 and 44 years old that had completed primary, secondary and tertiary education increased notably. The number of 15 to 19 year olds who gained access to secondary education rose from 3 to 4 millions in 2003 as a result of government initiatives to achieve universal basic education (Figure 3-4).

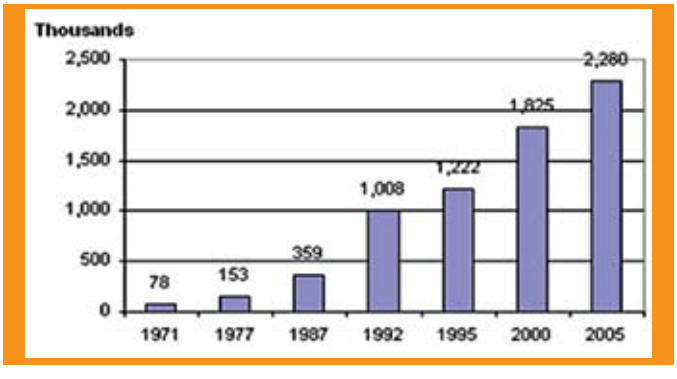
FIGURE 3-4: ENROLLMENT IN THAILAND BY AGE GROUP, 1995-2003



Source: OECD, 2005, p. 18

The number of students enrolled in higher education has expanded steadily and dramatically since the 1970s, and particularly over the last ten years (Figure 3-5). The total number of tertiary students increased from 78,000 in 1971 to over 2 million in 2005. The greatest jump in enrollments took place at the beginning of the 1990s, as a result of the increasing demand for high-skilled workers.

FIGURE 3-5: TOTAL NUMBER OF TERTIARY STUDENTS



Source: Ministry of Education, 2008

Enrollments in Government institutions doubled from an initial level of around 800,000 in 1998 to more than 1,600,000 in 2005 (Commission on Higher Education, 2008). By 2005, 86 percent of enrolled students in public centers of higher learning were pursuing a B.A., 10 percent were studying in graduate programs, and about 4 percent were pursuing a diploma. While bachelor programs remain the predominant type of degree sought after, the share of diploma and graduate level students has grown gradually during this period.

The popularity of different types of public institutions has also shifted over time. In less than a decade, the proportion of students attending limited admission institutions increased from 30 percent to 61 percent, whereas the share of students in open universities dropped from 68 percent to 37 percent. Given that limited admission universities have maximum participation requirements and are generally perceived as higher quality institutions, this trend suggests that newer generations of higher education graduates are better skilled.

TABLE 3-1: HIGHER EDUCATION ENROLLMENTS

	1998				2005			
Institution	**Total**	**Lower than Bachelor**	**Bachelor**	**Higher than Bachelor**	**Total**	**Lower than Bachelor**	**Bachelor**	**Higher than Bachelor**
Public Institute	**808,209**	**9,812**	**734,428**	**63,969**	**1,645,840**	**71,414**	**1,418,029**	**156,397**
Limited Admission	244,602	3,075	183,806	57,721	999,455	58,049	828,507	112,899
Open University	549,711	6,737	538,990	3,984	602,582	-	565,233	37,349
Autonomous University	13,896	-	11,632	2,264	30,438	-	24,289	6,149
Community College	-	-	-	-	13,365	13,365	-	-
Private Institute	**188,087**	**-**	**180,966**	**7,121**	**254,363**	**-**	**238,398**	**15,965**
Total enrollment	**996,296**	**9,812**	**915,394**	**71,090**	**1,900,203**	**71,414**	**1,656,427**	**172,362**

Source: Commission on Higher Education, 2008

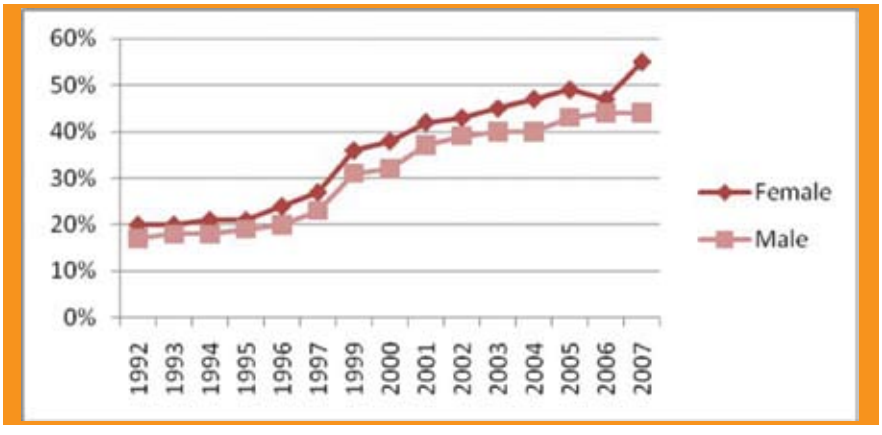
Another interesting trend is that the enrollment share of private sector institutions has actually decreased over time, from 19 percent in 1998 to 13 percent in 2005. Given the high demand for higher education amongst Thai youth, there is significant scope for the private sector to expand educational opportunities across all types of degree programs.

EQUITY IN ACCESS TO HIGHER EDUCATION

GENDER

Like other middle- and high-income countries, Thailand has experienced a reversal in the education gender gap, as more female than male students are enrolling in higher education (Figure 3-6). In 1997, the gross enrollment rates of females enrolled in higher education was 27 percent of the female age cohort, compared to 23 percent for males. The gender gap has worsened over time. By 2007 the enrollment rates in higher education for females reached 55 percent compared to 44 percent for males. Lower male participation in higher education is linked to lower enrollment rates of males at the secondary level, due to higher secondary school dropout rates and greater participation in the labor market. These findings suggest that Government should continue to monitor closely enrollment trends in order to manage the widening of the gender gap.

FIGURE 3-6: GROSS ENROLLMENT IN TERTIARY EDUCATION BY SEX, 1992-2007



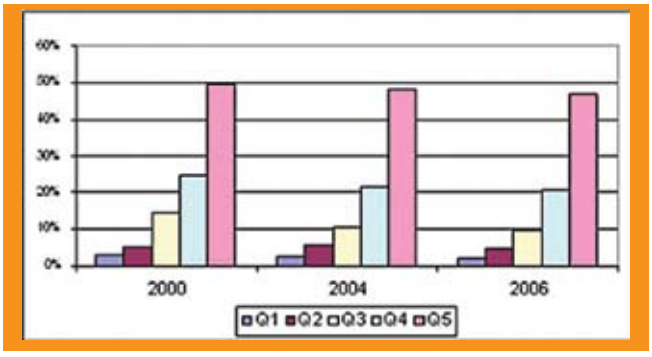
Source: Edstats, 2009

SOCIO-ECONOMIC DISTRIBUTION

As noted in previous chapters, Thailand experiences substantial inequalities in terms of access to higher education by household income. The results in Figure 3-7 captures the sharp participation rate differences in higher education by socioeconomic level (Q1 is the poorest and Q5 is the richest). Whereas almost 50 percent of students from the highest income quintile participate in higher education, less than 5 percent of students in the lowest quintile are enrolled. The three lowest income quintiles combined represent about 20

percent of higher education enrollments. While the top two income quintiles represent the vast majority of enrollments, there is nonetheless a vast chasm in participation rates even between Q4 and Q5.

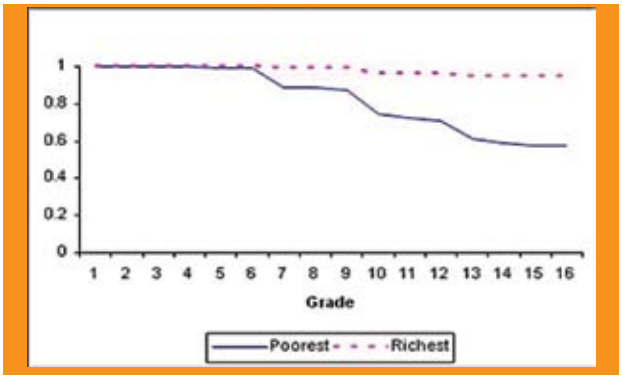
FIGURE 3-7: HIGHER EDUCATION PARTICIPATION RATE (AGES 20 AND OVER)



Source: Socio-Economic Survey, 2006

These glaring inequalities in higher education manifest early in the educational lives of Thai children. Figure 3-8 illustrates the survival curve for students (ages 6 to 22) from primary through tertiary education. Whereas survival rates are constant for students from the highest income quintile, they are constantly decreasing for students from low-income families. Survival rates of wealthier students are almost 100 percent compared to barely 60 percent for students from the poorest backgrounds. At each level of education, low income students are more likely to drop out upon completion. The dropout rate increases from primary to secondary and from secondary to higher education.

FIGURE 3-8: SURVIVAL CURVE ESTIMATES FOR AGE 6 TO 22 IN THAILAND



Source: Socio-Economic Survey, 2006

PARENTAL EDUCATION

Higher education enrollment increases with higher levels of educational attainment of the head of the household (Table 3-2). The participation rate of youth ages 18 to 25 with a parent whose highest educational level achieved was primary education was 13 percent, compared to 18 percent for those with parents who completed secondary education and 34 percent for those with tertiary education educated parents. Parental education increases youth opportunities to enroll in higher education, clearly illustrating the inter-generational benefits of education. This positive relationship is product of both the financial and emotional support that more educated parents can provide to their children to gain entry and navigate a complex education system.

TABLE 3-2: HIGHER EDUCATION PARTICIPATION RATE BY HEAD OF HOUSEHOLD EDUCATION

	Primary	Secondary	Tertiary
18-21 Year-Old Cohort (%)	2.73	3.80	8.20
22-25 Year-Old Cohort (%)	22.02	30.87	54.14
18-25 Year-Old Cohort (%)	12.51	17.70	34.29

Source: Labor Force Survey, 2005

REGIONAL ACCESS

There are substantial differences in terms of higher education participation rates by region and locality in Thailand (Table 3-3). Bangkok has the highest participation rate in higher education followed by the central and southern regions. The region with the least access to higher education is the northeast, where low income families are highly concentrated. Even though there has been some increase in the participation rates in higher education between 2001 and 2005, inequalities in regional participation persist. These inequalities partially stem from the fact that most higher education institutions are located in urban areas, providing easier access to those who live nearby. The participation rate of persons living in municipal areas is more than 3 times higher than that of people living in non-municipal areas. The enrollment gap between urban and rural students has grown wider from 15 percentage points in 2001 to 17 percentage points in 2005.

TABLE 3-3: HIGHER EDUCATION PARTICIPATION RATE BY REGION AND LOCALITY (AGES 20 AND OVER)

	Participation Rates		
	2001	2003	2005
Region			
Bangkok	25.12%	26.15%	29.36%
Central	11.14%	12.32%	13.59%
North	7.14%	8.66%	9.56%
Northeast	6.19%	6.64%	6.80%
South	9.71%	11.29%	13.10%
Locality			
Municipal	20.58%	22.02%	24.12%
Non-municipal	5.42%	6.26%	7.11%

Source: Labor Force Survey 2001, 2003, 2005

INTERNATIONAL STUDENTS IN THAILAND

In 2006, the Commission on Higher Education conducted a survey on foreign students in higher education institutions in Thailand. Currently, there are about 16,000 international students enrolled in Thai higher education institutions—less than 0.01 percent of the student body (Table 3-4). Almost half of all foreign enrollments are from China. Thailand's neighbors represent one quarter of all foreign enrollments.

TABLE 3-4: INTERNATIONAL STUDENTS BY NATIONALITY

Nationality	Number	%
China	7,301	44.62
Laos	1,301	7.95
Myanmar	999	6.11
Cambodia	984	6.01
Vietnam	895	5.47
USA	828	5.06
Japan	403	2.46
India	344	2.10
Korea	340	2.08
Bangladesh	328	2.00
Other	2,638	16.12
Total	**16,361**	**99.98**

Source: Commission on Higher Education, 2008

TABLE 3-5: INTERNATIONAL STUDENTS BY INSTITUTION

Institution	Number	%
Assumption University	2,558	15.63
Mahachulalongkorn Rajavidyalaya Universitiy	1,329	8.12
Mahidol University	1,069	6.53
Burapha University	591	3.61
Rangsit University	487	2.98
Mission College	430	2.63
Khon Kaen University	425	2.60
Suan Dusit Rajabhat University	421	2.57
Chiang Mai University	380	2.32
Chulalongkorn University	373	2.28
Other	8,298	50.72

Source: Commission on Higher Education, 2008

International students bring an important aspect of diversity to the classroom and the university campus, giving Thai students access to global perspectives without leaving Thailand. Another benefit of foreign student participation in Thai universities is an additional revenue stream to finance higher education. Most international students are self-funded (Table 3-6). In 2003, it was estimated that foreign student enrollments contributed Baht 2.5 billion (around USD 75 million or USD 15,000 per student on average) into the subsector (Chang, no date). At many institutions, tuition contributions and fee payments for non-Thai students are nearly double those charged for Thai students. The most popular fields of study among foreign students are business administration, marketing, business English, Thai language, general management and international business management.

TABLE 3-6: NUMBER OF INTERNATIONAL STUDENTS BY SOURCE OF FUNDS

Source of Funds	Number	%
Self-Funded	3,451	82.21
Thai Scholarship	1,232	7.53
Overseas Scholarship	1,234	7.54
No Information	444	2.71

Source: Commission on Higher Education, 2008

Foreign enrollments in Thailand are also encouraged by branch campuses of several foreign higher education institutions, such as Webster University and Stamford International University. Franchise universities are at present a limited segment of the existing higher education market. As noted above, greater participation from the private international sector could be a growth factor in the supply of tertiary educational services.

THAI STUDENTS OVERSEAS

In 2005, there were 23,714 Thai students studying at universities overseas. This is equivalent to 1.2 percent of the domestic higher education population. Most students who travel abroad to study are from middle- to high-income families that can afford the costs of education in foreign countries. The influence of globalization and the ease of travel and communication technologies have facilitated the flow of students around the world. The United States, Australia and the United Kingdom are the three most popular destinations for Thai students (Table 3-7).

TABLE 3-7: THAI STUDENTS STUDYING ABROAD, 2005

Country	Total
USA	9,021
Australia	5,014
UK	3,940
Japan	1,631
Germany	1,023

Source: UIS, 2007

Since the period of King Rama V, the Royal Government of Thailand has promoted student exchanges overseas. Originally, the main purpose of these exchanges was to understand foreign politics, economy, and culture to enable Thailand to strategize how to resist efforts (military, religious or otherwise) to "colonize" the country. At present, there are several overseas Government scholarship schemes. The King's Scholarship is a prestigious award for international study, yearly managed by the Office of the Civil Service Commission. Approximately nine King's Scholarships are awarded annually.

TABLE 3-8: NUMBER OF GOVERNMENT-FUNDED THAI STUDENTS STUDYING ABROAD, 2005

Country	Bachelor	Master	Ph.D	Training	Total
USA	41	112	122	229	504
Japan	5	6	46	281	338
UK	40	77	144	41	302
Australia	0	22	40	142	204
China	10	6	3	84	103

Source: Office of the Civil Service Commission, UIS, 2007

STUDENT ACADEMIC CHOICES

There is limited data compiled on student academic choices in Thailand. As noted in Chapter 1, science and technology are fields of increasing demand and importance worldwide due to their potential contributions to economic development. Asian universities accounted for almost 1.5 million of science and engineering degrees worldwide in 2002 (National Science Foundation, 2006). Drawing from data collected in 1995, Thailand lagged behind its regional neighbors in the percentage of students obtaining degrees in science and engineering (Table 3-9). While approximately one fifth of all students pursued a career in science and engineering in Thailand, about one third of students did so in other Asian countries. These estimates, however, ought to be interpreted with some caution due to the significant changes that the higher education landscape in Thailand has undergone during the last decade.

TABLE 3-9: SCIENCE AND ENGINEERING DEGREES SHARE, BY COUNTRY

Country	Science and Engineering (%)
China	37
Indonesia	26
Japan	23
Korea	39
Singapore (1995)	31
Thailand (1995)	**19**

Source: National Science Foundation, Science and Engineering Indicators, 2006.

Access to higher education in Thailand has experienced a continuous positive trend over time, but serious problems remain in terms of equity. Despite real increases in the

supply of postsecondary institutions to accommodate growing demand, enrollment rates in higher education by lower-income students remain very low. Men are also significantly under-represented. Furthermore, enrollment in subjects deemed of high national priority to benefit the Thai economy are under-subscribed. Thailand is not preparing scientists and engineers in sufficient numbers, especially in comparison with countries like South Korea.

The transformation of the former Rajabhat and Rajamangala institutions into universities, and the creation of community colleges in recent years have been a welcomed response to begin to address regional and socioeconomic inequalities to promote expanded access to university education across demographic areas, including age and socioeconomic groups. There is limited data available to assess the impact of these reforms to date, but Government must continue to monitor the incidence of benefits across different social groups to evaluate whether the promise of these reforms in terms of equality of access has been realized.

As will be noted in Chapter 5, a revamping of the financial aid system will also be a critical and necessary step to address financial constraints to higher education from lower socioeconomic groups and make higher education truly affordable to all able and willing students.

Chapter 4

Quality And Relevance Of Higher Education

THE WORLD BANK GROUP

Quality And Relevance Of Higher Education

As noted in Chapter 2, the higher education system has experienced significant growth in the last decade. The total number of postsecondary institutions jumped from 5 in 1967 to 166 in 2008. Maintaining quality during a time of system-wide expansion, diversification and financial uncertainty are important challenges.

In the past, educational quality and relevance were often viewed as synonymous: high-quality education was relevant education. But this is no longer the case. Today it is possible to have high-quality education that is irrelevant to a country's priorities—irrelevant education increases the chances of graduate unemployment and brain drain, and deprives a nation of an important vehicle for its development.

What is the quality and relevance of Thai higher education? Public perception has been mixed. Although Thailand is credited with a few centers of academic excellence, on average higher education quality is described as substandard. In a recent news article, Boonrak Boonyaketmala, a former dean at Thammasat University, expressed "The spread of higher education isn't solving the fundamental problem of quality. Many of our universities are little more than vocational colleges. Degrees are often the equivalent of a school-leaving certificate from a good European school" (Barnes, 2005).

This chapter explores various dimensions of higher education quality and relevance in Thailand—including international comparisons, institutional productivity in terms of graduates and publications, staffing and performance, and labor market responses. It concludes with a brief description of recent policy responses to establish quality assurance mechanisms for monitoring institutional outputs and activities.

INTERNATIONAL COMPARISONS

Measuring the quality of the tertiary education is challenging because of the multiplicity of fields and degrees offered as well as the difference in the missions of different types of higher education institutions. Unlike secondary education, which has comparable tests in math and science that enable international comparisons, there are fewer analogous measures in higher education. Two major international league tables—the Shanghai Jiao Tong University (China) Academic Ranking of World Universities and the Time Higher Education Supplement

(THES) World University Rankings—rank research-intensive universities worldwide. The THES asked institutions to rank universities according to the following categories: peer review (reputation), international faculty, international students, student/faculty ratios and citations per faculty member. "The five indicators have been chosen to reflect strength in teaching, research and international reputation, with the greatest influence exerted by those in the best position to judge: Academics" (THES, 5 November 2004, p. 2). Similarly, in the Shanghai Jiao Tong University index universities are ranked by several indicators of academic or research performance, including alumni and staff winning Nobel Prizes and Fields Medals, highly cited researchers, articles published in Nature and Science, articles indexed in major citation indices, and the per capita academic performance of an institution. This index attempts to minimize subjectivity of reputation rankings by focusing on outputs. Naturally, there are a number of methodological limitations inherent in any ranking exercise. However, international league tables are useful as comparative data provide insights for understanding Thailand's universities in the context of global higher education. The highest ranked universities in the world are clearly those that make significant contributions through excellence in research, teaching and producing highly skilled graduates. Ultimately, the international reputation that develops from these achievements establishes these institutions as world class.

Table 4-1 lists rankings from selected universities in Asia-Pacific from these two benchmarking surveys. The Shanghai Jiao Tong University index did not place any Thai universities in its top 500 list nor in its top 100 Asian universities list. In the THES top 200 university ranking, Thailand had one university placed at 166 (Chulalongkorn University). As a reference point, India had two universities at rankings 154 and 174. Malaysia, Indonesia, nor Philippines, as comparator countries, did not have any universities listed.

TABLE 4-1: TOP UNIVERSITY RANKINGS, ASIA-PACIFIC NATIONS

Times Higher Ed. Supplement, 2008		Shanghai Jiao Tong University, 2008	
16	Australian National University (Australia)	19	Tokyo University (Japan)
19	University of Tokyo (Japan)	23	Kyoto University (Japan)
25	Kyoto University (Japan)	59	Australian National University (Australia)
26	University of Hong Kong (Hong Kong)	65	Hebrew University Jerusalem (Israel)
30	National University of Singapore (Singapore)	68	Osaka University (Japan)
37	University of Sydney (Australia)	73	University of Melbourne (Australia)
38	University of Melbourne (Australia)	79	Tohoku University (Japan)
39	Hong Kong University of Science and Technology	97	University of Sydney (Australia)
42	Chinese University of Hong Kong (Hong Kong)	97	Kyushu University (Japan)
43	University of Queensland (Australia)	101-151	Nagoya University (Japan)
44	Osaka University (Japan)	101-151	National University of Singapore (Singapore)
45	University of New South Wales (Australia)	101-151	Technion Israel Institute of Technology (Israel)
47	Monash University (Australia)	101-151	Tel Aviv University (Japan)
50	Peking University (China)	101-151	Tokyo Institute of Technology (Japan)
50	Seoul National University (Korea)	101-151	University of Queensland (Australia)
56	Tsinghua University (China)	101-151	University of Western Australia (Australia)
61	Tokyo Institute of Technology (Japan)	152-200	Hokkaido University (Japan)
65	University of Auckland (New Zealand)	152-200	Natl Taiwan University (Taiwan)
77	Nanyang Technological University (China)	152-200	Seoul National University (Korea)
166	**Chulalongkorn University (Thailand)**	152-200	Tsukuba University (Japan)

However, what Thailand requires may not necessarily be more "world-class universities," especially if more fundamental higher education needs are not being met. World class research universities demand huge financial commitments, a concentration of exceptional human capital, and governance policies that allow for teaching and research excellence. Instead, an initial focus could be on developing national universities, perhaps similar to the land-grant universities in the US during the 19th century or the polytechnic universities of Germany and Canada. Such institutions would cater to the diverse training needs of the domestic student

population and economy. This effort could also be linked to private sector development. Box 4-1 illustrates the development of the Indian Institutes of Technology as one such example. (Salmi 2009)

BOX 4 -1: THE INDIAN INSTITUTES OF TECHNOLOGY

Soon after becoming independent, India placed science and technology high on its economic development agenda. The first Indian Institute of Technology (IIT) was established in 1951 at Kharagpur, (West Bengal) with support from UNESCO, based on the MIT model. The Second IIT was established at Bombay (now Mumbai) in 1958 with assistance from the Soviet Union through UNESCO. In 1959, IIT Madras (now Chennai) was established with assistance from Germany; and IIT Kanpur with help from a consortium of US Universities. British industry and the UK Government supported the establishment of IIT Delhi in 1961. In 1994, IIT Guwahati was established totally through indigenous efforts.

In 2001, the University of Roorkee was brought under the IIT family as the seventh such institution. While taking advantage of experience and best practices in industrial countries, India ensured that the "institutions represented India's urges and India's future in making" (Prime Minister Nehru, 1956). The Indian Parliament designated them as "Institutes of National Importance"—publicly funded institutions enjoying maximum academic and managerial freedom—offering programs of high quality and relevance in engineering, technology, applied sciences and management at undergraduate, masters, and doctorate level and offering their own degrees. Student admissions are made strictly according to merit through a highly competitive common entrance test.

Today, the IITs attract the best students interested in a career in engineering and applied sciences. With 4,000 new students selected out of 250,000 applicants every year, the IITs are more selective than the top US Ivy League schools. Several IIT alumni occupy the highest positions of responsibility in education, research, business and innovation in several parts of the world. In 2005, The Times Higher Education Supplement ranked the IITs as globally third best engineering school after MIT and the University of California, Berkeley.

The main strength of the IITs has been their sustained ability to attract the best students and turn them into "creative engineers" or "engineer entrepreneurs." Initially IITs were criticized for their contribution to the brain-drain as about 40% of the graduates went abroad. Today, with the opening and fast growth of the Indian economy, this "weakness" is turning into a big strength for international cooperation and investments. Much of the success of Bangalore, for instance, is attributed to the phenomenon of reverse brain drain.

Source: Salmi, 2009.

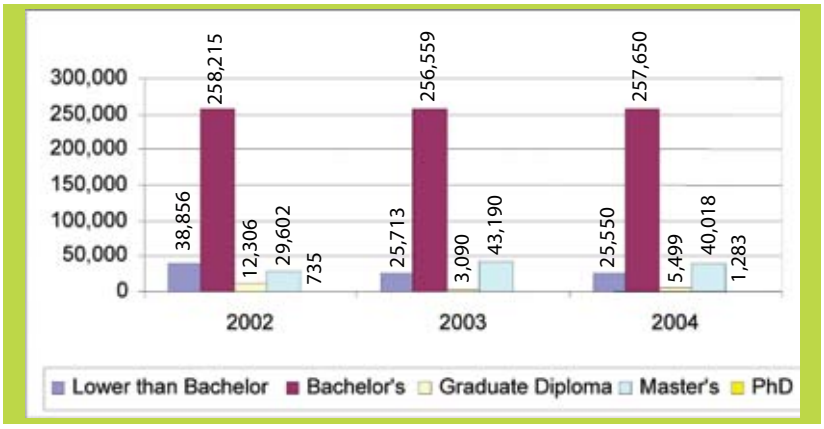
INSTITUTIONAL QUALITY MEASURES

GRADUATION RATES

In 2004, about a quarter million Thai students completed bachelor's degrees, over 25,000 diplomas, approximately 40,000 masters' degrees, and over 1,000 Ph.D. (Figure 4-1). As noted in Chapter 3, the gross enrollment rate for higher education in Thailand is about 50 percent. According to the most recent data available, in the 2002-03 academic year the share of tertiary graduates as a percentage of the population at the typical age of graduation for Thailand was 27 percent. In accordance to enrollment patterns, there are wide disparities

by gender. The male graduation rate was 20.8 percent compared to 33.5 percent for females. The share of Thai youth that attain a college degree in Thailand is slightly below the OECD country average—32 percent (UNESCO, 2005). But is this an adequate output of graduates given existing capacity?

FIGURE 4-1: NUMBER OF GRADUATES BY DEGREE



Source: Commission on Higher Education, 2008

These estimates of university output are largely shaped by the significant share of the population that do not enter a higher education program. They do not quite capture the performance of the higher education system per se. A more useful measure for this purpose is to assess graduation levels in relation to higher education enrollments. As noted in Table 3-1, in 1998, there were approximately 915,000 students enrolled in B.A programs. Six years later, the number of students that attained a B.A degree or higher was 304 thousand. Thus, we can estimate that the college completion rate in Thailand was approximately 33 percent on average. In other words, only one third of students who enrolled in a college degree program graduated within six years. The OECD graduation rate average is 70 percent (OECD, 2007a). It is apparent that there is significant room for improvement in the efficiency of the Thai higher education sector given that a significant proportion of the student body either drops out before graduation or takes many more years than needed to fulfill degree requirements.

HIGHER EDUCATION FACULTY

There are approximately 35 students for each faculty member on average in Thailand tertiary education institutions (Table 4-2). This ratio is much higher than in the Philippines and almost twice that of Indonesia. This gap grows when compared to the mean for OECD countries, where there are approximately 15 students per faculty member.

The common pattern in education systems in low- and middle-income countries is to have larger student teacher ratios at lower levels of education and smaller ratios at higher levels. In Thailand, we observe the opposite pattern. Student staff ratios at primary and secondary levels are practically half of those in tertiary education. Why is this the case? These averages are largely driven by enrollments at open universities, where the average student teacher ratio is 549:1. Limited admission universities have about 15 students per faculty (Boonserm et al., 2003). This is largely comparable with OECD countries.

TABLE 4 -2: STUDENT:TEACHER RATIOS, 2003

	Primary	Lower Secondary	Upper Secondary	Tertiary
Indonesia	23.4	18.8	16.8	18.7
Philippines	34.9	37.2	36.7	22.1
Thailand	**18.5**	**19.5**	**19.9**	**35.0**
OECD Mean	16.5	14.3	13.0	14.9

Source: OECD, 2005

There is gender parity in Thai higher education faculty. The percentage of female instructors has remained stable at around 50 percent, despite a steady increase in the total number of higher education faculty. Given that higher education graduation rates are notably higher for females, it is not surprising that on the whole statistics tend to be positively biased towards women (Table 4-3).

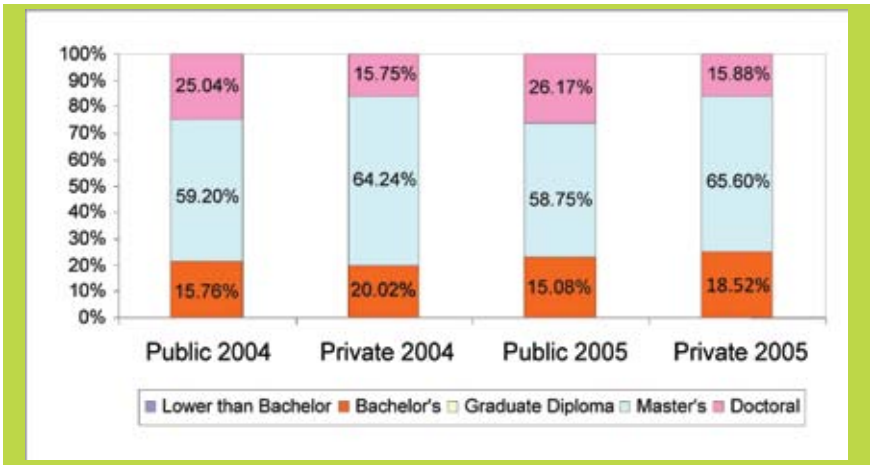
TABLE 4 -3: TERTIARY EDUCATION TEACHERS

	1999	2000	2002	2003	2006
Number of Teachers	50,170	50,639	64,055	65,548	70,405
% Female	53.24	53.73	47.42	47.42	51.47

Source: Edstats, 2008

The majority of tertiary faculty in both public and private higher education institutions in Thailand hold graduate degrees, with about 80 percentage of academic staff holding Master degrees or higher. Public institutions have higher shares of teachers with doctoral degrees than private institutions, possibly as a result of grants and scholarship schemes that Government offers for staff development.

FIGURE 4-2: ACADEMIC STAFF IN PUBLIC AND PRIVATE INSTITUTIONS BY EDUCATIONAL LEVEL



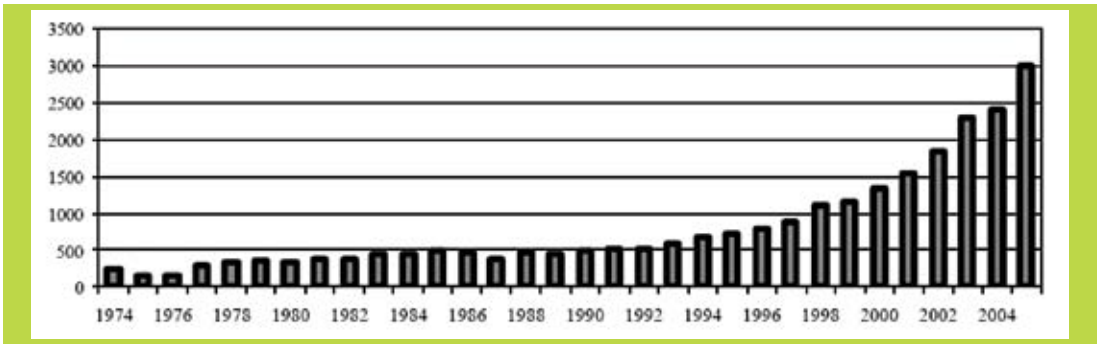
Source: Commission on Higher Education, 2008

According to CHE administrative data, only 1.4 percent of academic staff in public higher education institutions held a full professor position in 2005. The distribution of faculty assignments included 20 percent of associate professors, 36 percent of assistant professors and 43 percent of lecturers. The relatively high proportion of lecturers and the small share of full professors indicate that most institutions focus on student teaching rather than research. The very low percentage of faculty at the rank of full professor may be subject of concern because usually star academics bring prestige to institutions by attracting high quality students and increased external resources, often producing relevant research and publications which appear in international peer-reviewed journals. Such contributions raise the visibility and status of the institution, which in turn raises the status of the system as a whole.

With regards to faculty scholarly output, Thailand has demonstrated substantial progress with regards to number of publications in peer-reviewed journals. According to the

Science Citation Index (SCI), which tracks publications in science journals, Thailand increased its publication significance from less than 500 articles in the mid-1970s to over 3,000 articles per year by 2004 (Figure 4 -3). This trend picked up strength beginning in the mid-1990s. In recent years, there has been a slight shift in the domains of publication, with a slowing trend in the medical sciences and an increasing emphasis on the engineering sciences (Table 4-4).

FIGURE 4 -3: THAI PUBLICATIONS IN THE SCIENCE CITATION INDEX (SCI), 1974–2005



Source: Schiller, 2006

TABLE 4-4: THAI PUBLICATIONS BY SCIENTIFIC FIELD, 1995–2004

Scientific Field	Share of Total			Number of Publications	Thailand's World Share
	1995–97 (%)	1998–01 (%)	2002–04 (%)	2002–04	2003 (%)
Total				2,120	0.30
Agricultural sciences	9.6	8.5	10.0	213	0.50
Medical sciences	54.9	49.8	43.0	912	0.37
Engineering sciences	18.1	21.0	26.3	558	0.33
Life sciences	27.2	28.7	28.4	602	0.39
Natural Sciences	13.0	13.8	18.8	399	0.17

Source: Schiller, 2006

On the other hand, as a share of publications worldwide, Thailand's faculty overall contributions are small, well below 1 percent in all academic fields (Table 4-5). In comparison to other Asian nations, for the period 2000-05, Thailand's average scholarly output per year was less than half of Singapore's production, but close to double that of Malaysia. The number of publications by faculty in China, Korea, and Taiwan was significantly larger.

TABLE 4-5: YEARLY AVERAGE NUMBER OF PUBLICATIONS (SELECTED NATIONS, 1980–2005)

	1980–84	1985–89	1990–94	1995–99	2000–05
Thailand	**394**	**446**	**557**	**926**	**2,059**
Korea	341	1,043	2,756	9,813	21,471
Taiwan	642	1,644	4,326	8,608	13,307
Singapore	253	597	1,142	2,501	5,177
Malaysia	259	298	421	745	1,221
Philippines	237	207	246	329	474
Indonesia	104	141	198	366	524
China (including Hong Kong)	2,694	6,244	10,365	21,205	48,552

Source: Schiller, 2006

The relevance of scholarly research may be assessed by the frequency this work gets cited in other scholarly publications. In this realm, Thailand scores relatively well in all areas of academic pursuit. In most fields of research, Thailand's "impact index" tends to be for the most part—perhaps with the exception of the life sciences—just below the world average (Table 4-6), suggesting that the relatively small number of faculty working on research are quite productive and are contributing meaningfully to global knowledge.

TABLE 4-6: THAI PUBLICATIONS' IMPACT BY SCIENTIFIC FIELD

	World Average (2003)	Thailand (2002-04)
Total	2.373	2.101
Agricultural sciences	1.380	1.060
Medical sciences	2.864	2.793
Engineering sciences	1.153	0.977
Life sciences	2.995	2.190
Natural Sciences	2.154	1.812

Source: Schiller, 2006

QUALITY OF TEACHING AND LEARNING

Traditional educational systems, in which the teacher is the main "source" of knowledge, are ill-suited to equip people to work and live in a knowledge economy. Some of the competencies such a society demands—teamwork, problem solving, motivation for lifelong learning—cannot be acquired in a setting in which teachers convey facts to students whose

main task is to learn them in order to be able to repeat them. A lifelong learning system must be competency driven. Within traditional institutional settings, countries must develop new curricula and new teaching methods to adapt. Anecdotal data from Thailand indicates that teaching and learning approaches in higher education institutions rely primarily on faculty-centered approaches, with limited opportunities for student independent work, problem solving or group projects. Providing people with the tools they need to function in the knowledge economy requires adoption of a new pedagogical model. This model differs from traditional academic approaches in distinct ways, as illustrated in Table 4-7.

TABLE 4-7: CHARACTERISTICS OF TRADITIONAL AND LIFELONG LEARNING MODELS

Traditional Learning	Lifelong Learning
• The teacher is the source of knowledge • Learners receive knowledge from the teacher • Learners work by themselves • Tests are given to prevent progress until students have completely mastered a set of skills and to ration access to further learning • All learners do the same thing • Teachers receive initial training plus ad hoc in-service training • "Good" learners are permitted to continue their education	• Educators are guides to sources of knowledge • People learn by doing • People learn in groups and from each other • Assessment is used to guide learning strategies and identify pathways for future learning • Educators develop individualized learning plans • Educators are lifelong learners. Initial training and ongoing professional development are linked. • People have access to learning opportunities over a lifetime.

Source: World Bank, 2003

While teaching models are often context-specific, a set of aspects of effective learning environments and principles have emerged from various findings that address the skills demands of a knowledge economy. Further empirical evidence needs to provided, but those aspects seem to map the demands of the knowledge economy, and there is a general trend of OECD countries moving into integrating those aspects in their education practices. They can be subsumed under the learner-centered education paradigm that differs from traditional learning settings in that it is customized, knowledge rich, networked, and assessment-driven (Box 4 -2). The growing predominance of interactive teaching methods and active learning, case-based training, simulations, and team project – in short, a problem-oriented curriculum – reflects the need to build cognitive-based and creative capital.

BOX 4 -2: TRENDS OF EFFECTIVE LEARNING ASPECTS AND ENVIRONMENTS FOR THE KNOWLEDGE ECONOMY

Learner-centered teaching

The learner-centered education paradigm is based on the cognitive theories of learners' active involvement in reflection, interpretation and self-evaluation. Knowledge and skills are acquired through exploration, drawing from the real world and applying learning in practice. Learning is social; it occurs in interaction, together with others, debating and creatively changing social practices. Learner-centered education supports deep learning and creativity. A learner-centered environment recognizes that learners acquire new knowledge and skills best if the knowledge and skills are connected to what they already know. Teachers need to know what learners already know and understand before introducing new material. Learner-centered learning allows new knowledge to become available for use in new situations—that is, it allows knowledge transfer and adaptation for a specific context to take place. Aspects include:

1) Customized Learning: Credit hours and time in the classroom may not necessarily be coupled in learner-centered education. Although students with background knowledge and experiences in a content area may quickly master the course material and required skills, others may need more time and additional help. Consequently, students in learner-centered environments will often complete courses at different rates.

2) Knowledge-rich learning, learning by doing and learning by using: Learners ability to transfer what they learn to new contexts requires both a grasp of themes and overarching concepts in addition to factual knowledge as well as their application processes. Knowledge-rich learning thus favors teaching fewer subject areas in depth rather than covering more subjects in less depth. In order to absorb the knowledge and apply it, "learning by doing," and "learning by using" approaches are important ways of using the knowledge and concepts being taught. This kind of learning provides learners with a variety of strategies and tools for retrieving and applying or transferring knowledge to new situations.

3) Inter-connected, net-and team-worked: In a knowledge economy, it becomes paramount to collaborate with other parties and tap into the global stock of knowledge. Also, it is important that learners be able to learn from one another. Giving learners the opportunity to work on joint projects is important for both children and adults. Indeed research has shown that collaborating student groups can accelerate learning. It is furthermore important to link activities inside the classroom with what is happening outside the classroom. Working on real-life problems or issues that are relevant to participants increases interest and motivation and promotes knowledge transfer. Moreover, important sources of information and knowledge exist outside the classroom that learners need to understand and access.

4) Assessment-driven: Assessment-driven learning is based on defining clear standards, identifying the point from which learners start, determining the progress they are making toward meeting standards, and recognizing whether they have reached them. Assessment-driven learning helps the educational system define the instructional action plan, which needs to reflect the different places from which learners start. Education scientists currently experiment with how this approach can be reconciled with the accountability that schools still have to adhere to. However, there is consensus that giving learners—even very young learners—a role in the process of tracking their learning achievements and, especially, engaging them in discussion of the outcomes of these assessments are powerful motivators and tools for improved and independent learning.

Source: World Bank, 2009

QUALITY ASSURANCE PRACTICES

Significant steps have been taken to create a unified quality assurance framework that will review performance of Thailand education institutions. Since the 1999 NEA was promulgated, the quality of education system is officially evaluated both internally and externally. Internally, higher education institutions are expected to conduct self assessments. All institutions are required to implement an internal quality assurance system comprised of control, audit and assessment. Institutions are expected to prepare annual reports which are then submitted to CHE and made available to the public.

External assessments are meant to complement the internal institutional assessment. The NEA established the Office for National Education Standards and Quality Assessment (ONESQA) as the agency responsible for overseeing quality reviews of all higher education institutions at least once every five years. The results of the assessments are shared with relevant agencies and also made available to the public.

The NEA authorizes ONESQA to submit corrective measures and actions for schools that are performing poorly in order to improve their functions. If an institution continues to perform poorly, a report is submitted to CHE for further action. Anecdotal data suggests that the current performance of ONESQA should be strengthened in order to translate monitoring and evaluation into tangible improvements in higher education quality.

The first review cycle took place between 2000-05. Higher education institutions were encouraged to present data from their internal evaluation process, including performance indicators and statistical data collected from institutional review reports. All stakeholders—faculty, students, parents and administrators—were encouraged to participate in the review process. For the second review cycle, now ongoing from 2006 to 2010, a typology with seven dimensions was created to systematize the evaluation process: (a) quality of graduates, (b) research and innovation, (c) academic services, (d) arts and culture preservation, (e) organization and human resource development, (f) curriculum and institutional aspects, and (g) quality assurance system.

As ONESQA looks inward to improve itself and to raise itself to a level comparable to the most sophisticated accreditation systems in the world, it will have to consider how to reincarnate itself so that its activities: (a) continue to be guided by evolving high standards; (b) are forward looking and allow for innovative practice; and (c) address a number of the shortcomings that characterize the present system. A robust accreditation process would necessarily:

- be understandable by and acceptable to all stakeholders
- be fair, transparent, and objective
- involve credible members
- take into account the requirements of training and education, private and public systems
- incorporate feedback loops for continuous improvement and fine tuning
- be simple, manageable, and adaptable as well as efficient and effective
- have built-in mechanisms for ongoing monitoring of its own efficiency and effectiveness

In order for the practices of the Thai Quality Assurance system to be in line with the most advanced international quality assurance systems, it would need to:

- Involve credible peer reviewers including international experts in the external review process of programs. Ensure that individuals involved in the peer review process receive sufficient training for the task at hand.
- Make all quality assurance reports of institutions high quality and publicly available.
- Ensure that the system is fair and efficient, functions without delays, is devoid of unnecessary bureaucracy, does not intrude in the primary activities of universities and does not stymie innovation.
- Assume a more constructive and formative role and ensure that recommendations made by the ONESQA following program reviews are meaningful and possible to implement.
- Build in a system for the review of ONESQA itself, using external and international experts.

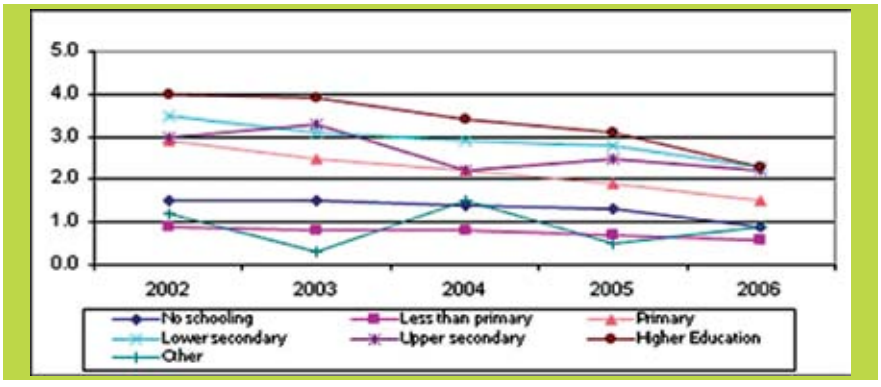
EMPLOYMENT AND THE LABOR MARKET

Another way to evaluate the relevance of the skills and knowledge provided in higher education institutions is through the lens of job opportunities for their graduates. This section presents a series of statistics on the Thai labor market that help illustrate whether graduates are able to get jobs in their areas of training and whether employers are satisfied with the quality of the graduates. It is essential to keep in mind that education is a necessary but not sufficient condition for individuals to enjoy good labor market outcomes, regardless of sector. Besides education, other factors including good labor market opportunities for the skilled require an economy as a whole to be operating well with macroeconomic stability, an attractive investment climate, and efficient labor markets, are all critical. It is of critical importance to adopt a holistic approach to analyzing education-labor market relationships.

EMPLOYMENT RATES

There has been a steady decrease in unemployment rates in Thailand between 2002 and 2006. Figure 4-4 shows the unemployment rates for individuals with different levels of education. Contrary to conventional wisdom, unemployment rates increase by level of education. Individuals with university degrees had the highest unemployment rates, but these rates decreased from 4 percent in 2002 to 2.3 percent in 2006.

FIGURE 4-4: UNEMPLOYMENT RATE BY EDUCATION LEVEL, 2002-06



Source: National Statistics Office, 2008

Unemployment rates of university graduates differ by degree attained. Only 2.6 percent of Ph.D graduates were unemployed in 2000, compared to 30.9 percent of Associate Degree graduates (Table 4-8). The unemployment rate also varies by field of study. A survey report on job searching status of B.A graduates conducted by CHE suggests that students in health and welfare programs had the smallest unemployment rates (7 percent), while science graduates had the highest unemployment rates (40 percent) (Table 4-9). High unemployment rates of science graduates suggest that either there are limited job opportunities in this field and/or graduates have not developed the skills needed by the local economy in these academic programs. High unemployment rates have negative consequences not only for recent graduates, but they can also discourage students from attending science programs and might lead to scarcity of scientists in the future.

TABLE 4-8: GRADUATES BY WORKING STATUS AND DEGREE TYPE, 2000

	Degree Type							
	Total	Ph.D	Master	Graduate	Bachelor	Associate	Por Wor Chor	Certificate
Total	**616,399**	**573**	**28,138**	**1,952**	**213,043**	**202,167**	**166,868**	**3,658**
Employed	291,715	558	26,829	1,629	164,349	74,508	23,495	346
Unemployed	144,952	15	1,027	189	36,500	62,510	43,579	1,132
Continue Study	179,732	-	282	134	12,194	65,148	99,794	2,180

Source: National Statistics Office, 2008

TABLE 4-9: EMPLOYMENT STATUS OF B.A GRADUATES BY FIELD OF STUDY, 2002-03

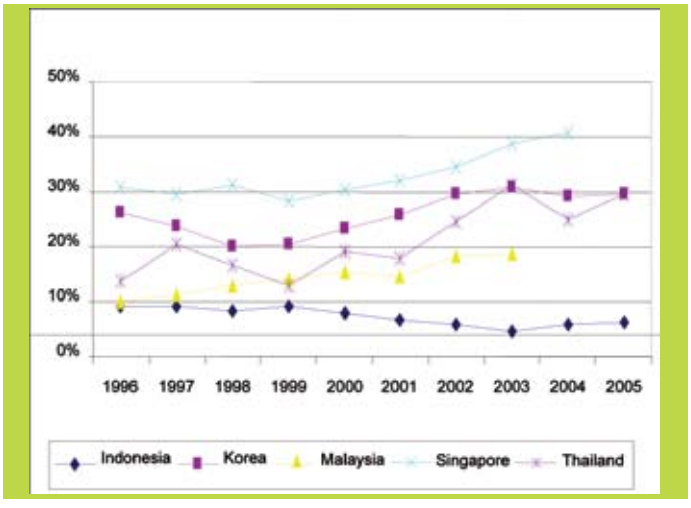
	Total Observations	Employed	%	Unemployed	%
Teacher training and education science	5,111	3,705	72.5%	1,406	27.5%
Humanities and Arts	5,603	3,600	64.3%	2,003	35.8%
Social sciences, business and law	39,460	26,872	68.1%	12,588	31.9%
Science	7,628	4,283	56.2%	3,345	43.9%
Engineering, manufacturing and construction	14,282	8,533	59.8%	5,749	40.3%
Agriculture	4,670	3,121	66.8%	1,549	33.2%
Health and welfare	8,939	8,327	93.2%	612	6.9%
Services	1,844	1,172	63.7%	672	36.4%
Total	**87,537**	**59,613**	**68.1%**	**27,924**	**31.9%**

Source: Commission on Higher Education, Summary Report on Job Searching Status of Graduates in 2002-03

Comparisons with other East Asian countries corroborate a rising trend in unemployment rates for higher education graduates between 1996 and 2005 (Figure 4-5). With

the exception of Indonesia, all other countries surveyed present increasing skilled-labor unemployment rates. Thailand's unemployment rates for higher education graduates increased from over 10 percent to almost 30 percent during this period. After the 1997 financial crisis, however, unemployment rates of high school graduates actually decreased. The main reason for this phenomenon is that the financial crisis put pressure on firms to cut wage costs through hiring younger workers, contract workers, and temporary workers. This reduced the need for more costly, high-skilled workers. The rising trend in unemployment of college graduates in the region may also be explained by an excess of supply of graduates with inadequate skills as well as weak industry development.

FIGURE 4-5: UNEMPLOYED HIGHER EDUCATION GRADUATES AS SHARE OF TOTAL UNEMPLOYED

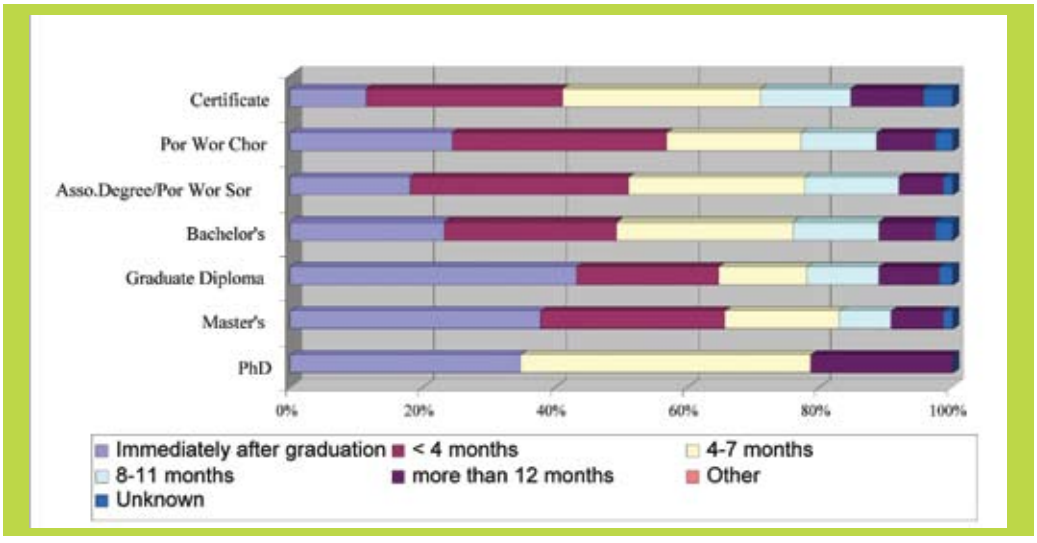


Source: International Labor Organization, 2007

How long does it take for higher education graduates to find gainful employment in Thailand? Figure 4-6 and Figure 4-7 present the time that employed and unemployed graduates require to find a new job. Generally, employed workers with higher education degrees spend less time searching for jobs than workers with less education. About 20 percent of B.A degree holders are hired immediately after graduation and this proportion doubles to approximate 40 percent for workers with graduate degrees. About 60 percent of employed workers with graduate diplomas or Master degrees find jobs within 4 months after graduation. Graduates with an A.A or a B.A need more time to find a job than graduates with a Por

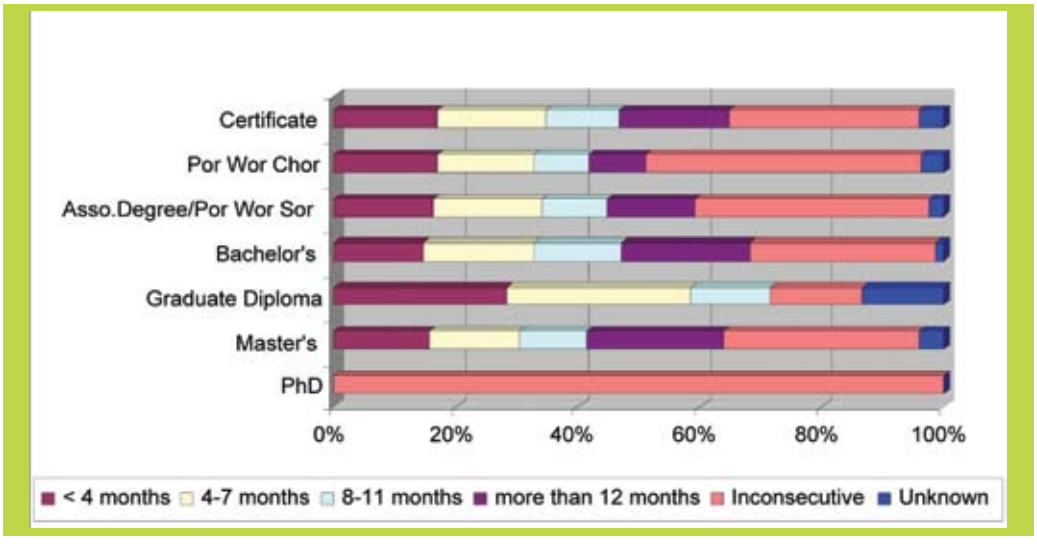
Wor Sor vocational, two-year degree. In contrast, more than 60 percent of Ph.D graduates need between six months and a year to find a new job. This might be the result that these are highly coveted and competitive (as well as somewhat specialized) posts. Doctoral graduates may also be more willing to wait for the "right" job or posts with higher compensation.

FIGURE 4-6: LENGTH OF TIME EMPLOYED GRADUATES LOOK FOR NEW JOBS



Source: National Statistics Office, 2008

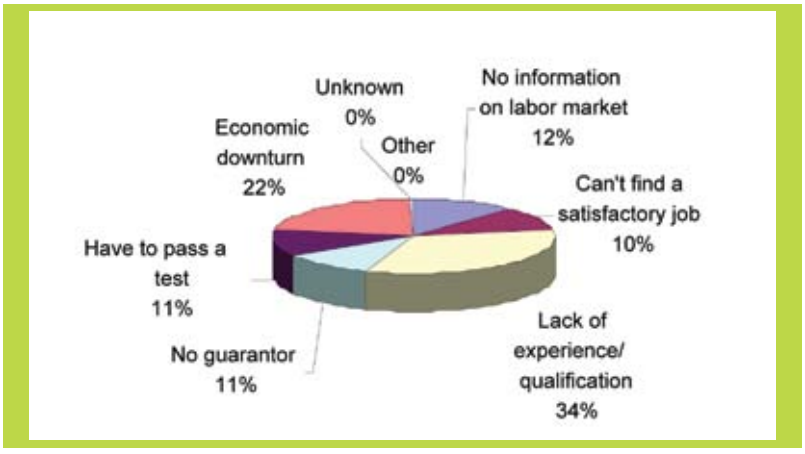
FIGURE 4-7: LENGTH OF TIME UNEMPLOYED GRADUATES LOOK FOR JOBS



Source: National Statistics Office, 2008

Joblessness upon graduation, however, afflicts graduates across the spectrum of degree earners and deserves a closer examination in terms of the relevance of academic degrees on the part of potential employers. According to a survey of new job seekers that recently graduated from a B.A program conducted by the National Statistics Office, the main problem perceived by individuals was weak practical experience and qualifications (Figure 4-8). The second problem most often noted was slow economic conditions and a decreasing number of job openings. Other problems included lack of information about potential jobs and how to get one, an inability to find a satisfactory job, the need for a guarantor, and passing required skills testing. It is clear that some of these problems are grounded in perceptions and may not be root challenges actually, while others could be minimized by improving academic preparation, career counseling, employer outreach and internship opportunities in higher education.

FIGURE 4-8: PROBLEMS IN JOB SEARCHING



Source: National Statistics Office, 2008

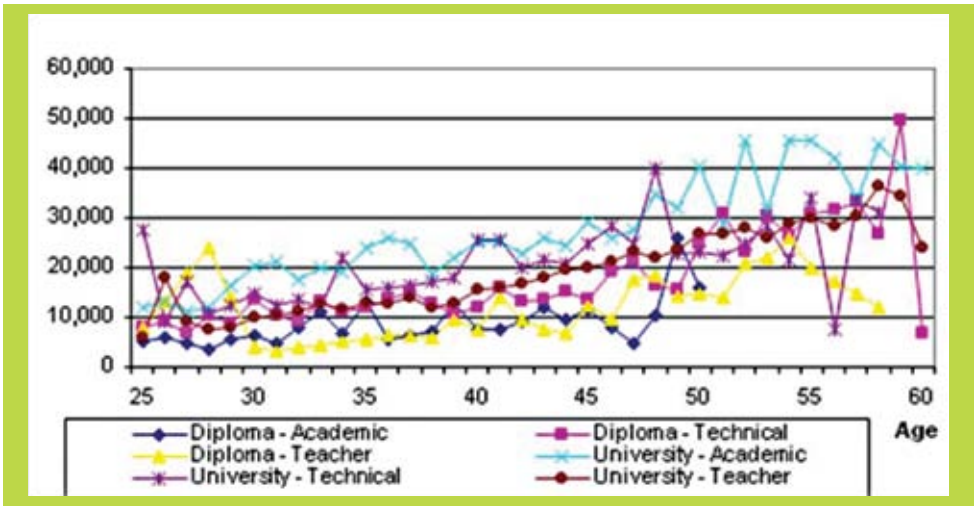
WAGES

Another way to estimate the benefits of pursuing higher education in Thailand is to compare the wages of individuals in different sectors of the economy. As already noted in Chapter 1, the labor market rewards quite substantially additional years of education. The initial average salary for a new employee with Por Wor Sor degree was 6,464 Baht per month, compared to 10,210 Baht for a B.A degree holder, and 16,488 Baht for a M.A degree holder. The initial monthly allowance follows the same pattern, ranging from 955 Baht for Por Wor Sor

graduates to 2,099 Baht for M.A. degree holders. Combined together, the difference in initial income between Por Wor Sor graduates and M.A. degree graduates in the private sector is around 11,000 Baht per month.

On average, wage differentials by educational level become greater over time. Earnings increase with age, reflecting that the labor market compensates workers for additional years of experience. This is the case for all workers, regardless of level and field of education. But higher skilled workers receive a premium for additional work experience than workers with lower educational levels (Figure 1-2). Figure 4-9 presents age-earnings profiles of workers by educational level and field of study. As expected, earnings of workers with university degrees are higher than those of secondary school diploma recipients in the same field. Holders of academic university degrees experience the highest returns, despite some fluctuations, and they are the highest earners for all age groups. The demographic group with more steady increases and lower fluctuations are university degree working as teachers. For diploma holders, technical degrees earn higher wages than academic or teacher related fields.

FIGURE 4-9: AGE-EARNINGS PROFILE BY EDUCATION LEVEL AND FIELD OF STUDY

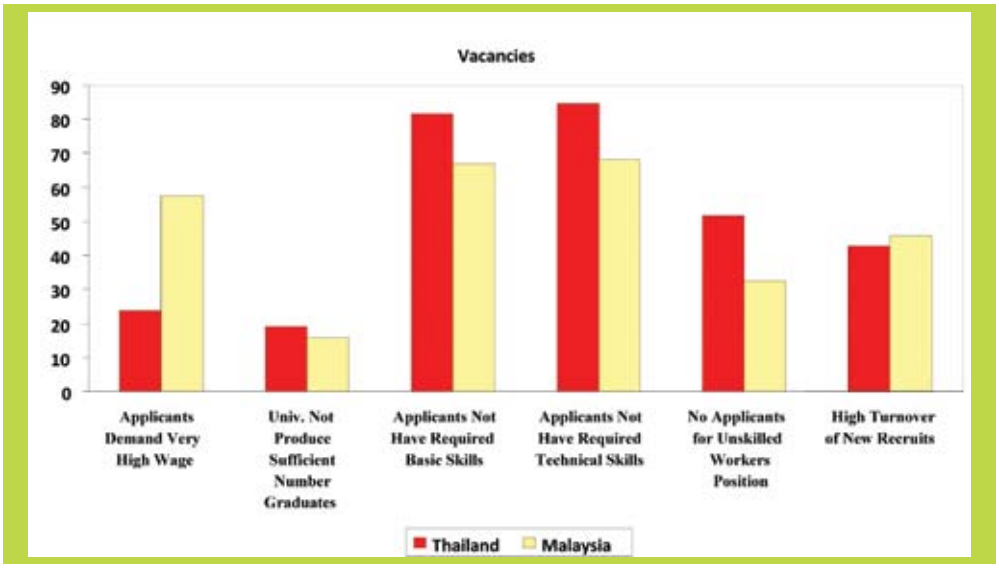


Source: Labor Force Survey, 2005

LABOR MARKET RELEVANCE OF HIGHER EDUCATION SKILLS

According to a survey of firms in Thailand and Malaysia, the main reason for job vacancies is related to the inability to identify applicants with appropriate basic and technical skills. More than 80 percent of companies in Thailand and 70 percent in Malaysia identified insufficient basic and technical skills as the major causes for open jobs. On the other hand, less than 20 percent of firms in both countries points to a lack of applicants as a major factor for vacancies. This finding indicates an imbalance between the quantity and the quality of higher education graduates. As already discussed in Chapter 1, this situation is particularly acute in Thailand where employers are willing to pay a significant premium for high-skilled workers.

FIGURE 4-10: MAIN CAUSES OF JOB VACANCIES (THAILAND AND MALAYSIA)



Source: World Bank, 2006b

Overall, a mixed picture emerges from the demand and supply sides of the economy. The quality of tertiary education is difficult to measure, but different academics and stakeholders have criticized the quality of education of Thai university graduates. No universal definition of quality in tertiary education or agreement on general principles of good practice is available, given the heterogeneity of institutions, programs, and degrees at the tertiary level. Concerns have been raised over the unsatisfactory quality of the young

generation's educational background and their lack of comprehensive knowledge and skills. Universities offer narrowly-specified fields of study, equipping youth with single tasking skills and making them unable to adapt or relate their knowledge to broader contexts.

At the same time, research on university mapping indicates that Thailand has an oversupply of social science graduates while lacking graduates in the fields of science, technology and health sciences (Suwan et al., 2001). As a result, those in oversupplied fields have had more difficulty finding jobs and oftentimes end up working in jobs unrelated to their areas of study. The labor market is willing to award a significant premium to those who exhibit mastery of skills that are in short supply. These findings suggest a significant mismatch between training provided in higher education institutions and skills needed in the labor market.

However, there are also some signs of hope and progress. The University Business Incubator Project is a collaboration between universities and industry to generate new products and innovations. The goal is to train graduate students and to provide them with entrepreneurial skills, as well as the funds necessary to start new businesses. Between 2004 and 2006 there were 15 incubator units set up in universities, resulting in about 75 joint ventures, with 1,000 students and recent graduates participating. The government should continue to provide the enabling conditions necessary to encourage this project and others like it. In a climate of greater competition for students, and fewer subsidies from Government, higher education institutions need to find creative ways of enhancing their academic relevance while also generating additional revenue.

Chapter 5

Financing, Governance, And Institutional Management Of Higher Education

THE WORLD BANK GROUP

Financing, Governance, And Institutional Management Of Higher Education

PUBLIC EXPENDITURE IN HIGHER EDUCATION

After the 1997 financial crisis, Thailand's fiscal expenditures were tightened, resulting in a decrease of almost 8 percent in the education budget. It took more than three years before the country returned to pre-crisis education expenditures levels. In 2007, Government allocated more than 20 percent of the national budget to education, or about 4 percent of its GDP, and 17.9 percent of education expenditures were allocated to higher education (Table 5-1).

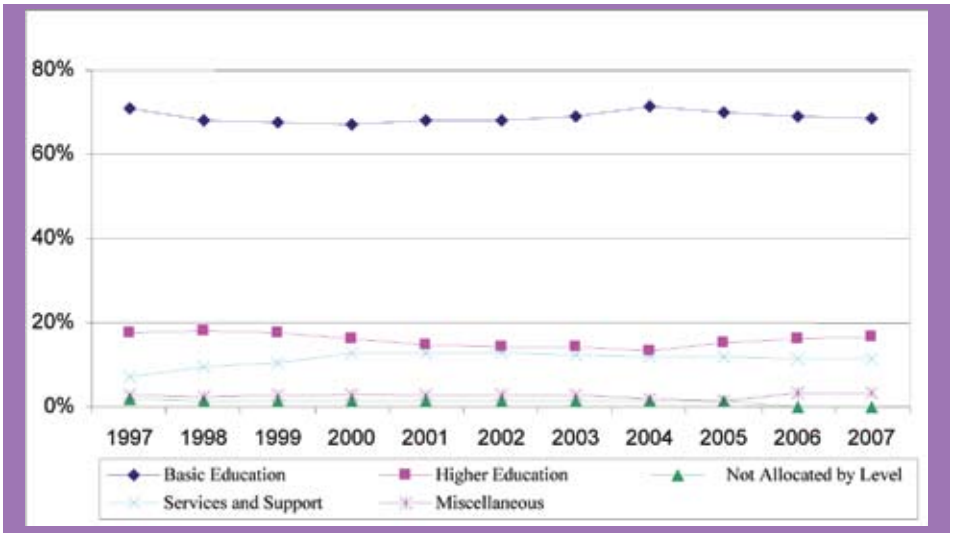
TABLE 5-1: EDUCATION BUDGET, 1997-07

Fiscal Year	Education Budget			Higher Education		
	Amount	% Change	% of GDP	% of National Budget	% of Total Ed Budget	% of GDP
1997	15,162	28.4	4.1	21.9	17.7	0.7
1998	26,610	5.3	3.9	23.1	18.1	0.7
1999	08,614	-7.9	3.7	25.3	17.5	0.7
2000	21,051	6.0	4.1	25.7	16.0	0.7
2001	21,592	0.2	4.3	24.4	14.8	0.6
2002	222,940	0.6	4.0	21.8	14.4	0.6
2003	235,444	5.6	4.1	23.5	14.2	0.6
2004	251,234	6.7	4.0	24.4	13.7	0.5
2005	262,938	4.7	3.7	21.9	15.3	0.6
2006	294,955	12.2	3.7	21.7	16.3	0.6
2007	356,946	21.0	4.2	22.8	17.9	0.7

Source: Ministry of Education, 2007

The higher education budget share has fluctuated between 14 and 18 percent of the total education budget over the last decade (Figure 5-1). It has experienced a slight but continuous increase since 2005, while the overall education sector budget as a share of the national budget has also been expanding. This has translated in significant additional mobilization of financial resources for the subsector.

FIGURE 5-1: SHARE OF EDUCATION BUDGET BY LEVEL OF EDUCATION, 1997-07



Source: Ministry of Education, 2008

Thailand expends approximately 0.7 percent of GDP in higher education. Compared to the financial effort of other countries for higher education, Thailand performs below the OECD average (1.3 percent) and far below other East Asian nations such as Malaysia (2.7 percent) and South Korea (2.4 percent), although roughly at par with China, India and the Philippines (Figure 5-2). In terms of expenditure per higher education student, Thailand has performed relatively well in comparison to other East Asian nations such as Indonesia or Korea; however, expenditure levels are notably lower than the OECD country average (Table 5-3).

TABLE 5-2: PUBLIC EXPENDITURE ON TERTIARY EDUCATION

Countries	% of GDP
China	0.8
Denmark	2.7
Finland	1.7
Germany	1.2
India	0.7
Ireland	1.2
Malaysia	2.7
OECD Average	1.3
Philippines	0.7
South Korea	2.4
Sweden	2.2
Thailand	**0.7**
United Kingdom	1.1
USA	1.4

Source: UNESCO, 2005b

TABLE 5-3: EXPENDITURE PER STUDENT IN PPP USD (1998)

	Pre-primary education	Primary education	Lower secondary education	Upper secondary education	All secondary education	Tertiary education
Indonesia	425	116	433	647	497	**6,840**
Philippines	433	689	640	1089	726	**2,799**
Thailand	**802**	**1,048**	**1,091**	**1,289**	**1,177**	**6,360**
Japan	3,123	5,075	5,515	6,257	5,890	**9,871**
Korea	1,287	2,838	3,374	3,692	3,544	**6,356**
OECD mean	3,585	3,940	5,083	5,916	5,294	**9,063**

Source: UNESCO/OECD World Education Indicators, 2005

There has been continuous growth in higher education expenditures over the last 10 years. The recurrent budget has experienced a steady expansion, while the investment budget has fluctuated over time. However, the investment budget doubled between 2004 and 2007 (Table 5-4).

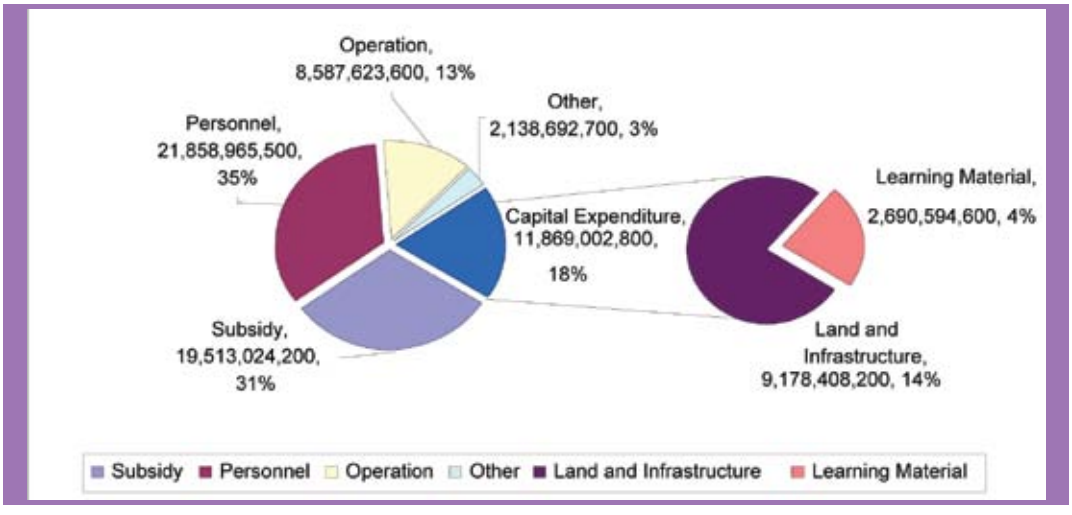
TABLE 5-4: HIGHER EDUCATION BUDGET BY TYPE OF EXPENDITURE, IN BILLION BAHT

Year	Recurrent	Investment	Total
1997	20.7	16.0	36.7
1998	20.4	12.5	32.9
1999	21.6	12.7	34.3
2000	23.0	10.8	33.8
2001	24.1	8.2	32.3
2004	34.1	5.9	40.0
2005	37.5	7.7	45.2
2006	43.8	6.0	49.8
2007	52.1	11.9	64.0

Source: Ministry of Education, 2008

Eighty one percent of total expenditure was allocated to operational expenses (personnel, subsidies, and other running costs) versus 18 percent allocated to capital expenditures. Approximately three quarters of the investment budget was apportioned to land acquisition and infrastructure, while the remaining one quarter was allotted to learning materials (Figure 5-2). Allocations for academic research were negligible.

FIGURE 5-2: HIGHER EDUCATION BUDGET BY EXPENDITURE TYPE, 2007



Source: Commission on Higher Education, 2008

INSTITUTIONAL AND PRIVATE EXPENDITURES

Basic standard tuition and fee costs (BTF)[4] vary considerably across fields and types of higher education institutions. It reflects the true costs for higher education institutions in terms of educational and operation costs. It ranges from 6,928 Baht per year in 2004 for a social sciences degree in open universities to over 500,000 Baht for a degree in medicine at a limited admissions university. For limited admissions, autonomous, and private universities, the most expensive fields of academic study include medicine and health, followed by engineering, fine arts, and social sciences. Generally, the cost of tuition and fees for private universities is lower than for selected admissions and autonomous universities. Nonetheless, these costs vary by field. Private universities have lower costs in fields such as journalism, teacher training and medicine. The two Open universities have the lowest tuition and fees since they use a distance mode of instruction and their focus is on relatively more affordable fields such as the humanities and social sciences. Rajabhat and Rajamangkala Universities have lower BTFs than limited admissions and autonomous universities.

TABLE 5-5: BASIC TUITION FEE (IN BAHT) BY SUBJECT AND TYPE OF UNIVERSITY, 2004

	Limited Admissions/ Autonomous University	Private University	Open University 1: Sukhothai Thammathirat	Open University 2: Ramkhamhaeng	Rajabhat University	Rajamangkala University
Social Sciences	49,837	49,150	7,482	6,928	17,624	-
Journalism	49,837	60,849	9,204	-	17,624	-
Teacher Training	83,046	34,540	9,128	12,459	30,323	64,342
Fine Arts	60,725	50,350	-	-	-	41,838
Engineering	78,039	75,553	-	-	17,518	33,592
Agriculture	115,774	-	9,418	-	26,773	-
Pharmaceutical	125,863	107,400	-	-	-	-
Medicine	556,121	184,400	-	-	-	-

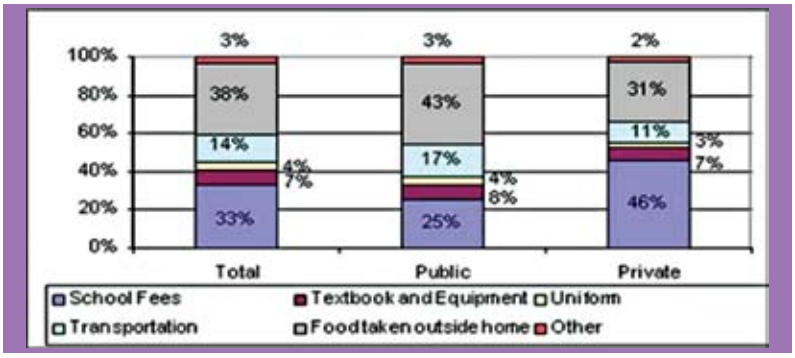
Source: Krongkaew, 2005a

Students and families usually do not pay full BTF costs because "tuition fees" take into account Government subsidies that lower the final consumer cost. According to data from the 2002 Children and Youth Survey, tuition and fees represent the greatest share

[4] *BTF is the unit cost of university operation. It is not the tuition fee charged to students by a higher education institution.*

of expenditures - 46 percent - for students attending private institutions. On the other hand, public university tuition represents only 25 percent of total educational expenditures (Figure 5-3).

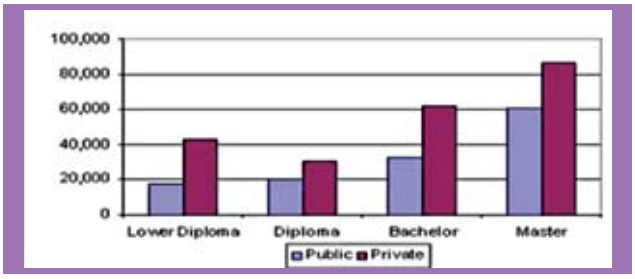
FIGURE 5-3: AVERAGE ANNUAL EXPENDITURE ON HIGHER EDUCATION



Source: Children and Youth Survey, 2002

The total annual expenditures of attending a private institution in Thailand are higher than for a public institution at every educational level (Figure 5-4). Public institutions are cheaper partially due to Government subsidies, but also because they are primarily non-profit institutions with an explicit mission to provide affordable education to all students despite income level. Education expenses increase by degree attained. Diplomas are the least expensive programs at about 20,000 per year at public institutions as compared with over 80,000 Baht for a M.A. in a private institution.

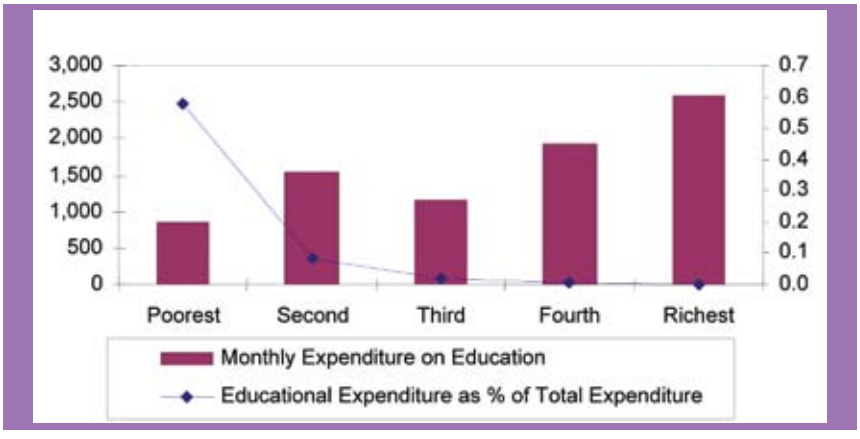
FIGURE 5-4: ANNUAL EXPENDITURE PER PERSON BY EDUCATION LEVEL, IN BAHT



Source: Children and Youth Survey 2002

As suggested in previous chapters there are substantial inequalities in terms of access to higher education by socioeconomic level. Cost is an important reason for these inequities. The poorest households invest much less than their higher income counterparts in higher education. The poorest household spends on average 3,650 Baht per month in higher education, about one eighth of the expenditures of the richest household, over 25,643 Baht. However, in terms of total household income, the picture that emerges is quite the opposite. For the poorest families, private expenditures in education represents about 60 percent of their total income compared to wealthiest households where higher education expenditures represent less than one percent of income. Sending a child to school represents a significant financial burden for poor families. This is not only due to high costs associated with attending higher education, but also in relation to the opportunity costs of foregone earnings (Figure 5-5).

FIGURE 5-5: PRIVATE EXPENDITURE IN HIGHER EDUCATION BY INCOME QUINTILE



Source: Socio-Economic Survey 2006

During the last decade, private costs of higher education per student have been increasing continuously and at a much higher rate than private costs of primary and secondary education. The private expenditure in higher education doubled in a decade; from 9,465 Baht in 1994 to 19,174 Baht in 2004 (Table 5-6). The costs increased by household income level. In 1994, the richest quintile spends about 4 times as much as the poorest quintile, and ten years later the expenditure is almost eight times higher.

Private expenditures reported below do not take into account the opportunity costs that families incur when they send their children to university—a potential source of income for the family. According to the 2005 Labor Force Survey, workers with secondary education of 18-21 years of age earned approximately 4,000-5,000 Baht per month. Adding the opportunity cost to total higher education expenditures increases very substantially total annual costs, especially for poor households.

TABLE 5-6: PRIVATE EXPENDITURE ESTIMATES ON EDUCATION BY INCOME QUINTILE (REAL BAHT)

		1994	1996	1998	1999	2000	2002	2004
Overall								
	Primary	1,308	1,233	1,447	1,631	1,569	1,701	1,802
	Secondary	2,053	2,160	1,909	2,202	2,194	2,353	2,882
	Tertiary	9,465	13,429	15,839	17,010	17,344	19,203	19,174
Poorest quintile								
	Primary	414	502	477	500	471	469	618
	Secondary	967	1,175	1,175	1,053	1,081	864	1,119
	Tertiary	2,583	2,417	2,392	3,303	3,143	1,864	3,650
Quintile 2								
	Primary	658	721	646	676	733	717	983
	Secondary	1,425	1,501	1,551	1,682	1,599	1,492	1,849
	Tertiary	3,467	3,058	4,237	3,549	3,231	5,888	7,218
Quintile 3								
	Primary	898	1,081	1,176	1,291	1,064	1,318	1,860
	Secondary	2,032	2,143	1,929	1,935	2,242	2,180	2,562
	Tertiary	4,117	3,908	4,350	5,731	4,795	6,044	9,187
Quintile 4								
	Primary	1,772	1,915	2,240	2,588	2,541	2,876	4,317
	Secondary	2,399	2,898	2,874	2,864	2,908	2,963	3,875
	Tertiary	5,866	6,233	7,142	7,082	8,095	9,403	12,856
Richest quintile								
	Primary	5,604	4,850	6,735	8,702	7,144	8,380	9,866
	Secondary	4,336	4,394	5,244	6,566	5,687	6,889	9,068
	Tertiary	11,759	18,560	21,584	22,698	22,615	22,821	25,643

*Prices are deflated by regional and yearly CPIs (base region=Bangkok, Base year=2002).
Yearly CPIs: 1994=0.75, 1996=0.84, 1998=0.96, 1999=0.96, 2000=0.98, 2002=1.00, 2004=1.05
Source: Socio Economic Surveys, 1994-2004

FINANCIAL AID

In the Thai higher education system, government subsidies for operating costs at public universities amount to approximately 70 percent, while student contributions are less than 30 percent (Krongkaew, 2005b). As mentioned in chapter 3, the vast majority of higher education students are from wealthier families. Furthermore, the tax system is regressive, which means that in a highly-subsidized public higher education system, poor households are helping the rich to pay for their education.

In order to help a more diverse contingent of families afford the increasing costs of higher education, Government has developed a variety of scholarship and loan programs. Some of the most popular scholarships are: (a) one district-one scholarship; (b) scholarship for low-income students; (c) the King scholarship; (d) Thai Government scholarship; and (e) the Anandamahidol scholarship. Government has also launched a loan program in the mid 1990s. These financial aid programs are described in some detail in the section below.

GRANTS AND SCHOLARSHIPS

One District–One Scholarship; Community Development Grants. This grant was first implemented in 2004 with the financial support of the Government Lottery Office. It provides a total of 926 scholarships (1 high school graduate from each of the 926 districts) for study either in Thailand or abroad. Applicants have to be from poor income families (whose annual household income is less than 100,000 Baht) and have a minimum Grade Point Average (GPA) of 3.0. In addition, recipients have to pass mathematics, science, social science and English tests as well as an interview. In the first round of scholarships, 921 students received awards, 191 enrolled at higher education institutes in-country and 730 went to study abroad. The second round was in 2006, and 915 scholarships were awarded.

An initial evaluation of the program found that some of the grantees were having problems adapting to the institutions abroad. A partial explanation involved language barriers and deficiencies in students' high school academic preparation. Given that a substantial majority of recipients of this award were from rural areas, where school quality is often not as high as in Bangkok, they had difficulties adapting to the academic environment in foreign countries. Some of first round recipients have transferred back to continue higher education

in Thailand. This scholarship was renamed Community Development Grants in 2007, and some changes were implemented to tackle initial implementation problems and ensure continuity of the program. The third round of scholarships was awarded in 2007, and currently 400 students are waiting to receive approval from Government. Depending on their qualifications, some students will be able to study abroad but others will be encouraged to enroll in local universities.

Scholarships for low-income students. This program was created in 2003 when the Council of Ministers approved allocating lottery revenues to provide scholarships for low income students. The scheme provides funds of up to 20,000 Baht per year for a maximum of three years. The financial criteria for selection are student family income below 100,000 Baht per year. Applicants must write an essay describing the hardships they face.

King Scholarships. The King Scholarships were established in 1897 by King Rama V and are awarded to outstanding students every year. The scholarship presentation was stopped in 1932 due to political instability but restored in 1964 by the current King, Rama IX. Nine scholarships are given to secondary school graduates each year to continue undergraduate study in foreign countries. The candidates are selected by academic performance, writing tests, as well as an interview. After graduation, recipients have to return and work in Thailand, but they are not bonded.

Royal Thai Government Scholarship. Government also provides scholarships to outstanding secondary students for higher education study who are interested in pursuing a career as public servants. There are several kinds of scholarships. Some are awarded only to government officials and others are open to the general public. Applicants have to fulfill requirements specified by Government, including written tests and an interview. The government scholarship covers school fees and personal expenses while studying. After graduation, recipients are required to work in Government agencies.

Anandamahidol Scholarship. The Anandamahidol Foundation was established by King Rama IX to provide graduate level study scholarships for students willing to continue postgraduate studies in high income countries. The scholarship main goal is to support stu-

dents pursuing degrees in one of the eight fields that were identified as crucial for national development. Candidates are selected directly by a committee from a pool of bachelor's degree recipients who received honors, and there is no application process or examinations. Recipients do not have to return to Thailand or work in Government upon graduation.

LOANS

Student Loan Program. In order to support the growing demand for higher education, especially from students of low-income backgrounds, Government launched the Student Loan Program (SLP) in 1996. These loans could be used to pay both upper secondary and higher education. The conditions of loan repayments were favorable. Repayments begin two years after graduation, over a 15-year period, with a one percent interest rate. The main problem with this program was that the income threshold to qualify for the loan was quite high, leading to the program being captured by middle-class students. The relatively high income threshold resulted in a much higher than expected volume of borrowers. Within 6 years, the total amount of loans approved was about 140,000 million Baht (Krongkaew, 2005b).

There were several other problems with the initial design of the loan program. First, loans were approved directly by higher education institutions, providing incentives to approve loans regardless of student qualifications in order to expand enrollment figures. The absence of clear award criteria made loans highly subject to personal bias. Second, there was no evaluation component of the program as well as mechanisms to enforce loan repayment. This resulted in a very large default rate. Thirty-five percent of borrowers did not pay back their loans, causing notable income loss to Government. To solve the problems with the SLP, Government redesigned the program and converted into the Thailand Income Contingent and Allowance Loan (TICAL).

Thailand Income Contingent and Allowance Loan. The main difference between the TICAL and the SLP are the mechanisms used to determine eligibility and repayment obligations. Under the TICAL scheme, students apply directly for a loan to pursue a degree in any field at any public or private university. The total amount of the loan is adjusted periodically for inflation in order to maintain its original value. There is no interest rate, payments are collected through revenue taxes and students start repaying upon graduation

when their income reaches a specific threshold (16,000 Baht per month). The repayment stops automatically when student income falls under the threshold level. This approach gives students the opportunity to earn a living before paying their debt. In addition, the program includes a grant component in the form of a monthly allowance that is only available to low income students.

The Office of the Committee for Higher Education and the Department of Revenue in the Ministry of Finance work together to operate the TICAL scheme. The redesigned Income Contingent Loan (ICL) fund was approved by the Council of Ministers in August 2005 with an initial allocation of 48 billion Baht. This new program, however, does not really tackle some of the problems with the previous loan system. The ICL still requires a very large amount of Government funding and oversight, as every student is now eligible under the new scheme and the processes of tracking their loans from the point of application and award through repayment requires systems that are not currently available across relevant government agencies. The scheme needs loan recovery arrangements to protect the financial viability and sustainability of the scheme itself. A newspaper article reported that young people with student loans increasingly refused to pay them off, "being convinced the Government dare not charge them for fear of losing public support." In 2008, the Student Loan Fund estimated to have 90,000 defaulters (Bangkok Post, 2008).

Thus, despite theoretically appropriate levels of Government expenditure on higher education, the allocation of resources has proven regressive in terms of aiding the poor. Moreover, use of funds has not been cost-effective extending access to low-income students. As in many countries with broad income disparities and low-fee higher education, taxes paid by low-income families without children in the higher education system are currently subsidizing the education of high-income students, who pay vastly subsidized fees and make up the large majority of student placements. In addition, most of the funds are allotted for management and operational costs, with very little being invested in developing research capacity of higher education institutions.

A major goal for Government is to further increase access to higher education in order to meet growing social demand and fulfill the rising needs for a skilled workforce. Rapid

growth of enrollment cannot be achieved only through traditional modes of building and funding new public universities with government budgetary resources. The Government may want to consider the following approaches:

- Increased resource diversification in public universities, including higher levels of cost- sharing; and
- Incentives for further private sector growth.

INCOME DIVERSIFICATION AND COST-SHARING

Although public funding remains the main source of support for higher education in most countries in the world, public universities have sought to complement their revenues in a variety of ways, including generating business income from institutional assets, encouraging donations from companies and philanthropists, and mobilizing additional resources from students and their families. CHE could consider implementing a program of financial incentives to encourage public universities to generate additional resources, above and beyond what they manage to mobilize presently, through continuing education programs, consultancies, research contracts, and other income generation mechanisms.

At the same time, it is important to note that, with the exception of the Scandinavian economies which have very high taxation levels, few countries in the world have been able to significantly expand their higher education system, while at the same time improving its quality, without levying financial contributions to students and their families for the cost of their studies. China, for example, introduced fees in 1997 (equivalent to 20 percent of unit costs in undergraduate education), followed by the United Kingdom and the Czech Republic in 1998, and Austria in 2001. Tuition fees have doubled in Canada during the 1990s. The top engineering and management schools in India charge about $3,500 a year, equivalent to 7.2 times the country's per capita GDP.

Obviously, if some or all public universities were to charge higher tuition fees, the effects on equity and access would have to be carefully considered. However, the existence and further development of the student loan program provide a mechanism to ensure that cost sharing does not have adverse equity goals, especially for students from the lowest socio-economic groups.

The political sensitivity of raising tuition fees should also be taken into consideration to avoid a backlash. This can be addressed through participatory meetings and communication efforts to create ownership among various stakeholders and mobilize support for the proposed measures. The purpose of these consensus-building activities would be to establish a clear linkage between increased cost-sharing and the likely improvements that additional financial resources would bring about.

BOX 5-1: CONSENSUS BUILDING AND COST SHARING IN NORTHERN MEXICO

The Mexican constitution provides for free public education at all levels, and cost sharing has always been fiercely resisted by professors and students of the country's largest public university, the National Autonomous University of Mexico (UNAM). In 1999 the university was closed for almost a year by a strike supported by the majority of its 270,000 students after the rector suggested a US$100 increase in tuition fees, from US$8 a year.

In northern Mexico, by contrast, the rector of the public University of Sonora was successful in introducing cost sharing after initiating, in 1993, a consensus-building process to explain to staff and students the need for supplementary resources to maintain the quality of teaching and learning. After some initial resistance, including a widely publicized 2,000-kilometer march by protesters from Hermosillo to Mexico City, students accepted the principle of a yearly payment to generate supplementary resources. A participatory process was to determine the allocation of these resources to equity and quality-improvement initiatives. Since 1994, the students have been paying an annual contribution of about US$300 for this purpose. A joint student-faculty committee administers the funds, which are used to provide scholarships for low-income students, renovate classrooms, upgrade computer labs, and purchase scientific textbooks and journals. A poster is prepared every year to disseminate information on the use of funds collected at the beginning of the academic year.

Source: World Bank, 2002b, p. 87.

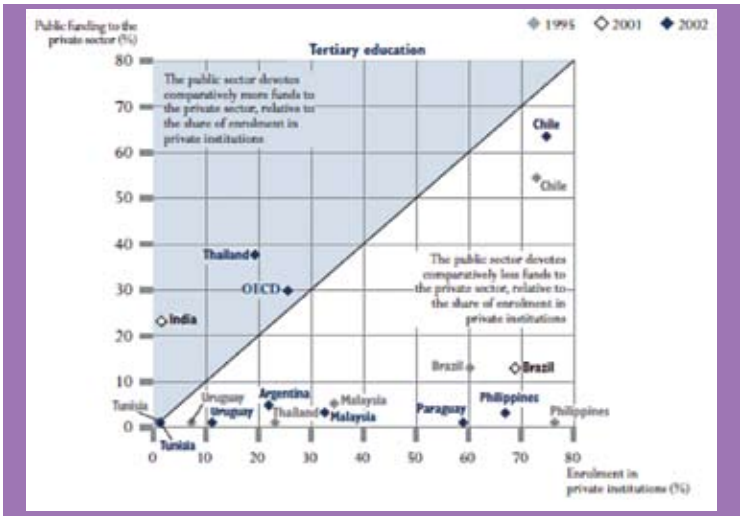
FURTHER GROWTH OF THE PRIVATE SECTOR

Since 1982, Government has encouraged the development of private higher education institutions in order to increase opportunities for students without further drain on public funding. This policy has been very successful and private universities and colleges enroll today 14 percent of the total student population at the higher education level in 2007. Encouraging further growth of the private higher education sector would usefully complement the strategic approaches of resource mobilization outlined above.

Currently various schemes have been put in place to promote private partnerships in the education system. For example, any individual or organization which establishes a school or institution is permitted to deduct 30 percent of the profits from the operation on a tax free basis. Additionally, incentives such as tax rebates or exemptions are provided for contributions from non-profit organizations. A Revolving Fund for Developing Private Higher Education Institutions was launched in 1999 to provide loans to private sector agents. A closer analysis of the impact of these measures would be desirable to assess their viability for expanding educational opportunities (World Bank, 2006).

According to a recent OECD-UNESCO/UIS (2005) study on higher education, Thailand stands out among comparator countries - such as Argentina, Brazil, Chile, India, Malaysia and Philippines - for the dramatic inflow of public sector contributions into private sector institutions between 1995 and 2002. In 1995, essentially no public funds were channeled to higher education private sector providers. In contrast, by 2002, the public sector contributed approximately 40 percent of private sector funding. The OECD average was around 30 percent. Even more notably, during this period, the share of private sector student enrollments actually experienced a decline, as student enrollments in public sector institutions grew more rapidly than student enrollment in private sector institutions (Figure 5-6).

FIGURE 5-6: PUBLIC TRANSFERS TO PRIVATE INSTITUTIONS, 1995-2002



Source: OECD (2005), p. 75

In addition to existing measures, Government could consider the possibility of offering limited subsidies to the private sector. For example, private institutions might be given the opportunity to apply for Government financial support in areas of high priority. Access to research funding on a competitive basis would provide Government with alternative avenues to promote research and would assist private universities in their effort to recruit high quality staff, including researchers from overseas. Subsidies could also help private institutions invest in building more expensive programs, such as engineering or medicine, which could then be offered at affordable fee levels. Financial incentives to stimulate the development of private higher education sector can of course be only justified on the grounds that they provide a means of expanding enrollments at lower public cost than by expanding public universities.

The modifications suggested in this report are meant to complement Government's present strategy and accelerate its implementation on two dimensions: (a) reinforcing cost-sharing as a source of additional income; and (b) considering the desirability of providing explicit financial incentives to encourage further growth of the private higher education sector.

MANAGEMENT AND ACCOUNTABILITY SYSTEM

Since the late 1990s, Thailand's education system experienced reform at all levels, including higher education. Among the many initiatives, a strategy to decentralize decision-making has been at the center of the reform. The main objective is to transfer power to universities to promote administrative autonomy and encourage local-decision making. The decentralization policy shifts management and budget decisions to university councils. The idea is that while general guidelines and some financial and academic support are to be provided from Government agencies, actual changes and innovations would be determined and designed at the institutional level.

Decentralization of administration and management is necessary. A desirable managerial system enables universities to carry out their tasks with flexibility and effectiveness and protects academic freedom. Universities should be responsible for their own effective administration and management. The quality, standard and efficiency of education, however, should be under the control and supervision of oversight councils. In summary, Government

is in charge of formulating policies, goals and plans, while universities are in charge of deciding methods and strategies to implement them.

These issues relate to principles of governance of higher education institutions, the formal and informal arrangements that enable institutions to take actions. There are some principles of governance that should guide Government policies toward greater institutional autonomy and assist institutions manage the process of becoming more autonomous. These are:

a) Universities are given complete autonomy in determining the scope and breadth of their academic programs.
b) Institutions embrace and apply the highest standards of integrity to uphold the credibility of courses and programs.
c) Programs and curricula, especially in professional fields, take into consideration the needs of industry and the private sector.
d) Libraries, existing technologies and media, and physical space support and complement academic programs and enable students attain specified outcomes.
e) Academic programs are reviewed systematically by external and international peer reviewers as part of a quality assurance cyclical review and/or institutional performance assessment exercise.

The decentralization of higher education has been pursued through the development of autonomous universities. Educational institutions have been empowered to make administrative decisions. At present, there are 11 autonomous out of 78 public universities. Decentralization, coupled with some degree of privatization, is expected to increase the competition in the higher education market. The idea is that universities compete with each other to hire the "best" faculty and attract the "best" students. There is more flexibility in the market for faculty and staff, and the salary scheme is determined not by a government scale but, rather, by universities to provide more competitive compensation.

One of the biggest barriers toward reforming the structure of the higher education system is related to the current financing structure. All public institutions, with the exception

of the 11 autonomous universities, receive about 80 percent of their budgets from the central Government. Also, public university employees are currently civil servants, which impose higher costs and less flexibility in terms of hiring and firing staff. Universities need to be more responsive to the students, the industry and the labor market in order to become active players in the preparation of qualified human resources and become engines of research and development. Reforms strive to encourage public institutions to find alternative sources of funding, such as regional and private investments and entrepreneurship.

The current administrative structure of a majority of the public and private institutions in Thailand is highly centralized. This structure is the result of the historical context in which universities were created as described in Chapter 2 and, as a result, Government played an important role, from setting policies to issues related to curriculum and course selection.

Today, most of the public higher education institutions remain under the supervision of CHE, and private institutions are also highly regulated by the Commission. Even in cases where institutions have their own university councils to act as their main governing body for establishing and implementing policies and plans, council decisions are strongly influenced by regulations from CHE. In addition, universities remain overburdened with countless bureaucratic procedures. The reality is that even though the mission of universities has expanded in both public and private provision of higher education, CHE still maintains significant power and control over the system.

The 9th Higher Education Development Plan described earlier presents clear guidelines to promote university autonomy. The plan states that every higher education institution should improve their internal management systems in the academic, personnel and financial areas. All public universities should prepare to evolve eventually into autonomous institutions. At present, this is more a statement of good intention than a tangible plan for systemic transformation.

In summary, despite recent efforts to change the regulations between government agencies and universities, the reality is that the overwhelming majority of Thai universities are not autonomous. Meeting the challenges posed by knowledge driven economic growth will

likely require rapid innovation and institutional action. Increased autonomy for universities across the Thai higher education landscape is imperative for generating academic environments that are responsive and effective both for student education and building high-quality research capabilities. The most successful higher education systems in high-income countries have given full autonomy to universities and have established procedures to evaluate education quality and promote healthy competition between institutions. Universities have their own administrative structures and budget systems that enable them to make sound financial and management determinations. Governments can benefit greatly, particularly with regard to effective allocation of resources, from giving higher education campuses mechanisms to determine their own spending and potential generators of income.

BOX 5-2: SETTING THE POLICY FRAMEWORK FOR HIGHER EDUCATION IN CALIFORNIA

California pioneered the establishment of a policy framework for a state system of higher education in the United States when it developed and implemented its first Master Plan in 1959-60. The primary issues considered at that time were the future roles of the public and private sectors and, in particular, how the public sector should be governed and coordinated to avoid duplication and waste. Major principles that emerged from the initial master plan still shape the state's system today:

- Recognition of different missions for the four components of the higher education system (University of California, California State University, community colleges, and private universities and junior colleges),
- Establishment of a statutory coordinating body for the entire system,
- Differential admission pools for the University and State Colleges,
- Eligibility of students attending private institutions for the state scholarship program.

The California Master Plan for Higher Education, which is revised about every ten years, is not a rigid blueprint to control centrally the development of California's system of higher education. Rather, it sets some general parameters, focuses primarily on the boundaries among the four sectors of higher education, and strives for a system that balances equity, quality and efficiency.

Source: OECD, 1990; Clark, 1990.

Chapter 6

Conclusions, Challenges, And Policy Implications

Conclusions, Challenges, And Policy Implications

For a number of years Thailand has enjoyed an adequate higher education system that has been characterized by increased access, some improvements in the overall governance of the system, a growing number of private universities, and excellence within specific institutions and academic disciplines, such as biotechnology, food processing, and aquaculture. These changes have contributed to major advancements in Thailand - relatively rapid development into a middle-income country and major poverty reduction, from 18.4 million poor people in 1991 to 6.1 million by 2006. However, the Thai higher education system faces a number of formidable challenges. These challenges, many of which are already well-known to policymakers, include the following:

Focus on Quality at All Levels

While great strides have been made in basic and secondary education in Thailand, overall educational quality remains low. While Thailand's performance in international assessments could be considered adequate given its income level, a very large share of students is performing below acceptable proficiency standards. For instance, approximately 40 percent of 15-year olds performed at or below the most basic literacy level in the Program for International Student Assessment evaluation. This contrasts with upper income countries where only around 10 percent of students score at or below such level (World Bank, 2006).

Improvements must be made in education quality not only to enhance the skill level of students who matriculate in universities, but just as importantly to improve the overall skill level in the economy. University degrees are not the only credentials rewarded on the Thai labor market. Therefore, improving the quality of secondary education is likely to increase the demand for secondary graduates and their wage premium, providing a strong incentive to complete secondary school. Simultaneously, a stronger secondary education system will expand opportunities and increase the likelihood of success for more youth to continue on to further specialized academic training.

A Platform for Higher Education Reform

After decades committed to improving enrollment and completion rates for primary and secondary education, Thailand is now positioned to provide equitable quality higher education in a structured system, promoting institutional autonomy, and management efficiency. Despite appropriate levels of expenditures and important advances in terms of passing regulation to promote institutional autonomy and quality assessment, there are important challenges ahead.

There have been multiple attempts to introduce quality assurance, governance and financing reforms during the past decade, but these efforts have tended to lack coherence and continuity and adopted an "ebb-and-flow" pattern. The recent completion of the Second 15-Year Plan has the potential to provide a comprehensive platform for the sector to guide its transformation. However, the consensus-building process among all stakeholders initiated in the formulation of the Second 15-Year Plan must be maintained and its strategic directions actively pursued in order to truly serve as an enabling policy framework for systemic transformation. Government's initial actions in this realm suggest that the Second 15-Year Plan does not constitute only a bold vision for the future but also serves as a blueprint for action. This political commitment and policy focus must be maintained to realize the Second 15-Year Plan's full potential.

Diversity of Institutions to Cater to Diversity of Students and Needs

Effective organizations have specific goals, a well-defined sense of direction and strong client-orientation. Thailand currently has a diversified system of higher education institutions. The Second 15-Year Plan posits a vision where research universities are at the top of the educational pyramid, in pursuit of academic excellence across scholarly fields. They tend to attract promising highly qualified students and recruit highly skilled staff. Provincial or regional institutions cater to a larger student population, emphasizing skills necessary to respond to social needs and labor market demands. Professional schools provide training in fields such as law, medicine, business, and teaching. On the vocational spectrum of Thai higher education, community colleges focus on practical skills for specific jobs in areas such

as nursing, auto mechanics or book-keeping. Flexibility is incorporated in the current credit system to enable mobility across academic streams. Students who pursue an A.A can transfer accumulated credits towards a B.A degree.

This institutional diversity strives to serve students with different interests and abilities. It also seeks to feed the labor market with a broad range of skilled human capital, to drive development across all levels of the Thai economy. Clear standards and evaluation criteria have been established to assess and rank service delivery providers on a regular basis. While the variety of institutional missions and characteristics has been a strength of the Thai higher education system, its weakness has been that in practice individual institutions tend to be weaker in terms of explicit organizational goals and institutional structures to accomplish them. Higher education institutions would benefit from clear mission statements that articulate a sense of identity and clarify their main responsibilities.

Higher Education for Skills and Competitiveness

Universities face a dilemma regarding the provision of specialized versus general education. Specialized education is mostly occupational training and supplies the professional, technical, and/or specific skills necessary to enter the labor market. On the other hand, general or liberal education provides knowledge on a broader context and aims to develop the learning capacity of students. High quality general education can provide a solid foundation for specialized learning as well as interdisciplinary knowledge that is fundamental for research development. It may also enable workers to better respond to shocks to the economy and technological change (Machin and McNally, 2007).

As discussed in previous chapters, there is a mismatch between the knowledge and skills provided to students by universities, and those demanded by employers in the Thai labor market. An important drawback of the Thai general education system is that it generally not been attuned to the short-term needs of the labor market. This dilemma is further exacerbated by an oversupply of graduates specializing in the social sciences and humanities, while there is a shortage of graduates in science and engineering. Possible measures to ad-

dress these concerns include industry-academia collaborations to better align the content and accreditation of vocational qualifications with labor market expectations. Information regarding job prospects and income potential by subject area may also help steer students towards growing sectors of the economy. Given the urgent need for Thailand to develop industrial skills, it is important to address the underinvestment in training in individual firms, while also mobilizing training capabilities of larger firms to serve the interests of industries, clusters and value-chains within which they are located (UNIDO, 2002).

Similarly, a key resource for innovation - the mark of a knowledge-based economy - is not so much research as it is entrepreneurship. Therefore, the promotion of entrepreneurship ought to be high on the agenda of the higher education sector, as well as in secondary and vocational education systems (World Bank, 2008).

Governance and Financing Reforms

In general, the main purpose of the governance and financing reforms is to improve the sustainability and equity of the system. In Thailand, governance and financial reforms more than other reforms pose the greatest challenges within the higher education sector. A historically centralized governance structure, with Government ministers regulating institutional operations and minimal cases of institutional autonomy, is giving way to institutional autonomy and accountability, though not without controversy and resistance (The Nation, 2007). If institutions become autonomous, both in terms of governance and finance, the argument against it holds that staff and students will be subject to market forces in terms of admission, financial aid or curricular options and will lose the protection of being part of the civil service. Whether these fears are warranted remains to be seen, but in countries with more decentralized, autonomous higher education institutions, autonomy has not inherently resulted in diminished quality. On the contrary, the most successful higher education systems in developed countries have given full autonomy to universities and have established procedures to evaluate their quality and promote "healthy" competition between institutions. Greater independence and flexibility for Thai universities, especially the leading public ones, are vital for generating academic environments that are responsive and effective for student education and for building strong research capabilities.

Financing reforms, particularly in terms of funding formulas for institutions, fees paid by students, and the divergent cost structures across the diversified higher education sector, have yet to gain real traction, particularly as mechanisms for expanding access through more representative fee structures. Student loan schemes are still being refined and improved upon, in order to ensure that external sources of funds are available across student groups and institutions types. A proposal currently under evaluation by Cabinet would link ONESQA's academic assessment results with budget allocations for higher education institutions. High performing institutions would receive additional incentives, while poor performing institutions would need to prepare an institutional improvement plan (The Nation, 2009). The successful implementation of comprehensive financing reforms, therefore, remains a significant challenge to sustainable improvements in the Thai higher education system.

Research Capacity

As it has been clearly illustrated in the report, low cost inputs are no longer sufficient to maintain competitiveness and a nation's ability to create and commercialize new products. There is a great need for research and development in order to strengthen national competitiveness in a knowledge-based economy. This new model requires a strong, higher education system that will provide the skills and knowledge necessary as well as the research capacity to produce R&D. Thailand still has a long way to go in terms of developing a strong research capacity. The country ranks 47 out of 78 in the 2003 Innovative Capacity Index. R&D expenditures and number of researchers per capita are significantly lower than regional competitors. In addition, the amount of research funding and research outputs from universities is very limited. There is a great need for Government to direct higher education spending towards building a stronger research capacity.

There are a number of features that make universities the most appropriate places to generate R&D. First, universities are places where knowledge is produced and shared. Unlike private firms and government agencies, universities can benefit from a qualified group of scholars and researchers that have the academic freedom to explore research methods that are not constrained by industry specific processes. In addition, teaching and research

are complementary and can train future scholars and researchers. Second, the peer review process is important because it provides a review from experts in the field that certifies the quality of the knowledge developed and the research produced. Third, research universities provide fertile ground to transform and adapt knowledge from other countries to the national context. There are also international networks of scholars that facilitate doing interdisciplinary research on transnational problems. Finally, universities provide a fertile ground for potential collaborations between university and industry that can promote R&D.

The diversity of institutions across the Thai higher education systems allows the system to support the multiple missions of post-secondary education. But Government has traditionally heavily regulated higher education; thus, there have been few cross-institutional collaborations. Such collaborations can promote positive externalities in terms of sharing of knowledge and practices, which, in turn, contribute to high quality education and research. More recently, Government, through CHE, has begun to sponsor initiatives aimed at promoting exchanges between higher education institutions. For instance, in 2004, CHE launched a higher education development network. The goal is for networks to work together and share knowledge and practices in teaching and learning, research, academic service and local art and culture. Networks act as a liaison between CHE and higher education institutions. The CHE established one network in each of nine regions to support both the collaborative ideal as well as the primacy of the regional stakes in comprehensive higher education provision. Future goals in a later phase of these endeavors include cooperation between networks and entrepreneurs as well as local communities. This collaboration is in its initial stages and there are not clear quantifiable outcomes yet. Nonetheless, these are the type of initiatives that, if properly designed and monitored, can lead to an increase in vibrancy and relevance of higher education systems and an expansion of national research capacity.

University-Industry Linkages

Promoting collaboration between higher education institutions and industry produces benefits for students, employers, and the economy. Strong linkages between universities and industries allow local firms to have access to specialists' expertise, improve a firm's capacity to absorb technology and solve problems, and promote a lifelong learning culture among firms and individuals, which over time generates tangible economic and social benefits. In Thailand, firms now provide additional training to graduates and this may result in increased efficiency but also a resource loss for higher education institutions. Strategic collaboration between higher education and industry might help improve this situation.

There are different ways to promote collaboration. Universities could aim to attract faculty members with substantial industry-specific experience or actively seek out to have industry more involved in curriculum development. Another option is to design and fund a program of internships that will provide students with training as well as real world experience. Students can also have the opportunity to develop relevant working skills such as teamwork, problem solving, and leadership while gaining experience that can later be beneficial when looking for a job. Firms gain by hiring relatively cheap labor and having the opportunity to screen candidates before making them full-time employment offers.

One of the first initiatives to promote university-industry linkages was the Cooperative Research Network Project, funded in 2002. Its main goal was to increase research capacity and to connect graduate students, especially doctoral students, with industry. Fifty-five cooperative research networks were established in the areas of biotechnology, medical science, and science and technology. Similarly, the Cooperative Education Curriculum was established in 2004 with about 6,000 participating students and 2,000 participating companies.

Currently the most strategic collaboration between universities and industry is in the promotion of research and development. In the United States, prestigious higher education institutions like the Massachusetts Institute of Technology and Stanford University have served as a hub of innovation, extending from research conducted by their students and faculty. There are multiple examples of business spin-offs from campus-based research, occasionally generating enormous revenues for universities from related patents. This is beneficial in terms of diversifying sources of higher education funding, both in terms of patent revenue as well as attracting external research funding. These types of collaborations tend to be more successful when Government supports (or, perhaps more accurately, does not inhibit) the necessary conditions. A short survey in India reported that some of the reasons why higher education institutes could not set up enterprise from research were: lack of seed funding, outputs were not appropriate for commercialization, and lack of university regulation to catalyze enterprise establishment (Basan & Chandra, 2003). Governments have the potential to provide incentives to encourage university-industry cooperation (or maintain barriers that discourage such endeavors). China, for example, uses as a measure of university performance the number of spin-off or start-up enterprises it generates.

A recent study has found that the most prevalent means of university cooperation with the private sector in Thailand is to provide consulting services, followed by the provision of technical services and serving as a source of informal contacts. This service provision is followed by more concrete forms of university-industry linkages such as licensing, the sale of products and contract research, and training components. However, more research-intensive and interactive forms of university-industry linkages are few. From universities' perspective, the most significant constraint on university-industry linkages is the perception that firms do not want to cooperate with universities, as well as the inability to identify suitable partners. Even after the identification of a partner, other limitations emerge such as including internal restrictions and lack of incentives (Schiller, 2006).

E-Learning and Distance Education

In the current knowledge-based economy, it is crucial for countries to provide training in the use of state of the art technologies. In addition, the use of technology for distance education can also increase access in a more cost-effective way. Governments must be diligent in guaranteeing that these institutions provide comparable quality to traditional models of delivery. E-learning and distance learning can increase access to higher education. This is advantageous for students because they can save time and transportation costs. In Thailand, following the mandates from the NEA of 1999, the government has attempted to expand the use of information and communication technologies (ICT) in education. The ICT master plan supports collaboration between the public and private sectors to build public knowledge on ICT through academic institutions. One relatively simple recommendation is that all academic institutes should have libraries equipped with basic ICT, such as internet and other learning materials. However, despite the current educational mandate, the technologies required to partake of e-learning are not yet fully accessible in Thailand.

Internationalization and External Partnerships

The internationalization of higher education has been a major trend toward innovation in developed countries, as the forces of globalization apply pressures to institutions to meet the demands of evolving cultural, political, and economic norms. The United States, for example, had over 565,000 international students enrolled in US higher education institutions in 2004-05 and those international students spent US$13.3 billion during that year alone. It is clear that the internationalization of higher education can generate substantial revenue.

Thailand's geographical location, in the center of South East Asia, could be undoubtedly an asset to become a hub for international education in South-East Asia. This goal has been explicitly articulated in a recent national strategy:

(a) To be a higher educational hub for the Greater Mekong Sub-region (GMS) within 10 years (2007-2016);
(b) To be a higher education hub of ASEAN within 20 years (2007-2026); and
(c) To obtain revenues from higher education of not less than 8,000 million Baht within 20 years (2007-2026) (Knowledge Network Institute of Thailand, 2006).

An important change in the current academic paradigm is the need to tap into global knowledge by creating regional networks and communities of practice, poles of excellence, and both South- South and North-South partnerships between institutions. Thailand has embarked on partnerships in higher education endeavors with several countries and international organizations. The challenge now is to develop a framework to plan and promote strategic cooperation. The type of cooperation promoted should respond to the country needs and must be aimed at strengthening weaknesses and provide support to country development.

At present, Thailand has at best selected ad hoc national policies or strategies for international cooperation in higher education, such as the Reverse Brain Drain Project (see Box 6-1). MOE has promoted exchanges in knowledge and experiences through conferences, project collaborations and exchange programs for scholars. But in order to promote research and development activities, there is a need for a strategy that articulates specific research standards and/or goals to meet, increase R&D expenditures, build research networks with domestic and international agencies, remove legal restriction on the flows of scholars and ideas, fund the attendance of scholars to international conferences, enforce legislation on intellectual property, improve quality in data collection, and facilitate access to databases necessary for research.

BOX 6-1: THE REVERSE BRAIN DRAIN PROJECT

Brain drain, also known as human capital flight, tends to occur in developing countries where skilled and educated workers are lured to prosperous nations abroad. The temptation of greater wealth, better living conditions, political stability and intellectual freedom strips many poor economies of their best and brightest. Now, that brain-drain trend may be in reverse. Amid the global recession, Thais living abroad are making both short and long-terms contributions to development of Thailand.

The *Reverse Brain Drain Project* was established in 1997 under the auspices of the National Science and Technology Development Agency (NSTDA). The project is designed to promote collaboration between NSTDA and overseas partners through joint R&D projects, technology transfer and other joint activities through focused clusters and research programs, focusing on the cooperation with overseas Thai professionals and their networks. The project aims to: (a) disseminate and exchange information about Thailand's needs; (b) work closely with partners, especially the Commission on Higher Education and the Ministry of Science and Technology to strengthen activities of overseas Thai professionals/students that benefit all concerned parties; and (c) form joint R&D programs as well as exchange and educational programs. The Association of Thai Professionals in America and Canada (ATPAC) is actively supporting the program by encouraging Thai professionals to become involved in joint research projects, teaching activities, and advisory tasks. Likewise, the Association of Thai Professionals in Japan (ATPIJ) and the Association of Thai Professionals in Europe (ATPER) are helping in similar ways.

Some recent collaborative projects include: Production of Thermal Insulating Materials from Industrial By-products (Chiang Mai University); Development of suitable feed for commercial production of Nile tilapia, Oreochromis niloticus (Kasetsart University); Development of a Novel Semi-Solid Metal Processing in Die Casting (Prince of Songkla University); and Development of Hydrogen Storage Materials and a Hydrogen Storage Prototype (Chulalongkorn University).

Source: Rantz and Tangchuang, 2005

THE "BIGGER PICTURE" CHALLENGE

Like many other middle-income countries, the relatively rapid technological progress of Thailand during the past decade and improvements in both openness and technological adaptive capability suggest that its level of technological sophistication should continue to converge with that of higher income countries. However, even the most advanced of the middle-income countries will be unable to benefit fully from the new technologies that are expected to become both technical and economically viable over the next several years because of inadequacies in their infrastructure (unreliable power or communications systems),

insufficient technical literacy or the absence of a critical mass of scientists and engineers necessary to exploit the technology. For some countries, the relative slowness with which technological absorptive capacity has been advancing could slow the pace of convergence as missing competencies become an increasingly binding constraint on the absorption of additional technologies (GEP, 2008).

No country can afford to be complacent in today's global economy and Thailand is no exception. Weaknesses in its education system, especially in higher education, are contributing to growing challenges at the macro level. Many recent statistics are not comforting: Thailand's ranking among 137 countries in the World Bank's Knowledge Economy Index slipped from 48 in 1995 to 56 in 2007; and in the World Economic Forum's Competitiveness Index for 2008-2009, its ranking dropped to 34 compared to 27 in 2007. Further, Thailand is vulnerable in that exports comprise more than two-thirds of GDP and has a high concentration of manufacturing in a relatively few sectors, such as the auto industry, textiles, electronics, cement, and food processing.

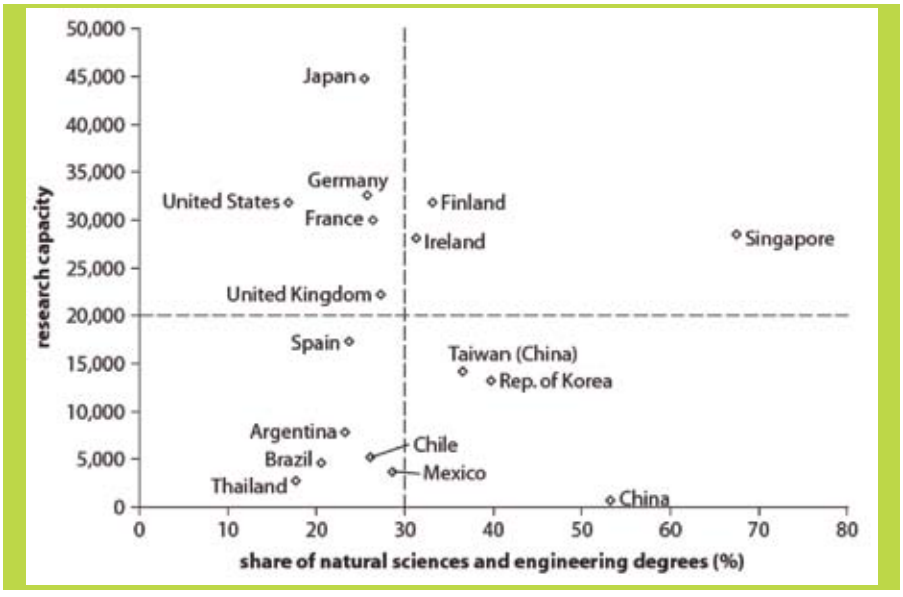
What do these challenges mean in general and for higher education and skills development in particular? The findings of a 2006 report on Thailand's Investment Climate, Firm Competitiveness, and Growth, based on hundreds of interviews with owners and managers of Thai firms, comment on a number of serious problems, including:

- Linkages for technological capacities are weak. These linkages are the skills needed to exchange information, knowledge and technology with suppliers, buyers, subcontractors, consultants, service firms, and technology institutions;
- There is compelling evidence of both a skill shortage and a mismatch in the manufacturing sector, leading firms to suboptimal equilibrium. Figure 6.1 illustrates this shortage compared to other countries;
- The incidence and intensity of hard-to-fill vacancies are very high: 90 percent of manufacturing plants surveyed have had vacancies for professionals and production workers in the last 2 years which is the highest in the

region – compared to Malaysia and Indonesia (50 percent) and the Philippines (25 percent);

- The shortage of skills is leading managers to adopt sub-optimal hiring policies, resulting in a mismatch of skills in firms;
- More than 72 percent of employees surveyed identify English language proficiency as the most severe constraint in doing their job; and
- Thai firms are operating with the wrong skill mix which causes the average firm to lose nearly 15 percent of its output.

FIGURE 6-1: GDP PER CAPITA VERSUS SHARE OF NATURAL SCIENCES AND ENGINEERING DEGREES



Source: Yusuf and Nabeshima, 2007, p. 97.

It is also noteworthy that the aggregate spending on R&D in Thailand as a percentage of GDP is low and rising gradually from a low base. A number of observers have commented that Thai firms in the automotive, jewelry, food processing and electronics industries focus on labor intensive and lower technology areas and rely more on low labor costs and overheads to compete. Only a few firms are attempting to move up the value chain by investing in R&D

to stimulate innovations and enhance their technological capability. Thailand is at the risk of losing ground in key export subsectors because of insufficient technological capability, and thus Thai firms might not be able to continue diversifying into the production of new products. Firms complain that their attempts to upgrade technology are hurt by the limited supplies of relevant skills and a weak research infrastructure. Not surprisingly, Thailand will have to raise its level of technological capability if it wants to be a player in its leading industries and to advance into a more sophisticated range of products and services (Yusuf, 2008).

THE WAY FORWARD

In a detailed examination of the Knowledge Economy of Thailand in 2008, five sets of policies were recommended for the country in terms of improving the state of its higher education system. These suggested policies remain extremely relevant and appropriate while underlining many of the challenges mentioned earlier in this chapter (Yusuf 2008).

1) Universities in general, and the leading public universities in particular, should be awarded greater autonomy. Universities should have more flexibility and be disciplined by competition.
2) The government should gradually step up funding for research facilities and basic research at universities.
3) Third, science parks and incubator facilities should be created next to selected universities so as to maximize the likelihood of spillovers and start-ups, as well as to support such measures with generous incentives.
4) Make university-industry linkages more attractive for universities and firms by offering grants to universities conditional on the university pursuing collaborative ventures with the private sector.
5) Fund programs which help finance post-doctoral internship positions in participating firms. These programs ensure that there are immediate employment opportunities for graduates, which gives them a foot in the door and lessens the risks of unemployment, while firms benefit from the infusion of fresh research talent that can energize their research.

This report and a number of other studies that analyze issues Thailand's higher education, competitiveness, and its place in the global knowledge economy, suggest additional insights that can be useful to policymakers. They include:

ACQUIRE A SENSE OF URGENCY

Thailand has little choice but to improve its situation because its competitors in East Asia and other parts of the world are clearly accelerating their own efforts to become more innovative and to increase their technological capability. The stakes have been raised and to remain a vibrant economy. Thailand must also climb the ladder of technological capability. Abdullah Bin Ahmed Badawi, the Prime Minister of Malaysia, perhaps said it best when he commented: "I do believe that it is necessary to stress that for most countries today, human resource development and human capital formation are either extremely important, absolutely vital, or a matter of life and death. In the case of Malaysia … we think it is a matter of life or death." For Thailand such a sense of urgency must come from Government leaders whose unwavering commitment and support lead to conducive policies and incentives.

IMPROVE THE QUALITY AND RELEVANCE OF UNIVERSITIES WITH A FOCUS ON STRENGTHENING LINKAGES TO THE PRIVATE SECTOR

. A crucial feature of a knowledge economy is a commitment to research and development. Government efforts to establish a university-industry alliance enhanced and facilitated by ICT may spark R&D activities among local communities as well as provide easy access to relevant information and expertise from universities. The development toward a knowledge economy requires the alteration of attitudes and the creation of a culture of learning in organizations and communities alike. Such efforts will be weakened in the absence of Government support.

In the case of Northern Thailand, a recent study indicates that universities should become effective partners of industry by: (a) committing themselves towards collaboration with industry and other players for mutual benefit and industrial growth; (b) understanding the demands and culture of industry; (c) developing niche technology and translating

this into patents/licensing; (d) providing consultancy and collaborating with industry and government through an entrepreneurial spirit; (e) supporting business incubation services and spin-offs; (f) enhancing continuity of cooperative and entrepreneurship education; (g) recruiting and developing industrially-experienced and research-active staff; and (h) accommodating competitive facilities for R&D. In addition, a Governmental intermediate organization (such as the Thailand Automotive Institute) could be identified as a central organization in improving competitiveness of the cluster that should be given greater autonomy and flexibility to support the competition of different players with greater efficiency and effectiveness (World Bank, 2005).

LEARN FROM OTHER COUNTRIES

Even though every country and context is different and models may not prove useful at a time when global change is so rapid, Thailand can and should be willing to learn from others and to replicate practices that make sense in its context. In higher education, many countries are undergoing major reforms in key areas such as governance. Thailand can also learn from its neighbors and closest competitors. Vietnam is currently trying to develop four "new model" universities that will likely provide new and exciting models of governance, financing, and research focus. Improving Thai universities might result in a frank assessment that may stimulate change. In the Philippines, in 1995, a task force on higher education concluded after reviewing information on critical education inputs and the results of professional examinations for 1,316 existing higher education institutions that only 9 universities and 2 colleges in the country were comparable in quality to international institutions (Salmi, 2004). Malaysia might also offer some lessons, particularly in the areas of vocational training, youth employment, and other programs that focus on skills and employment.

LEARN FROM THAILAND'S OWN STRENGTHS AND EXPERIENCES

Thailand itself offers many examples of how universities can help drive innovation through an ongoing dialog and linkages to the private sector. The University Business Incubator Project mentioned previously is one concrete example. Another example is the work of the National Science and Technology Development Agency, which tries to enhance Thailand's sustainable competitiveness through technology transfer and the development of human resources and science and technology infrastructure. A third example is Mahidol University's Centex Shrimp Center of Excellence for Shrimp Molecular Biology and Biotechnology that has deepened the scientific knowledge of shrimp and fish and discovered new ways of preventing disease in aquaculture. As Box 6-2 indicates, biotechnology is an industry that may offer clues for future success in other Thai industries. Finally, it may be worth examining closely the six cases of university-industry links discussed in a recent report on Thailand's Knowledge Economy that highlights both the efforts of a few private firms (including multinational corporations) to create links as well as the weak response from universities and Government agencies.

BOX 6-2: BIOTECH SUCCESS IN THAILAND

Biotechnology in Thailand has made major advances and enjoys a well-deserved global recognition, particularly in agricultural biotech, food biotech, and medical biotech. Agriculture-based biotech is extremely advanced and has developed with the objective of improving crop quality and increasing output – some of the most recent work has focused on producing high quality rice that is more resistant to disease and produces higher yields. In aquaculture, biotechnology is used to help prevent epidemic diseases in prawn farming and to improve breeds to meet market demands. In medical science, Thai physicians and medical researchers are highly capable and represent one of the country's major assets. Medical products have been developed that include among others clinical test kits for tuberculosis and cholera, vaccines for dengue hemorrhagic fever and leptospirosis, and drugs for malaria and tuberculosis.

In November 2008, the Thailand Center of Excellence for Life Sciences (TCELS) and the National Center for Genetic Engineering and Biotechnology organized a major international biotech conference and exhibition. The event, convening over 6000 delegates and visitors from 27 countries, was also supported by the Ministry of Science and Technology, the Ministry of Natural Resources and Environment, the Ministry of Public Health, the National Science and Technology Development Agency, the Board of Investment, the Agricultural Research Development Agency, Thailand Conventions and Exhibitions Bureau, and the Science and Technology Postgraduate Education and Research Development Office.

Said Dr. Thongchai Thavichachart, Director of TCELS, "One of our key national strategies for achieving rapid growth in the biotech sector is to follow the model of easy and rapid networking. Countries in Europe have made rapid advances in biotechnology by helping academics, researchers, investors, as well as experts in commercialization work together easily and conveniently, sharing resources and knowledge. This model is very different from some other countries which have built monolithic structures to conduct all research and commercialization through a few big organizations. We believe Thailand can progress quickly with the networking model, and the organization of BioAsia 2008 creates an important forum for that networking to happen."

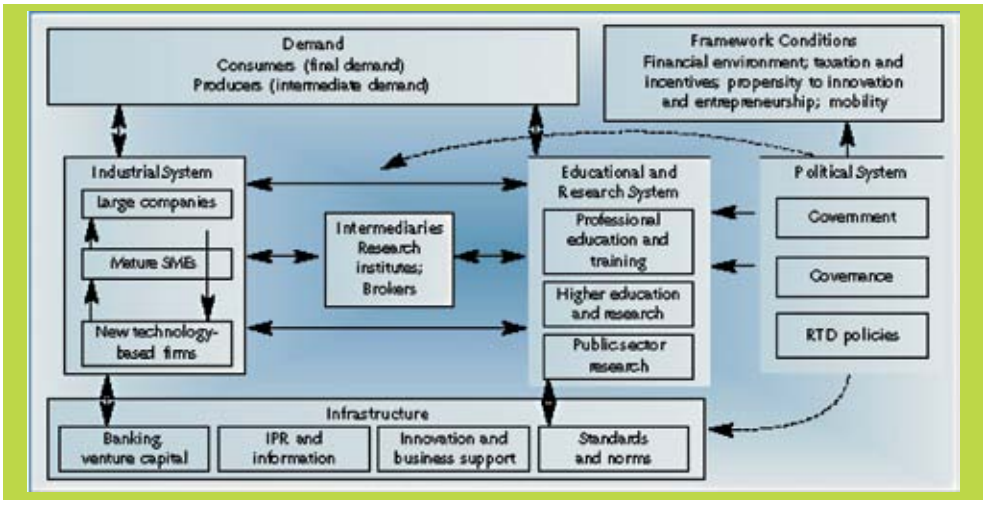
On a related note, the keynote speaker, Dr. Juan Enriquez, commented that "Life science can help countries like Thailand overcome the challenges of the global economy. In the midst of a global financial crisis, it is sometime hard to recall that what really makes a difference in a country's long-term prospects, and even survival, is the ability to continue focus on science, technology, education, and growth. By combining science research and business, those who have been poor can rapidly become a first world country. But those who ignore this lesson become irrelevant and eventually disappear."

Source: BioAsia, 2008

MOST IMPORTANTLY, STRENGTHEN THE OVERALL INNOVATION SYSTEM

The national innovation is composed of several key dimensions, as depicted in Figure 6-2. The experience of other countries suggests that the most important focus is not so much on infrastructure but on the interactions between the main actors within the system. The role of higher education and research is obviously critical, as is the link to private sector firms and Government's enabling policies and intermediary organizations that facilitate interactions. Of additional importance are the overarching conditions such as the investment climate and, in the case of Thailand which has experienced recent problems, political stability.

FIGURE 6-2: NATIONAL INNOVATION SYSTEM



Source: Arnold and Bell

In conclusion, to successfully fulfill their essential roles in the 21st century, Thai higher education institutions need to respond effectively to changing education and training needs, adapt to a rapidly shifting tertiary education landscape, and adopt more flexible modes of organization and operation. Rather than relying on growth driven by simply increasing jobs for the underemployed rural labor in the manufacturing sector, Thailand needs to try a different strategy to sustain strong economic growth and competitiveness in the medium to long term.

It should also be cultivating and supporting entrepreneurs and facilitating linkages as laid out in the ten-year Science and Technology Action Plan (2004-2013). Such a policy change is not incremental but a fundamental shift in looking at Thailand's development. What is required now is a sustained commitment by internal and external stakeholders - institutions and their communities of scholars, students and staff, Government officials, and global organizations- to improvements and innovations.

References

Arnold and Bell (2000). National Innovation System in Less Successful Developing Countries.

Bangkok Post (2008). *Growing numbers choose to default on student loans*. January 21.

Basant, R. & Chandra, P. (2003). "Inter-organization linkages in the IT industry in India: A Case Study of Telecom technologies." *In The Context of Innovation in India: The case of the IT industry*. Eds. Anthony D'Costa and Eswaran Sridharan, 193–219. London: Palgrave.

Becker, G. (1967). *Human capital and the personal distribution of income: An analytical approach*. Ann Arbor, MI: University of Michigan Press.

Becker, W.E. (1992). Why go to college? The value of an investment in higher education. In *The Economics of American Higher Education,* Eds. W.E. Becker and D.R. Lewis, 91-120. Boston: Kluwer Academic Publishers.

BioAsia 2008: http://www.bioasiabangkok.com/.

Boonserm, V. et al. (2003). Draft research report on financing of higher education in Thailand. National Educational Council.

Brimble, P. & Donor, R.F. (2007). "University-Industry Linkages and Economic Development: The Case of Thailand. World Development Volume 35, No.6 pp. 1021-1036.

Brooker Group (2001). Technological Innovation of Industrial Enterprises in Thailand. http://www.seri.com.my/oldsite/InnoWksp/ThailaText.pdf.

Chang, C. (no date). *Country Report: Internationalization Development of Thailand's Higher Education: Positioning Thailand as an International Education Center for the ASEAN Region.* Unpublished manuscript.

Children and Youth Survey, 2002.

Edstats (2009). http://edstats.worldbank.org.

Filmer, D. & Prichett, L. (1997). Child mortality and public spending on health: How much does money matter? World Bank: Washington, DC.

Gill, I. & Kharas, H. (2007). *An East Asian Renaissance: Ideas for Economic Growth*. World Bank: Washington, DC.

Knowledge Network Institute of Thailand, 2006.

Krongkaew, M. (2005a, June). Matrix of Basic Tuition Fees (BTF) for tertiary education in Thailand". Paper presented at the meeting of the Executive Board of the Office of the TICAL Scheme (OTS).

_____ (2005b). The Promise of Thailand's New Higher Education Financing System: The Thailand Income Contingent and Allowance Loan (TICAL) Scheme". Paper presented at the Third Roundtable Meeting of Thailand and the United States on Policy Research, Science Education Management, and Higher Education Reforms, on November 7, 2005

Krueger, A.B. & Lindahl, M. (2001). Education for growth: why and for whom? Journal of *Economic Literature* 39: 1101-1136.

Labor Force Survey, 2005.

Lucas, R. E. (1993). "Making a Miracle." *Econometrica* 61(2): 251-272.

Machin, S. & McNally, S. Tertiary Education Systems and Labour Markets. OECD: Paris.

Makishima, M. & Sukisiriserekul, S. (2003). Human resource development towards a knowledge-based economy: The case of Thailand. Japan Trade Organization: Bangkok.

McMahon, W. (1997). "Conceptual Framework for Measuring the Total Social and Private Benefits of Education", *International Journal of Education Research,* Volume 27, Issue 6, pp. 449 – 501.

Ministry of Education (2007). Education in Thailand. Office of the Education Council: Bangkok.

Ministry of Education (2008). Education in Thailand. Office of the Education Council: Bangkok.

Mortenson, T. (2006). Inherited opportunity for higher education. Paper presented at the meeting of the Association for Institutional Research, Chicago, Illinois.

Murphy, K.M. & Welch, F. (1992). "Wages of college graduates." In *The Economics of American Higher Education,* Ed. W.E. Becker and D.R. Lewis, 121-141. Kluwer Academic Publishers: Boston.

The Nation. (2009). *University competition "a lose-lose situation." July 8.*

_____ (2007a). *University funds plan.* October.

_____ (2007b). Bangkok. *Good education isn't* cheap. June.

_____ (2006). *First-ever university rankings published. Credibility doubts as Thammasat opts out.* September.

National Institute of Educational Testing Service, 2005.

National Science Foundation (2006). Science and Engineering Indicators 2006. Retrieved April 25, 2008 from http://www.nsf.gov/statistics/seind06/c2/c2s4.htm.

National Statistics Office. 2007. Summary of Industry Census 2007 in Municipal and Non-Municipal Areas. http://service.nso.go.th/nso/nsopublish/service/serv_indus50.html.

OECD (2007a). *Education at a Glance 2007. OECD:* Paris.

_____ (2007b). Moving Up the Value Chain: Staying Competitive in the Global Economy. OECD: Paris.

_____ (2005). *Education Trends in Perspective. Analysis of the World Education Indicators.* OECD/UNESCO-UIS: Paris.

Office of the Civil Service Commission, UIS, 2007.

Office of Educational Council, 2004.

Paulsen, M. B. (1998). "Recent research on the economics of attending college: Returns on investment and responsiveness to price." Research in Higher Education 39(4): 471-489.

Patrinos, H.A. & Ariasingam, D. L. (1997). Decentralization of education: Demand-side financing". The World Bank: Washington, D.C.

Porter, M. & Stern, S. (2004). "Ranking National Innovative Capacity: Findings from the National Innovative Capacity Index." In X Sala-i-Martin (Ed.), *The Global Competitiveness Report 2003-2004*. Oxford University Press: New York.

Praphamontripong, P. (2008). *Inside Thai Private Higher Education: Exploring Private Growth in International Context*. PROPHE Working Paper #12, State University of New York.

Psacharopoulos, G. & Patrinos, H. A. (2004). Returns to investment in education: A further update. *Education Economics* 12(2): 111-134.

Raghupathy, S. (1996). "Education and the use of maternal health care in Thailand." *Social Science & Medicine,* Volume 43(4), pp. 459-471.

Rantz, R. & Tangchuang, P. (2005). "Financing higher education in Thailand and future challenges." In S. Michael and M. Kretovics (Eds.), *Financing Higher Education in a Global Market*, pp 301-324.

Risaburo, N. (2005). *Technology Transfer, Intellectual Property and Effective University – Industry Partnerships: The Experience of China, India, Japan, Philippines, the Republic of Korea, Singapore and Thailand.* Fujitsu Research Institute.

Romer, P. M. (1990). Endogenous technological change. *Journal of Political Economy* 98(5): S71-S102.

Salmi, J. (2009). *The Challenge of Establishing World-Class Universities.* The World Bank: Washington, D.C.

Schiller, D. (2006). The Potential to Upgrade the Thai Innovation System by University-industry Linkages. *Asian Journal of Technology Innovation,* 14(2): 67-91.

Socioeconomic Survey, 2006.

Solow, R. M. (1956). A contribution to the theory of economic growth. *Quarterly Journal of Economics,* 70: 65-94.

Suwan, et. al., 2001.

Times Higher Education (2205). *Thai academics decry graduates' weak degrees, poor English.* 23 September.

UNESCO (2005a). Education trends in perspective: Analysis of the world education indicators. http://www.uis.unesco.org/ev.php?ID=6204_201&ID2=DO_TOPIC.

_____ (2005b). Comparing Education Statistics across the World. Montreal: UNESCO-UIS.

_____ (2007). Thailand: UIS statistics in brief. Montreal: UNESCO-UIS. http://stats.uis.unesco.org/unesco/TableViewer/document.aspx?ReportId=147&IF_Language=eng&BR_Country=7640&BR_Region=40515.

UNIDO. 2002. "Thailand's Manufacturing Competitiveness Promoting Technology, Productivity and Linkages." Vienna.

Varghese, N.V. (2001). Economic crisis and higher education in East Asia. Paris: UNESCO/IIEP (mimeo).

World Bank. (2000). *Higher education in developing countries: Peril and Promise.* The World Bank: Washington, D.C.

_____ (2002a). *Education and HIV/AIDS: A Window of Hope.* The World Bank: Washington, D.C.

_____ (2005). Thailand *Northeast Economic Development Report.* World Bank: Bangkok.

_____ (2002b). *Constructing Knowledge Societies: New Challenges for Higher Education.* The World Bank: Washington, D.C.

_____ (2006a). *Thailand Social Monitor: Improving Secondary Education.* The World Bank: Washington, D.C.

_____ (2006b). Thailand *Investment Climate, Firm Competitiveness and Growth.* The World Bank: Washington, D.C.

_____ (2006c). Thailand's secondary education system at a crossroads: Despite impressive increases in access to school, challenges remain. The World Bank: Washington, D.C.

_____ (2006d). Thailand investment climate, firm competitiveness and growth. The World Bank: Washington, D.C.

_____ (2007). *Towards a Knowledge Economy in Thailand.* The World Bank: Washington, D.C.

World Bank. 2009. "Fostering Innovation through Education and Training."

Yiengprugsawan, V., Lim, L., Carmichael, G., Seubsman, S. & Sleigh, A. (2009). "Tracking and Decomposing Health and Disease Inequality in Thailand." *Annals of Epidemiology,* In Press, available online 26 June 2009.

Yusuf, S. & Nabeshima, K (Eds.). *How Universities Promote Economic Growth*. The World Bank: Washington, D.C.

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