

**REFORMS IN EDUCATION AND TRAINING TO MEET
MALAYSIA'S HUMAN RESOURCE NEEDS IN THE
21ST CENTURY**

BY

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ABSTRACT

The main purpose of this study is to emphasise on the education and training to fulfil the Human Resource requirement of quality and skilled manpower. The future growth of the economy will place greater demand for a high quality labour force which is versatile and adapts quickly to a changing industrial environment. In order to ensure that the skills of our workforce are relevant, there has to be regular and close monitoring the curricula of the educational and training institutions to meet the demand for new skills arising from rapid technological developments.

The 21st century brings a new paradigm, a shift to knowledge-based economy, which is a part of a wider plan to achieve fully developed country status by 2020. In support of the knowledge-based economy and to enhance productivity and competitiveness, the principle thrust of Human Resource Development will be the creation of a strong human resource base.

Therefore an efficient and responsive education and training system need to be developed to meet the demand for a knowledgeable and highly skilled labour force that is equipped with positive values and attitudes.

TABLE OF CONTENTS

ACKNOWLEDGEMENT	i
ABSTRACT	iii
TABLE OF CONTENTS	iv
LIST OF TABLES	vii
LIST OF DIAGRAMS	viii
CHAPTER 1 INTRODUCTION	1 ~ 6
1.1 Overview	1
1.2 Objectives of Study	3
1.3 Significance of Study	3
1.4 Methodology	4
1.5 Organization of Chapters	5
CHAPTER 2 LITERATURE REVIEW	7 ~ 15
2.1 Human Resource Development	7
2.2 Education	9
2.3 Training	11

CHAPTER 3 KNOWLEDGE-BASED ECONOMY 16 ~ 42

3.1	Overview	16
3.2	Malaysia's Initiatives towards the K-Economy	22
3.3	What is a Knowledge-based Economy (KBE)?	24
3.4	Why Malaysia should develop towards a Knowledge-based Economy?	28
3.5	The road to the Knowledge-based Economy	35
3.6	Human Capital in a "Knowledge-based Economy"	41

CHAPTER 4 DEVELOPING THE KNOWLEDGE-HUMAN RESOURCE 43 ~ 64

4.1	Building the Knowledge Manpower	43
4.2	Human Resource Policy Thrust	46
4.3	Education and Training Priorities	
4.3.1	Education	48
4.3.2	Skills Training and Retraining	60

**CHAPTER 5 THE ROLE OF PRIVATE AND PUBLIC SECTOR
TOWARDS EDUCATION AND TRAINING 65 ~ 71**

5.1	Private Sector	65
5.2	Government	68
5.3	Human Resource Development	70

**CHAPTER 6 RECOMMENDATIONS AND
CONCLUSION 72 ~ 95**

6.1	Overview	72
6.2	Measures	
6.2.1	Education	78
6.2.2	Training and Retraining	83
6.3	Conclusion	91

APPENDIX 1 96

BIBLIOGRAPHY 97 ~ 100

LIST OF TABLES

TABLE 3.1	Malaysia: Gross Domestic Product by Industry of Origin, 1970, 2000 and 2005	16
TABLE 3.2	Malaysia: Employment by Occupation, 1970, 2000 & 2005	17
TABLE 3.3	Contribution of Factors of Production, 1991 – 2005	32
TABLE 3.4	Adjusted And Unadjusted Labour in Malaysia	33
TABLE 4.1	Education Profile of Selected Countries	49
TABLE 4.2	Enrolment and Output for First Degree Courses From Local Public Educational Institutions, 1995 – 2005	55
TABLE 4.3	Annual Statutory Teacher's Salaries in Public Institutions at the Primary Level of Education, Equivalent US\$ Converted Using PPP (1998)	57
TABLE 5.1	Development Allocation For education and Training, 1996-2005, (RM million)	68
TABLE 6.1	Occupational Structure, 2000 – 2010, ('000 persons)	93
TABLE 6.2	Employment by Selected Occupation. 2001-2010, ('000 persons)	94

LIST OF DIAGRAMS

DIAGRAM 3.1	Total Factor Productivity and Knowledge	31
DIAGRAM 3.2	Malaysia's Ranking in the World Competitiveness Scoreboard (1994-2000)	34
DIAGRAM 4.1	Educational Expenditure as a Percentage of GDP for all Levels of Education Combined (1997)	51
DIAGRAM 4.2	Net Entry Rates in Tertiary-Type A & B (1998)	53
DIAGRAM 4.3	Educational Profile: Malaysian Employee (%), 1999	61

CHAPTER 1

INTRODUCTION

1.1 Overview

Rapid economic growth in Malaysia has resulted in a tight labour market and expanding demand for higher skills. Skilled workers are needed as industries move up along the value chain in order to strengthen and facilitate further expansion, development and product diversification.

Although, there were significant achievements in Human Resource Development during the Second Outline Perspective Plan (OPP2) period with rapid employment and increased accessibility to education and training, the numerous job opportunities created by a growing economy in Malaysia were from neighbouring countries whether professional or non-skilled workers. The inflows of foreign workers into Malaysia have been increasing rapidly. Why do we need foreign workers? Are we short of manpower?

It is very important to note that how easily these foreign non-skilled workers can perform on the job, without much formal training. Maybe this can be explained by the fact that they perform menial tasks that require more brawns than brains and executed under supervision by experienced workers. Even the highly skilled workers are being imported from other countries.

As Malaysia enters the 21st century, Human Resource Development will continue to remain a key strategy in ensuring that all Malaysians share in the nation's prosperity and develop a dynamic labour force that is globally competitive. Therefore, it is imperative that Malaysian government embark on programmes in educating and training a more productive workforce. In an economic environment, which is changing in terms of technology, skills and knowledge, a productive workforce means a workforce that is adaptable, trainable and embraces lifelong learning.

It is reported in the United States that a person will change jobs seven times, on the average, throughout the person's lifetime. This indicates the numerous knowledge and skill adaptations that a person needs to undergo in the new economy. As Alvin Toffler has said "The illiterate of the 21st century will not be those who cannot read and write but those who are unwilling to learn, unlearn and relearn." In order for a country to avail itself towards the IC-Economy such a workforce, the education and training sector must play a major role, in collaboration with other stakeholders, of which the most important is the industrial sector.¹ Reforms in education and training include the national education system, private sector education and professional training programme.

¹ Economic Development and its Impact on Human Resource Development,
http://www.voctech.org.bn/Virtual_lib/GBM

1.2 Objectives of Study

As mentioned above, there is a need to reform the available education and training system. Therefore, the essential objectives of this study are:-

- To trace education and training in Malaysia in earlier days.
- To review the role of education and training in the Human Resource Development.
- To review the role of government and private sector in reforming education and training to meet the Human Resource needs.
- To suggest recommendations for achieving a greater effectiveness in the education and training programme.

1.3 Significance of Study

The significance of this study is that:

- The findings will enable various organizations to improve the education and training to meet the Human Resource requirement.
- The findings will also enable the various organizations involved in education and training activities to make future plans and strategies.

1.4 Methodology

Secondary data will be used in this study, extensively, relating to the recent education and training and the impacts towards Human Resource Development. Required data and information are derived from various books, magazines, journals, periodicals, seminar/conference papers and sources through the Internet. In addition to this, annual reports and official documents from various bodies involved will be utilised mainly from the Ministry of Human Resource Development, Ministry of Education and Department of Statistics.

After the groundwork, I would like to conduct interviews with the officers, among others, private tutors and schoolteachers. This is to get their views about the reforms in education and training and to get a closer look at some of the factors that can facilitate or inhibit the education and training development in the respective organizations. Interviews will be also conducted with students, the future manpower, to view their contributions towards the Human Resource needs and also towards Malaysia's economic growth in this 21st century.

1.5 Organization of Chapters

To be concise and coherent, the study comprises of six chapters that discusses several elements within their own respective scope.

Chapter One introduces the subject matter, specifies the research objectives and the organisation of this study. Chapter Two, presents the literature review, the work done by other researchers about education, and training and human resource.

Chapter Three gives an overview about education and training and the importance towards human resource development and Malaysia's initiatives towards Knowledge-Based Economy and the priorities of education and training to build up the knowledge manpower.

Chapter Four will discuss the Trust and Priority of Human Resource Development and developing the Knowledge-human resource in Malaysia. Chapter Five will focus on the discussion on the participation of the private and public sector in education and training in carrying out the education and training activities to fulfil the Human Resource need.

Chapter Six, some recommendations will be given to improve the education and training activities to build up knowledge manpower in the 21st century. Besides that a summary of the study will be presented. The nation's capacity to face the

challenges of industrialization and globalisation of business towards the 21st century depends heavily on its human resources. Hence, reforms in education and training can address the Malaysia's human resource problems.

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CHAPTER 2

LITERATURE REVIEW

The nation's capacity to face the challenges of industrialization and globalisation of business towards the 21st century depends heavily on its Human Resource. The government has drawn up a comprehensive plan for developing this resource and the most important plan is in reforming the education and training.

In this paper, we will see that education and training play an important role in the Human Resource Development, which is a key strategy in ensuring that all Malaysians share in the nation's prosperity and develop a dynamic labour force that is globally competitive.

2.1 Human Resource Development

The building of modern nations depends upon the development of people and the organization of human activity, capital, natural resources, foreign aid and international trade, of course, play important roles in economic growth, but none is more important than MANPOWER (Harbison and Myers, 1964:1).

According to V.Kanapathy, the talents and skills of its manpower measure a nation's greatness. The challenge of the manpower frontier eclipses all others. Manpower is today's frontier (Kanapathy, 1968:20).

Human resource development is the process of increasing the knowledge, the skills and the capacities of all the people in the society. Basically, human resource can be described in many terms. In the economic terms, it could be described as accumulation of human capital and its effective investment in the development of an economy. In political terms, human resource development prepares people for adult participation in political processes, particularly as citizens in a democracy. From the social and cultural point of views, the development of human resource helps people to lead fuller and richer lives, less bound by tradition. In short the processes of human resource development unlock the door to modernization (Harbison and Myers, 1964:21).

Human resources are developed in many ways. The most obvious is by formal education, beginning with primary or first-level education, continuing with various forms of secondary education, and then higher education including the colleges, universities, and higher technical institutes. Second, human resources are also developed “on the job” through systematic or informal training programs in employing institutions; in adult education programs; and through membership in various political, social, religious, and cultural groups. A third process is self-development, as individuals seek to acquire greater knowledge, skills or capacities through preparation on their own initiative-by taking formal or correspondence courses by reading, or by learning from others in informal contacts (Harbison and Myers, 1964:2).

2.2 Education

Generally, in all developing countries, education makes a substantial contribution to a nation's growth and development. Alfred Marshall emphasised the importance of education "as a national investment" and in his view "the most valuable of all capital is that invested in human beings." (Harbison and Myers, 1964:3). Basically, there are some correlation between education and development. From the development point of view, one of the main purposes of education is to rationalize attitudes as well as to impart knowledge and skills. In all societies where a majority of people have been exposed to education, it has been discovered that they have been stimulated and taught why and how to make demands upon themselves. Since development is the movement of a whole social system upward, education is one of the most effective ways to initiate this movement (Nwacukwu, 1973:13).

Situational studies done by different economists have suggested, too, that education and training are pre-conditions of economic growth and that as an economy grows larger and more complex so does its demand on human skills which education makes possible (Nwacukwu, 1973:14).

William Benton has pointed out about the importance of education and training in a nation's development efforts as,

... of all the factors that enter into the building of strong national economies the most essential is trained personnel. In fact, it is the only indispensable factor. If good plans and programs for development projects do not exist, one can improvise; if capital is not available in adequate amounts, one can proceed more slowly and practise rigid economy. But if trained personnel are not available, it is idle to speak of national development. Even the will to initiate new activities, and the determination to promote national improvement, will arise and grow only in trained and educated minds.²

The realization of the role of education is vividly conceptualised in the national development plans and policies in India, Indonesia and Malaysia. Here are the few examples how the three government above saw the importance of education in the early days. India's Plans and policies have stressed the paramount role of education as an instrument of social change to achieve national objectives. The third five-year plan of India stated,

Education is the most important single factor in achieving rapid development and technological progress and in creating a social order founded on values of freedom, social justice and equal opportunity.³

² William Benton, *The Voice of Latin America*, rev. ed. (New York: Harper and Row, 1965), p.113

³ Muhammad Shamsul Huq, *Education, Manpower, and Development in South and Southeast Asia*, (Praeger Publishers, 1975), p.4

According to Indonesia's first five-year plan,

*Education must be closely linked with the need as well as possibilities of economic and social development so that it can equip pupils of their life, and fulfil community needs....Education must undergo some reforms in order to make schools an integral, suitable and useful part of the life of the community.*⁴

While Malaysia's second plan has stated,

*Besides having a strong manpower orientation, education and training programmes will contribute significantly towards promoting national unity. They will play a vital role in increasing productivity and income of all Malaysians, as well as in greater urbanization of the Malays and other indigenous people by facilitating their participation in modern activities.*⁵

2.3 Training

Training and development can be described as learning experiences that are planned by an organization for its members in order to help pursue the organization's goals. "Training" usually refers to learning experiences needed for one's current job and "development" to learning experiences needed to prepare one for some position in the future (Alex K B Yong, 1996:130).

⁴ Muhammad, p.4

⁵ Muhammad, p.5

*Training will neither make a fish fly nor a bird swim;
but training will certainly help a fish to swim faster
and a bird to fly higher.*

Alex K.B Yong

According to Maimunah in her book Human Resource Management, training can be defined as the organizational activities designed to change employees through the learning process so that they can perform their jobs efficiently. Basically, all training programmes are designed in such:

- Change **A**ttitudes - **A**
- Develop **S**kills - **S**
- Impart **K**nowledge - **K** (**ASK**)

The general purpose of training is to improve employees' abilities and performance on the job. "If you know where you are going, you have better chance of getting there", meaning if you have the objectives then you will have the burning desire to achieve the goals. An ideal training programme objectives consists of three parts, which is:

- Terminal behaviour
- Standards to be achieved; and
- Conditions of performance (Maimunah, 1997:58).

Kenneth King (Salome and Charmes, 1988:14) has given a simple explanation how the education, training and employment system actually operates. He has posed the problem in the following way:

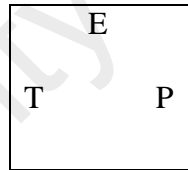
Let E = the educational system

T = the training system

P = the production system

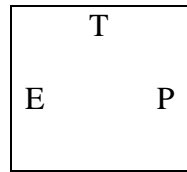
According to him, the skilled manpower needed for development can be trained in three ways:

Case No.1



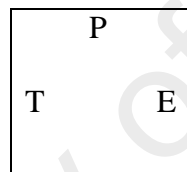
Case 1: A training component (for example, comprehensive high schools) and a production component (for example, workshops in certain schools in developing countries) can be incorporated into the educational system.

Case No. 2



Case 2: Similarly, in an education component can (and often must) be included in the training system (technical training) and the latter's links with production (vocational training) can be increased.

Case No. 3



Case 3: Lastly, general instruction (for example, the Basic Education, Skills and Training programme in Singapore) can be provided on-the-job, especially at the work place (in-service training). Large (multinational and public sector) firms on the one hand, and informal-sector firms on the other, can participate in training of this kind. Most small and medium-sized firms obtain skilled manpower by poaching from other firms.

The realization of the role of education in development has made it necessary that today education is expected to produce the labour force for manpower

requirement, the leadership for bureaucracy, and the citizenry for an enlightened social order. Thus, it is acknowledged that economic progress depends partly on education and training and the productive skills of a nation's labour force. Therefore, all the developed countries have taken steps to insure that the paucity of skilled manpower does not constitute a bottleneck in their development efforts (Nwacukwu, 1973:15).

CHAPTER 3

KNOWLEDGE BASED-ECONOMY

3.1 Overview

Over the last thirty years, the Malaysian economy has successfully changed from an agriculture-based economy to a manufacturing and services based economy. In the Third Malaysian Plan 1976-1980, agriculture, forestry and fishing has contributed 32.1 percent and manufacturing 12.2 percent to the Gross Domestic Product (GDP) in 1970. While in 2000, there is a drastic change in both sectors, where the corresponding figures were 8.7 percent and 33.4 percent respectively, and in the year 2005 agriculture, forestry and fishing is expected to contribute 7.0 percent whereby manufacturing 35.8 percent. (TABLE 3.1)

TABLE 3.1: Malaysia: Gross Domestic Product by Industry of Origin, 1970, 2000 and 2005

Sector	Share of GDP (%)	Share of GDP (%)	Share of GDP (%)
	1970	2000	2005
Agriculture, forestry, fishing, etc	32.1	8.7	7.0
Manufacturing	12.2	33.4	35.8

Source: Third Malaysia Plan (1976-1980) & Eighth Malaysia Plan (2001-2005)

As the structure of economy changes, this can be reflected in the occupational structure as in TABLE 3.2. In 1970, 52.0 percent of workforce comprised agriculture workers, 30.5 percent clerical, sales and service workers, 12.2 percent production workers and 5.3 percent professional, technical and administrative workers. While in the year 2000, there were only 18.1 percent of the workforce comprised in agriculture workers, 33.9 percent were clerical, sales and service workers, 32.8 percent production workers and 15.2 percent professional, technical and administrative workers. In the year 2005, the percentage of professional, technical and administrative workers expected to increase to 17.1 percent. Clerical, sales and service workers also expected to increase to 34.9 percent while production workers is only 30.9 percent. However, agriculture expected to reduce to 17.1 percent.

**TABLE 3.2: Malaysia: Employment by Occupation,
1970, 2000 & 2005**

Occupation	Share of Total Employment (%)	Share of Total Employment (%)	Share of Total Employment (%)
	1970	2000	2005
Professional & Technical	4.5	11.0	12.1
Administrative & Managerial	0.8	4.2	5.0
Clerical Workers	4.9	11.1	11.2
Sales Workers	10.1	11.0	11.3
Services Workers	15.5	11.8	12.4
Production Workers	12.2	32.8	30.9
Agricultural Workers	52.0	18.1	17.1

Source: Third Malaysia Plan (1976-1980) & Eighth Malaysia Plan (2001-2005)

As Malaysia enters the 21st century, it is working very hard to achieve its ambitious vision, “Vision 2020”, with the aspiration to be a fully industrialized country by the year 2020.

As labour cost has been increasing rapidly over the years due to the tight employment condition, it is urgent to transform the large pool of unskilled workers into skilled workforce and implement integrated efforts towards productivity improvement. Preferences had been given to high technology industries, which required transfer of technology in upgrading the skill levels of Malaysian workforce.

Basically, education and training play important role in the Human Resource Development because they are inter-related. Nadler in his book Human Resource Development (1984) has given a simple explanation between education, training and development.

“Education consists of activities designed to prepare employees for future jobs”.

“Training is the organizational activity which aims to improve an employee’s current performance”.

“Development in those learning activities designed to help the individual employee grow but which are not confined to a particular job”.

Therefore, it is imperative upon Malaysian government to embark on programmes for the education and training for a more productive workforce. Before I go further, regarding the importance of education and training, I would like to talk about the early education and training in Malaysia.

In Malaysia, despite the complex of racial, religious and language diversity, commendable progress has been made in the field of general education particularly in the post-Independence period. Supply created its own demand in the sense that when Malaysian government provided the schools they were automatically filled. Emphasis in educational development has been fundamentally on quantity but nonetheless, quality and excellence of education, especially at the secondary and university level, have not been totally disregarded (Kanapathy, 1968:22).

Once Malaysian government realised that a country's rate of economic development is not only determined by the material and the size of its internal market but also by its "brainpower" i.e. by its success in developing and utilising effectively the intellectual capacities of its population. It is thus a fundamental objective of the First Malaysia Plan (1966-1970), to ensure that the nation's human resources are developed and employed in such a manner as to secure their greatest possible contribution to national economic development.

One of the main objectives of the First Malaysia Plan is to intensify and expand the development of human resources in the country. In the recent years, there has been an increasing awareness of the vital role of the human factor in economic development. Studies of some countries suggest that perhaps 20 percent to 30 percent of the growth of national income may be attributed to quantitative increase in capital and labour inputs, while the remainder is due to qualitative improvements in the productivity of human resources through **“Education and Training.”** Unless the education system is geared to meet the development needs of the country, it will slow down the rate of economic and social advance. While widespread basic education is necessary, a modern society requires people of varied educational attainments and skills to produce skilled manpower.

The objectives of the education programmes under the First Malaysia Plan (1966-1970) are as follows:

- ❑ To consolidate further the national educational system in order to promote social, cultural and political unity;
- ❑ To provide educational facilities, particularly at the secondary level, to meet the needs of the increasing school-age population;

- ❑ To improve quality of education and to spread education opportunities more evenly throughout the country so as to correct imbalances between urban and rural areas;
- ❑ To diversify educational and training facilities by increasing such facilities in vital fields, especially those relating to agricultural and industrial science and technology;
- ❑ To accelerate teacher training in order to produce the necessary number of qualified and skilled teachers.

Since then, education and training has been a major effort in every Plan. Besides that, the shortage of qualified manpower has been a problem from early days. Although, in each Malaysia Plan, countermeasure has been taken to solve the problem, the Human Resources in Malaysia are still lack of skilled workers.

So, to solve the above problem, Malaysia has embarked on an ambitious plan to shift from production-based economy (P-economy) to knowledge-based economy (K-economy). The main features of the knowledge-based economy are a highly educated labour force, knowledge workers who are skilled in the application of knowledge, and the use of information and communications technology (ICT). A knowledge-based economy promises more value-added production and greater international competitiveness.

“The K-economy gives us an opportunity to leapfrog. If we can create the right environment and provide the right incentives for our labour, we should be able to seize the opportunity.”⁶

3.2 Malaysia’s Initiatives towards the K-Economy

Malaysia is one of many countries attempting to shift towards a knowledge-based economy. In Malaysia it is known as ‘k-economy’. The knowledge-based economy is where acquisition, utilization and dissemination of knowledge provide the basis of growth. The development of a knowledge-based economy involves enhancing the value-added of all productive activities through knowledge utilization, in addition to creating new knowledge intensive industries where this will strengthen Malaysia’s competitiveness and open up new opportunities for the country. Among the opportunities are increased global trade and investment, better access to technology, possibility for leapfrogging to catch up with developed countries, the availability of a platform to build strategic alliances with key players in selected industries as well as expanding existing and generating new areas of investment. The increased use of knowledge, coupled with a better skilled workforce will contribute towards improving productivity levels and shifting the production possibility frontier outwards.

Malaysia’s capability and capacity in acquiring and utilizing new knowledge and technologies will be determined by the quality of its human resource. In the K-

⁶ Skilled Manpower to Propel the K-Economy:
http://www.mier.org.my/mierscope/shankaran13_4_2002.pdf

economy, the knowledge input is ever expanding in tandem with technology and innovation. This innovation and technology opens access to resources and markets all over the world, creating virtual market places and organisations. With K-economy, it demands a disciplined and highly educated labour force where it comprises a better-informed populace as the government invests more on human development.⁷ To face the challenges of globalisation, Malaysians need to be equipped with a strong base in education and training and possess a range of generic skills, including communication and linguistic abilities.

Former Minister of Finance Tun Daim Zainuddin, when introducing the 2000 Supply Bill in Parliament on 25 February 2000 stated:

*“We must now make a paradigm shift from production based economy (P-economy) to a knowledge-based economy (K-economy). This is in line with the Government’s efforts to intensify the development of high technology industries as well as make IT the catalyst for growth in the 21st century”.*⁸

Malaysia started to lay the foundation for the knowledge-based economy in the mid-1990s, among others, with the launching of the National IT Agenda (NITA) and the Multimedia Super Corridor (MSC) (The Third Outline Perspective Plan 2001-2010, 2001:123). However, Malaysia’s shift is influenced by concerns about increasing competition for foreign direct investment from neighbouring low-wage economies. Basically, the knowledge-based economy provides a

⁷ Economic Development and its Impact on Human Resource Development, http://www.voctech.org.bn/Virtual_lib/GBM

⁸ Institute of Strategic and International Studies (ISIS) Malaysia, “Making The Quantum Leap To The Knowledge-Based Economy – The Knowledge-based Economy Master Plan”, p.1

means to maintain sustainable rapid economic growth and competitiveness in the medium and long term.

3.3 What is a Knowledge-based Economy (KBE)?

“KBE” will be the most important acronym of the next century. The knowledge-based economy is one in which information and knowledge, rather than material resources drive business activities while creating key sustainable competitive advantage.

There are many definitions of knowledge-based economy, all revolving around the notion of an economy based on the production, distribution and utilisation of knowledge, which constitutes the primary engine of growth and wealth creation in the economy.

A “knowledge-based economy” is simply recognising human capital as the major source of innovation and efficiency gains to sustain economic growth.⁹

An Organisation for Economic Co-operation and Development (OECD) report in 1996 entitled “The Knowledge-based Economy” associated the term with “ a fuller recognition of the role of knowledge and technology in economic growth”.

⁹ “Knowledge-based Economy”- Myth and Reality (2002),
http://www.ahk.org.hk/archive/02_03hongkong.pdf

A knowledge-based economy has been defined as one that is directly based on the production, distribution and use of knowledge and information. Strong capability and an increasing emphasis on intellectual property such as brand names, patents and software characterise a knowledge-based economy. It is also an economy with a vibrant entrepreneurial culture that thrives on creativity, nimbleness and good business sense. There is an enthusiasm for change, appetite for risk and tolerance for failure. For economies of the future, knowledge will be the key to wealth and success.¹⁰

For Malaysia's purpose, knowledge-based economy is defined as an economy in which knowledge, creativity and innovation play an ever-increasing and important role in generating and sustaining growth. A definition of knowledge and the stylised characteristics of a knowledge-based economy have been stated clearly in the Third Outline Perspective Plan (2001-2010) as below:

- ❑ Knowledge is information that is interpreted and used by decision-makers to meet their goals. It is a public good, in that, there is no additional cost when shared with other users and others cannot be excluded from using it once it is created.

- ❑ Knowledge is generally divided into two types, namely, knowledge about technology and knowledge about attributes or tacit knowledge. The latter

¹⁰ Sattar Bawany, The Journey Towards A Knowledge-Based Economy (KBE): What's your role? , (2003), http://www.bawany.com.sg/journey_to_KBE.pdf

refers to knowledge gained from experience and which is often a source of competitive advantage.

❑ Characteristics of a knowledge-based economy:

- a) *Has abundant resources.* Unlike most resources that deplete when used, the knowledge input is ever expanding in tandem with technology and innovation.
- b) *No location barrier.* Innovation in technology opens access to resources and markets all over the world, creating virtual market places and organizations. There will be increased mobility of workers and capital.
- c) *A highly educated labour force.* The knowledge economy comprises a better-informed populace as the government invests more on human development. Workers contribute to ideas, skills and knowledge by using the latest technology.
- d) *A high level of per capita wealth.* Knowledge-based investments generate increasing returns to scale and therefore, more wealth for all.
- e) *Open cosmopolitan society attractive to global talent.* There will be ample opportunities for locals to tap foreign knowledge and learn of best

business practices, as world-class infrastructure will encourage foreign investment. The population will be willing to accept and put into practice new ideas and technologies and hence, local companies will become fit and fully equipped to face global challenges.

- f) *Well connected to other global knowledge nodes.* Connectivity to the rest of the world and technology sharing as well as technology transformation will be made easy with the free flow of information with lower cost, and reliable infrastructure encourage information and technology sharing.
- g) *A shift from top-down hierarchical organizational structures to flatter shared-structures such as networks of semiautonomous teams.* IT development and communications technology will lead to better interaction among workers and there will be active involvement of workers in contributing ideas and decision-making.
- h) *Skills and knowledge are key assets.* Skills and knowledge become the main assets for the economy to gain competitiveness.
- i) *Information and communications technologies (ICTs) are pillars of the knowledge-based economy.* Access to networking is essential in acquiring and disseminating knowledge and the Internet is a key driver of ICT

especially in the development of E-based activities, resulting in new approaches to doing things.

For Malaysia to recover and enhance its competitiveness in the global economy and to sustain the rapid economic growth, Malaysia should lead the journey towards becoming a knowledge-based economy. This was clearly stated by our 5th Prime Minister, Datuk Seri Abdullah Ahmad Badawi, where he said that an “education revolution” is necessary to produce talented human capital in an increasingly global and competitive environment. He also said that, “I believe we will need nothing less than education revolution to ensure that our aspirations to instill a new performance culture in the public and private sectors are not crippled by our inability to nurture a new kind of human capital that is equal to the tasks and challenges ahead,” in a dialogue with National Economic Action Council members, corporate leaders, professionals and academicians at the Putrajaya Marriott (The Star, January 14 2004)

3.4 Why Malaysia should develop towards a Knowledge-based Economy?

According to the survey done by the Institute of Strategic and International Studies (ISIS) Malaysia (2001), there are seven reasons why Malaysia should develop towards a knowledge-based economy:

❑ ***Increasing Foreign Competition.***

Malaysia is facing increasing competition for its products from countries such as China, India, Vietnam and Indonesia, which enjoy a very much cheaper labour and more abundant resources. Due to that the country has to make the necessary adjustments and move into areas where it can have better comparative advantage and competitiveness.

❑ ***The Impact of Globalisation and Liberalisation.***

Globalisation and liberalisation are steadily bringing down barriers and removing protective walls that help sustain local industries. Malaysia, like all other developing economies in particular, will have to prospect for new products and services which are viable in the emerging global market where the distinction between local and world markets is gradually disappearing.

❑ ***The Need to Seek Higher Value-added.***

As costs, especially labour costs, climb higher Malaysia will have to ensure even higher value is added to its products in order for the industries to remain viable. Such high value-added is generally provided by knowledge-based industries. Furthermore, with the knowledge-based economy, we can produce skilled workers locally and we do not need workers from foreign.

□ ***The Need to Move into More Profitable and Wealth-Generating Stages of Production.***

In the enduring search for higher profit and greater wealth, Malaysian companies have little choice but to move into the pre-production stage (product conceptualisation, research and design, prototyping, etc.) and post-production stage (packaging, branding, marketing, retailing, etc.) of manufacturing because there is less profit to be made from the core production process. The pre- and post-production stages also happen to be the more knowledge-intensive.

□ ***The Need to Seek New Sources of Growth.***

New sources of growth are required, as old sources of growth become less productive. A knowledge-based economy provides some of these new sources of growth to enable Malaysia to sustain growth and dynamism.

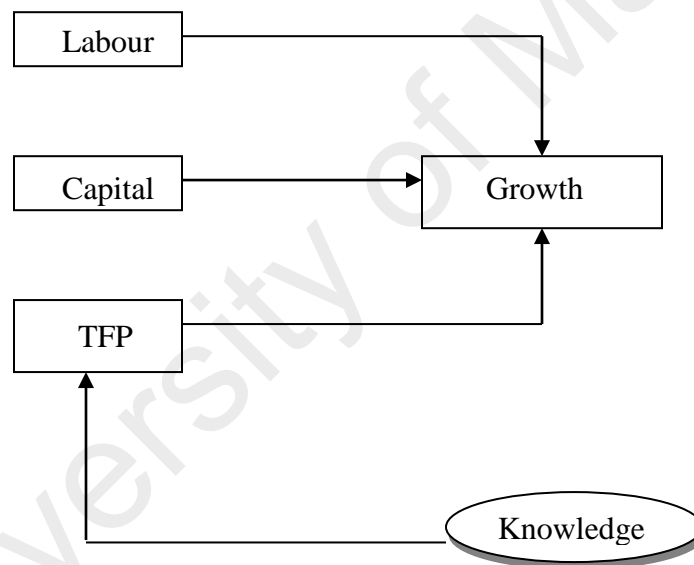
□ ***Meeting The Challenge of Enhancing Total Factor Productivity (TFP)***

As Malaysia has committed to a “shift in focus from an input-driven towards a productivity-driven strategy by enhancing the contributions of Total Factor Productivity (TFP).” TFP refers to the additional output generated through enhancements in efficiency accounted for by such things as advancements in human capital, skills, and expertise, acquisition of efficient management

techniques and know-how, improvements in an organisation, gains from specialisation, introduction of new technology and enhancement in information and Communication technology (ICT).

The DIAGRAM 3.1, shows how Total Factor Productivity and Knowledge are inter-related towards the economic growth.

DIAGRAM 3.1: Total Factor Productivity and Knowledge



Source: Institute of Strategic and International Studies (ISIS) Malaysia, 2001.

However, Malaysia's TFP has not been very encouraging. So, the migration to a knowledge-based economy will greatly enhance Malaysia's ability to meet its TFP enhancement goals. Basically, TFP can explain the growth in a knowledge-based economy, because it captures endogenous technical change and other characteristic of the knowledge-based economy, including diffusion of

knowledge, organisation, restructuring, networking, and new business models, which can contribute to the market efficiency and productivity. The notion of TFP is interpreted as an “index of all those factors other than labour and capital not explicitly accounted for but which contribute to the generation of output.” Most of the studies for the East Asian economies conclude that capital accumulation was the key driver of output growth. In general, most empirical work confirmed that TFP contribution to economic growth in Malaysia was much below the share achieved by industrial economies.

TABLE 3.3: Contribution of Factors of Production, 1991 – 2005

Factors	1991-1995		1996-1997		7MP		7MP Revised		8MP	
	Growth	Share	Growth	Share	Growth	Share	Growth	Share	Growth	Share
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
GDP	8.7	100	8.2	100	4.7	100	7.5	100	7.5	100
Labour	2.5	25.7	1.3	15.7	1.2	25.0	1.6	21.5	1.6	21.5
Capital	3.7	42.6	5.3	64.8	2.3	50.2	3.1	41.3	3.1	41.3
TFP	2.5	28.7	1.6	19.5	1.2	24.8	24.8	37.2	2.8	37.2

Source: Seventh Malaysia Plan (1996-2000) & Eighth Malaysia Plan (2001-2005)

From TABLE 3.3, we can see that during the period of 1991-1995, TFP has contributed about 29 percent to economic growth but the share shrunk to about 20 percent during 1996-1997. In terms of growth, TFP rose by 2.5 percent during 1991-1995 and slowed down to 1.6 percent during 1996-1997. In view of the recent economic slowdown, the Seventh Malaysia Plan projection of a growth of

3.3 percent and share of 41.3 percent for TFP has been reduced to a growth of merely 0.14 percent and a contribution of 2.5 percent of economic growth. However, in the Eighth Malaysia Plan, in terms of growth, TFP rose by 2.8 percent compared to 1.2 percent in the Seventh Malaysia Plan.

In TABLE 3.4, it shows the TFP's contribution after adjusting for the quality of labour to account for education attainment. TFP was said to contribute 20 percent to economic growth as against 47 percent for capital and 33 percent for labour during 1971-1997. The study found that between 1987 and 1991, five years following the last recession, TFP was the chief contributor to growth averaging 60 percent. But the contributions of TFP has fallen to below 10 percent during 1993-1997 and in this period capital accumulation became the main driver of economic growth with and average shares of 60 percent (Institute of Strategic and International (ISIS) Malaysia, 2001:29).

TABLE 3.4: Adjusted And Unadjusted Labour in Malaysia

Malaysia	Labour	Capital	TFP
Unadjusted for Labour¹	32	52	16
Adjusted for Labour²	33	47	20

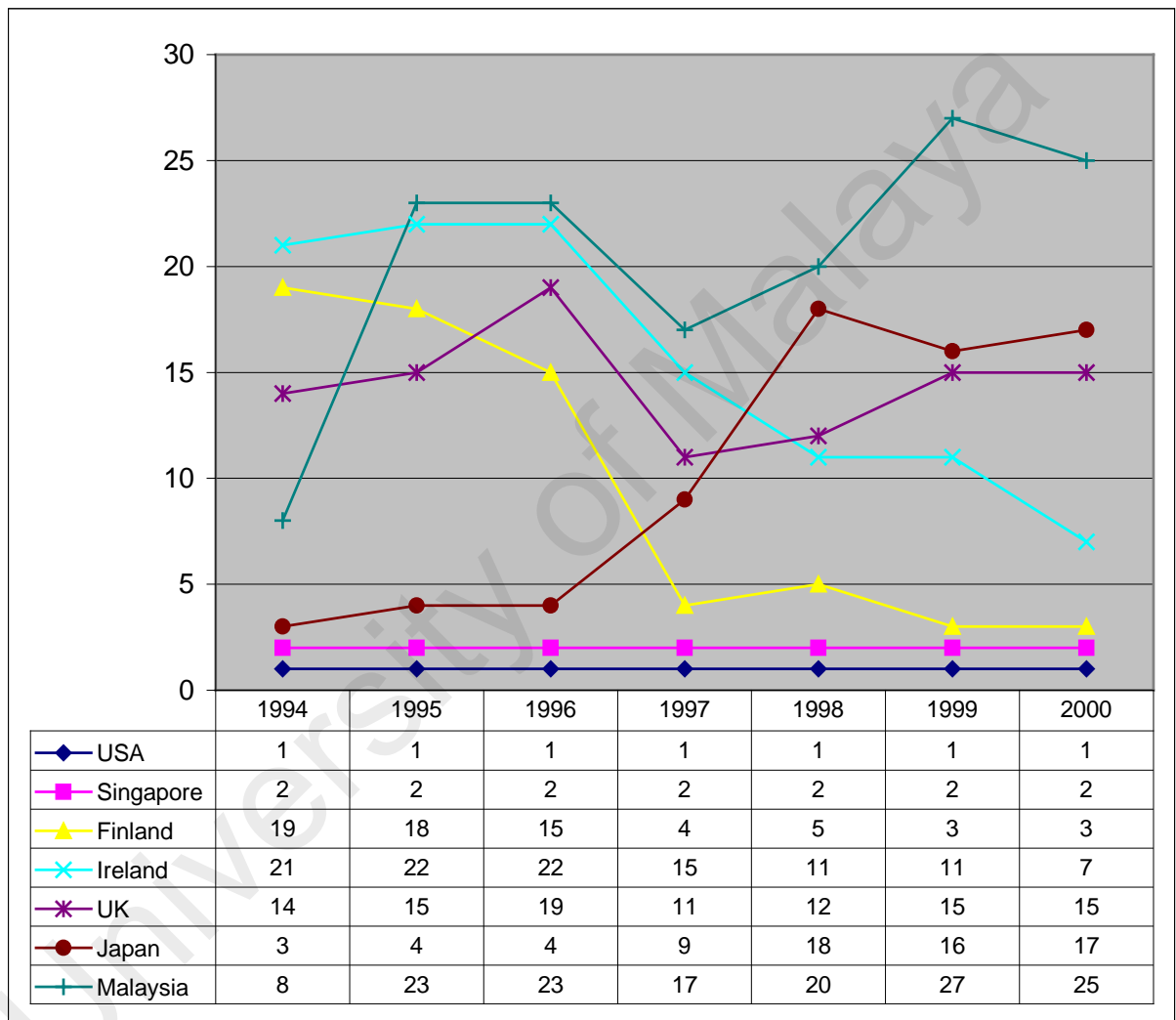
Source: *Institute of Strategic and International Studies (ISIS) Malaysia, 2001.*

Note: ¹Unadjusted labour refers to the level of employment in the Economy but with no adjustments made to reflects the quality of labour.

²Adjusted labour refers to employment levels that reflect the quality of labour. The employment level is adjusted by an index of labour quality that takes into the education attainment of the labour force and income levels.

□ *Erosion in Global Competitiveness.*

DIAGRAM 3.2: Malaysia's Ranking in the World Competitiveness Scoreboard (1994-2000)



Source: Institute of Strategic and International Studies (ISIS) Malaysia, 2001.

From the DIAGRAM 3.2, we can see that Malaysia's international competitiveness has slipped from 18th in 1994 to 25th in 2000, where the trend has to be arrested. In contrast to Malaysia, Finland rose from 19th in 1994 to 3rd in

both 1999 and 2000. While, Ireland improved substantially from 21st in 1994 to 7th in 2000. This is because both Finland and Ireland are recently developed knowledge-based economy, which were once performing extremely poor.

So, with the knowledge-based economy, Malaysia can ensure the vigorous development of viable knowledge empowering and enabling industries as well as profitable and high value-added knowledge intensive industries.

3.5 The road to the Knowledge-based Economy

Malaysia's vision to build a strong and resilient, vibrant and competitive economy with an annual average rate of growth of 7 percent to the year 2020 is actually driven most strongly by a dramatic increase in the application of knowledge to production and the development of new knowledge-intensive industries.

If Malaysia is able to achieve this average annual growth rate of 7 percent, it will have succeeded in accomplishing its generational income-doubling plan. Its Gross Net Product (GNP), having doubled every decade, would be eight times larger in 2020 than in 1990.

These achievements can be only accomplished with the reforms in education and training. Education and training plays a crucial part in developing human capital and will play a critical role in shifting the economy towards knowledge-based

economy. With a proper education and training, it will increase the skills and knowledge of individual workers, allowing them to accomplish particular tasks better and to adapt more easily to changing job requirements.

There are Seven Strategic Thrusts¹¹ proposed in the Knowledge-based Economy Strategic Plan, to realise the knowledge-based economy vision:

❑ **Strategic Thrust One:**

Cultivate and secure the necessary human resources.

❑ **Strategic Thrust Two:**

Establish the institutions necessary to champion. Mobilise and drive the transition to a knowledge-based economy.

❑ **Strategic Thrust Three:**

Ensure the incentives, infrastructure and infostructure necessary to proper the optimal and ever-increasing application of knowledge in all sectors of the economy and to flourishing of knowledge-enabling, knowledge-empowering and knowledge-intensive industries.

¹¹ Institute of Strategic and International Studies (ISIS) Malaysia, p.33

❑ **Strategic Thrust Four:**

Increase the capacity for the acquisition and application of science and technology (including information and communication technology) in all areas.

❑ **Strategic Thrust Five:**

Ensure the private sector is in the vanguard of the knowledge-based economy's development.

❑ **Strategic Thrust Six:**

Develop the public sector into a knowledge-based Civil Service.

❑ **Strategic Thrust Seven:**

Bridge the knowledge and digital divides.

Generally, each strategic thrust complements the others. All are considered important and indispensable. However, the most important of all is *the need to secure and cultivate the most crucial asset in the knowledge-based economy: Human Capital*. And the most immediate, in terms of shepherding the knowledge-based economy transition, is *the establishment of the institutional drivers*.

Besides the strategic thrust, there are Six Essentials given by ISIS for Malaysia to function successfully as a knowledge-based economy:

□ ***A Conducive External Environment***

Malaysia is among the most globalised economies in the world, with its imports and exports presently accounting in value for 200 percent of its Gross Domestic Product (GDP). Therefore external developments tend to have a major impact on its economic well being. The external factors include the economic health of Malaysia's major markets, movement in the prices of goods and services which is important to the country's trade, developments in the World Trade Organisation (WTO) and other multilateral arrangements, regional and global peace, volatility in financial markets and the disruptive effects of speculative capital. However, to maintain a favourable external environment, it will be largely out of Malaysia's control even though it will continue to pursue all possible means to promote such an environment.

□ ***A Conducive Domestic Environment***

Malaysia's knowledge-based economy will need a conducive political, social, cultural and security environment to flourish and function at its best. The defining factors in this environment include peace and stability;

a government and public sector dedicated to good governance; a corporate sector that is driven by the desire for innovation, efficiency and competitiveness; and a culture that encourages inquiry, creativity, learning, entrepreneurship, receptivity to change and risk-taking, all fundamental prerequisites for wealth-generating innovation, new knowledge and value added products and services.

□ ***Sustained Competitiveness***

As noted earlier, the transition to a knowledge-based economy is to enable Malaysia to recover and enhance its competitiveness. In an increasingly globalised and liberalised environment, global competitiveness must be the fundamental consideration behind market decisions. Malaysia must also continue to make the most of its assets and comparative advantages, such as its rich biodiversity and the enormous potential for life sciences.

□ ***Productive Partnership between the Public Sector, the Private Sector and the Community.***

Malaysia's knowledge-based economy development cannot be accomplished without a creative partnership between the public sector, the private sector and the community organisations. A general and important principle governing the country's approach towards accomplishing the

knowledge-based economy transition should therefore be the fruitful collaboration between and joint contribution of all the three sectors.

□ ***Private Sector at the Vanguard***

While all three sectors (the public, the private and the community) need to work together to make the transition to a knowledge-based economy, it will be the private sector that will ultimately build the knowledge-based economy. As we know, the government's primary role is essentially as catalyst and facilitator. As noted in the Strategic Thrust Five, the private sector must be at the vanguard. Its entrepreneurship, innovative capacity, knowledge, skills, emphasis on Research and Development (R&D), ability to absorb and apply Information & Communication Technologies (ICT), and risk management proficiency will finally determine how successfully Malaysia can undergo the knowledge-based economy transition.

□ ***Good Corporate Governance.***

Good corporate governance on the part of both the public and private sectors will continue to be critical prerequisites for both successful functioning of Malaysia's knowledge-based economy. Sound investment, decisions, transparency, accountability, commitment to sustainable development, and a ferocious dedication on the part of both sectors to do

everything necessary to wipe out corruption must continue to be the foundations upon which Malaysia's economic soundness, dynamism and viability are to be built.

3.6 Human Capital in a “Knowledge-based Economy”

An economy that relies on human capital as critical factor of production and the main driver for growth through creation and innovation can be described as a “knowledge-based economy”.¹² An educated workforce has become the most important competitive factor as the world enters the knowledge era.

Knowledge has played an important role throughout human history. Innovation did bring huge advances in economic development even in the agricultural and industrial economies. But, in those periods, the majority of the labour force was engaged in manual work. Their skills were precise and outputs were discretely measurable. A skilled labourer could earn more because he could generate higher output that was measurable. However, the situation is no longer the same especially in the 21st century. Knowledge today is a necessary and key sustainable competitive advantage for businesses. In an era characterised by rapid change and uncertainty, it is claimed that successful companies are those that consistency create new knowledge, disseminate it through organisation and

¹² “Knowledge-based Economy”- Myth and Reality (2002),
http://www.ahk.org.hk/archive/02_03hongkong.pdf

embodies it in technologies, products and services. Knowledge is more important now than any time before.

For Malaysia, to revitalise its underlying growth engine, the challenge is to develop an adequate supply of higher-knowledge manpower and to further enhance the commitment to human resource development to promote productivity gains, economic growth and employment opportunities. As we know, the scarcity of qualified manpower is one of the major constraints in the quest for modernization, so one of the obvious ways to build knowledge manpower is through **“Education and Training”**.

CHAPTER 4

DEVELOPING THE KNOWLEDGE-HUMAN RESOURCE

4.1 Building the Knowledge Manpower

Human capital will be the key driver of the growth in the knowledge-based economy and will determine the competitive position of the nation. Therefore, the successful development of the knowledge-based economy will largely depend on the quality of the *education and training system* (The Third Outline Perspective Plan 2001-2010, (2001:133). One of the major thrusts of the knowledge-based economy development plan for Malaysia is to build up knowledge manpower through a comprehensive review of the education and training system, the introduction of a system for life-long learning and a brain-gain programme. *With a proper and quality education and training system, Malaysia can eventually produce knowledge and skilled manpower in our country...so why do we need skilled manpower from the neighbourhood country?*

Recruiting foreign talent might be an effective and rapid response approach in meeting the urgent shortages of manpower, but cannot be relied on the long-term solution. Actually, our long-term solution should be producing our own knowledge, skilled and, talented manpower.

The education system from pre-school to tertiary level need to be reviewed to enable it to meet the manpower requirements of the knowledge-based economy. The key areas include the curriculum, teaching methods, enrolment at the tertiary level and the quality of the teaching profession. In the curriculum activities, they need to emphasize the teaching of core competencies and to be in line with changing manpower requirements. Vocational and technical education and training should be given a greater prominence and should refocus to produce the skills required by the knowledge-based economy. In addition, teaching methods should be transformed to promote creativity, originality, and innovation as well as thinking and analytical skills. The use of Information Technology (IT) as a tool for teaching and training need to be made more pervasive.

Furthermore, concerted efforts should be taken to increase enrolment at the tertiary level particularly for science and technical courses. Here, public and private institutions should play an important role where, they become more market-driven and proactive by moving beyond traditional bounds to new fields of education. They need to enhance the standard of education and produce highly employable manpower. Besides, the quality of teaching profession need to be improved by attracting better qualified people in the teaching profession, undertaking a programme of continuous training, and reviewing their scheme of service in terms of remuneration and promotion opportunities.

A system of life-long learning should be promoted to ensure that workers can continuously upgrade their skills and knowledge in order to remain relevant in the environment of rapidly changing technology and work processes as well as to nurture a learning society. Both the public and private sectors should be encouraged to set up the necessary infrastructure to facilitate life-long learning. In this regard, educational institutions should introduce flexible learning approaches in terms of duration, of course, entry requirements and mode of teaching as well as ensure affordability. They should set up community colleges and resources to increase accessibility to acquire and disseminate knowledge. In addition, firms and industries also, should provide incentives and encourage their employees to relearn and continuously upgrade their skills. Last but not least, the government should encourage the financial institutions to provide low interest loans to those interested in upgrading their skills.

To meet the immediate manpower needs of the knowledge-based economy, the government should review the on-going initiatives and undertake a coordinated brain-gain programme to attract qualified Malaysians working abroad. The programmes should seek outstanding Malaysian students, quality Malaysian technopreneurs and highly skilled personnel from abroad as well as liberalize conditions for their recruitment.

Later in Chapter 6, I will layout the recommendations in detail on how to reform the education system and training activities to build up knowledge manpower in the 21st century.

4.2 Human Resource Policy Thrust

In the Eighth Malaysia Plan (2001-2005), greater investment in human capital focusing on increasing the knowledge content of education and training has been made to ensure the growth and resilience of the economy. An efficient and responsive administrative and institutional framework is necessary for the optimal utilization of resources to accelerate human resource development towards achieving a developed nation status by 2020. In this regard, the Human Resource Policy Thrust is as follows:

- ❑ *Expanding the supply of highly skilled and knowledge manpower to support the development of a knowledge-based economy;*
- ❑ *Increasing the accessibility to quality education and training to enhance income generation capabilities and quality of life;*
- ❑ *Improving the quality of education and training delivery system to ensure that manpower supply is in line with the technological change and market demand;*

- ❑ *Promoting life-long learning to enhance employability and productivity of the labour force;*
- ❑ *Optimising the utilization of local labour;*
- ❑ *Increasing the supply of S&T manpower;*
- ❑ *Accelerating the implementation of the productivity-linked wage system;*
- ❑ *Strengthening labour market information system to increase labour mobility;*
- ❑ *Intensifying efforts to develop and promote Malaysia as a regional centre of educational excellence; and*
- ❑ *Reinforcing positive values.*

For the above, policy trust to be visualised, Malaysia needs a quality and proper education and training system. The quality of human resources will be the single most important factor that will determine the pace and success of the transition toward knowledge-based economy.

4.3 Education and Training Priorities

Current Status

4.3.1 Education

Malaysia has still some scope for improvement as regards indicators such as literacy rates, enrolment rates from primary to tertiary levels, investment in education, access to and participation in tertiary education, and teachers' salaries, qualifications, and work conditions (Institute of Strategic and International Studies (ISIS) Malaysia, 2001:41).

i) Literacy Rates

According to UNESCO, the national literacy rate (15 years and above) for Malaysia in 2000 was 91.6 percent. While the youth literacy rate was 97.5 percent. The Human Development Report 2000 makes comparisons between countries at different levels of development. The Malaysian literacy rates were lower compared to the rates from the more developed economies in the High human development ranking (refer to TABLE 4.1).

TABLE 4.1: Education Profile of Selected Countries

	Adult Literacy rate (% of age 15 & above)	Youth literacy rate (% of age 15-24)	Age group enrolment ratios (adjusted)		Tertiary Enrolment (% of population 20-24 years)
			Primary age group (% of relevant age group)	Secondary age group (% of relevant age group)	
	1998	1998	1997	1997	1993
High Human Development					
United States	..	..	99.9	96.3	81.0
Japan	..	..	99.9	96.9	30.3
Finland	..	..	99.9	95.4	..
Singapore	91.8	99.7	91.4	75.6	38.0
Rep. Of Korea	97.5	99.8	99.9	99.9	48.0
Medium Human Development					Age cohort 17-23 years
Malaysia	86.4	97.1	86.0	67.0	25.0
Thailand	95.0	98.8	88.0	47.6	..
Philippines	94.8	98.4	99.9	77.8	..
Indonesia	85.7	97.3	99.2	56.1	..

Notes: Adapted from The Third Outline Perspective Plan 2001-2010, Table 5-2, p.125

Source: Institute of Strategic and International Studies (ISIS) Malaysia, 2001.

From the table, we can also see that the Malaysia's literacy rates are lower compared to Thailand and Philippines in the medium human development category.

ii) Enrolment

As of June, the enrolment rate at lower secondary was 85 percent as compared to 52.2 percent in 1970. While for upper secondary level, it was 72.6 percent as compared to 20.1 percent in 1970.¹³(Source: Perangkaan Pendidikan 2000, BPPDP, KPM). The enrolment rate for tertiary was 25 percent in 2000. (for age cohort 17-23 years) (TABLE 4.1).

At the primary level, Malaysia's achievement is already at par with the developed economies. With the exception of a few countries including Singapore, enrolment rates at the secondary level in all high human development countries in 1997 were already at a universal level (TABLE 4.1).

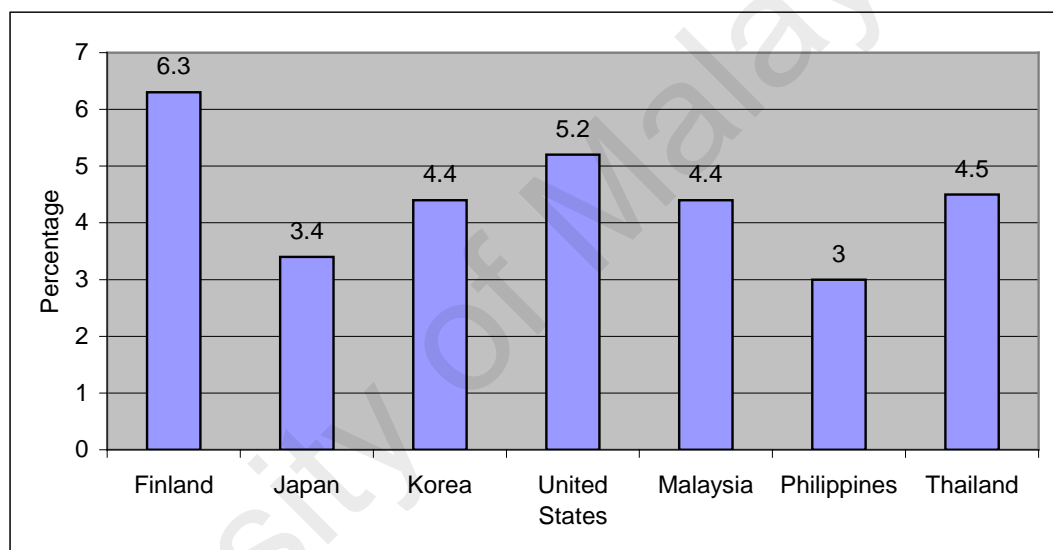
iii) Financing of Investment in Education

Investing in education can help foster economic growth, enhance productivity, contribute to personal and social development and reduce social inequality. Direct public expenditure on education is by far the largest source of funds.

¹³ Institute of Strategic and International Studies (ISIS) Malaysia, p.42

In 1997, Malaysia spent 4.4 percent of its GDP on education. This was higher than the Philippines (3 percent) and Japan (3.6 percent), as shown in DIAGRAM 4.1.

DIAGRAM 4.1: Educational Expenditure as a Percentage of GDP for all Levels of Education Combined (1997)



Source: Institute of Strategic and International Studies (ISIS) Malaysia, 2001.

However, the Malaysian public expenditure on education is still relatively low compared to the educational investment made by the more developed economies. So, the government has to continue expending its investment in higher education, especially in science and technology programmes.

iv) Tertiary Education

Basically the rates of entry to tertiary education are an indication of the degree to which the population is acquiring high-level skills and knowledge. The OECD maintains that the high tertiary entry rates help to ensure the development and maintenance of a highly educated population and labour force.

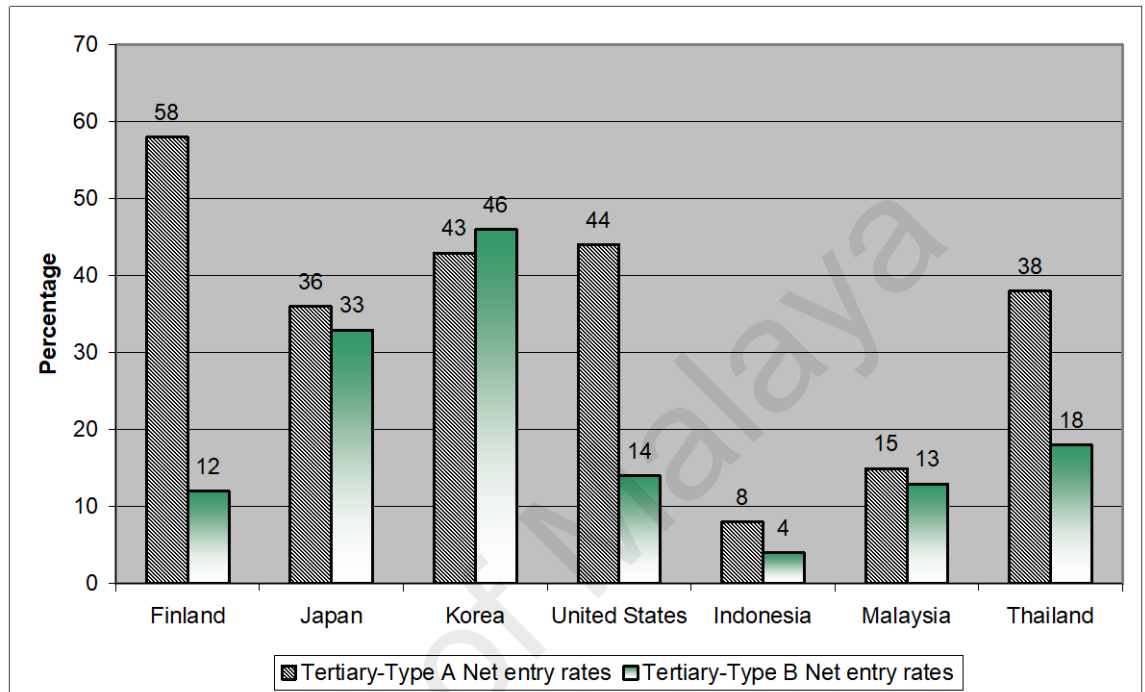
The OECD has categorized tertiary education into two types:

- ❑ Academic (Type A)
- ❑ Skill Based (Type B)

Tertiary-Type A programmes are largely theory-based and designed to prepare students for advanced research programmes and the highly qualified professions. Most of these programmes lead to a degree. Programmes of Tertiary-Type B are designed for direct entry into the labour market.

In Malaysia, the entrance rate into Tertiary-Type A are slightly higher compared to Tertiary-Type B. DIAGRAM 4.2, indicates that of the tertiary education population only 13 percent entered Type B programmes and 15 percent Type A programmes.

DIAGRAM 4.2: Net Entry Rates in Tertiary-Type A & B (1998)



Notes: Entry rate for Type A & B calculated as gross entry rate

Source: Institute of Strategic and International Studies (ISIS) Malaysia, 2001.

In most OECD countries such as the United States and Finland, entry rates at Tertiary-Type A were much higher (at least three folds) than in Tertiary-Type B programmes. Japan and Korea had almost balanced distribution between two types. However, the distribution of entry rates in the Malaysian Tertiary-Type A and B were still comparatively small relative to the developed economies, (DIAGRAM 4.2).

In the field of studies, Malaysia's largest number of enrolment and graduates was in the field of arts and humanities, followed by economics

and business in the year 1995 (TABLE 4.2). The allocation of graduates has to be changed in the next 21st century, where Malaysia need to put on expanding enrolments in technical, especially in engineering education. The expansion has been shown clearly (TABLE 4.2) after the year 2000, where the engineering education has been given priority mainly to build up skilled manpower.

Besides that, TABLE 4.2 also shows that the enrolment for the first-degree courses in local public institutions has increased and is expected to increase in 21st century. This increase is important to produce graduates who are the future manpower. The enrolment in science and technical courses at the first degree increased from 18,171 in 1995 to 49,575 in 2000 and is expected to increase to 71,897 in 2005, in line with the need for science and technology (S&T) manpower.

**TABLE 4.2: Enrolment and Output for First Degree Courses
From Local Public Educational Institutions,
1995 – 2005**

Course	Enrolment			Increase (%)		Output	
	1995	2000	2005	7MP	8MP	7MP	8MP
Arts	44,886	81,914	103,846	82.5	26.8	78,433	134,764
Arts & Humanities ¹	22,262	40,130	48,208	80.3	20.1	40,612	64,187
Economics & Business ²	20,072	37,875	50,522	88.7	33.4	34,261	65,252
Law	2552	3,909	5,116	53.2	30.9	3,560	5,325
Science	18,171	49,575	71,897	172.8	45.0	34,805	91,607
Medicine & Dentistry	3,738	6,908	8,656	84.8	25.3	4,019	7,716
Agriculture & Related	2,472	4,940	5,951	99.8	20.7	4,409	8,935
Science ³	4,032	9,081	14,739	125.2	62.3	6,502	17,408
Pure Sciences ⁴	7,929	28,646	42,541	261.3	48.5	19,875	57,548
Others ⁵							
Technical	12,652	39,305	68,784	210.7	75.0	22,765	66,007
Engineering	9,756	31,494	57,684	222.8	83.2	16,980	53,822
Architecture, Town							
Planning & Survey	1,397	4,682	7,920	235.1	69.2	3,201	8,302
Others ⁶	1,499	3,129	3,180	108.7	1.6	2,584	3,883
Total	75,709	170,794	244,527	125.6	43.2	136,003	292,378
Notes: 1 Includes Islamic Studies, language, literature, Malay culture, social science, library science and art & design 2 Includes accountancy, business management, resource economics and agri-business 3 Includes home science and human development 4 Refer to biology, chemistry, physics and mathematics 5 Includes pharmacy, applied science, environmental studies, food technology and science with education 6 Includes property management							

Source: Eighth Malaysia Plan 2001-2005.

v) Teacher Salary, Qualifications, and Work Load

Teachers' salary, qualifications, and workload have a bearing on educational quality. Basically, the level of teachers' salary can affect the entry of new teachers, the retention of current teachers and the motivation of teachers. Pre-service training requirements and qualifications for teachers also influence the quality of their teaching.

In Malaysia, a teacher's salary is relatively low. Their salaries are nevertheless four to five time less than the teacher salaries of OECD countries (TABLE 4.3). The United States, Finland, Korea and Japan's high teachers' salaries imply that these countries are making much more of an effort to invest their financial resources in teachers. There is room for raising the salaries of Malaysian teachers.

TABLE 4.3: Annual Statutory Teacher's Salaries in Public Institutions at the Primary Level of Education, Equivalent US\$ Converted Using PPP (1998)

	Starting Salary / Minimum	Salary after 15 years' experience / minimum training	Salary at top of scale / minimum training	Ratio of starting salary to GDP per capita	Ratio of salary after 15 years' experience to GDP per capita	Ratio of salary after 15 years' experience to starting salary	Years from starting to top salary
Finland	19,983	23,539	24,216	0.9	1.1	1.2	20
Japan	21,899	41,201	52,867	0.9	1.7	1.9	31
Korea	24,150	39,921	66,269	1.6	2.7	1.7	41
United States	25,165	33,973	42,185	0.8	1.1	1.4	30
Indonesia	2,768	3,992	8,321	0.8	1.1	1.4	33
Malaysia	6,550	10,876	15,554	0.8	1.3	1.7	29
Philippines	8,210	8,382	12,408	2.3	2.4	1.0	22
Thailand	6,412	15,759	42,867	1.0	2.4	2.5	37

Source: Institute of Strategic and International Studies (ISIS) Malaysia, 2001.

In all OECD countries, a tertiary qualification is required for entry to the teaching profession. But, this is not same in the case of Malaysia, where primary school teachers hold a secondary school certificate or a post secondary school certificate. These candidates go through a training period of three years after which they are awarded a teaching diploma.

In most of the OECD countries and for the pre-service training for the primary and lower secondary the concurrent model is used where pedagogical training is taken at the same time as studies relating to the

specific subject area to be taught. In comparison to the vigorous pre-service training in OECD countries, the Malaysian primary and lower secondary pre-service training still has room for improvement.

Besides that, the workload of teachers consists of teaching as well as non-teaching activities, such as preparation of lessons, administrative duties, correction of assignments and tests, and support for students. In many OECD countries, teachers work for an average of five hours per day but there is greater flexibility in term of how the hours are spent. In some countries, teachers are required to work a specific number of hours per week, at home or at school, to earn their full-time salary. In other countries, teachers are required to be at school for a specific number of hours each week, both for teaching and for non-teaching activities.

The OECD countries conduct career development activities during school hours. However, such flexible approach may not be suitable for Malaysian teachers at this point. In terms of teachers' workload, the priority should be on reducing non-teaching activities and avoiding utilising teachers' holidays and weekends for career development activities. The teachers should feel relaxed and enjoy their job function because they are responsible to create a dynamic and quality student, our future manpower. They should not be burdened with workload, which will make them lose interest in teaching.

Furthermore, the teachers should be given the subject that they are interested, qualified or mastered in. For an example, a teacher who is, with Masters of Economics qualification, is teaching Kemahiran Hidup to Form One students. Now, would she enjoy teaching? In my opinion, she will teach for the sake of teaching and will not be able to perform well because it is not her field of studies. In this situation, the related school will be losing a good economics teacher and her academic qualification has been grossly under-utilised. So, here the Ministry of Education has to play an important role to place the teachers according to their qualifications and interests. With this, the teachers can perform well in their teaching and the students can perform well in their studies.

vi) Access to ICT in Schools

As the Malaysian economy become more dependent on technological knowledge and higher-level skills, the students with little or no exposure to information technology in school may face difficulties in making a smooth transition to the modern labour market. This has made the Ministry of Education realize how important ICT education is, where they have started to move with the computerization programme of having at least one computer lab in every school and the more comprehensive Smart School Plan. Installing the hardware in schools is currently the priority and attention is also placed on the installation of courseware.

Two important points with regard to teacher's knowledge and skills in ICT as stated in the OECD Report are:

- ❑ Training teachers in the latest information technology is a continuing process rather than a single event;
- ❑ The most common means for raising teacher's knowledge in ICT is through informal contacts or through the school's computer coordinator or technical assistant.

4.3.2 *Skills Training and Retraining*

In terms of the availability of relevant skilled labour, Malaysia was ranked 33rd among 47 countries in the Swiss-based Institute of Management Development (IMD's) World Competitiveness Yearbook 2000. Malaysia ranked lower than Hong Kong (31), Taiwan (18), India (12) and Singapore (8). This is due to¹⁴:

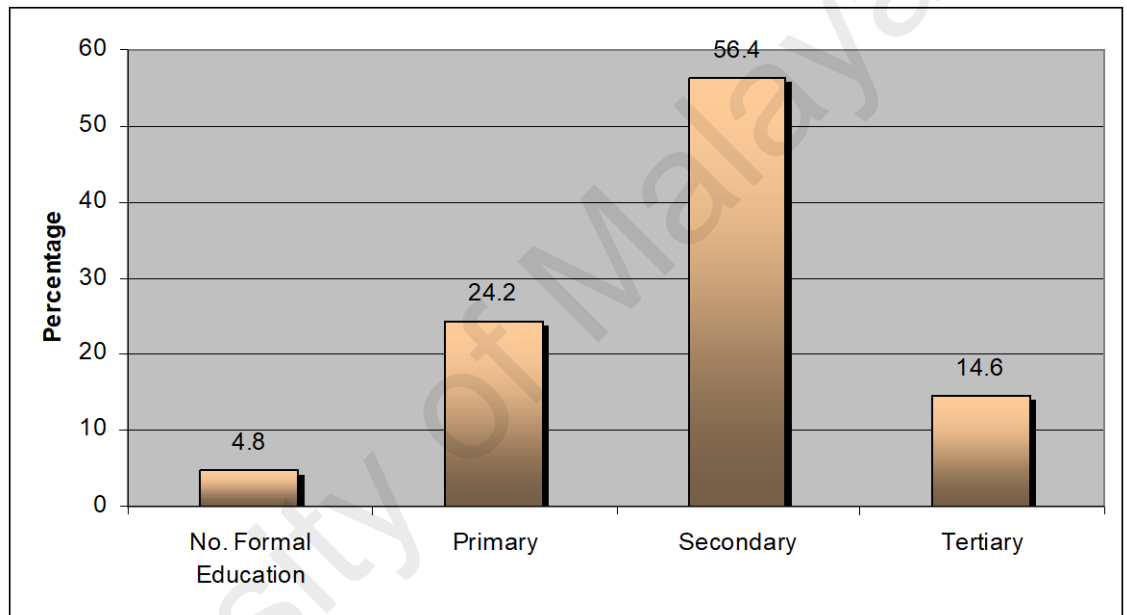
i) Lack of Education/Skills in Existing Workforce

The labour Force Survey Report 1999 indicates that almost 5 percent workers do not possess any formal education (never attended school), while almost 24 percent only attended primary school. Although 56 percent had attended secondary and 15 percent tertiary education, almost a

¹⁴ Institute of Strategic and International Studies (ISIS) Malaysia, p.53

third of the current work-force still lacks the minimum literacy, learning ability and skill required for a knowledge-based economy (DIAGRAM 4.3).

DIAGRAM 4.3: Educational Profile: Malaysian Employee (%), 1999



Source: Institute of Strategic and International Studies (ISIS) Malaysia

ii) Lack of Pre-Employment Training

Almost 60 percent of school-leavers enter the world of work without any form of post-school training. This stifles their job and occupational mobility and their wage earning capacity. They are also depriving their employers and the economy from achieving higher productivity. Most of the youth employees are school dropouts or school leavers who have not received any kind of post-school training.

iii) Low Level of Training in Private Firms

Most Malaysian firms do not provide formal training for their workers. A 1997 World Bank study noted that only 20 percent of firms in Malaysia provided formal training; the remaining did not provide any form of training. Many merely relied on co-workers and supervisors for informal on the job training. There are various factors explaining the low level of company training. Most of the companies are lack of funds and fear of losing trained staff.

iv) Lack of Knowledge Workers

The Multimedia Development Corporation (MDC)'s definition for MSC classification purposes is that knowledge workers are individuals possessing either:

- ❑ 5 or more years of professional experience in multimedia/information technology: or
- ❑ A university degree (in any discipline) or a graduate diploma (in multimedia/IT) from a technical college and 2 or more years of professional experience in multimedia/IT; or
- ❑ A masters degree or above in any discipline.

Knowledge workers and skilled workers are important for productivity, management efficiency and corporate performance.

v) Displacement of Older, Uneducated Workers

Rapid change implies that workers cannot rely on one skill or one job for life. To remain employable, they must be prepared for life-long learning, retraining and job-flexibility. About 33 percent workers are already over 40 years and almost 30 percent of the workforce has less than six years schooling. Both older and less educated workers are vulnerable towards the economy in the 21st century. In this case, firms may be forced to retrench them due to competition and technological change and consequent company relocation, mergers and job 'de-skilling'.

Therefore, special provisions should be made to retrain them to avoid job and income loss and family and community dislocation. These workers can be trained for employment if suitable and sufficient 'bridging courses' are organised to meet their special needs.

Malaysia currently has several drawbacks as regards the education and skills profile required for a knowledge-based economy. It lacks an adequate pool of knowledge workers, a sufficiently high enrolment in the sciences at tertiary level, and broad base of workers with the minimum literacy, learning ability and skills.

In addition to providing basic education for all, in a knowledge-based economy, it is essential to stress 'Lifelong Learning and Education' to help citizen cope with expanding knowledge and rapid change. According ISIS, the challenges of 'Lifelong Learning and Education' in the context of the knowledge-based economy include the following:

- ❑ Producing a highly-skilled, knowledge-rich workforce
- ❑ Reducing unemployment and deskilling the workforce
- ❑ Addressing and adjusting to the needs of an aging society

Malaysia's capability and capacity in the management of new knowledge and technologies will be determined by the quality of its human resources. Human resources development has to play a crucial role in transforming the Malaysian economy towards a knowledge-based economy. A competent and highly skilled labour force will be developed with strong ethical and moral values and commitment to excellence.

In the 21st century, Malaysia will have to be equipped with a strong base in education and training as well as possess a range of generic skills including communications and thinking abilities. With this, the nation will be able to build up knowledge manpower to support the new industries and economic activities and to develop an information-rich society.

CHAPTER 5

THE ROLE OF PRIVATE AND PUBLIC SECTOR TOWARDS EDUCATION AND TRAINING

The combined effort by public and private sectors will ensure that the education and training systems meet the demand for educated and trained manpower, thus contributing to the achievement of the development objectives of the nation.

5.1 Private Sector

The private sector will complement the Government's effort in the provision of education and training, especially tertiary education and vocational training. The private sector will be encouraged to increase their involvement in providing education at all levels to supplement and complement Government's efforts as well as to become the catalyst for developing education and training into an industry and foreign exchange earner. Basically, the expansion of private education institutions will form part of efforts to establish Malaysia as a regional centre for education.

Private institutions are encouraged to upgrade existing facilities and develop purpose-built campuses incorporating both academic and recreational facilities. To ensure that the private sector provides quality education, the regulatory functions of relevant authorities should be strengthened. The regulations

concerning private education should be reviewed regularly to protect consumers' interests and ensure the development of a progressive private education industry.

Also, incentives will be given to support private institutions that offer courses in technical and medical courses and measures, including greater flexibility in hiring foreign teaching personnel and less stringent immigration conditions, will be put in place to facilitate the expansion and establishment of new private institutions.

To complement Government efforts in the provision of primary and secondary education, the private sector was encouraged to provide places at both levels. These schools adopted the National Curriculum, which included the teaching of good values and ethics as well as the preparation for public examinations. The enrolment at the primary and secondary levels at private schools increased from 116,510 students in 1995 to 142,920 students in 2000, of which 14,110 were at the primary level (Eighth Malaysia Plan 2001-2005, 2001:109).

Beside that, the implementation of the Private Higher Educational Institutions Act 1996, six private universities, namely *Universiti Multimedia*, *Universiti Tenaga Nasional*, *Universiti Teknologi Petronas*, *Universiti Tun Abdul Razak*, *International Medical University* and *Universiti Industri Selangor* were established and the emphasis has been on technology and ICT. The Act also allowed foreign universities to establish branch campuses, namely Monash University, Australia; Curtin University of Technology, Australia; and the

University of Nottingham, United Kingdom established branch campuses that offered full degree courses. The private institutions provided a total of 32,480 places at the degree level, 116,265 at the diploma and 60,840 at certificate levels (Eighth Malaysia Plan 2001-2005, 2001:109).

Furthermore, to ensure the healthy growth of tertiary education, the Ministry of Education (MOE) through the National Accreditation Board (LAN) and the Private Education Department formulated 56 operational guidelines on the establishment of private institutions of the higher learning. These guidelines set standards on equipment, supporting facilities and teaching staff to ensure the provision of high quality education.

The Private sector will assume strategic role in developing the economy towards a knowledge-based economy. The key reason for relying more on private enterprises and the market is because the speed of changes in products and services are becoming more rapid. Due to the rapid changes it would be better and more efficient to allow private enterprises to respond to these changes rather than depending on the government to “pick winners” (Institute of Strategic and International Studies (ISIS) Malaysia, 2001:204).

5.2 Government

TABLE 5.1 below indicates the Government's priority towards education and training. In the Eighth Malaysia Plan, (2001-2005), the development allocation for education and training programme represents 20.6 percent of the total development allocation of the Plan.

TABLE 5.1: Development Allocation For education and Training, 1996-2005, (RM million)

Programme	7MP		8MP
	Allocation	Expenditure	Allocation
<i>Education</i>	<i>17,948.5</i>	<i>17,542.2</i>	<i>18,660.0</i>
Pre-school	123.6	107.5	147.4
Primary education	2,632.0	2,631.8	2,750.0
Secondary Education	5,330.1	5,317.5	4,862.6
Government & Government-aided Schools	3,860.0	3,853.7	3,262.6
MARAJunior Science Colleges	710.0	707.2	700.0
Technical & Vocational Schools	760.1	756.6	900.0
Tertiary Education	5,362.8	5,005.1	8,900.0
Teacher Education	350.0	332.5	300.0
Other Educational Support Programmes	4,150.0	4,147.8	1,700.0
<i>Training</i>	<i>2,237.3</i>	<i>2,181.9</i>	<i>4,000.0</i>
Industrial Training	1,876.0	1,827.0	3,760.0
Commercial Training	71.3	71.2	100.0
Management Training	290.0	283.7	140.0
<i>Total</i>	<i>20,185.8</i>	<i>19,724.1</i>	<i>22,660.0</i>

*MP: Malaysia Plan

Source: Eighth Malaysia Plan 2001-2005.

The development allocation for education and training has increased about 15 percent in 8MP compared to the 7MP's expenditure. This reflects an attempt to redress the shortage of skilled and semi-skilled manpower in the near future and the central role has accorded to human resource development in the shift towards productivity-led growth.

The government has to play an important role to upgrade the standard of the public training institutions to produce graduates with better labour market performance. Public training institutions should also be flexible in adapting to changing market conditions, be able to build up close links with the private sector, and should recruit qualified instructor in future.

However, the public sector cannot be expected to bear all the burden of education and training. In line with this, government has taken a step by expecting the private sector to play a more active role, particularly in the expansion of higher education and training.

The public sector cannot be expected to bear all the burden of tertiary education. The public sector's budget is likely to grow anywhere near enough to generate the present and future needs of the economy for high-level manpower. It is therefore left to the private sectors, including households to cater to the needs of the students in future.

According to Dr. Lee Kiong Hock, although there is a clear scope for greater private sector participation in education and training, there is also need to monitor the external efficiency of public institutions. The public should be better informed about the private institutions to enable them to make the right choice based on information provided.¹⁵

5.3 Human Resource Development

The government has instituted various measures to improve the type and quality of labour that is necessary for an oncoming knowledge-based economy. One of the efforts is the Human Resource Development Fund (HRDF), which is established in 1993. HRDF is designed to encourage workers already in employment to benefit from training and skills development. In the Eighth Malaysia Plan, a total of 2.6 million training places were approved under seven training schemes, namely the Training Grant Scheme (SBL), approved Training Programme Scheme (PROLUS), Annual Training Plan Scheme (PLT), Agreement with Training Providers Scheme (PERLA), Apprenticeship Scheme, Training Grant Scheme for Small- and Medium-scale Enterprises Scheme (SBL-PKS) and Training Scheme for Retrenched Workers (SLPD).

Human Resource Development Council (HRDC) introduced an apprenticeship-training scheme in 1996 as part of the measures to increase the supply of skilled

¹⁵ Dr. Lee Kiong Hock, The Government's Effort in Education and Training, Faculty of Economics and Administration, University Malaya, <http://www.jobstreet.com.my/employers>

and trained manpower. This employment-training scheme was an effective training approach as it involved the collaboration between employers, HRDC and training providers. By 2000, a total of 3,202 apprentices were trained with financial assistance from HRDC that amounted to RM15.9 million or 45.5 percent of the total allocation for this scheme.¹⁶ Basically, this training was provided at the workplace and at the training institutions to meet the requirements for workers with a good combination of hands-on skills and theoretical knowledge.

As said by our Prime Minister, Datuk Seri Abdullah Ahmad Badawi, “*the Government and the private sector must discover hidden talents amongst Malaysian professionals to harness their creativity, skills and experience.*”¹⁷ This effort is very much needed in the 21st century to increase more skilled, trained and knowledge manpower.

¹⁶ The Eighth Malaysia Plan (2001-2005), p.110

¹⁷ Pak Lah: We Need Education Revolution, The Star, January 14, 2004.

CHAPTER 6

RECOMMENDATIONS AND CONCLUSION

6.1 Overview

Human resources development has to play a crucial role in transforming the Malaysian economy towards a knowledge-based economy. It is considered to be the single most important factor and has the greatest contribution to the transition. In this chapter, we will see the measures that should be considered to improve education and training in the 21st century.

Before that, I would like to present some opinions given by post-graduates, teachers, private tutors and executives during the interview session with them. I have compiled and summarised their opinions as below:

Question 1: Why does Malaysia still depend on foreign workers?

- ❑ For low skilled labour, there is demand during periods of high economic growth (e.g. construction sector) for cheap labour. Also there is demand for cheap labour for household work, building cleaning services and gardening. Local labour is more expensive, with locals looking for jobs in factories and semi-skilled work. We depend on foreign workers to reduce cost, make us more competitive.

- ❑ For high skilled labour, such as engineering, research, consultancy and other knowledge intensive work, Malaysia still has a shortage of people. We depend on foreign workers to provide value-added services and transfer knowledge to local workers.

Question 2: Do business enterprises or organisations in Malaysia require well trained workers equipped with sufficient knowledge and skills before employing them or will these organisations embark in providing in-house training to those workers?

- ❑ According to the post-graduates, they find that companies are not willing to take fresh graduates or workers without experiences. They feel that the organisations should give them an opportunity to develop themselves and show their capabilities. So, the organisations should provide in-house training instead of demanding for workers with experience, which the fresh graduates don't have.
- ❑ According to executives they find that business organisations require well-trained workers. Not all organisations can afford to provide in-house training to their workers, but those that have resources will definitely invest in such training. Training is essential to ensure that the workers always upgrade their skills and acquire new knowledge to improve processes and performance.

Question 3: Is tertiary education per se sufficient to produce skilled and knowledgeable manpower in Malaysia?

No, for two reasons:

- Tertiary education focuses more on theory, and graduates still need to acquire practical experience in order to become knowledgeable and skilled.
- Knowledge has a finite lifespan, and needs to be continuously replenished, i.e. we need to learn new methods and new ideas all the time. So, training and learning must go on as a permanent part of working life.

Question 4: In order to produce skilled and knowledgeable manpower, should we embark in creating an appropriate system to train our students from primary school or tertiary education, or alternatively is training per se sufficient?

- Primary and tertiary education provides the building blocks to enable learning. They are the means to an end, and not the end itself. Training is part of continuous learning to improve our skills and adopt better methods for achieving results. We need to distinguish between academic education and vocational education as well. Academic education focuses on theories, whereas vocational educational focuses on practical issues. The knowledge economy at its current state requires more people who understand theory, and can develop new knowledge. It is also important to distinguish between workers and self-

employed entrepreneurs. Employers prefer a well-educated worker. Entrepreneurs are more interested in achieving results than in studying theories.

Question 5: Nowadays students are often quoted as saying that some teachers are not competent or are unable to teach the students satisfactorily. Is it due to insufficiency of the training methods provided to those teachers or are there any other reasons for this phenomenon?

According to the teachers, training methods are sufficient to produce a good teacher but there are some other reasons:

- ❑ Although there are some dedicated teachers, most of them choose teaching profession as a substitute from not getting a better job.
- ❑ Teachers are not given the subject that they are interested or qualified. Due to this, the teacher loose interest and cannot perform according to the student's expectation.
- ❑ A teacher's job is only to teach and not to handle schools administrative duties or co-curriculum activities. For example, clipping the test papers is not a teacher's job, it's suppose to be administration job. The workload consisting of teaching as well as non-teaching activities make the teachers feel burdened.

Question 6: In your opinion, could the current teachers' salary scale be a contributing factor to the inadequacy in the performance of the teachers?

- ❑ According to the post-graduates, the salary scale is adequate. But there should be some level of increment/bonus to create incentives for teachers to perform better.
- ❑ According to a private tutor, the salary scale is inadequate. In 1970's, teachers' salary would be one of the highest among the other professions but now a contract worker without skill and knowledge can earn more than a teacher.

Question 7: The 8th Malaysia Plan and the OPP3 has laid down criteria to enhance the education system towards achieving knowledge-based economy. In your opinion, can we achieve our nation's aspiration to develop a knowledge-based economy through the current education system?

- ❑ It depends on how well the enforcement of policies is done. It might take a longer period than we expect but to realise it, there should be a synergy between the public and private education system to enhance the quality of the system, overall.
- ❑ Moving towards knowledge-based economy is not enough, "education revolution" and implementation of the plan is very important to achieve nation's vision.

Question 8: How can the private education system play a role in producing knowledgeable and skilled manpower?

Private education system should not be profit-orientated. Instead, they should cooperate with the public education system. To strengthen the country's ability to integrate into global economy, there should be a cohesive approach, involving the stakeholders in the new economy. Partnership, thus, should be forged among the Government and private sector to achieve the shared vision of prosperity and development. Successful partnership in human resource development enables efficient resource sharing, shared learning and adoption of best practices.

6.2 Measures

According to Institute of Strategic and International Studies (ISIS) Malaysia, there are many measures that could be implemented to improve the education and training activities to build up a knowledgeable manpower in the 21st century. Although, they have stated many recommendations, I have chosen some crucial recommendations, which would prove effective if implemented immediately.

6.2.1 Education

Recommendation 1: Upgrade entrance qualifications for teaching positions.

Teacher's qualifications should be upgraded where diploma-holders should be teaching pre-schools and Level 1 (Year 1-3) primary schools and degree-holders should be teaching secondary schools and Level 2 (Year 4-6) primary schools.

Recommendation 2: Review and restructure the salary scales for teachers.

There is an urgent need to revise teacher salary scales upwards to attract and retain better quality teachers. Providing incentives or bonus based on their performance would also keep the teachers interested in their job.

Recommendation 3: Restructure the teacher promotion exercise from one, which is largely based on seniority to one, according to performance level.

This will improve morale among young teachers, in addition to encourage greater meritocracy in promotion. Besides that, a separate performance appraisal system specifically tailored to measure teacher performance based on specific

quantifiable and qualitative criteria is also viable. This measure will assist in identifying talent, specific weakness and training needs, and creating new career paths, especially for younger teachers.

Recommendation 4: Incentives training for the teachers to enjoy the teaching profession.

Teachers should enjoy and be dedicated to their job. They should be given the subject that they are interested and qualified in. This will naturally motivate the teachers to perform well in their teaching. Teachers play a very important role in producing knowledgeable generation.

Recommendations 5: Increase a satisfactory number of administrative staff in every school.

Teachers are often imposed duties that go well beyond their training and responsibilities as teachers. The duties include administrative tasks and teaching subjects outside their specialisation. They should not be burdened with non-academic activities. The wise solution is to increase administrative staff to handle the non-academic activities.

Recommendation 6: Review teachers training programme to ensure that teachers will be able to teach with the aid of ICT.

Quality in the delivery of education is largely attained through adequate training. In the light of the advent of ICT in enhancing the teaching and learning process, ICT as part of the training programme has to be developed further.

Recommendation 7: Adopt standard pre-school curriculum.

At pre-school level the key policy has to be to institutionalise the curriculum through adoption of a standard national school curriculum.

Recommendation 8: Integrate ICT in the teaching and learning processes in primary schools.

The secondary school curriculum has been reviewed to integrate ICT in the learning processes. However, the primary curriculum has not undergone a similar review. A review of the primary school curriculum should be conducted immediately with purpose of integrating ICT, especially in the core subjects.

Recommendation 9: Provide allocations for schools to maintain ICT centres.

Currently, there are no allocations for maintenance of ICT centres in schools. Schools are maintaining the centres utilising funds mainly from the Parents Teacher Associations. There is an urgent need for the Treasury to increase the Per Capita Grant (PCG) to schools to help them maintain ICT centres.

Recommendation 10: Reduce drop-out rate and improve quality of secondary level education.

There is a need for more infrastructure and schools at secondary level to reduce drop-out rate, improve student welfare, instill creative and critical thinking, create greater interest in science and technology, increase the number of science-based graduates, establish more technical and vocational schools, install ICT facilities, build more science laboratories and improve language skills.

Recommendation 11: Improve participation rates and research quality at tertiary levels.

The strategy at tertiary level is to increase the participation from 25 percent in the 17-23 age group in 2000 to 30 percent in 2005 and 40 percent in 2010. More incentives and encouragement has to be given to the private sector to achieve this,

since it will contribute to making Malaysia a center for educational excellence. Besides, there is also a need to increase research development in higher learning institutions, transform existing universities into research universities, improve facilities, and strengthen university-industry links.

Recommendation 12: Promote and encourage science and technology education.

To produce a skilled and knowledgeable manpower, science and technology-based education is very important. More science and technology-oriented private institutions should be established and the same priority should be applied to applications for foreign collaborative programmes.

Recommendation 13: Increase the number of community colleges.

If the existing pilot projects in 10 states are considered successful, then serious consideration should be given to increase the number of community colleges in the country, as they are crucial in satisfying the demand for vocational education in a knowledge-based economy.

Basically, there are many factors needed to improve the quality of education in the 21st century in order to achieve knowledge-based economy. After compiling the information from Institute of Strategic and Institutional Studies (ISIS)

Malaysia, Eighth Malaysia Plan and The Third Outline Perspective Plan, I have outline the criteria which are important and necessary to improve the quality of education in a form of mind map (Appendix 1).

6.2.2 Training and Retraining

Recommendations 14: Introduce compulsory pedagogical skills training for all academicians to enhance their teaching capabilities.

Training and retraining refers to training done after formal education either on the job, off-the job or in-between jobs. It can be offered by the employer or training agencies, by professional groups or organised by the employee himself. Training and retraining is a key component of the knowledge-based economy since it is essential for upgrading managers' and workers' skills to cope with rapidly changing technology and markets.

Training and retraining can only contribute to high productivity if it is accompanied by relevant organisational changes, which create incentives for workers to absorb more knowledge and work harder and smarter. Without relevant info-structure and infrastructure such as modern performance appraisal systems and performance and productivity-linked compensation which are seen to accurately appraise and pay for performance, training and retraining will be a wasteful, leading to under-utilisation of trained talent, employee frustration and

high turnover, including migration to competing markets. Therefore, the steps proposed include training managers to create organisational infrastructure and info-structure that foster and support a culture of training and retraining.

Recommendation 15: Increase capacity and teaching quality at all training institutes.

The Ministry of Human Resources should continue to increase the capacity of its Industrial Training Institutes (ITIs) and Advanced Technology Centre (ADTEC). The Ministry has also constructed five new ITIs and four ADTECs as well as the Japan-Malaysia Technical Institute (JMTI). Besides setting up new institutes, the existing ten ITIs are also being upgraded. After the completion of these projects in 2001, the combined capacity of training institutes under the Ministry has increased from 4,000 trainees to 17,000 trainees.

Under the Eighth Malaysia Plan, the Ministry is planning to further increase training capacity to 46,800 trainees with the construction of an additional 18 new training institutes. Those with basic skills will be afforded the avenue to upgrade their qualifications and hands-on skills. The Ministry has also established the Skill Development Fund (SDF) to provide financial assistance to school leavers and those already at work to acquire new skills.

Recommendation 16: Promote ICT training for working adults and non-specialists.

There is an urgent need to promote ICT literacy among working adults, especially those above 40, to ensure that the ‘generation gap’ is not translated into a ‘knowledge gap’ with consequent employment and income inequities and barriers to connectivity and communication.

Basically, departments and statutory bodies should be required to create and conduct more courses – in class-rooms and via distance learning – to educate, train and re-train public sector employees both on the concept of the knowledge economy and on practical use of ICT. The Public Services Department (PSD) should take the lead for the public sector while in the private sector, the Malaysian Institute of Management (MIM) and the Federation of Malaysian Manufacturers (FMM) should provide leadership in training private sector leaders, managers and employees.

Recommendation 17: Change public and private sector organisations into ‘learning organisations’.

Public and private sectors should play an important role in order to move towards knowledge-based economy. Their structure, systems, processes and people must change and they must strive to become ‘learning organisations’. The change

toward 'learning organisations' will demand work redesigning, multi-tasking, multi-skills and new appraisal and incentive systems to identify, cultivate and reward initiative ness and creativity.

Recommendation 18: Upgrade labour market information access and availability via an Electronic Labour Exchange (ELX).

Information has always been the lubrication for the efficient functioning of the labour market. Therefore, the Ministry is seeking to leverage ICT by setting up an Electronic Labour Exchange (ELX), which can upgrade job-matching services to employers and job seekers. Besides, this project can also improve the availability and the quality of labour market information. Up-to-date labour market will assist people in making better decisions about their careers, including training needs. The ELX will also enhance the mobilisation of the nation's human resources in response to changing market needs.

Recommendation 19: Further develop standards and relevance of certification system.

The National Vocational Training Council or Majlis Latihan Vokasional Kebangsaan (MLVK) currently administers the Malaysian Skill Certificate (SKM) Scheme. About 95,095 certificates have been awarded under this competency-based scheme. The Ministry is working to further develop this

scheme, in particular towards establishing competency standards for higher-level skills as well as new trades that are emerging following advancements in technology.

The MLVK has currently developed 453 National Occupational Skills Standards (NOSS) covering 36 major occupations in industry, including those involving new and advanced technologies. The NOSS forms the core of training curriculum of public and private skill training institutions. The NOSS encourages a career path for skilled workers to be established and this recognition of higher achievement inspires individuals to pursue learning endlessly. The enhanced knowledge gained can boost the individuals' self-esteem that will lead to self-actualisation.

Recommendation 20: Employability should be the new focus in industrial relations.

In the area of industrial relations, there is a need for a corresponding mindset change among the protagonists. If hitherto the emphasis of workers and their unions have been on terms and conditions of employment, for the future Ministry will instead encourage a focus on employability. Employability security is derived through the accumulation of skills and knowledge that can be applied as new job opportunities arise. Employers will also benefit from this formula as the provision of upskilling opportunities help to engender workforce loyalty apart

from improving productivity. Therefore, skill upgrading should take its rightful place on the employer-employee bargaining table.

Malaysia is at defining moment and turning point in its history and national development efforts. To ensure that the blueprint for the knowledge-based economy is holistic and strategic, a fundamental prerequisite must be a Vision of Malaysia as a country with knowledge, which has a system of Lifelong Learning and Education, as it is a main engine for sustained national development. National System of Lifelong Learning and Education must be advocated immediately as one of the major strategic thrusts for sustained national development and national resilience.

The radial shift in orientations and values towards lifelong learning will take time. However, it should begin in school, or even earlier. The school curriculum and its method of delivery should be designed to stimulate lifelong learning and develop skills of learning to learn. This is to secure a commitment to learning throughout life from individuals. Hence, there should be a review of the approach to teaching and learning in schools and universities, including polytechnics and training institutes.

Recommendation 21: Formulate and adopt a National Policy on Lifelong Learning and Education within the context of Vision 2020 and the knowledge-based economy.

A comprehensive Strategy for the promotion of learning should be adopted. A body comprising the Ministries of Education, Human Resources, Health, Trade and Industry, and other agencies should shape, coordinate and develop policy for the promotion of Lifelong Learning, with the Ministry of Education in the chair. A Policy Paper, which provides an overall vision of the concept of Lifelong Learning as an integrated way forward in the knowledge-based economy, would be useful. A formal official public Statement of Commitment to Lifelong Learning in the National Plan should be considered. A National Policy of Lifelong Learning and Education will harness all the talents of Malaysian.

Recommendation 22: Develop local, national and international Lifelong Learning strategic partnerships.

Strategic Partnerships can be forged with the Organisation for the Economic Cooperation and Development (OECD) countries, the International Council of Adult Education (ICAE) and the Commonwealth of Learning to acquire understanding and models of best practises, policy initiatives and mature knowledge in the field of lifelong learning. Malaysian lifelong education organisation should be encouraged to establish networks with international

lifelong learning organisations and also to play significant leadership roles internationally.

Recommendation 23: Foster the development of scientific and technological literacy through Lifelong Learning and Education.

There is a critical and urgent need to develop scientific and technological understanding and thought among Malaysians. All Malaysian citizens should have the opportunities to acquire, develop and master scientific and technological thinking throughout their lifespan. All government ministries, public agencies, the private sector should jointly be responsible for the fostering of scientific thought but the Ministry of Science, Technology and Environment and Ministry of Energy, Communication and Multimedia are to be lead agencies.

Recommendation 24: Encourage learning at work.

Learning at work comprises a major component of lifelong learning. This learning culture can underpin adaptability, creativity, flexibility and responsiveness. As a result, it can contribute to competitiveness, profitability and business success. Mutual commitment of employers and employees to workplace learning should increasingly become a crucial element in employment contracts. Trade unions need to increasingly bargain for members' lifelong employability

and also provide it themselves as part of the package of membership services and benefits they offer.

Recommendation 25: Develop Malaysia as a centre of excellence in education and training.

Malaysia has articulated its agenda to become a centre of excellence in education in the region and globally. Toward this end Malaysian institutions of higher education have begun to market their educational programmes internationally. One of the fields in which Malaysia can set its objective of being a leader is the field of lifelong learning. The strong religious and indigenous traditions as well as the advances in the technological and digital infrastructure would place Malaysia favourably in this field.

6.3 Conclusion

We need to have world-class knowledge workers if we want to move up the ladder of competitiveness and produce higher value-added goods. This can be possible if we are moving towards knowledge-based economy. A knowledge-based economy requires a workforce with a high level of skill and educational attainment as well as the right motivation and attitude, innovation and entrepreneurial skill to leverage on the vast opportunities arising from globalisation and rapid technological advancement. Malaysia would be able to improve its Human Resource capabilities for future technological development, productivity in manufacturing sectors and others by reforming the

education and training system. Therefore, stating the plans and recommendations is not good enough, implement them and then we can see the tremendous changes towards our country. The effect from changes has been given in the Third Outline Perspective Plan 2001-2010, especially in occupational structure and employment structure.

TABLE 6.1, shows the process of development to a knowledge-based economy will spawn new areas of economic activities entailing a change in the pattern of demand of manpower.

TABLE 6.1: Occupational Structure, 2000 – 2010
(‘000 persons)

Occupational Group	2000	Percentage	2010	Percentage	Net Increase 2001-2010		Average Annual Growth Rate
					‘000	Percentage	2001-2010
Professional & Tech. Workers	1,019.9	11.0	1,790.8	14.2	770.9	23.1	5.8
Administrative & Managerial Workers	389.4	4.2	693.6	5.5	304.2	9.1	5.9
Clerical & Related Workers	1,029.1	11.1	1,412.5	11.2	383.4	11.5	3.2
Sales Workers	1,019.7	11.0	1,526.0	12.1	506.3	15.2	4.1
Services Workers	1,094.0	11.8	1,589.0	12.6	495.0	14.8	3.8
Agricultural, Animal Husbandry & Forestry Workers, Fisherman & Hunters	1,678.1	18.1	2,055.6	16.3	377.5	11.3	2.1
Production & Related Workers	3,041.0	32.8	3,543.8	28.1	502.8	15.0	1.5
Total	9,271.2	100.0	12,611.3	100.0	3,340.1	100.0	3.1

Source: Third Outline Perspective Plan 2001-2010.

TABLE 6.1, indicates that within the next 10 years, there will be changes in all the occupational group and the highest is in the professional and technical workers where the

net increase from 2000 to 2010 is 23.1 percent. This can be only achieved with a proper education and training system.

Additional to the above statement, TABLE 6.2 shows the increase in the employment by selected occupation.

**TABLE 6.2: Employment by Selected Occupation. 2001-2010
('000 persons)**

Occupation	Stock - 2000	Employment - 2010	Net Increase
Engineers	64,376	201,615	137,239
Engineering Assistants	139,066	470,810	331,744
Medical & Health Professionals	21,270	45,878	24,608
Allied Health Professionals	45,052	147,405	102,353
School Teachers	298,083	369,756	71,673

Source: Third Outline Perspective Plan 2001-2010.

TABLE 6.2, shows a tremendous increase in engineers and engineering assistants. This is due to the Malaysia's destination towards knowledge-based economy. The increasing sophistication of production processes due to technological advances will generate demand for 137,200 engineers and 331,700 engineering assistants trained in chemical, mechanical, and electrical and electronics fields as well as ICT.

Malaysia would be able to improve its Human Resource capabilities for future technological development, productivity in manufacturing sectors and shortage of skilled and knowledgeable manpower by reforming and implementing the education and training system. Lifelong Learning will provide a strong foundation for the creation of a knowledge-seeking society that will ensure Malaysia's competitiveness as well as realise the vision of becoming a developed nation by 2020.

According to Ahmad Mahdzan, young men are the "hope of the nation", and young women are the "nations pillars". Since youths are the "future assets of the nation", they are expected to 'yield' a stream of future returns-the more developed the assets the greater will be the returns to the nations. *Educating youths is "investing" in them because they are the future generation to develop the country.*¹⁸

¹⁸ Ahmad Mahdzan, Higher Education and Socioeconomic Development in Malaysia: A Human Resource Development Perspective, <http://mahdzan.com/papers/hkpaper99/default.asp>

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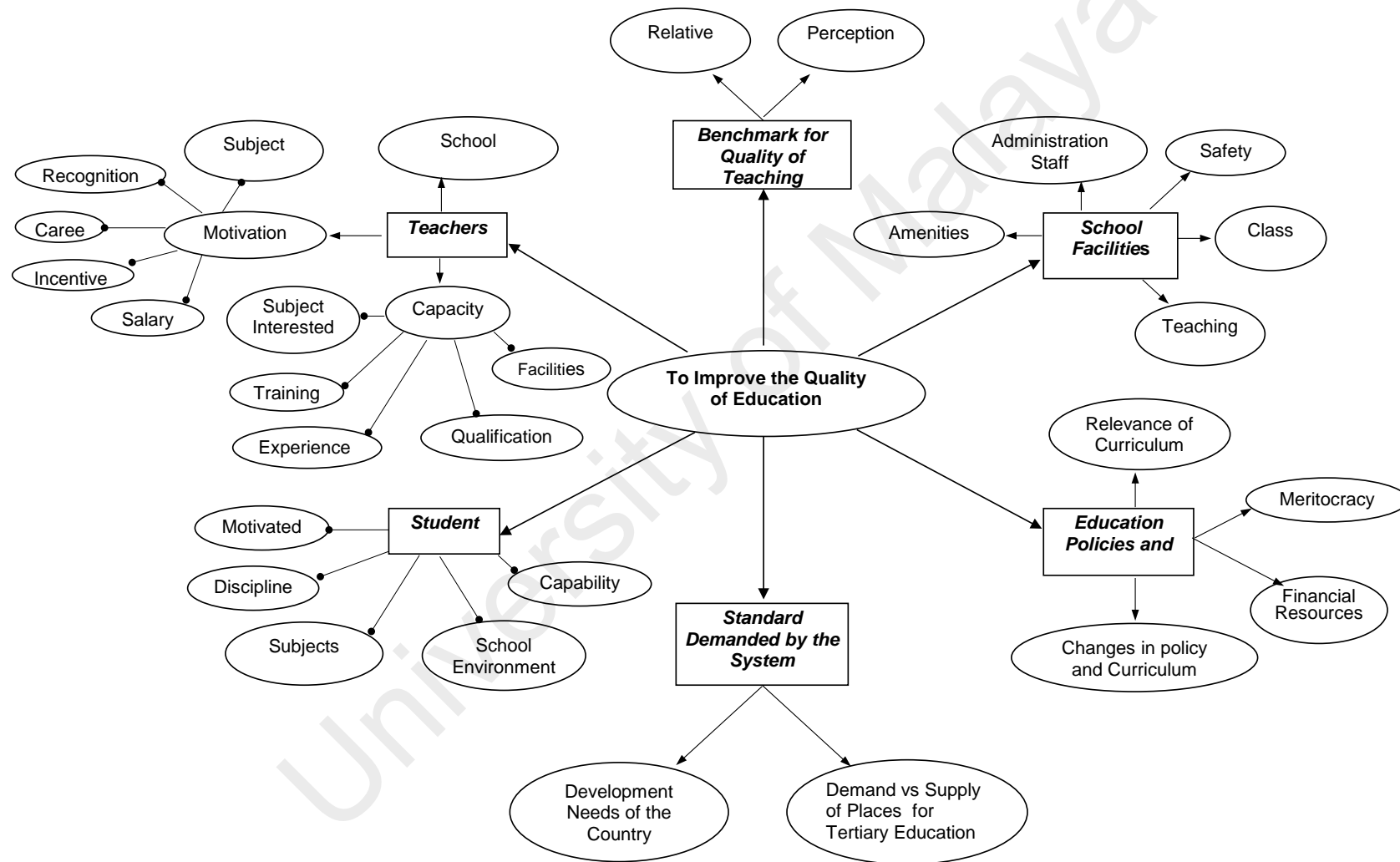
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Source: Compilation of information from Institute of Strategic and International Studies (ISIS) Malaysia, Eighth Malaysia Plan 2001-2005 and The Third Outline Perspective Plan 2001-2010.