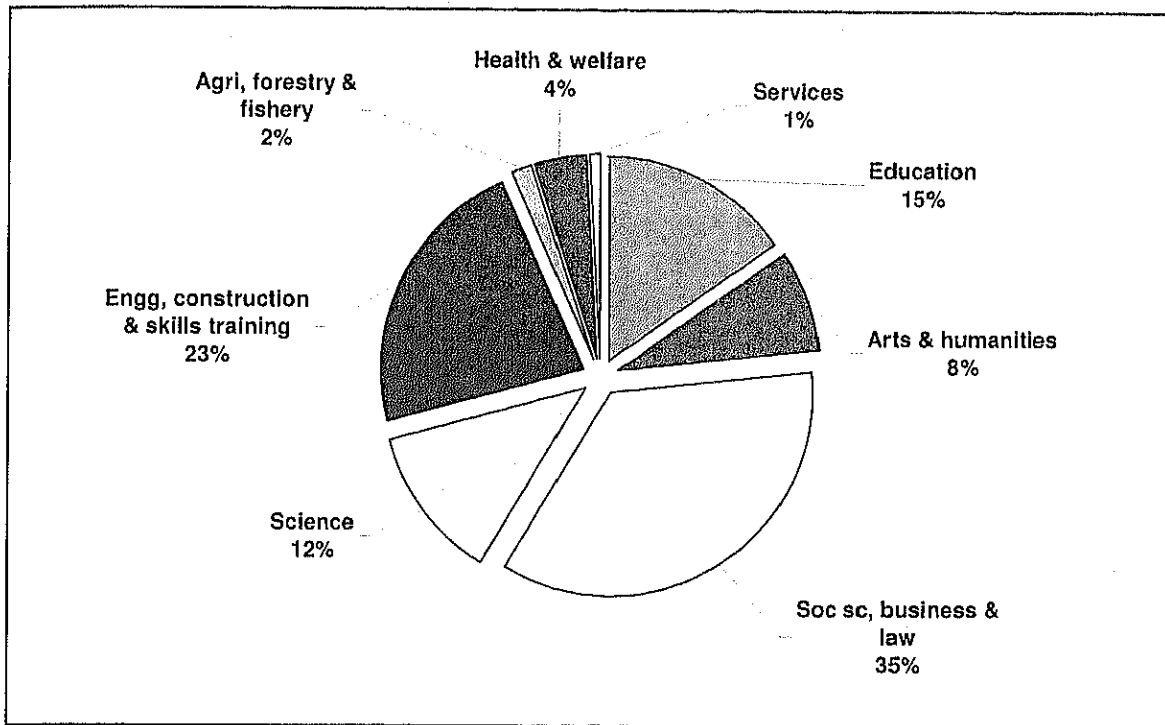**Figure 3.2:   Main Fields of Tertiary Qualifications**

The gender gap in post-secondary education has however been narrowing as shown in **Figure 3.3.** In fact for the 20-24 years age cohort, the percentage of female with post secondary qualifications have exceeded that of the male population.

Figure 3.3:   Persons Aged 16-64 Years, Percentage with Post Secondary Qualifications by Age Cohort and Sex, 2000
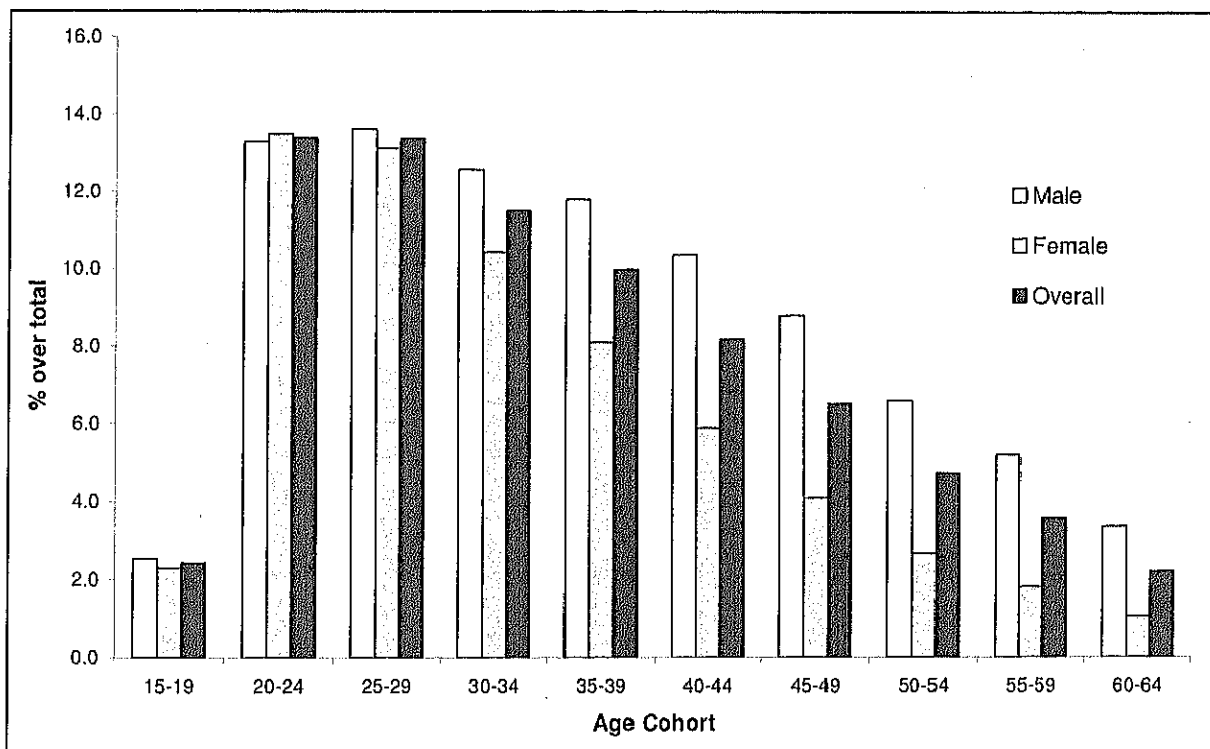
Source: Department of Statistics, Census 2000.

Distribution of tertiary education by public and private institutions shows that in 1997, almost two-thirds of tertiary enrolments were in public institutions. However, enrolments in the private institutions have been steadily increasing from 143,800 in 1997 to 209,600 in 2000 as shown in **Table 3.7**. In fact, by 2000, the enrolments in private colleges are almost double that of public sector colleges, although enrolments in public higher education institutions have more than doubled that of 1997.

Table 3.7: **Tertiary Enrolment Distribution by Public and Private Institutes**

	1997		2000	
	Number	%	Number	%
Public Institutions	273,538	65.5%	363,863	63.5%
Post Secondary	62,357	14.9%	67,830	11.8%
College	111,140	26.6%	84,535	14.7%
Higher Education	100,041	24.0%	211,498	36.9%
Private Institutions	143,803	34.5%	209,589	36.5%
Post Secondary	17,200	4.1%	17,232	3.0%
College	104,975	25.2%	159,875	27.9%
Higher Education	21,628	5.2%	32,482	5.7%

Source: Malaysian Education Statistics, Ministry of Education

While the efforts of the Government to enhance primary and secondary attainment have paid off, Malaysia's tertiary education rates are still substantially lower than norm for its income level. With only 8.6% of its adult population with tertiary education, it lags behind even Thailand (10.3%) and Chile (9.5%) and is far behind the OECD mean as shown in the table below.

Table 3.8: **Educational Attainment of Adult Population, 2000**

Level of Education	Malaysia*	Thailand*	Chile*	WEI Mean	OECD Mean
Completed Primary	42.2	73.8	29.6	57.6	15.0
Lower Secondary Education	21.0	9.4	25.9	14.8	19.0
Upper Secondary Education	28.3	6.6	34.9	21.7	41.0
Tertiary	8.6	10.3	9.5	9.9	26.0

Source: Table 12.2, Quick Facts 2003 - Malaysia Educational Statistics

* Include no schooling

WEI = World Education Indicators

3.3   Budgetting for Education and Training

Under the Mid-term Review of the Eighth Malaysia Plan (8MP), the budget for education and training accounts for more than 25% of the total national budget (RM160 billion). This demonstrates the importance the government has placed on human resource development. In contrast, under the Third Malaysia Plan (1976 – 1980), education and training budget only accounted for 9% of the total national budget.

With the introduction of the Second Industrial Master Plan, National IT Agenda, Multimedia Super Corridor and the K-Economy Masterplan under the Seventh and Eighth Malaysia Plans, there has been an obvious bias towards tertiary education, which on average receives more than 30% of the total education and training budget. However, the allocation for vocational and technical training received a significant boost under the 8MP period as shown in **Table 3.9**. The revised budget allocation of RM9.5 billion accounts for almost 24% of the total education and training budget.

Table 3.9:   Budget Allocation for Education and Training (RM million)

	6MP		7MP		8MP	
	Budget Allocation	Expenditure	Budget Allocation	Expenditure	Original Budget Allocation	Revised Budget Allocation (MTR)
Education (Total)	7,409.8	6,982.1	17,948.5	17,542.2	18,660.0	34,977.9
of which: Technical and Vocational Colleges	419.0	404.9	760.1	756.6	4,000.3	5,187.2
as a % of Education (Total)	5.7%	5.8%	4.2%	4.3%	21.4%	14.8%
Training (Total)	615.4	581.0	2,237.3	2,181.9	4,000.3	5,187.2
of which: Industrial Training	387.4	370.0	1,876.0	1,827.0	3,760.0	4,357.3
as a % of Training (Total)	63.0%	63.7%	83.9%	83.7%	94.0%	84.0%
Total Education and Training Budgets	8,025.2	7,561.1	20,185.8	19,724.1	22,660.0	40,165.1
of which: Technical & Vocational Colleges and Industrial Training	806.4	774.9	2,636.1	2,583.6	7,760.3	9,544.5
As a % of Total Education & Training Budgets	10.0%	10.2%	13.1%	13.1%	34.2%	23.8%

Source: 6MP (6th Malaysia Plan), 7MP (7th Malaysia Plan), 8MP (8th Malaysia Plan) and MTR8MP (Mid-term Review of 8th Malaysia Plan).

4. Malaysian Policies on HRD for the Industrial Sector

4.1 Introduction

The Outline Perspective Plans (OPP) and the national policies guide development planning in Malaysia. The Malaysia Plans and the annual budgets operationalise the OPPs/national policies. Malaysia is currently within its Third Outline Perspective Plan (OPP3) that covers the period 2001 to 2010. The OPP1 was from 1970 to 1990; the second covered the period 1991 to 2000. Each of the OPPs is based on a specific policy: the OPP1 is based on the New Economic Policy, OPP2 on the National Development Policy while OPP3 is based on the National Vision Policy.

Long Term Plans	Outline Perspective Plan/ National and Sectoral Policies
Medium Term Plans	Malaysia Plans & Mid-Term Reviews
Short Term/Operational Plans	Annual Budgets

For this chapter, the Consultants reviewed the key government documents, namely the various Malaysia Plans and the Outline Perspective Plans and discussed the Malaysian policies on human resource for the industrial sector.

4.2 Historical Context of VTE and Skills Training

In the various Malaysia Plans and Mid-term Reviews, policies and programmes for Vocational and Technical Education (VTE) or skills training, are categorised under the heading of Education and Training and Human Resource Development. VTE is also an important strategy for Bumiputera, Women, Youth and Rural Development. Over time, the focus of VTE has evolved to keep abreast with the national policies, objectives and strategies. In addition to keeping abreast with the national policies, programmes and strategies, the development of VTE in Malaysia also evolved to keep pace with the industrial policies. These are discussed below and summarised in **Table 4.1**.

- Under the OPP1[15] and the New Economic Policy, the overriding objective was National Unity through eradicating poverty and restructuring society. In this context, human resource development, through education, was seen as a key enabler of achieving the two strategies. Vocational and technical education and training was a requisite also to meet the demands of the manufacturing sector and to increase labour productivity[16] and co-operation between the public and private sector was encouraged.

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[15] Socio-economic Development Planning in Malaysia, Yap Siew Hong, Economic Planning Unit, Prime Minister's Department, paper presented at the Asian Planning Agency Summit, Sept 16, Thailand. Available at: http://www.nesdb.go.th/news/conference/attachment/11-Malaysia.pdf
[16] Review of the First Outline Perspective Plan, 1971 – 1990, in OPP2 http://www.epu.jpm.my/New%20Folder/2nd%20outline(chap%202-iii).htm

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Table 4.1: Chronology of Development Planning and Industrial Policies and their Implications on VET

Perspective Plans	National Policy	Objectives and Strategies	Industrial Policies & Related Legislations & Regulations	Implications on VET
Outline Perspective Plan 1 (OPP1) – (1970 – 1990)	New Economic Policy (NEP)	National Unity & Growth with Equity Eradication of poverty Restructuring society	Labour Unitisation Relief (1971) Free Trade Zone Act 1971 Locational Incentives 1974 Look East Policy (1981) IMP1 (1986 – 1995) The S&T Policy[17] (1986) Promotions of Investment Act, 1986 ITDAP (1990) Free Zone Act (1990)	Education – enabler Promotion of VTE
Outline Perspective Plan 2 (OPP2) – (1991 – 2000)	National Development Policy (NDP)	National Unity (NEP objectives retained) Balanced Development Promotion of HRD to face global challenges	IMP2 (1996 – 2005) NITA - 1996 MSC – 1996 Skills Upgrading Programme for SMIs (1997)	Private sector encouraged to provide VTE
Outline Perspective Plan 3 (OPP3) – (2001 – 2010)	National Vision Policy (NVP)	National Unity & Balanced Growth Preparing Malaysia for the K-Economy	K–Economy Masterplan (2002) S&T2 (2003)	Upgrading of skills Dual Training Approach through Apprentice Schemes
Vision 2020 (1991 – 2020)	NDP & NVP	Achieve developed nation status	IMP3 (under preparation)	Promotion of scientific and progressive society

Notes: IMP1 – First Industrial Master Plan, IMP2 – Second Industrial Master Plan, IMP3 – Third Industrial Master Plan, S&T - Science and Technology, NITA – National Information Technology Agenda, ITDAP – Industrial Technology Development Action Plan, S&T2 – Second National Science & Technology Policy.

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[17]Speech of the Minister of Science, Technology and Environment , Malaysia, 2003
http://www.fnca.jp/english/mini/report/e_mal.pdf

- During the <u>OPP2 and the National Development Policy</u>, the overriding objective of the NEP and its strategies continued but the major thrust was on balanced development. The promotion of HRD was given prominence as the country sought to upgrade its technological capacity and capability. Faced with increased competition through greater internationalisation of the world economy, the government committed itself to further upgrade and improve the level of education and training to meet the changing skills requirements. The HRD focused on achieving competitiveness, innovativeness and capability of managing new technologies. Emphasis is also placed on proficiency of the English language too. Private sector participation is greatly encouraged, both in development of curriculum and provision of training.

- Faced with economic liberalisation and increased global competition, the <u>OPP3 and the National Vision Policy</u> has "building a resilient and competitive nation" as its theme. At the same time, the key strategies of the NEP (eradicating poverty and restructuring society) and the NDP (balanced development) are maintained. HRD is clearly emphasised. The goal is to shift the impetus of the strategy of growth, from input-driven to knowledge-driven. Therefore, HRD is seen as a key enabler to ensure that the Malaysian workforce is competent with high levels of knowledge, technical and thinking skills.

"The thrust of human resource development in the OPP3 will be to prepare a workforce that is capable of meeting the challenges of a knowledge-based economy so as to enhance the productivity and competitiveness of the economy."[18] Training efforts will be focused on upgrading the skills base of the workers while vocational and technical education will be given greater prominence and will be refocused to produce the skills required by the knowledge-based economy.[19]

To enable this, the adoption of dual training approach through apprentice schemes will be enhanced. Similarly, the National Vocational Training Council will be strengthened to enhance its capability. Apprenticeship training schemes under the HRDB will also be expanded to cover a wider range of courses. To minimise structural unemployment, proper retraining programme and mechanisms for the implementation of the programme will be developed.

4.3 Progress of HRD in Malaysia

While Malaysia does not have a specific HRD policy for the industrial sector, it is addressed strategically at the national level through the Outline Perspective Plans, which sets the long-term plan of the nation. Meanwhile the 5-Year Malaysia Plans set the medium term plans for the nation while the annual budget sets the short term/immediate plans of the nation.

However, specific sectoral plans also address the key human resources needs faced by the sector. Thus for the industrial sector, the industrialisation programmes through the different periods have guided Malaysia's industrial human resource needs. In fact, vocational and technical education has surfaced in the Malaysia Plans since the First MP.

To trace the progress of HRD policies, we have chronologised the HRD milestones against the industrialisation process in Malaysia (**Table 4.2**) and matched it against the key institutional developments in VET.

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[18] Third Outline Perspective Plan, 2001 – 2010, pg 171.
[19] op. cit pg 133.

Table 4.2:   Chronology of Human Resource Development in Malaysia

HRD Policies	Industrial Development Policies	Institutional Development
1957 - 1967		
National Education Policy and Education Ordinance 1957: Formation of one national education system *The Education Act 1961:* Emphasis on HR to contribute towards economic development	*Import substitution – Consumer goods* Focus on human resources to meet industrial needs and increase productivity in agriculture	Agriculture Institutes Skills training institutes Establishment of MARA (1966) – skills training colleges for *bumiputeras*
1968 - 1985		
National Education Policy 1979 – Emphasis on basic education 3R – Reading, wRiting and aRithmetic. Secondary education divided into academic and vocational Removal of education system bar for primary education (UPSR) – 9 years of education.	*Export – Oriented (1970 – ongoing)* Focus on export manufacturing. Industrial Deepening (Strengthening and diversifying the economy) *Import Substitution – Heavy Industries (1980 – ongoing)*	First polytechnic (1969) NITTCB – 1972 NACIT – 1972 Manpower Development Board (MDB) replaced NACIT in 1979 HICOM (1981) CIAST (1984)
1986 - 1996		
Double deduction incentive for approved manpower training in mfg sector (1991) Human Resource Development Act 1992 – payroll levy to promote training. Removal of education system bar for lower secondary education (PMR) – 11 years of education. Education reforms to make the education system more market-centred through more private education institutions.	Vendor Development Programme (1988) Manufacturing++ Global Supplier Programme (GSP)	NVTC (1989) replaces NITTCB Penang Skills Development Centre (1989) HRDF (1993) MTDC (1992) MIGHT (1993)
Beyond 1996		
Education Development Plan 2001-2010: 12 years of education (including 1 year pre-school) K-economy Master Plan - Life-long learning HRD Master Plan (under preparation)	Transformation into the K–Economy	Skills Development Fund (2001) Community Colleges (2001) Dual TVET system (2002)

Notes: MTDC – Malaysia Technology Development Corporation, MIGHT – Malaysia Industry – Government High Technology, NITTCB - National Industrial Training & Trade Certification Board, NACIT - National Advisory Council on Industrial Training, HICOM – Heavy Industries Corporation Berhad, CIAST – Centre for Instructor and Advanced Skills Training.

The industrialisation process in Malaysia can generally be divided into four phases.

i. Import Substitution Strategy (1957 – 1967)

The Pioneer Industries Ordinance (PIO) 1958 was the first concerted effort by the government to promote industrialisation. The focus on HRD was to increase productivity in the agriculture sector (extension workers, agriculture technicians) and to meet the needs of the industry especially foreign firms responding to the PIO.

ii. Export Oriented Strategy (1968 – 1985)

The late 1960s were characterised by high unemployment and rural-urban migration. The government introduced the Investment Incentives Act (IIA) 1968 and its amendments in 1972 as well as the Free Trade Zones Act 1971. As many multinational firms (MNCs) set-up plants in the FTZ, the government continued to ensure that there was skilled and semi-skilled workforce available to meet the demands of the industry.

In 1972, the government had already set up the National Industrial Training and Trade Certification Board (NITTCB) to determine the national standards at various levels. The National Advisory Council on Industrial Training (NACIT) comprising representatives from the private and public sector was also set-up. The government also launched programmes such as Preparatory Trade Courses, the National Apprentice Scheme, the Skills Upgrading Programme and the Industrial and Trade Instructor Training Programme. Skills upgrading was also provided when Centre for Instructor and Advanced Skills Training (CIAST) was set-up in 1984.

Onsite training programme for construction workers were administered by Manpower Department, Urban Development Authority and Public Works Department while in-service training continued to be carried out by public sector agencies, such as National Electricity Board (NEB) and the Telecommunications Department.

The functions of NACIT were subsequently taken over by the Manpower Development Board (MDB) in 1979. The MDB prepared a preliminary National Masterplan for Manpower Development. It also prepared State Masterplans for Kedah, Melaka and Negeri Sembilan.

Through the New Economic Policy, most important to note were the affirmative action policies, especially in education to Bumiputeras. The creation of Majlis Amanah Rakyat (MARA) in 1966 allowed many Bumiputera, especially the rural poor to attain vocational education and training. MARA Technical colleges were also set-up during this period.

During this period, the first Polytechnic (Politeknik Ungku Omar) was also established in 1969.

iii. Industrial Deepening (1986 – 1996)

During this period, the government embarked on a second round of import substitution focusing on heavy industries. This period also saw the passing of the Human Resources Development Act in 1992, which set up the Human Resources Development Fund. The first industry-led training centre, the **Penang Skills Development Centre (PSDC)**, was established in 1989 as a joint effort of government, academia and industry to meet the challenges of skilled labour shortage. Other state skills development centres were subsequently set up.

The First Industrial Masterplan (IMP1) 1986 – 1995 marked the beginning of a co-ordinated effort by the government to industrialise the country by using the manufacturing sector as the

engine of growth[20]. The focus was to streamline the industrial development process and the development of the manufacturing industry through an export–led industrialisation strategy[21]. HRD continued to be a focus with skills training and retraining being the focus. The Promotion of Investment Act 1986 was enacted to complement the IMP1.

This also followed by the government launching a series of strategic decisions to deepen industrial capacity and capability. In 1981, it had set up the Heavy Industries Corporation. In 1990, the government launched the Action Plan for Industrial Technology Development (APITD). The Malaysian Technology Development Corporation was then set up in 1992 followed by the Malaysian Industry-Government High Technology (MIGHT) in 1993.

The Vendor Development Programme (VDP) was launched in 1988. This programme was initially implemented by the Ministry of International Trade & Industry (MITI) but was transferred over to the Ministry of Entrepreneurial Development on May 8, 1995. At the initial stage, the VDP aimed at developing component suppliers in the automotive industry, under the Proton Components Scheme. In 1992, the VDP was extended to the other strategic industries.

iv.   Transformation into the K–Economy (1996 and onwards)

Since the late 1990s, and especially after the East Asian Economic Crisis, the government has taken serious measures to transform the Malaysian economy from a Production economy (P-economy) into a K-economy.

The **Second Industrial Masterplan (IMP2)** 1996–2005 introduces the concept of Manufacturing++ that is aimed at the full integration of the manufacturing value chain. The emphasis of the IMP2 is on the development of the upstream research and development and the downstream distribution and marketing components of the value chain. The Manufacturing ++ strategy also emphasises the productivity-driven development of the total manufacturing value chain. This new emphasis is a move towards knowledge-based economic activities.[22]

As industries move up along the value chain more skilled workers are needed in order to strengthen and facilitate expansion, development and product diversification, as well as improve their linkages within the domestic economy. While industries make the adjustments towards capital-intensive and labour saving techniques of production, this transition will depend on the absorptive capacity of the work force. This in turn puts pressure on the public and the private training institutions to undertake skills training and upgrading to meet the demands of industry. To meet these challenges, the IMP2 focus on efforts to enhance skills formation and skills upgrading on a continuous basis.

To ensure that the education and training infrastructure are attuned to the Manufacturing++ concept, two strategies were identified:

- To develop a more flexible and proactive human resources supply system to meet the cluster-based manpower needs; and

- To adopt a focused training strategy to support the regional needs of industrial clusters.

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[20] Total Factor Productivity Growth: Survey Report, Asia Productivity Organisation (APO), 2004. Available at: http://www.apo-tokyo.org/00e-books/18.TFPGrowth/08_Malaysia_TFP.pdf
[21] IT and the K-Economy of the 21st Century Organisation, Goh Swee Seang, National Productivity Corporation, Malaysia. Available at: http://dominoapp.npc.org.my/publications.nsf/0/BF108B36442A915348256A9400018733/$file/APO-IT3.pdf
[22] op. cit.

In addition, the IMP2 also identified several measures[23] related to vocational and skills training that will need to be undertaken to ensure that future HRD requirements are adequately addressed:

- Need for greater flexibility and autonomy in the management of public training institutes;

- Need to **increase and upgrade training of trainers**, both in terms of quantity and quality. Increased involvement of the private sector ranging from the provision of training of trainers by the private sector at the firm or association level or through collaborative efforts with the public sector will be encouraged;

- **Synchronise private-public sector roles and responsibilities** for education and training. Skills delivery system should be supportive of the cluster-based development and will include basic or generic skills, technical skills, managerial and supervisory skills, industry specific skills, entry level training as well as retraining and skills upgrading. The mode of training can range from formal, full-time, part-time and distance learning courses.

- Create an **HRD framework to support cluster-based industrial development.** The HRD framework will have to evolve with the development for respective clusters. Where appropriate, existing HRD institutions will be re-orientated and new institutions will be established;

- Need for **consultation and consensus to determine skill needs at the cluster level.** Need to increase channels of communication for consultation and consensus between the public and private sectors, right down to the micro-level between implementing agencies and firms which are still lacking;

- **Enhance and upgrade skills.** The National Apprenticeship Scheme (NAS) will be revitalised and linked with the Human Resource Development Fund (HRDF) and the National Accreditation Scheme to further enhance the training and upgrading of skills;

- **Develop the full potential of the HRDF Scheme.** The efficiency and utilisation of the HRDF will be improved to ensure faster and easier access to contributors, training providers, industry associations and others involved in skill development.

4.4   Current Situation of Human Resource Development Policy

The Economic Planning Unit of the Prime Minister's Department has summarised the Malaysian Human Resource Development policy into the following:[24]

(1)   Expanding the supply of highly skilled and knowledge manpower to support the development of a knowledge based economy through the expansion of education and training. The education system will be reoriented to enable students to acquire a higher level of explicit knowledge as well as thinking and entrepreneurial skills.

(2)   Increasing the accessibility to quality education and training to enhance income generation capabilities and quality of life. Accessibility to education will be increased through the construction of centralised schools in remote areas as well as provision of adequate facilities, infrastructure and trained teachers.

(3)   Improving the quality of education and training delivery system to ensure that human resource supply is in line with technological change and market demand. The schools curriculum will be reviewed to generate creativity and independent learning among students as well as incorporate new aspects of knowledge and technology and more innovative teaching methods.

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[23] This section of the report draws from Chapter 11 of the IMP2.
[24] http://www.epu.jpm.my/New%20Folder/hrd.htm

(4) <u>Promoting lifelong learning</u> to enhance employability and productivity of the labour force. <u>Employers will be encouraged to promote lifelong learning through training and retraining to equip workers with new skills and knowledge.</u>

(5) Optimising the utilisation of local labour. Efforts will be made to increase participation rate of women in the labour force by setting up facilities such as kindergartens and ensuring better access to training opportunities. Efforts will also be made to reduce dependence on foreign workers.

(6) <u>Increasing the human resource supply in S&T</u>. The capacity of S&T education and training programmes will be expanded and enrolment increased to achieve the 60:40 ratio of Science to Arts students in order to create a critical mass of S&T personnel.

(7) <u>Accelerating the implementation of the Productivity-Linked Wage System</u>. The adoption of the guidelines for a Productivity Linked Wage System established in 1996 will be intensified through efforts such as seminars, workshops and company visits. The online network database on productivity benchmarking in the manufacturing and agriculture sectors will be expanded to include other sectors.

(8) Strengthening labour market information system to increase labour mobility. The implementation of an electronic labour exchange with fully integrated, coherent and dynamic labour market information system will be accelerated.

(9) Intensifying efforts to develop and promote Malaysia as a regional centre of educational excellence. Local universities will be encouraged to establish and develop centres of excellence comparable to those in top ranking universities.

(10) Reinforcing positive values. Efforts will be undertaken to inculcate and reinforce positive values through the education and training system. These values including good work ethics, diligence, integrity, tolerance, gratitude, respect for authority, punctuality and pursuit of excellence are characteristics of a high quality workforce.

The current situation of HRD in Malaysia is also guided by the **Knowledge-based Economy Masterplan** (K-Economy Masterplan). The plan envisaged that the current production based export-oriented industrialisation will not be able to carry Malaysia into a developed nation status, therefore the need for a new development strategy. K-based economies are also characterised by high investment in R&D, high literacy, high tertiary education enrolments, good technology related capacity and skills, strength in innovation, and high ICT penetration and Internet usage[25].

Since the mid-1990s, Malaysia's HRD policy is focused towards creating highly skilled workers as Malaysia sought to upgrade its production capabilities and move up the value chain. With the K-Economy Masterplan, the vision is to create knowledge workers. This is key to the government's efforts of restructuring the Malaysian economy towards the K-economy. The strategy to make this shift can be grouped under the K-Economy Master Plan[26] (launched in 2002). Within this, there is the National IT Agenda (NITA[27]) and the Multimedia Super Corridor (MSC[28]) and its flagship application programmes (both launched in 1996).[29] The overarching policy is the OPP3/NVP where the Malaysian government has placed priority in the development of ICT as one of the country's key engines of growth.[30]

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[25] Executive Summary, The K-Economy Masterplan, Institute of Strategic and International Studies, 2002
[26] op. cit.
[27] http://www.nitc.org.my/nita/index.shtml
[28] http://www.msc.com.my/msc/msc.asp
[29] IT and the K-Economy of the 21st Century Organisation, Goh Swee Seang, op. cit.
[30] Malaysia's Country Paper On Human Resource Development In Response To Advancement Of ICT, APEC Report. Available at: www.ovta.or.jp/en/pdffiles/apec2001_r_my.pdf

Notwithstanding the thrust towards developing HR for the ICT sector and the K-economy, the nature of the Malaysian economy still requires skilled and semi-skilled labour to meet the needs of the production economy. Hence, vocational and technical education is a means to fulfil this need. The importance of VTE and training is reflected very clearly in the Seventh and Eighth Malaysia Plans. The Skills Development Fund was also established in 2001 to enable students pursuing technical and vocational courses in public and private training institutions to obtain loans to take courses which are accredited to the NVTC.

The concept of life-long learning was also introduced and the first community college was set up in 2001. Under this concept "a system of lifelong learning will 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."[31]

To prepare Malaysia for the K-economy, in 2002 the Malaysian Government has also adopted the **dual TVET system** (**Annex 4**) to "prepare young Malaysians to become k-workers as top performers in their respective jobs and capable to succeed in the increasingly global market competition."[32] Under the dual TVET system, training will be industry-oriented and will be partly conducted at the workplace under actual working environment. The dual system approach supports the fact that training (especially in high technology sectors) cannot be carried out effectively without the involvement of industry. This entails a strong and committed partnership between the private sector and training institutions to ensure efficient and economically affordable training solutions.

To demonstrate the earnest of the government to promote skills development and technical and vocational education and training, targets for the VET sector have been included in the **Mid-term Review of the Eighth Malaysia Plan** (MTR8MP). These include:

- to increase total enrolment in polytechnics to 71,950

- to increase intake in Community Colleges to 14,310

- to upgrade Pusat GiatMARA to Community Colleges

- to increase participation rate in tertiary education of 17-23 cohort to 30%

- to increase output of public training institutions to reach 42,060 with 68.9% in engineering trades

- to increase output of private training institutions to reach 33,110 with 52.4% in engineering trades

4.4.1   HRD Master Plan

To assist the Government of Malaysia to identify and address strategic human resource development issues to leapfrog Malaysia into a knowledge-based economy, it was decided that a **Human Resource Development Master Plan** be formulated. The HRD Master Plan is a comprehensive plan with policy recommendations as well as a Policy Action Plan which sets out the policy framework, timeframe and cost of implementation. This Master Plan is expected to be out in 2005.

To provide the necessary inputs to formulate the plan, a study was carried out and the broad findings and key policy recommendations were presented at the Stakeholder Workshop held

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[31] OPP3, Malaysia, 2001b, p. 134.
[32] EPU, 2001. "Think Dual – Go Dual in Training: Getting Malaysia Ready for the K-economy".

in September 2004. For the VET sector, the following are the key policy recommendations were proposed[33]:

- Ensure that all those appointed to positions of directors or principals and their deputies undergo formal management training at the time of their appointment.

- Encourage industry to adopt the role of partner and participant in planning, design and delivery of VET.

- Improve the quality of VET teachers by ensuring that they hold qualifications in their area of expertise at least one professional level of qualification above the level they are required to teach and undertake periodic industry refresher updates.

- Ensure that VET teachers in the private sector are qualified by a recognised teacher training or train-the-trainer programme with qualifications in their area of expertise at least one professional level above the level they are required to teach and undertake annual professional development in their field of expertise.

- Improve the VET teacher training through expanded CIAST capacity, two new VET training institutions and expansion of private sector provision of training.

- Shorten the current accreditation period of private training institutions to the international 1-3 year term and consolidate the many training providers to achieve economies of scale and better quality of training.

- Provide for the annual auditing of training providers including both trainers and facilities.

- Modify the hard skill competencies in competency-based curriculum to reflect greater relevance and flexibility.

- Incorporate additional soft skill competencies to move skills and competencies beyond the production economy to a flexible lifelong learning environment.

- Introduce generic technical skills into the NOSS across industry sectors to encourage capability for workforce cross-skilling and multi-skilling and include into training packages.

- Align assessment criteria with competency requirements.

- Provide workplace training to an internationally comparable level to all staff in large-scale private sector organisations, ensuring training relates to organisational needs and goals and is based on training needs analysis with auditable, annual training plans.

- Give greater prominence to the HR manager in large-scale enterprises including organisational level planning and training needs analyses.

- Review the apprenticeship model developed by HRDB to consider:

  - An expansion across further industry sectors.

  - Utilisation of the proposed industry training boards (System Modification) to reinforce industry links.

- Assist and encourage SMEs through their chambers and professional associations to provide training to their staff, possibly adopting the FMM model[34].

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[33] The key policy recommendations were extracted from Executive Summary presented at the Stakeholder Workshop for the Study on the Formulation of Human Resource Development Master Plan held on September 21, 2004.
[34] FMM has taken the initiative to set up its own Institute to provide training for its members. Details on the background of the FMM Insitute of Manufacturing (FMM-IM) as well as its current training programmes offered can be downloaded from http://fmm-im.fmm.org.my . In addition to their scheduled training programmes, FMM-IM also provides in-house programmes which are conducted at the firms' premises or at their preferred facilities. FMM-IM is also able to design and develop new and specific programmes to meet the needs of its members.

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- Ensure that the SME annual average training rate reaches 30 hours per employee by 2010 to be internationally comparable.

- Consider the introduction of auditable training plans for SMEs.

- Enhance the impact of current fiscal incentives through the involvement of industry, joint policy and audit roles.

- Undertake an independent review of the HRDF.

- Consider student funding options: a review of the Skills Development Fund in monitoring its impact and extending the Higher Education Contribution Scheme (HECS) type option recommended in the tertiary sector.

- Continue to finalise the Malaysian Qualification Framework in order to provide ready recognition of study and qualifications obtained from the different institutions in each of the main VET ministries and also to facilitate movement between the many different public institutions. This will provide a stronger basis for the development of lifelong learning possibilities and opportunities across the presently diverse system.

4.5 Funding Mechanisms for Vocational Training and Skills Development

Traditionally, the burden of financing vocational training and skills development has fallen, alone or in concert, on the trainees themselves, the firms and the state. In the case of Malaysia vocational training in pre-employment skills acquired at public training institutions are largely funded by the Government while trainees pay very low fees. However trainees at private training institutions usually have to bear the cost of training themselves.

In the case of training (and retraining) of workers, the cost usually falls on the firms. To encourage firms to invest in training of local workers, various training incentives were introduced. These included:

(i)   Incentives which allow for the employment of foreign technical and skilled personnel in industrial establishments on condition that a training programme is drawn up for Malaysians to acquire the necessary skills and expertise[35];

(ii)   Double deduction for expenses for approved manpower training in the manufacturing sector; and

(iii)   Investment tax allowance.

However the most of the early training incentives were inadequate to meet the demand for skilled labour[36]. To address the inadequacy of the training incentives, two funds were introduced – the Human Resources Development Fund in 1993 and the Skills Development Fund in 2000. The table below summarises the key characteristics of these two funds.

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[35] This condition is usually tagged on with the manufacturing license or pioneer certificates.
[36] Sixth Malaysia Plan, 1991-1995.

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Table 4.3:   Funding Mechanisms for Vocational Training and Skills Development

Key Characteristics	Human Resource Development Fund (HRDF)	Skills Development Fund (SDF)
Year Est'd	1993	2000
Agency Responsible	Human Resource Development Berhad Ministry of Human Resources	Skills Development Fund Division Ministry of Human Resources
Main Objective	To further encourage employers in the private sector to retrain and upgrade the skills of their employees in line with their business' needs and the economy of the country.	To increase the number of skilled workers, in line with the need for K-workers in the K-economy.
Target Groups	For the **Manufacturing Sector**: All employers with 50 or more employees; Employers with 10 or more but less than 50 employees and with a paid-up capital of RM2.5 million and above. For **Service Sectors***: Employers with 10 or more employees.	For students pursuing technical and vocational courses in public and private institutions, and those taking courses accredited by the NVTC.
Source of Funds	Payroll levy of 1% for those that are liable to contribute; Payroll levy of 0.5% for other classes of manufacturing employers that opt to contribute; Government contribution of RM2 for every RM1 contributed for selected classes of employers.	Government funds
Details and Special Features	Employers are eligible to claim up to the last cent of levy paid in any current year to defray all or a major portion of the "allowable costs".	Conditions of Loan Eligibility: • Malaysian citizen • Pursuing a SKM Level 1-5 course, which is accredited by NVTC • No full financial assistance from any other government agency • Age between 15 to 50 years Loan Amount: • Maximum of RM 5,000 per annum for the duration of the training • For part time trainees, the loan is applicable for fees only, subject to a maximum of RM 5,000 per year • Loan is subject to an administrative charge of 4% per annum based on reducing balance.

* Service Sectors covered are: hotel industry, air transport services, tour operating business, telecommunication services, freight forwarding and shipping services, postal/courier services, advertising industry, computer services, energy suppliers, training providers, private higher educational institutions.

4.5.1 Human Resource Development Fund (HRDF)

The Human Resources Development Fund was set up as a result of the passing of the Human Resources Development Act, 1992 with the sole purpose of promoting, developing and upgrading the skills of the Malaysian workforce. A levy of one per cent of the total wages was imposed on employers within the manufacturing sector who have 50 employees or more, or those with ten or more but less that 50 employees and with a paid-up capital of RM2.5 million and above[37]. Employers who have paid the levy for a period of six months are eligible to apply for financial assistance from the fund when they undertake training activities to upgrade the skills of their workers.

The rationale behind the establishment of the fund is that the Malaysian workforce need to be more competent and multi-skilled if Malaysia wish to attain the status of a developed nation by the year 2020. By imposing the levy and providing a fund from which employers can draw, training opportunities will increase tremendously. The end result will be an increase in worker productivity and efficiency which in turn will be the driving force for higher value-added operations and a greater competitive edge in the global market. The fund is being administered by the Human Resource Development Berhad (*Pembangunan Sumber Manusia Berhad*).

The HRDF drew better results compared to the other training incentives. As at the end of 2003, there were 8,516 employers registered with the HRDB. 5,960 were from the manufacturing sector and 2,556 from the services sector[38]. Within the manufacturing sector, the electronics industry with 950 (15.94%) had the highest number of employers registered with the fund. Within the services sector, the hotel industry with 715 (27.97%) employers registered the highest number of employers. The largest number of registered employers were in Selangor (2,427) followed by Johor (1,369).

Approved training places and financial assistance for retraining and skills upgrading registered a significant increase compared to the previous year. The number of approved training places increased by 5% to 440,881 compared to 420,008 training places in 2002. Financial assistance approved in 2003 increased by 11% to RM209 million compared to RM189 million for the previous year[39]. As at end of 2003, the employers' fund stood at RM402,697,376 (2002: RM353,576,056).

The introduction and application of HRDF has provided the motivation for companies to send their workers for training thus contributing towards continuous manpower development.

4.5.2 Skills Development Fund

The Skills Development Fund (SDF) was set up in December 2000 as a Trust Fund under Section 10 of the Financial Procedure Act 1957. The Skills Development Fund Division under MOHR manages the SDF which is specifically used for the purpose of providing loans for skills training.

The main objective of setting up the SDF is to increase the number of skilled workers, in line with the need for K-workers (Knowledge workers) in the K-economy. The role of the fund is to provide financial loans to enable Malaysians to undertake skills training. The SDF can help alleviate to the financial burden of parents who are financing their children's skills training. This is done in view of the high financial cost of the training and the fact that most of

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[37] In the case of the service sector, employers with ten or more employees are liable to pay the 1 per cent levy.
[38] Source: Pembangunan Sumber Manusia Berhad Annual Report 2003.
[39] HRDB Annual Report 2003.

the trainees are from the low and middle-income groups in rural areas. The trainee needs to repay the loan only upon completion of training.

4.5.3 Skills Upgrading Programme

The Skills Upgrading Programme was introduced by SMIDEC in 1997 to encourage SMIs to upgrade the skills and capabilities of employees. SMEs that send their employees for courses at any of the training providers will be eligible for 50 per cent training grant from SMIDEC. In addition, the remaining costs can be claimed through the Human Resource Development Fund (HRDF), if the company is registered with the HRDB. Currently, SMDEC has appointed 19 training providers to provide technical skills training for SMEs:

German-Malaysian Institute (GMI)

Sarawak Skills Development Centre (PPKS)

Johor Skills Development Centre (PUSPATRI)

Penang Skills Development Centre (PSDC)

Malaysia France Institute (MFI)

Pahang Skills Development Centre

Kedah Industrial Skills and Management Development Centre (KISMEC)

Perak Entrepreneur and Skills Development Centre (PESDC)

Selangor Human Resource Development Centre (SHRDC)

Negeri Sembilan Skills Development Centre (NSSDC)

Melaka Industrial Skills Development Centre (MISDC)

Sabah Skills and Technology Centre (SSTC)

SIRIM Bhd.

Technology Park Malaysia (TPM)

Malaysian Institute for Nuclear Technology Research (MINT)

National Productivity Corporation (NPC)

Kumpulan IKRAM Sdn Bhd

National Institute of Occupational Safety and Health (NIOSH)

Source: www.smidec.gov.my

As at December 2003, 12,671 employees from have benefited from this programme. The more popular training providers are the Penang Skills Development Centre (PSDC) and the Selangor Human Resource Development Centre (SHRDC).

5. Institutional Stakeholders

5.1 Introduction

According to National Vocational Training Council (NVTC), as at December 2004 there were 1,660 centres are accredited to NVTC. Of these, 297 are under Federal agencies, 36 under State agencies, while the rest (1,327) are private sector institutions.

Table 5.1: NVTC Accredited Centres & Programmes by Agency (December 2004)

AGENCY	ACCREDITED CENTRES	ACCREDITED PROGRAMMES
1. Ministry of Human Resources	21	417
2. Ministry of Entrepreneurial Development	150	592
3. Ministry of Youth & Sports	15	234
4. Ministry of Education	66	416
5. Ministry of Agriculture	9	24
6. Ministry of Home Affairs	16	48
7. Ministry of Defence	13	140
8. Ministry of Rural Development	2	23
9. Ministry of National Unity & Social Dev.	4	8
10. Ministry of Primary Industries	1	2
11. Sarawak State Chief Minister's Office	1	16
12. Johore State Education Foundation	11	120
13. State Authorities	24	260
14. Employers Training Institutions	21	107
15. Association Training Institution	2	2
16. Private Training Institutions	1,301	4,476
17. Non-Destructive Test Training Institutions	3	25
Total	**1,660**	**6,910**

Source: NVTC

5.2 Government Sector Providers of VET

The main government providers of VET for the industrial sector come under the following ministries:

- Ministry of Human Resources (Manpower Department)
- Ministry of Higher Education (Technical Education Department)
- Ministry of Entrepreneurial and Cooperative Development (through MARA)

In addition to the above, the various state governments are also involved in VET for the industrial sector mainly through the skills development centres.

This group of VET providers under these agencies is the focus of the baseline study. In addition, other ministries and their agencies are also involved in the provision of VET. These are largely under the Ministry of Youth and Sports, the Ministry of Agriculture, and the Ministry of Plantation Industries and Commodities. However, as these are not the focus of the study, only overviews and listings are provided.

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The study team scheduled a series of interviews with these key agencies that are involved with vocational training for the industrial sector. The notes of the meetings with the various government agencies are compiled in **Volume 2** of the report. **Figure 5.1** as well as the following tables summarise the key statistics on public sector VTIs and the main institutional stakeholders involved in the provision of vocational education and training in Malaysia.

Figure 5.1: Key Providers of VET in Malaysia
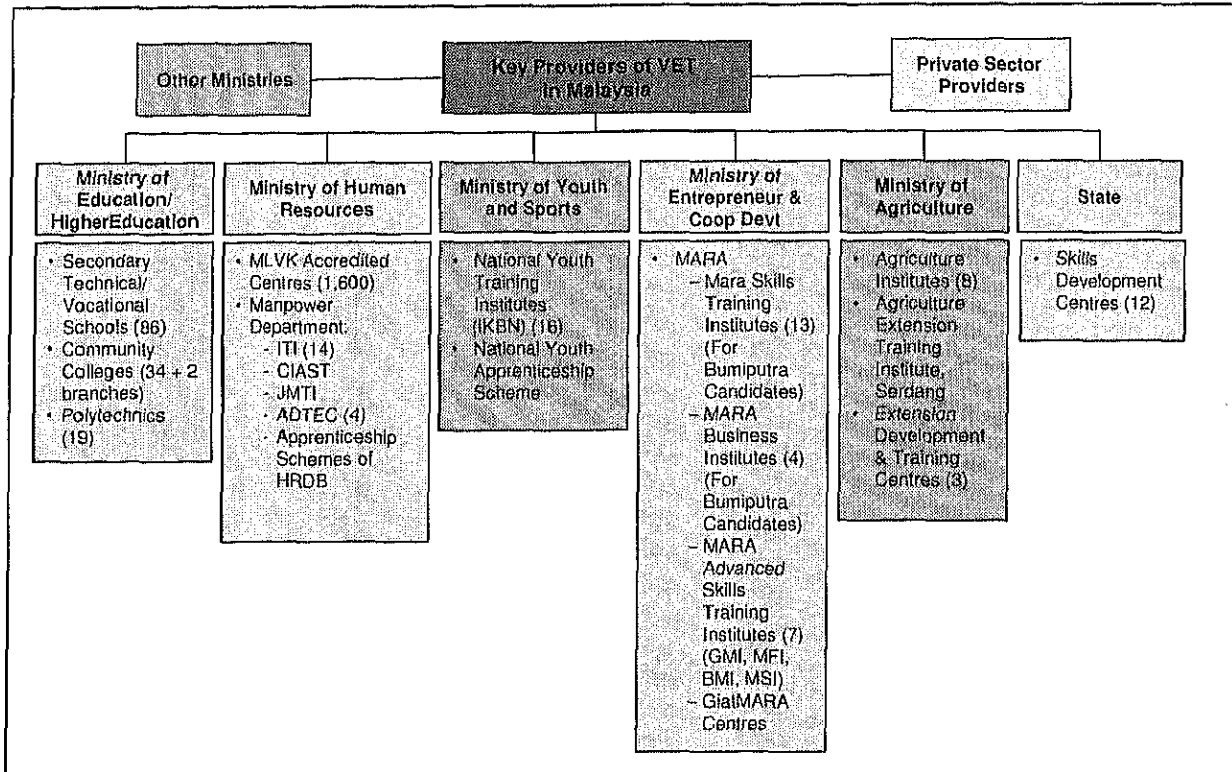
Table 5.2: Key Statistics of Public Sector VTIs

		Total Number of Institutes	Total Number of Courses	Total Estimated Enrolment
MOHR	ITIs	14	45	6,838 [1]
	ADTEC	4	19	2,406 [1]
	CIAST	1	10	940 [1]
	JMTI	1	4	650 [1]
MoHEd	Polytechnics	19	84	51,433 [1]
	Community Colleges	34	17	8,051 [1]
MECD	MARA Skills Institute (IKM)*	13	41	5,500 [2]
	MARA Advanced Skills Institute (IKTM)	7		2,327** [3]
	GiatMARA Centres*	160	33	11,536 [2]
MYS	Youth Skills Institute (IKB)	14	45	5,058 [2]
	Total			**94,739**

Based on estimates given by MARA
** *for BMI, GMI, MFI and MSI only*
Note: [1] Year 2003, [2] Year 2004; and [3] Year 2002-2003

Table 5.3:   Key Providers of VET in Malaysia

Category	Agencies/Organisations
Government (Federal)	Ministry of Human Resources (Manpower Department) - ADTEC (4) - Industrial Training Institute (ITI) (14) - CIAST - JMTI - National Vocational and Training Council (NVTC)
	Ministry of Higher Education (Technical Education Department) - Polytechnics (19) - Community Colleges (34)
	Ministry of Education - Secondary Technical/Vocational Schools
	Ministry of Entrepreneurial and Cooperative Development - MARA Skills Training Institutes (13) - Advanced Skills Training Institutes (7 - BMI, MFI, GMI, MSI, MIAT, MICET, MIMET) - MARA Polytechnic Colleges (7) - Giat MARA Centres
	Ministry of Agriculture - Agriculture Institutes (8) - Agriculture Extension Training Institute, Serdang - Extension Development & Training Centres (3)
	Ministry of Youth and Sports - National Advanced Youth Skill Training Institute - National Youth Training Institutes - National Youth Apprenticeship Scheme
	Ministry of Plantation Industries and Commodities - Wood Industry Skills Development Centre (WISDEC) (wholly-owned subsidiary of Malaysian Timber Industry Board (MTIB) - Malaysian Palm Oil Board (MPOB)
Government (State)	Skills Development Centres (12)
Private Sector (Industry Associations)	FMM Institute of Manufacturing (FMM-IM)
	Malaysian Plastics Manufacturers Association (MPMA) Plastics Technology Technical Training Centre
	Malaysian Textile and Apparel Centre (MATAC)

With each one of the training institutions having their own objectives, it is clear that they all provide different pathways to tertiary education to different segments of the population (see **Figure 5.2**)

- The VTIs under the Ministry of Human Resources, i.e. the industrial training institutes and the ADTECs, target those already in the labour market or those about to enter the labour market. The courses offered by these VTIs are all ascribed to the standards set by NVTC.

- The VTIs under the Ministry of Education/Higher Education, i.e. the polytechnics and the community colleges, provide an option for students more inclined towards non-academic

studies to further their education in various certificate and diploma programmes which are recognised by the Public Service Department (*Jabatan Perkhidmatan Awam* – JPA).

● The various national youth training institutes of the Ministry of Youth and Sports cater towards youths that have dropped out of the formal education system. Their programmes which are NVTC-accredited are aimed at providing youths with skills to be gainfully employed as well as to enable them to become small entrepreneurs.

● The MARA skills training institutes of the Ministry of Entrepreneurial and Cooperative Development cater specifically for Bumiputeras. However, the advanced skills training institutes are open to all that are eligible.

Thus all the initiatives and programmes carried out by the various Ministries point towards the underlying objective of the Malaysian government to become and industrialised nation and therefore the provision of skills training (technical and vocational) is necessary. Although there is a high demand for trained manpower in Malaysia, less than 30 per cent of Malaysians of the relevant age cohort receive a tertiary education compared to over 50 per cent for industrialised countries[40].

Figure 5.2:   Pathways to Tertiary Qualifications
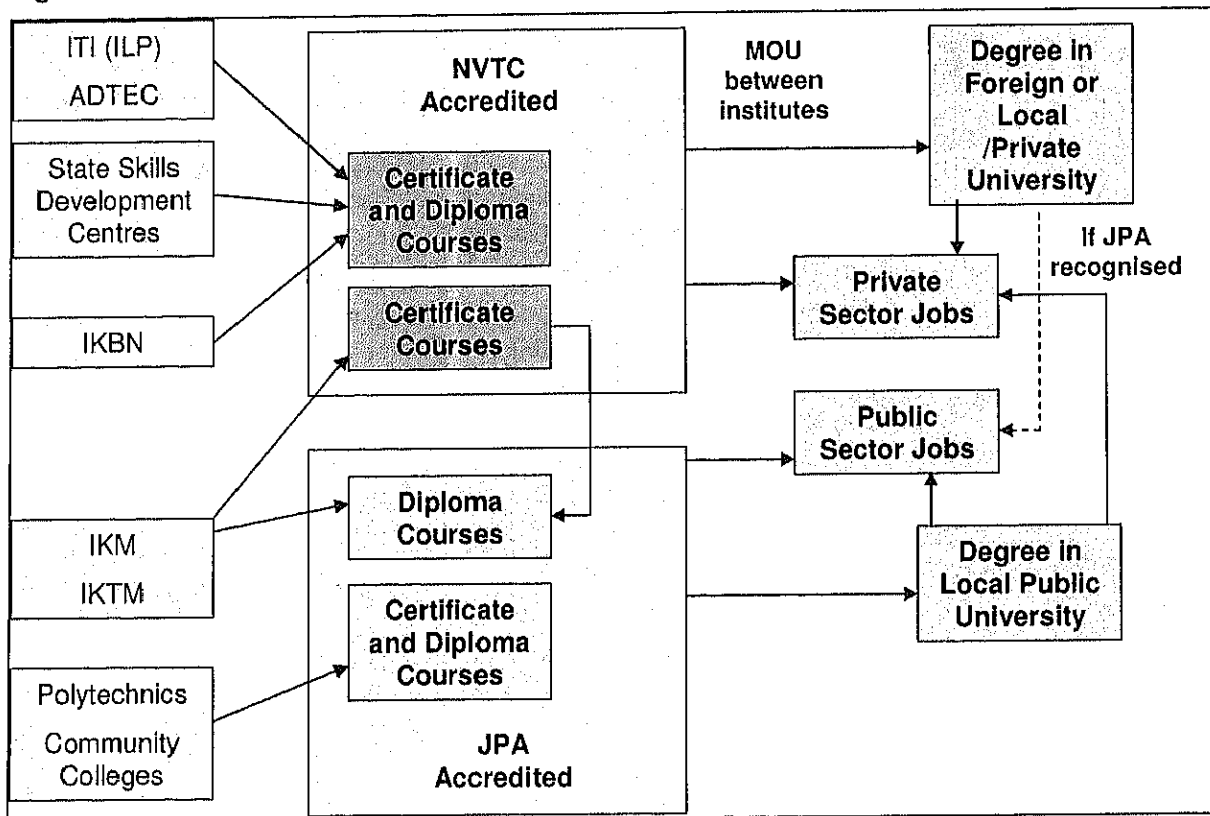
As shown in **Table 5.4** there are two types of accreditation that is currently given to technical training programmes in Malaysia: the NVTC (National Vocational Training Council) accreditation which is under the purview of the Ministry of Human Resources; and LAN (*Lembaga Akreditasi Nasional*) or NAC (National Accreditation Council) which is recognised by JPA.

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[40] K-economy Master Plan, 2002.

Table 5.4:   Characteristics of NVTC and LAN/JPA Accreditations

	NVTC Accreditation	LAN/JPA Accreditation
Levels	5 levels of competence-based training referred to as SKM (Sijil Kemahiran Malaysia/Malaysian Skills Certificate). SKM1 (Basic Certificate) SKM2 (Intermediate Certificate) SKM3 (Higher Certificate) SKM4 (Diploma) SKM5 (Higher Diploma)	2 levels of academic training: Certificate (1.5 – 2 years) Diploma (3 years)
Training Programmes conducted by	Industrial Training Institutes ADTECs State Skills Development Centres IKM (Certificate courses) IKTM (Certificate courses)	Polytechnics Community Colleges IKM (Diploma courses) IKTM (Diploma courses)
Profile	Under the purview of the Ministry of Human Resources Competence-based training with 70-75% practical sessions and 25-30% theory sessions JPA has already conducted an audit of all available courses, and the NVTC has already outlined a CGPA system, but it is still being finalised. Currently NVTC accreditation is not recognised by JPA. NVTC graduates cannot proceed for further studies in local universities and is also not recognised for government positions. Some institutes which issue NVTC diplomas also have direct MOUs with foreign universities for students to pursue degree education.	Under the purview of the Ministry of Education/Higher Education Academic training with 50-60% practical sessions and 40-50% theory sessions LAN accreditation With JPA/LAN accreditation further studies in local universities to degree level and/or joining the public sector is made possible.
Possible Next Steps	Private universities	Public and private universities
Job Opportunities	Private sector	Public and private sectors

5.2.1 Coordination of Vocational Training

Despite the numerous Ministries and agencies that are involved in the provision of VET, currently there is no coordinating body which is given the primary control to coordinate the entire vocational education and training activities. Rather each ministry has its own budget, develops its own infrastructure and curricula, and pursues its own objectives. The absence of a focal point, to some extent has resulted in duplication and has lost out on the advantages of scale and coordination.

Although there used to be a special Cabinet Committee on Training set up, this committee is no longer in operation. Furthermore, although NVTC was established to promote and coordinate vocational and industrial skills training programmes, it does not have the legal standing to coordinate training in all public and private training institutions. Nonetheless, under the NVTC, a Committee for Co-ordination of Public Training Agencies is in place to provide a forum for all general training agencies to discuss on issues and problems encountered in the execution of skills training programmes. The Committee meets on a quarterly basis and issues discussed include training co-curriculum, teaching manpower and training facilities.

5.3 Ministry of Human Resources

The Ministry of Human Resources (MOHR) is the main ministry that is responsible for matters pertaining to vocational education and training. This is carried out through its Manpower Department. The organisation charts of the Ministry and the Manpower Department are shown in **Figure 5.3** and **Figure 5.4.**

Figure 5.3: **MOHR Organisation Chart**
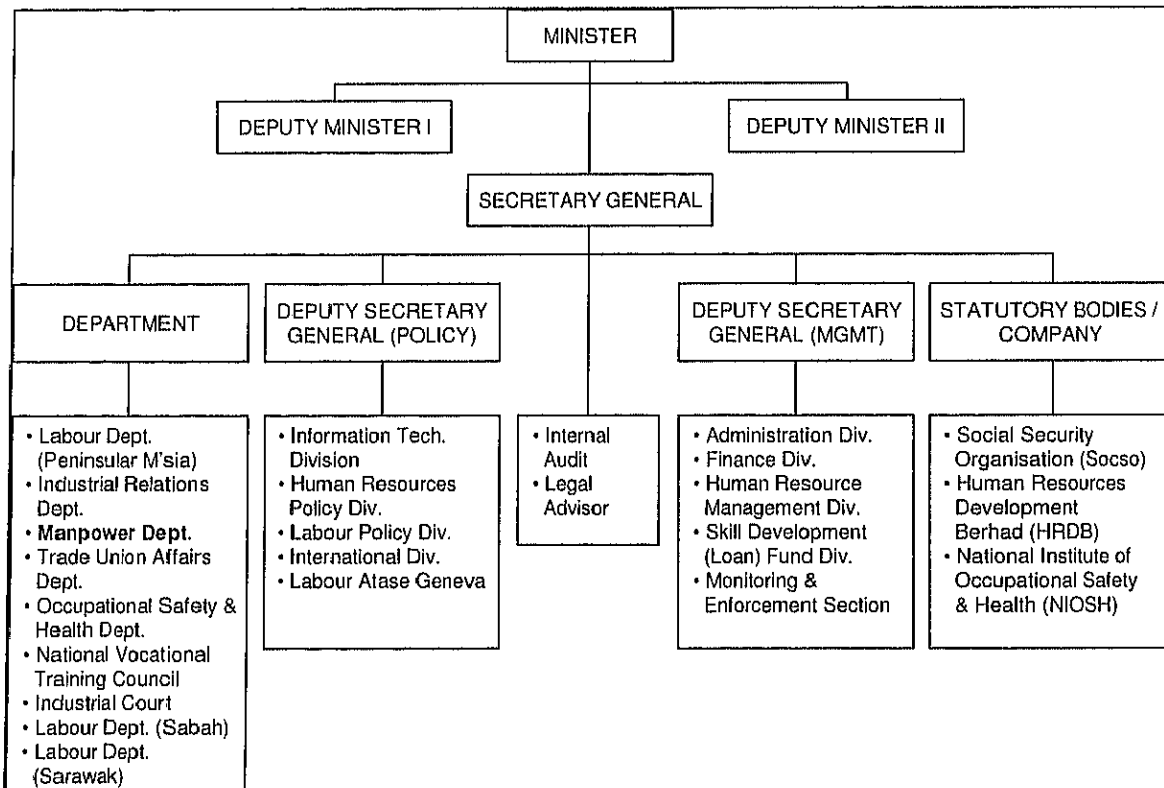
Source: www.mohr.gov.my/mygoveg/mengenai/org.gif

Figure 5.4:   Organisation Chart of Manpower Department
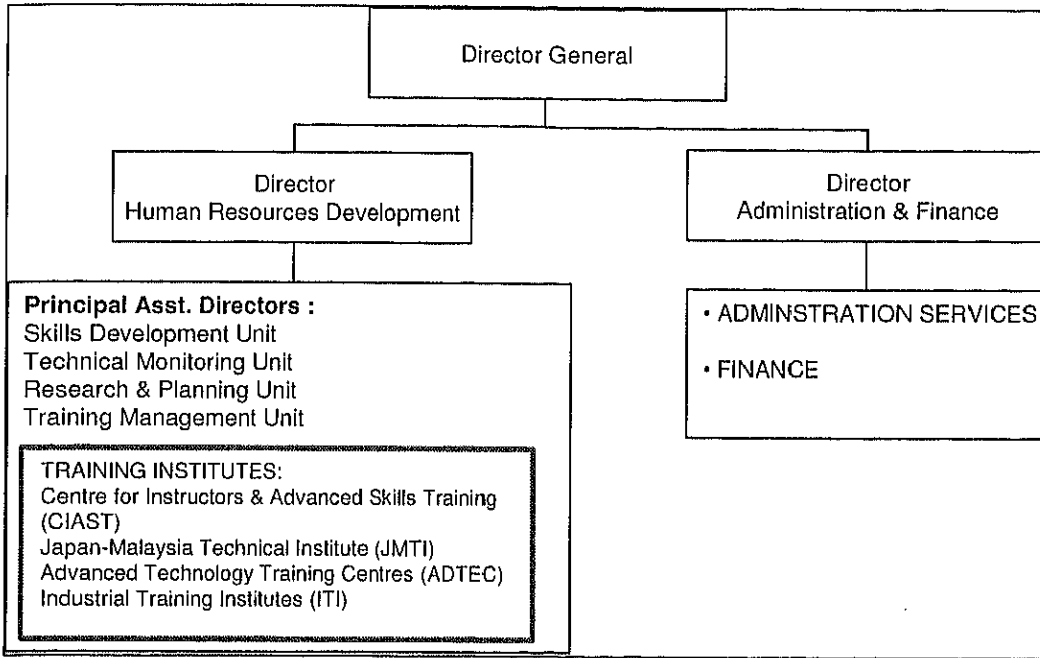
The objective of the Manpower Department is to assist towards the optimum use of manpower through industrial training programmes. The Director of HRD of the Manpower Department is responsible for all the skills training institutions under the Ministry. In addition, the Director of HRD also has four units under its umbrella, namely the skills development unit, the technical monitoring unit, the research and planning unit and the training management unit.

Figure 5.5 illustrates the functions of the training institutes under the Manpower Department.

Figure 5.5:   Functions of the Manpower Department Training Institutes
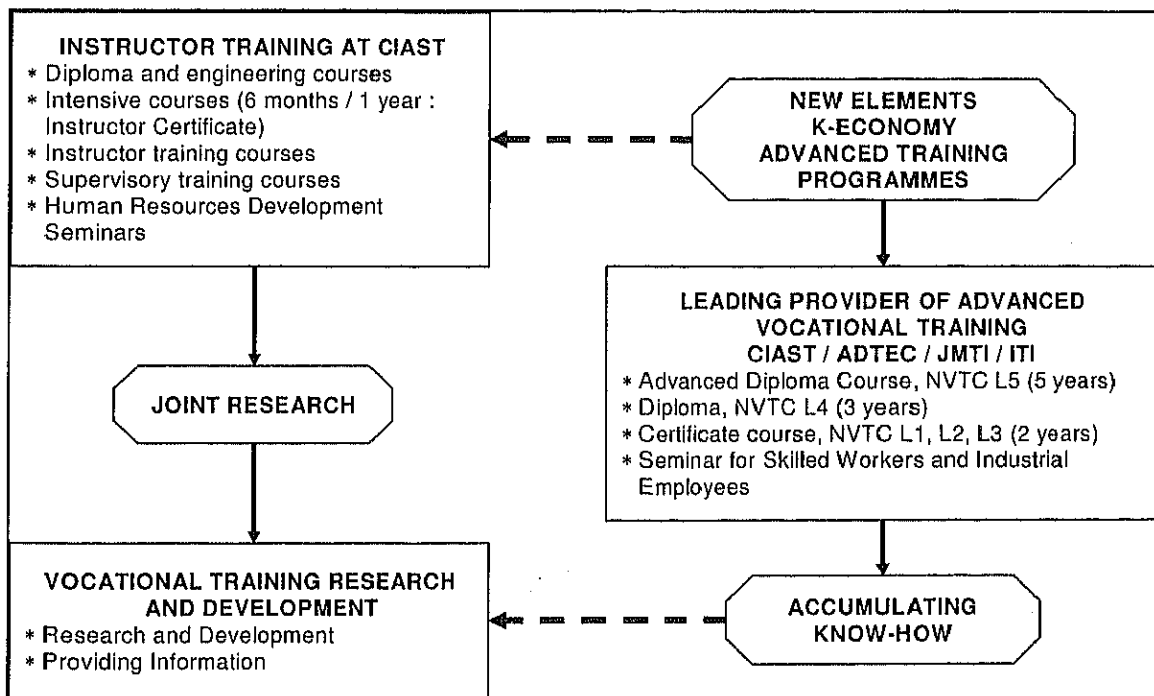
5.3.1 Curriculum Development for VTIs

The Manpower Department is also entrusted with the task of developing the curriculum and training materials for the courses that are conducted by the various skills training institutes of the Ministry. However the actual curriculum development or upgrading of curriculum is carried out by the Vocational Training Research and Development Division (VTRD) located in CIAST, using NOSS as a reference guide. The diagram below (**Figure 5.6**) outlines the procedures for curriculum development and/or up-grade for each curriculum.

VTRD forms an Ad-Hoc Committee to implement the development of curriculum using NOSS as a guide. Once a curriculum is developed it will be sent to a Curriculum Revision Sub-Committee which is chaired by a Director of Industrial Training Institute (Grade J48 and above). Currently there are 10 Curriculum Revision Sub-Committees, each one representing one course cluster (e.g. Mechanical Engineering, Electrical Engineering etc). Each Curriculum Revision Sub-Committee has 4 to 6 members chosen from the lecturers from the various ITIs (Grade J36 and above). Comments and amendments are referred back to VTRD who then forward them to the Sub-Committee. Once the curriculum is approved it is forwarded to the Curriculum Steering Committee for further action.

The Curriculum Steering Committee is chaired by the Director General of Manpower Department and consists of 4 members, viz, the Director of ITI Kuala Lumpur, Director of ADTEC Shah Alam, Director of CIAST and the Chairman of the Curriculum Revision Sub-Committee. Comments and amendments are referred to VTRD who then forward the revised version to the Sub-Committee. The Sub-Committee will go through the revised version before submitting to the Steering Committee. Once approved by the Steering Committee the Manpower Department implements the curriculum in all its Institutes.

After implementation of the new or revised curriculum, VTRD will conduct a survey of all institutes implementing the curriculum, analyse the effectiveness and subsequently prepare a report for the Steering Committee.

Figure 5.6: **Flowchart of Curriculum Development in Manpower Department**
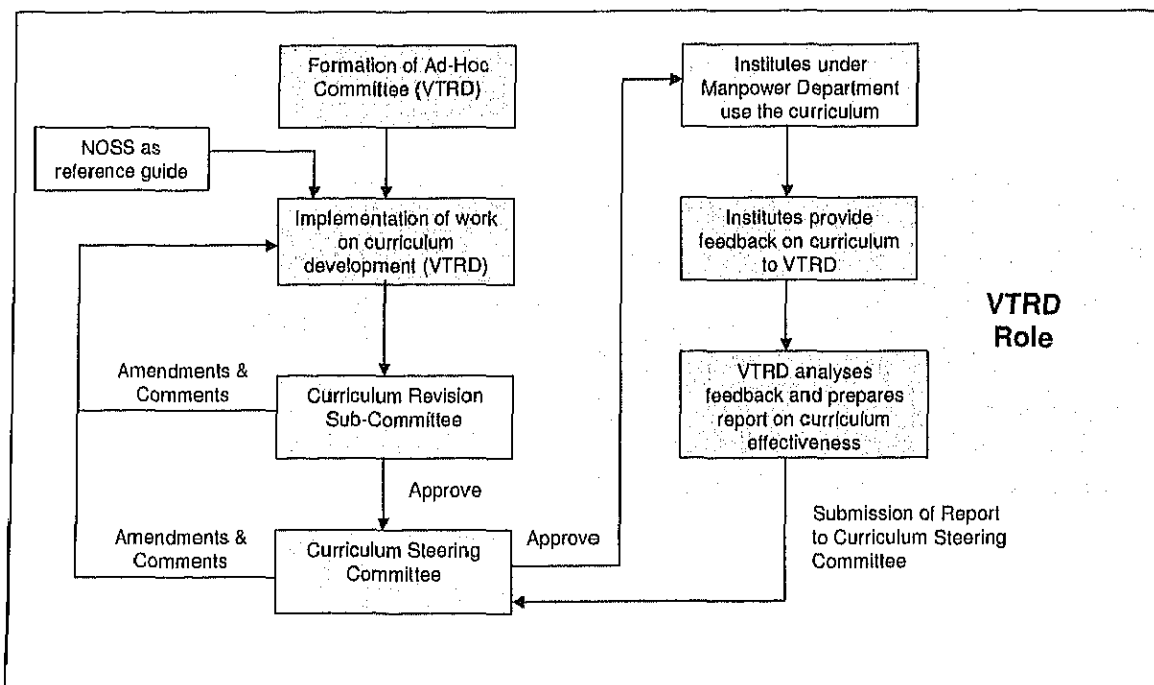
Source: Discussion with Ministry of Human Resource, PE Research, 2004

5.3.2 Determination and Procurement of Equipment, Textbooks and Reference Materials for VTIs

The determination and procurement of equipment, textbooks and reference materials for all the training institutes under the MOHR are all centrally controlled at the Manpower Department. All requests have to be submitted for approval to the department by the respective Directors of the institute. Like all government agencies, procurement of equipment, textbooks and reference materials (as well as all other supplies) has to comply with the guidelines set out by the Treasury (Ministry of Finance). The flow chart explaining the procedures for procurement is shown in **Figure 5.7**.

Figure 5.7: Process for Procurement of Equipment, Textbooks and Reference Materials

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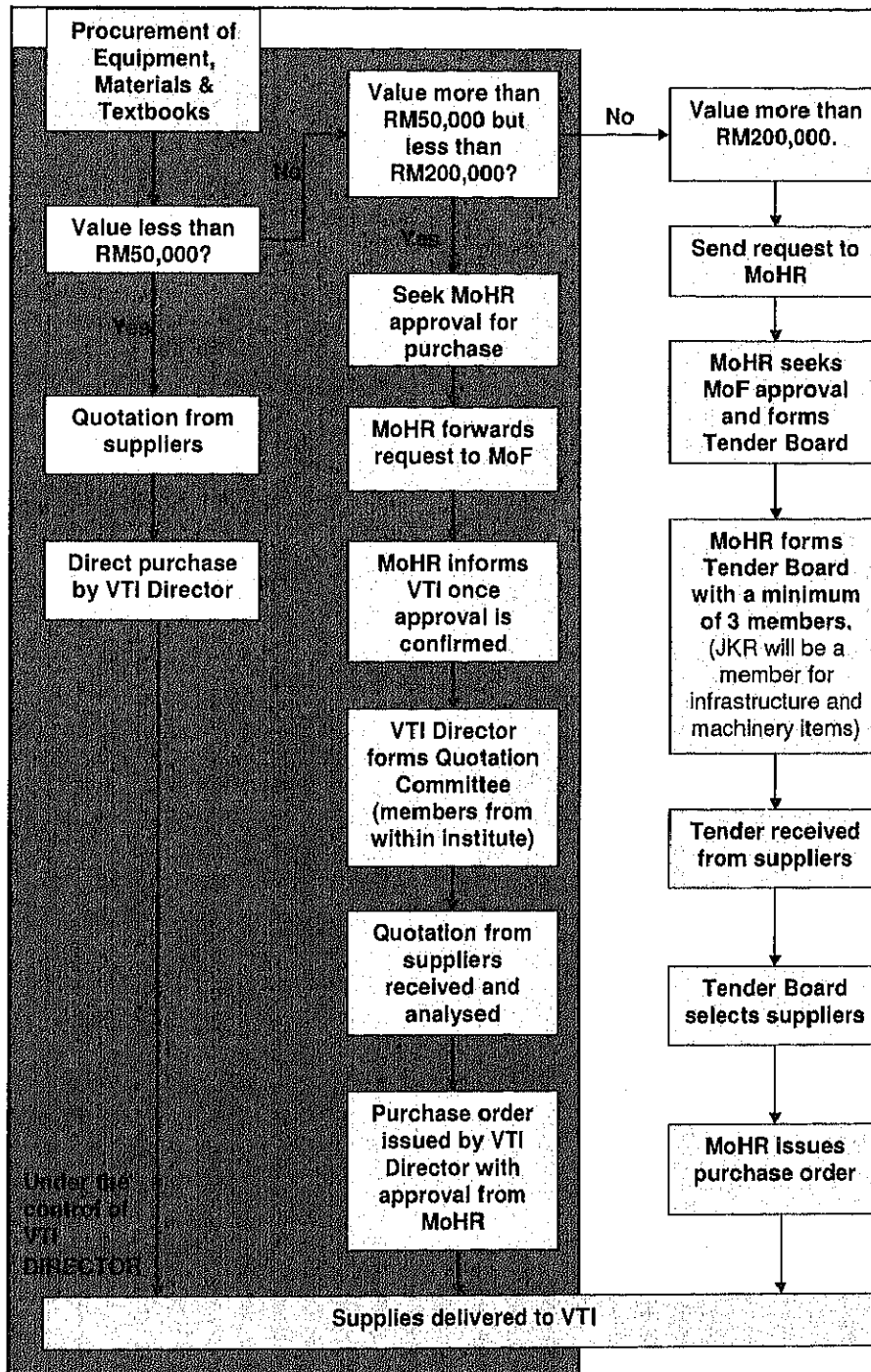
The Manpower Department has a standard guide/list of equipments as well as for textbooks and reference materials based on type and level of courses offered by their institutes. However, this standard guide/list was not made available to the study team as it was deemed confidential.

5.3.3 Recruitment of Lecturers for VTIs

The Public Services Department (PSD) is the government body that approves and recruits all civil service personnel. Thus the recruitment of the lecturers and technical staff for training institutes under the Ministry of Human Resource has to go via this channel. Recruitment of lecturers for the training institutes is based on the requirements as submitted by the ministry to PSD which will then carry out the necessary processes (**Figure 5.8**).

Figure 5.8: Recruitment Process of Lecturers for VTIs
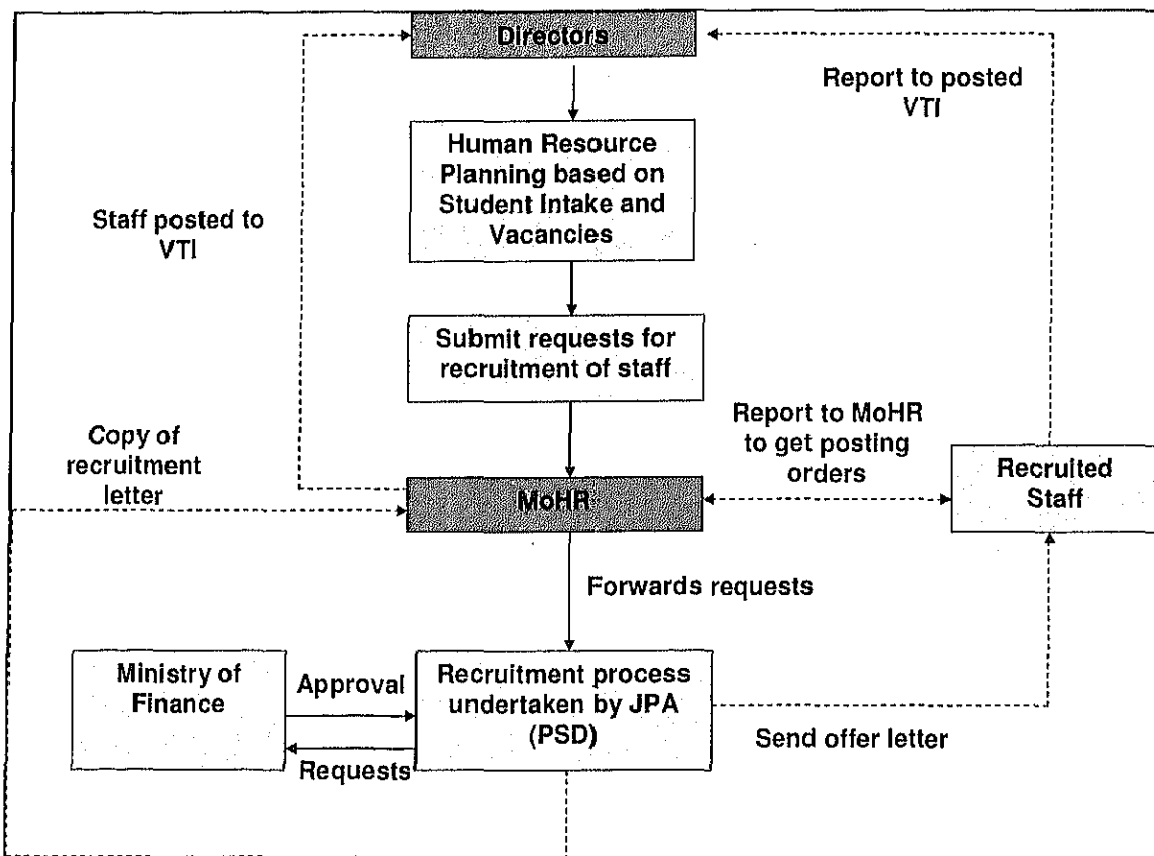
As PSD only recognises NVTC qualifications up to Level 3, a large number of the recruited lecturers and technical staff are graduates from the institutes under the MOE/MoHEd. Diploma and degree holders recruited are sent to MOHR for their posting orders to the training institutes and they will start on their teaching job. Lecturers holding diplomas will have to undertake instructor (pedagogy) training within three years in order to be confirmed in their posts. However for degree holders, it is not a requirement although they are sent for short (1 month) pedagogy training courses too.

5.3.4 Vocational and Technical Skills Development Initiatives

To promote the development vocational education and skills development to meet the needs of industry, to date, the MOHR has established 14 **industrial training institutes**[41] (ITI) and 4 **advanced technology training centres** (ADTEC) throughout the country.

The main objectives of ITIs are to provide formal skill training for school leavers and industrial workers to enable them to acquire skills in specialised fields as well as to upgrade the skills of industrial workers to enable them to contribute effectively towards the national development. The student capacity per year for the 14 ITIs currently in operation is about 10,000. The training provided at the ITIs is free-of-charge with food and accommodation provided too. The courses offered at the ITIs are in: mechanical and production (12 months certificate courses), electrical and electronics (6 – 24 months certificate courses), civil and construction (12 months certificate courses and 36 months diploma courses), printing (12 months certificate course) and plastic technology (12 months certificate course).

The four ADTECs offer Diplomas in Engineering Technology for school leavers, to fulfill the needs of skilled labour. These institutes provide advanced vocational training that meets to the latest developments in industrial technology. The student capacity per year is about 3,500. Participants have to pay an annual fee of RM3,000 and RM2,000 for accommodation and food. However, they can avail themselves to loans from the Skills Development Fund.

Recently, in line with the thrust towards promoting the biotechnology industry, MOHR announced that all its vocational training institutes will also be offering biotechnology courses to churn out more experts in the field to meet the needs of industry[42].

In addition to these initiatives, the **Centre for Instructors and Advanced Skill Training** (CIAST) was established in Shah Alam to provide training for instructors to meet the needs of the vocational training institutes as well as to provide supervisory and advanced skills training. The training at CIAST is free-of-charge with food and accommodation provided too. The courses offered are diploma programmes (36-months) in Production Engineering, Machining Engineering, Quality Assurance, Welding Engineering, Automotive Engineering, Mechatronics Engineering, Computer Engineering, Telecommunication Engineering, Electronic Engineering, and Information Technology.

MOHR has also set up the **Japan-Malaysia Technical Institute** (JMTI) in Penang to produce skilled industrial technologists in the fields of advanced technology and manufacturing, electronics, computer and mechatronics to meet the needs of industry. JMTI also assists in the development of local industries, especially the small and medium-sized industries through the provision of supervisory and continuous skills training for their employees and individual technical consultancy services for their entrepreneurs and managers. As in the case of the ADTECs, participants have to pay an annual fee of RM3,000 and RM2,000 for accommodation and food. However, they can avail themselves to loans from the Skills Development Fund.

The ITIs and ADTECs together with their course specialisations are shown in **Table 5.5**. A matrix showing the courses offered by the ITIs and ADTECs is also provided (**Table 5.6**). To some extent, the specialisation of courses in the ITIs reflects the industry focus of the region, e.g. the ITIs in Kuala Terengganu and Kota Samarahan specialises in gas pipe fittings to cater for the major industry there. Likewise, the ITI in KL offer courses on printing technology as well as computer maintenance.

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[41] Each state has an ITI (except for Penang and Selangor, while Johore has two).
[42] NST, November 8, 2004.

Table 5.5:   List of ITIs and ADTECs in Operation (as at December 2004)

No.	Name	State	Year Established	Specialisation
Industrial Training Institutes			
1	ITI Kuala Lumpur	WPKL	1964	QA Engineering; Computer Maintenance; Low Voltage (AO) Electrical Machine Maintenance; Printing Technology
2	ITI Pasir Gudang	Johore	1983	Mould and Cutting Tool Maker; Industrial Product Design; Low Voltage Electrical Machine Maintenance; Industrial Instrument
3	ITI Kuala Terengganu	Trengganu	1984	Gas Pipe Fitting
4	ITI Labuan	Labuan	1982	-
5	ITI Ipoh	Perak	1989	Mould Maker; Mechanical CADD; Ceramic Technology
6	ITI Kuantan	Pahang	1989	Mould and Cutting Tool Maker; IT (System Engineering)
7	ITI Bukit Katil	Melaka	1990	Industrial Instrumentation; Telecommunications Technology; Plastic Technology
8	ITI Jitra	Kedah	1999	Mould Maker; Heavy Commercial Vehicle; Plastic Technology
9	ITI Kota Bharu	Kelantan	1989	Furniture Technology
10	ITI Muar	Johore	2000	Mould Maker; Industrial Product Design; Industrial Automation; Plastic Technology
11	ITI Pedas	Negri Sembilan	2000	Mechanical CADD; Telecommunication Technology; Industrial Automation; Architecture CADD
12	ITI Kangar	Perlis	2001	Industrial Instrument
13	ITI Kota Kinabalu	Sabah	2000	Industrial Product Design; Mechanical CADD; LV Electrical Machine Maintenance
14	ITI Kota Samarahan	Sarawak		Mould and Cutting Tool Maker; Gas Pipe Fitting
Advanced Technology Centres			
1	ADTEC Kulim	Kedah	2000	See **Table 5.6**
2	ADTEC Shah Alam	Selangor	2000	See **Table 5.6**
3	ADTEC Batu Pahat	Johore	2001	See **Table 5.6**
4	ADTEC Melaka	Melaka	2001	See **Table 5.6**
5	CIAST	Selangor	1984	
6	JMTI	Penang	1997	

Source: Manpower Department, MOHR

Table 5.6:   Course Matrix of ITIs and ADTECs

	Course	Industrial Training Institutes													
		KL	P.Gudang	KT	Labuan	Ipoh	Kuantan	Bkt Kati	Jitra	KB	Muar	Pedas	Kangar	KK	K.Samarahan
A01	Industrial Mechanic	✓	✓	✓	✓	✓	✓	✓	✓	✓					
A02	General Machinist	✓	✓				✓	✓	✓	✓					
A03	CNC Machinery	✓	✓								✓	✓	✓	✓	✓
A04	Mould and Cutting Tool Maker		✓			✓	✓								✓
A05	Mould Maker					✓			✓		✓				
A06	Foundry Technology					✓									
A08	Gas & Arc Welder	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓			✓
A09	Metal Fabrication		✓			✓	✓				✓	✓	✓		✓
A10	Gas Pipe Fitting			✓											✓
A11	Automotive	✓	✓		✓				✓	✓					
A12	Industrial Product Design		✓								✓			✓	
A13	Heavy Commercial Vehicle								✓						
A14	Quality Assurance Engineering	✓													
A15	Mechanical CADD	✓				✓						✓		✓	
B01	Electrician	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓	✓
B02	Refrigeration and Air-conditioning	✓		✓	✓	✓			✓	✓					
B03	Low Voltage Electrical Machine Maintenance (6 mth)		✓	✓										✓	
B04	Industrial Instrument		✓					✓					✓		
B05	Industrial Electronic Technology	✓	✓				✓	✓		✓			✓	✓	
B06	Telecommunication Technology							✓				✓			
B07	Electro-Mechanical Maintenance										✓	✓	✓	✓	✓
B08	Computer Maintenance	✓													
B09	Low Voltage (AC) Electrical Machine Maintenance (2 yr)	✓													
B10	Industrial Automation										✓	✓	✓		
B11	Information Technology			✓	✓		✓			✓	✓	✓	✓	✓	✓
B12	Electrician PW 4								✓	✓					
C01	Architecture CADD	✓					✓					✓		✓	
C02	Building Construction (Wood)			✓	✓										
C03	Building Construction			✓	✓					✓					
C04	Pipe and Sanitation			✓	✓										
C05	Furniture Technology									✓					
C05	Furniture Technolog (Level 3)									✓					
C06	Diploma in Building Technology			✓						✓					
D01	Printing Technology	✓													
E01	Plastic Technology							✓	✓		✓				
E02	Ceramic Technology					✓									
G01	Diploma in IT (System Engineering)						✓								

continued

Table 5.6:   Course Matrix of ITIs and ADTECs *(continued)*

Code	Diploma	ADTEC S Alam	ADTEC BPahat	ADTEC Kulim	ADTEC Melaka
K02	Production Engineering Technology		✔	✔	✔
K03	Machinery Engineering Technology	✔	✔	✔	
K01	Welding Engineering Technology	✔	✔		
L02	Electronic Engineering Technology	✔	✔	✔	✔
L03	Telecommunication Engineering Technology			✔	✔
K05	Mechatronics Engineering Technology	✔	✔	✔	✔
L06	Information Technology		✔		
L04	Computer Engineering Technology	✔			
K04	Quality Assurance Engineering Technology	✔			
L01	Electrical Power Engineering Technology	✔			
L05	Refrigeration & Air-conditioning Engineering Technology	✔			

Source: ITIs and ADTECs

5.3.5   Management of Skills Training Institutes under MOHR

Each of the skills training institutes under the Manpower Department is headed by a Director. As the administrative head and principal of the respective skills training institutes the Director is in charge of all administrative and operational aspects of the institute. The Directors also participate in the various committees set up by the ministry to assess and upgrade vocational training.

As a public sector employee, the Directors of the institutes are governed by General Orders, and Service Orders. Thus, all matters pertaining to recruitment and dismissal of staff will have to be channelled through the MOHR to the PSD[43]. The Directors are not empowered to hire and/or dismiss staff. Likewise, although Directors have full responsibility and powers over the operational budget allocated to the institute, they are strictly governed by Treasury Instructions. Each year, the Directors need to submit their requests for budgets through the Manpower Department/MOHR to the Ministry of Finance for approval. All matters pertaining to capital budgets/expenditure for the institutes need to be referred to the MOHR[44]. However, it is the responsibility of the Directors to provide the necessary justifications and comments to support the request for capital expenditure.

All the training institutes under the MOHR are required to set up their own **Industrial Advisory Committees** with the members drawn from either industrial firms located around the vicinity of the institutes or with industries that are relevant to the courses that they provide. Beyond that, the ministry has no other specific guidelines on the setting up of these Advisory Committees, and each institute is given a free hand in deciding on the objectives and roles of the Industrial Advisory Committees. In most cases, the objective of the Industrial Advisory Committees to get feedback on industrial trends as well as to take advantage of the industrial relationship for their student attachment programmes.

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[43] The Public Service Department is responsible for managing recruitment, emplacement, remunerations, promotions, retirement benefits, service conditions, employer-employee relations, training and human resource information for the whole public sector. See Section 5.3.3.

[44] See Section 5.3.2.

5.3.6 Key Statistics

Over the last six years, the intake of students by the various VTIs has increased more than threefold from 3,160 in 1998 to 10,618 as shown in **Table 5.7**. Output of graduates has also increased to 8,000 as at 2003 (**Table 5.8**).

Table 5.7: Student Intake (1998 – 2003)

	1998	1999	2000	2001	2002	2003
CIAST	51	154	151	269	403	417
JMTI	58	94	144	157	209	23
ADTEC Shah Alam				505	180	25
ADTEC Kulim				282	328	96
ADTEC Batu Pahat				248	346	30
ADTEC Melaka					343	83
ILP Kuala Lumpur	718	60	134	871	963	945
ILP Kota Bharu	280	434	500	715	472	568
ILP Kuala Terengganu	326	350	350	445	585	650
ILP Kuantan	288	456	438	487	565	741
ILP Jitra	221	255	117	506	685	635
ILP Ipoh	274	438	291	464	620	685
ILP Melaka	319	481	475	584	634	633
ILP Pasir Gudang	508	783	684	922	679	729
ILP Labuan	117	222	204	216	354	499
ILP Kangar				219	424	572
ILP Pedas				422	525	742
ILP Muar				406	427	574
ILP Kota Kinabalu				355	475	658
ILP Kota Samarahan				138	167	313
TOTAL	3,160	3,727	3,488	8,175	9,384	10,618

Source: Manpower Department, MOHR

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Table 5.8:   Output of Graduates (1998 – 2003)

	1998	1999	2000	2001	2002	2003
CIAST	23	56	32	153	93	148
JMTI			25	48	60	102
ADTEC Shah Alam				4	271	4
ADTEC Kulim				65	196	65
ADTEC Batu Pahat				94	230	94
ADTEC Melaka						
ILP Kuala Lumpur	721	472	54	344	791	340
ILP Kota Bharu	266	326	416	521	628	620
ILP Kuala Terengganu	129	316	338	292	487	321
ILP Kuantan	456	311	489	360	547	548
ILP Jitra	253	188	94	198	646	567
ILP Ipoh	296	350	364	336	430	552
ILP Melaka	359	375	465	452	639	949
ILP Pasir Gudang	617	650	769	592	866	591
ILP Labuan	129	171	203	204	291	402
ILP Kangar				49	562	407
ILP Pedas				156	345	567
ILP Muar				116	457	539
ILP Kota Kinabalu				80	419	456
ILP Kota Samarahan					231	194
TOTAL	3,249	3,215	3,249	3,901	7,655	8,000

Source: Manpower Department, MOHR

5.3.7 Human Resource Development Berhad (HRDB)

Formerly known as the Human Resources Development Council, the HRDB was established in 1993 under MOHR. The main objective of the HRDB is to encourage employers to train and retrain its employees to constantly upgrade skills through the imposition and collection of a human resources development levy for the purpose of promoting the training of employees, and the establishment and administration of the HRDF[45].

The Board of Directors of the HRDB comprise the following members which are appointed by the Minister of Human Resources: 10 persons representing the employers; three persons representing the Government and public sector agencies responsible for human resource development or training; one representative of the MOHR; one representative of the Minster of Finance; and the Chief Executive of HRDB.

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[45] Pembangunan Symber Manusia Berhad Act 2001

5.3.8 National Vocational Training Council (NVTC)

The National Vocational Training Council (NVTC) was established in 1989 under the purview of the Ministry of Human Resources. It co-ordinates the planning and development of a comprehensive system of vocational and industrial training activities and programmes of all public sector training agencies formerly carried out through the National Industrial Training and Trade Certification Board (NITTCB).

It also evaluates the demand for existing and future skills and identifies future vocational and industrial training needs as well as develop the National Occupational Skill Standards (NOSS) on a continuous basis. As at end of 2003, there were 697 NOSS covering basic, intermediate and advanced training levels for the following 42 industry sectors[46]:

1. Precision Instrument	22. Aviation
2. Construction Industry	23. Office Management
3. Electric	24. Diving - Commercial
4. Electronic, Audio & Video	25. Scuba Diving - Recreation
5. Steel Foundry & Foundry	26. Hotel
6. Plastic Industry	27. Personal Services
7. Agriculture Industry	28. Business & Finance
8. Machinery & Land Transportation	29. Business & Finance - Insurance
9. Machinery & Land Transportation -Crane	30. Welding Technology & Metal Fabrication
10. Woodworking and Furniture	31. IT – Computer
11. Handicraft	32. IT –Multimedia
12. Draughting	33. IT - Telecommunication
13. Maritime	34. ICT - Security
14. Oil and Gas	35. Metal Machining Technology
15. Mechanical - Mechatronics	36. Printing Technology
16. Mechanical - Production	37. Weapon Technology
17. Mechanical - Maintenance	38. Textile & Apparel
18. Tourism & Travel	39. Non-Destructive Testing
19. Tourism & Travel – Theme Park	40. Security Services
20. Motor Vehicle Assembly	41. Land Surveying
21. Motorcycle Assembly	42. Supplementary

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[46] Source: Registry of NOSS, 2003.

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Box 5.1:   National Occupational Skill Standards (NOSS)

What is NOSS? It is a specification of COMPETENCIES expected of a skilled worker who is gainfully employed in Malaysia in an occupational area and level.

Key Criteria of NOSS: Industrial Consultation; 5 Levels; Performance Standard; Duties and Tasks.

Level 1: Competent in performing a range of varied activities, most of which are **routine** and predictable.

Level 2: Competent in performing a significant range of varied work activities, Some of the activities are **non-routine** and required individual **responsibility** and **autonomy**.

Level 3: Competent in performing a broad range of varied work activities, performed in variety of contexts, most of which are **complex** and non-routine. There is considerable responsibility and **autonomy**, and **control** or guidance of others is often required.

Level 4: Competent in performing a broad range of complex technical or professional work activities **performed in a wide variety of contexts** and with a substantial degree of personal responsibility and autonomy. **Responsible for the work of others** and allocation of resources is often present.

Level 5: Competent in applying range of fundamental principles and complex techniques across a wide and often unpredictable variety of contexts. **Very substantial personal autonomy,** and often significant responsibility for the work of others and for the allocation of substantial resources feature strongly, as do personal **accountabilities for analysis and diagnosis, design, planning, execution and evaluation.**

Source: NVTC

In the development of NOSS, NVTC adopts the DACUM[47] approach as shown below.

Figure 5.9:   Procedure for Developing NOSS

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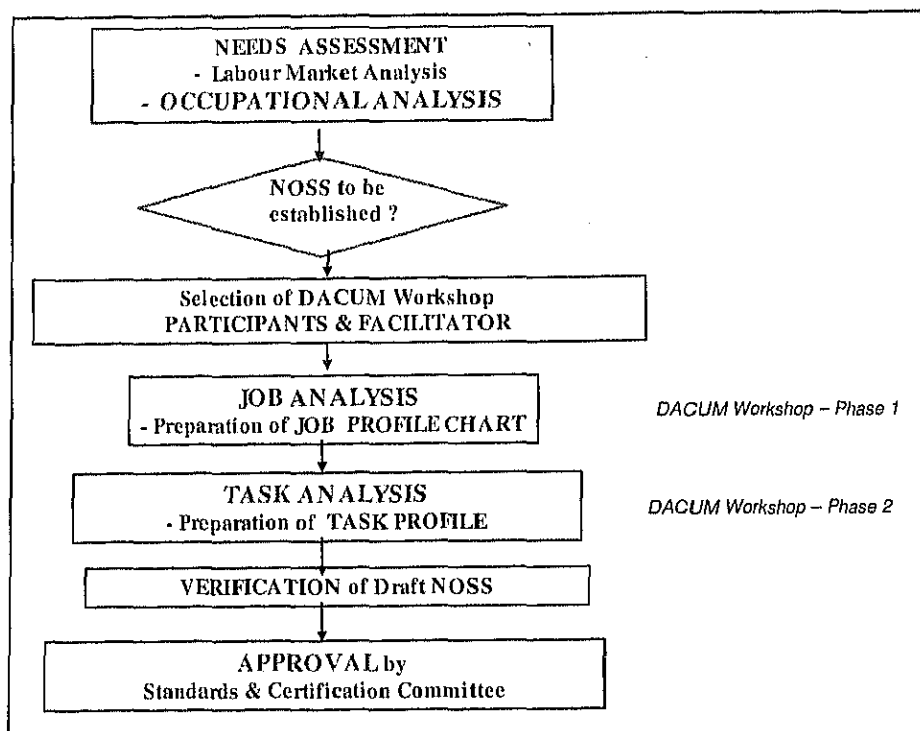
[47] See Annex 5 for explanations on DACUM.

The Council comprises 10 private sector representatives, 10 government representatives and 2 additional representatives appointed by the Minister of Human Resources. The Council is chaired by the Chief Secretary of the Ministry of Human Resources.

Figure 5.10: Structure of National Vocational Training Council

```
                    ┌──────────────────────────────┐
                    │  National Vocational Training │
                    │        Council (NVTC)         │
                    └──────────────┬───────────────┘
                                   │
                    ┌──────────────────────────────┐
                    │           Chairman            │
                    ├──────────────────────────────┤
                    │        Chief Secretary        │
                    │ Ministry of Human Resources   │
                    │           (MOHR)              │
                    └──────────────┬───────────────┘
        ┌──────────────────────────┼──────────────────────────┐
┌───────────────────┐   ┌───────────────────┐   ┌───────────────────┐
│ Public Sector     │   │ Private Sector    │   │ Additional        │
│ Members           │   │ Members           │   │ Members           │
└───────────────────┘   └───────────────────┘   └───────────────────┘
```

Public Sector Members	Private Sector Members	Additional Members
• MOHR • Manpower Department • Ministry of Youth and Sports • MARA • Ministry of Education (Vocational Education Dept) • EPU (Prime Minister's Dept) • MITI • PSD (Public Services Dept) • Ministry of Entrepreneurial & Cooperative Development • Ministry of Finance	• Federation of Malaysian Manufacturers • Malaysian Employers Federation • Malaysian Textile Manufacturers Association • The Electrical & Electronic Assoc. of Malaysia • Federation of Malaysian Foundry & Engineering Industries • MGCCI (Malaysian German Chamber of Commerce & Industry) • FAWAOM (Persatuan Pemilik Bengkel Kereta Malaysia Persekutuan) • JACTIM • CIDB (Construction Industry Development Board Malaysia)	• PIKOM (Persatuan Industri Komputer Malaysia) • MPMA (Malaysian Plastics Manufacturers Association)

The main purpose of this Council is to formulate, promote and implement strategies and programmes for vocational training. The functions of this Council are:

● To assess training needs

● To develop, assess and certify National Occupational Skill Standards (NOSS)

● To implement the National Skills Certification Programme

● To promote skills training system

● To assist and develop individual skills capability

● To support and advice on the education/research related to skills training

To assist the Council, 15 skills advisory committees (by industry sector) have been established. These skills advisory committees (SAC) comprising representatives from industry associations, SMIs, MNCs and individuals will update the Council on skills needs, shortages and developments in technology. The SAC chairmen are also members of the Standard and Certification Committee. In addition to the SAC, there is also a Committee for Co-ordination of Public Agencies, which meets quarterly. This committee comprises the respective government agencies in the provision of training (see below for the organisational set-up of the NVTC).

Figure 5.11: Organisational Structure of National Vocational Training Council
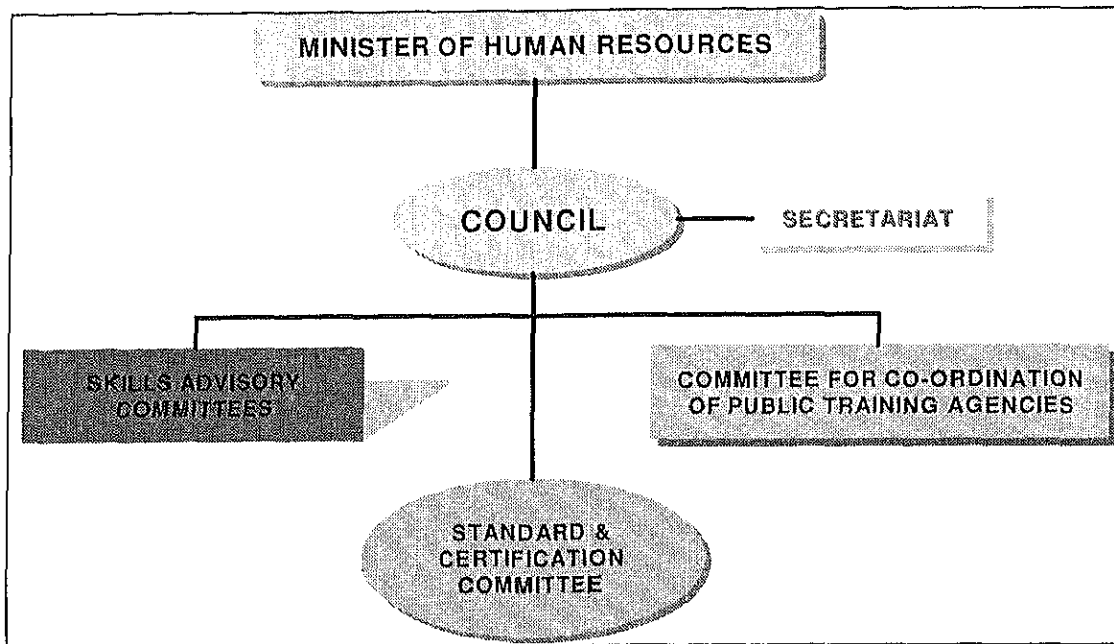
Source: NVTC

5.4 Ministry of Higher Education

The Ministry of Higher Education (MoHEd) was only established in April 2004 and is currently in charge of the provision of vocational education and training through the **Management of Polytechnics Division** as well as the **Management of Community College Division**. Prior to the establishment of the MoHEd, these two divisions were under the Technical Education Department of the Ministry of Education[48].

The organisation chart of the Ministry of Higher Education is still being finalised, but the draft structure is indicated in the figure below.

Figure 5.12: Structure of Ministry of Higher Education

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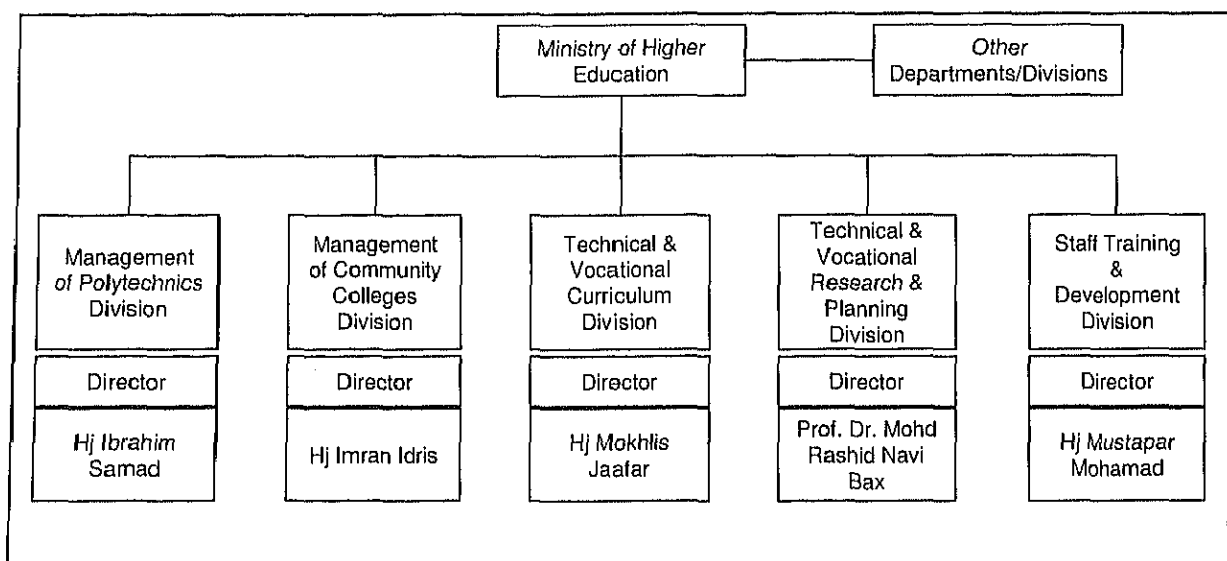
[48] The Ministry of Education remains responsible for vocational and technical schools.

History of Technical and Vocational Education

The Technical Education Department was established in 1995 from a formerly small division known as the Technical and Vocational Education Division (TAVED)[49]. The major role of this department is to ensure the continuity of educational policies and progress of technical and vocational education in Malaysia. The scope of operations include providing services in research, planning, implementation, co-ordination, supervision as well as monitoring the development of technical and vocational education as a central agency to cover both the secondary level and the Polytechnics. In its effort to realise the nation's Vision 2020, the Department's guiding principle is to achieve educational excellence through its primary objectives.

The table below (**Table 5.9**) summarises the vision, mission, function and objectives of the Technical Education Department.

Table 5.9: **Vision, Mission, Function and Objective of Technical Education Department, Ministry of Higher Education**

Vision	Technical education can help in developing an excellent person.
Mission	To develop world class technical and vocational education system to meet the current needs of the nation.
Functions	• To conceptualise policy and the direction of technical and vocational education development. • To determine the implementation and streamlining of technical and vocational institutions. • To plan, draft and evaluate the effectiveness of technical and vocational education.
Objectives	• To provide opportunities to students who are interested and have special inclination towards science and technical education: who at the same time could be streamed to become highly technical and skilled workers that are required for the nation building. • To offer more rigorous technology-oriented programmes to students who have the potential to become semi-professional workers in various technical and engineering fields. Through these programmes, Malaysia will be able to produce highly knowledgeable and competent workforce who possesses good work ethics and excellent values.

Source: Technical Education Department, Ministry of Higher Education

5.4.1 Polytechnics

The polytechnic system was first established in 1969[50]. The objectives are:

• To provide broad-based education and training for upper secondary school leavers to enable them to acquire the necessary skills to become:

   - Technicians and technical assistants (assistants in the various engineering fields)

   - Junior and middle – level executives in the commercial and service sectors.

• To provide relevant technological or entrepreneurial education and training to upgrade the basic skills.

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[49] TAVED was established in 1964.

[50] Polytechnic Ungku Omar.

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● To promote the collaboration between polytechnics and private sectors as well as public sectors through Time-Sector Privatisation as well as research and development programmes.

The Polytechnic Management Division regulates all aspects pertaining to polytechnics in Malaysia. Its main functions are:

● To conceptualise, formulate and implement policies and directions for the development of all polytechnics;

● To identify trends and issues of technical education at national international level;

● To conceptualise, formulate and implement policies regarding intake, placement and welfare of polytechnic students;

● To plan, co-ordinate and implement the annual budget of the division and all polytechnics.

The Ministry of Higher Education is currently upgrading its polytechnic system to meet the growing demand for skilled manpower. The training capacity of the existing polytechnics is being upgraded while several polytechnics are under construction and in the planning process. Currently, there are 55,000 students pursuing courses at the polytechnics. According to the Mid-term Review of the 8MP, the total enrolment in polytechnics is expected to increase to 71,950 students at the certificate and diploma levels.

Presently there are nineteen (19) Polytechnics in Malaysia:

Table 5.10:   Distribution of Polytechnics by State

State	No. of Polytechnics	Remarks
Perlis	1	Perlis Polytechnic
Kedah	2	POLIMAS in Bandar Darulaman and Kulim Polytechnic
Penang	1	Seberang Perai Polytechnic
Perak	2	PUO and Tanjong Malim Polytechnic
Selangor	2	Shah Alam Polytechnic and Sabak Bernam Polytechnic
Negri Sembilan	1	Port Dickson Polytechnic
Melaka	2	Melaka Polytechnic and Merlimau Polytechnic
Johor	1	Johor Bahru Polytechnic
Pahang	2	POLISAS and Muadzam Shah Polytechnic
Trengganu	2	Dungun Polytechnic and Kuala Trengganu Polytechnic
Kelantan	1	Kota Bharu Polytechnic
Sabah	1	Kota Kinabalu Polytechnic
Sarawak	1	Kuching Polytechnic
TOTAL	**19**	

All the polytechnics conduct full-time programmes at Certificate and Diploma levels. Currently, polytechnics offer 26 courses at Certificate level and 37 courses at Diploma level. The courses offered range from Engineering, Commerce, Tourism, Hotel & Catering, Graphic & Industrial Design, to Apparel & Fashion Design. The polytechnics also offer skill courses at the Certificate level for the hearing disabled.

The duration for all certificate courses is 2 years (4 semesters). The duration for all diploma courses is 3 years (6 semesters), except for Diploma in Marine Engineering (3½ years) and Diploma in Secretarial Science (2 years). Courses commence in June and December each year. Course fee is RM200 per semester.

The courses are conducted through lectures, tutorials, practical work and individual project work. Assessment of students is based on a combination of coursework and written examination at the end of each semester. All courses require students to undergo an **Industrial Training attachment** for one semester. The attachment exposes students to the realities and demands of work conditions. Currently, the ministry has a standard basic form that is given to students and employers which details out basic information on requirements and procedures for industrial training attachment. To improve on the industrial training arrangement, the MoHEd is in the process of designing an information booklet to inform industries on the type of skills and knowledge that students would know by the various courses. The new booklet will list out in detail on the capabilities of students by the various courses and levels. This will help industries to identify the proper type of work that can be given to students who are undergoing industrial attachment with their firms based on their qualification. Additionally all students on industrial attachment are provided a standard log-book which records students daily job activities and the log book has to be verified by the employer. Training Officers supervising such students need to visit these students and record their comments at least once a month.

5.4.2 Community Colleges

The Management of Community Colleges (CC) division was established in 2000 and the ten pioneer CCs started operations in June 2001. The vision is to establish one Community College (CC) for each parliamentary constituency. The main role of the CC Management Division is to ensure the operation of all activities of the colleges.

The concept of establishment and implementation of CC is based on the following criteria:

- To give priority to constituencies with no other vocational institutions.

- To offer courses that takes into account the economic activities of the local area.

- To offer courses that could produce workers who are knowledgeable and skilled and who are able to fit into the k-economy

- To practice the application of democracy in education.

The objective of the CC Management Division is to provide dynamic quality education and training that:

- Organises and creates alternative routes for secondary school leavers

- Organises and provides a life-long education in the development of learning communities

- Provides training by up-skilling and re-skilling to fulfil the needs of local workforce

- Provides strategic networking to strengthen socio-economic activities among local clients and stakeholders

- Provides amenities and choices that centres on the community

The functions of the CC Management Division are as follows:

- To manage and co-ordinate Community Colleges' Students' Affairs.

- To co-ordinate the implementation of Community Colleges Curriculum.

- To manage and monitor academic and non-academic Staffing Affairs.

- To co-ordinate the academic and non-academic Staff Services Affairs.

- To co-ordinate general administrative and non-academic matters for Community Colleges Management Division and Community Colleges.

Currently, there are 34 Community Colleges (with two branches) as summarised in the following table. According to the Mid-term Review of the 8MP, the intake into the existing 34 CCs will be expanded to 14,310 places offering courses in areas such as technical, technology, advertising and interior decoration. However it is noted that 24 of the CCs do not have their own premises and are using schools to conduct their programmes. This limits their capacity to carry out the programmes.

To ensure that community colleges are affordable to trainees, the course fee is fixed at RM200 per semester.

Table 5.11:   Distribution of Community Colleges by State

State	No. of CC	Remarks
Perlis	1	Arau
Kedah	2 + 1 branch	Jitra and Sg Petani (branch in Langkawi)
Penang	2 + 1 branch	Kepala Batas and Bayan Baru (branch in Balik Pulau)
Perak	5	Seri Manjung, Padang Rengas, Grik, Sg Siput and Bota
Selangor	4	Sabak Bernam, Banting, Rawang and Kajang
Negri Sembilan	2	Bahau and Jelebu
Melaka	4	Bukit Beruang, Alor Gajah, Asahan and Jasin
Johor	4	Segamat, Muar, Kota Tinggi and Jementah
Pahang	5	Kuantan (2), Bentong, Temerloh, and Kuala Rompin
Trengganu	1	Kuala Trengganu
Sabah	1	Tawau
Sarawak	2	Kuching (2)
WP KL	1	Gombak
TOTAL	34 + 2 branches	

5.4.3 Curriculum Development for Polytechnics and Community Colleges

The curricula of the courses implemented by the Polytechnics and Community Colleges are all designed centrally by the Technical and Vocational Curriculum Division of the MoHEd. Separate curricula are developed for Polytechnics and Community Colleges as the training methodology used are different. Generally training at Polytechnics involves more generic and foundation based courses while training at Community Colleges involves more practical and hand-on experiences. This is evidenced by the percentages of theoretical and practical training sessions, i.e., Polytechnics have 50-60% theoretical compared to only 30% for Community Colleges.

Thus the division has separate Curriculum Development Committee, for Polytechnic Division and Community College Division which are chaired by the respective Division Directors.

The Curriculum Development Unit develops the curricula based on inputs from the government (taking into consideration government policy, institutional requests and findings from consultants), industry advisory committee and course advisory committee. The Industry Advisory Committee includes members from industries while the Course Advisory Committee has members from government agencies and academia. Once the draft curricula are finalised they are forwarded to the Operational Policy meeting chaired by the Secretary-General or Deputy Secretary-General of the Ministry of Higher Education. The Directors of the Polytechnic Division, Community College Division, Technical & Vocational Curriculum Division, Technical Vocational Research & Planning Division and Staff Training & Development Division will attend the meeting. PSD (LAN) officials will also participate in this meeting. Upon approval, the curricula will be implemented in the respective institutes. The diagram below shows the flowchart of curriculum development in the ministry.

Figure 5.13: Process of Designing Curriculum
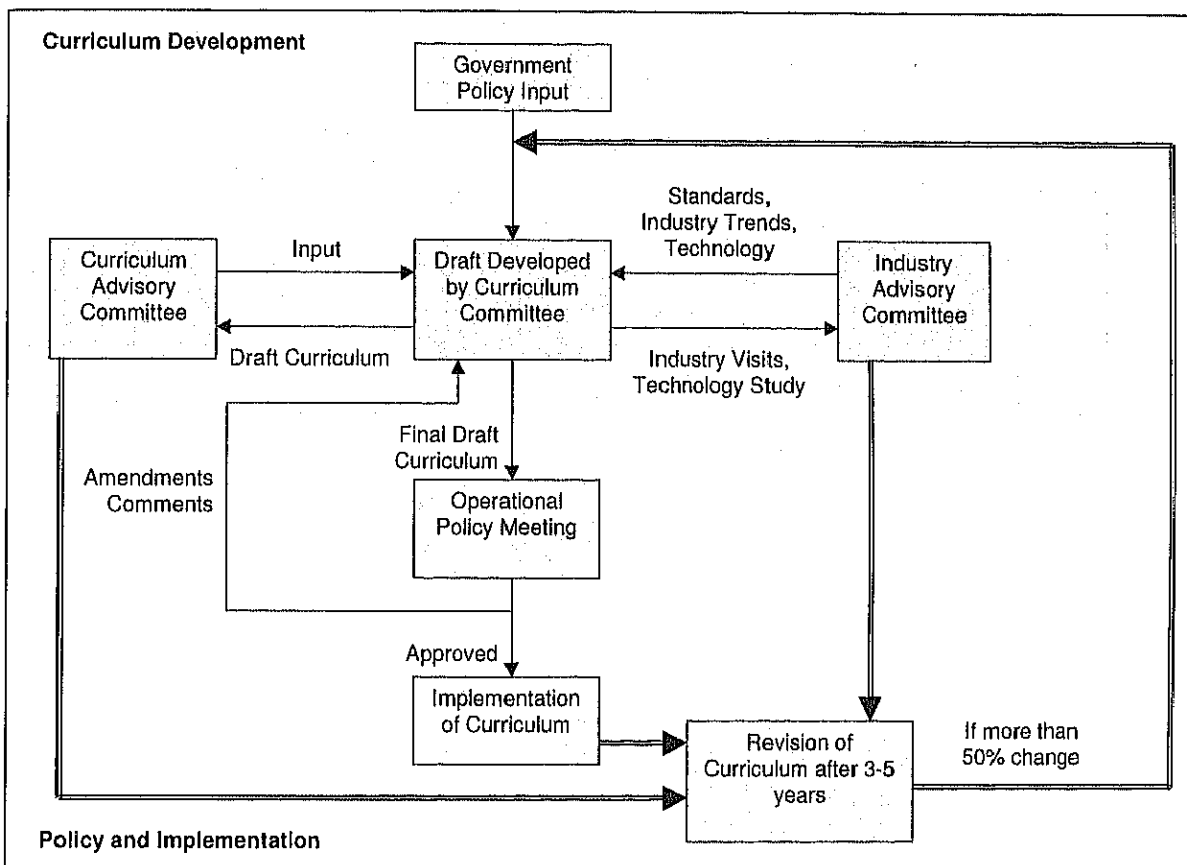
Source: Discussion with Ministry of Higher Education, PE Research

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5.4.4 Recruitment Process of Lecturers

As in the case of the recruitment of lecturers for VTIs under the MOHR, the recruitment process of lecturers for polytechnics and community colleges are also subject to the same regulations and is carried out by the PSD. Suffice to mention here that unlike the lecturers recruited for VTIs under MOHR, fresh graduates (without education diplomas) recruited for teaching positions in polytechnics and community colleges have to undergo a one-year compulsory teacher's training (pedagogy) before they take on their teaching assignments.

In fact since 1993, a Polytechnic Staff Training Centre has been set up specifically to train staff for polytechnics. This centre has been upgraded to a Technological College University now known as the Tun Hussein Onn University College of Technology or KUiTTHO.

5.4.5 Industrial Advisory Committee

As in the case of the VTIs under the MOHR, the polytechnics and community colleges are also required to set up their own Industrial Advisory Committees with either industrial firms in their vicinity or with industries that are relevant to the courses that they provide. The ministry provides guidelines on the setting up of these Advisory Committees. The members of these Advisory Committees can also be members of the committee at the ministry level.

5.5 Ministry of Entrepreneurial and Cooperative Development

This Ministry is also involved in the provision of vocational education and training through the Majlis Amanah Rakyat[51] (MARA) which operates 13 skills training institutes (IKM) throughout the country. IKM offers skill-training programmes at basic, intermediate and advanced levels solely for Bumiputera trainees/applicants.

MARA was created in the 1966 specifically to cater for Bumiputeras to address the perceived backwardness of the Bumiputera community. Within the vocational and technical education ambit, it seeks to address Bumiputera poverty through the provision of skills and education in order to achieve skilled employment.[52]

The department responsible for VET in MARA is the Education and Training (Skills) Section (see **Figure 5.14** and **Figure 5.15**). The overall objective of the section is to ensure that Bumiputera participation in industry reflects the current racial composition in Malaysia.
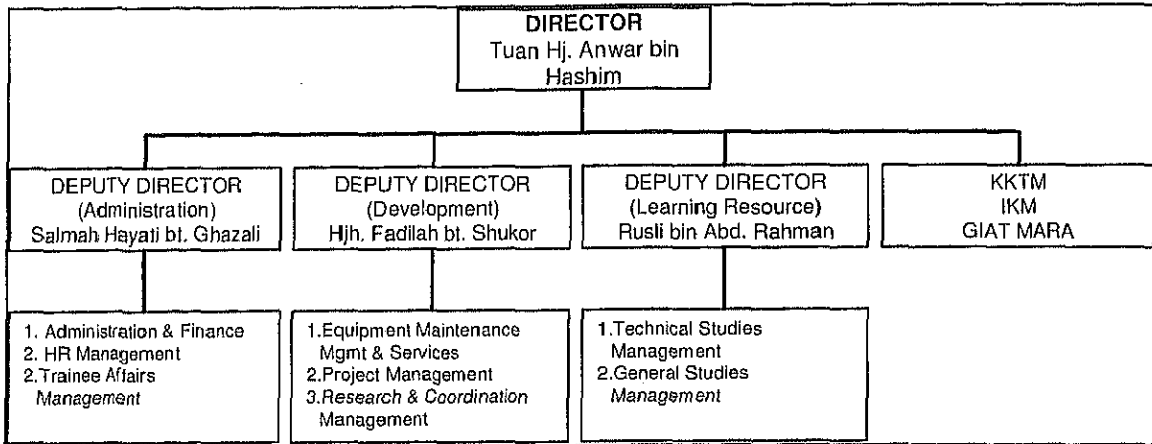
Figure 5.14: Organisation Structure of MARA
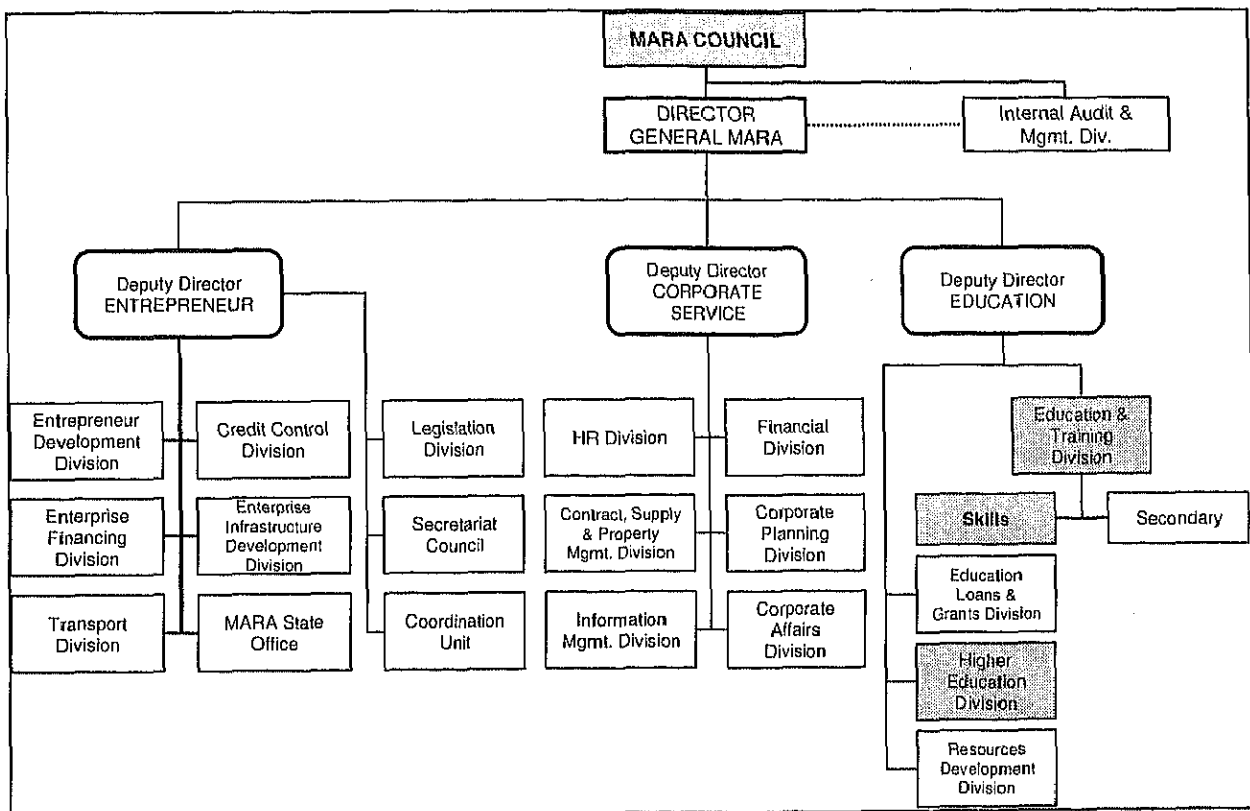
Source: MARA

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[51] Council of Trust for the Indigenous People
[52] MARA website: http://www.mara.gov.my/mkorporat.htm

Figure 5.15:   Organisation Chart of MARA Education & Training (Skills) Division

DIRECTOR Tuan Hj. Anwar bin Hashim

DEPUTY DIRECTOR (Administration) Salmah Hayati bt. Ghazali	DEPUTY DIRECTOR (Development) Hjh. Fadilah bt. Shukor	DEPUTY DIRECTOR (Learning Resource) Rusli bin Abd. Rahman	KKTM IKM GIAT MARA
1. Administration & Finance 2. HR Management 2.Trainee Affairs Management	1.Equipment Maintenance Mgmt & Services 2.Project Management 3.Research & Coordination Management	1.Technical Studies Management 2.General Studies Management	

Source: MARA

The **Education and Training (Skills) Section** department co-ordinates three levels of the skills training that are offered by MARA, viz.:

- The Giat MARA centres that offer skills certificates for courses between 6 and 12 months. It is certified by other certification agencies including NVTC and Energy Commission. The certificate awarded is the Giat MARA Certificate and the Malaysian Skills Certificate (SKM). Some of these centres are now open to all Malaysians. As of end 2003, there were 174 Giat MARA centres.

- The MARA Skills Institutes (Institut Kemahiran MARA) that offer courses between 18 and 24 months. Components of courses include technical, general studies and co-curricular activities. The certification is by the same bodies noted above. The certificate offered is the MARA Technology Certificate and Malaysian Skills Certificate (SKM).

- The MARA Advanced Skills Colleges (Kolej Kemahiran Tinggi MARA) which offer diploma level courses. The duration of the courses is three years. The components of these courses are technical, general studies and co-curricular activities. The certification bodies are same as above and the University Technology Malaysia (Universiti Teknologi Malaysia). The graduates are awarded the Diploma in Technology.

The **Higher Education Division of MARA** administers higher level education. The colleges administered by this division are the MARA Professional Colleges and MARA Advanced Skills Institutes (Institut Kemahiran Tinggi MARA – IKTM). The IKTM differ from the KKTM as the IKTM are subsidiaries of MARA while the KKTM are owned by the government.

The relevant institutes that provide VET under this division are:

- British Malaysian Institute (BMI)
- Malaysian French Institute (MFI)
- German Malaysian Institute (GMI)
- Malaysian Spanish Institute (MSI)
- Malaysian Institute of Aviation Technology (MIAT)
- Malaysian Institute of Chemical Engineering Technology (MICET) ;
- Malaysian Institute of Marine Engineering Technology (MIMET); and
- Universiti Kuala Lumpur (UniKL)

**Table 5.12:   Summary Profile of MARA Training Institutes**

Type of Institute	Profile
MARA Skills Institute – 13 IKMs	Offering Vocational MARA Certificate Courses Duration: 18 - 24 months Component: Technical, General and Co-curriculum Intake: twice yearly Allowance : RM 210 / month Accreditation : MLVK and Manpower Commission Awarded MARA Technology Certificate and Malaysia Vocational Certificate
MARA Advanced Skills Institute – 7 IKTMs	Offering MARA Diploma in Technology Courses Duration: 3 years Component: Technical, General and Co-curriculum Intake: twice yearly Allowance : RM 265 / month Accreditation : MLVK, Manpower Commission and Malaysia University of Technology Awarded Diploma in Technology

Source: Vocational Education and Training Division, MARA
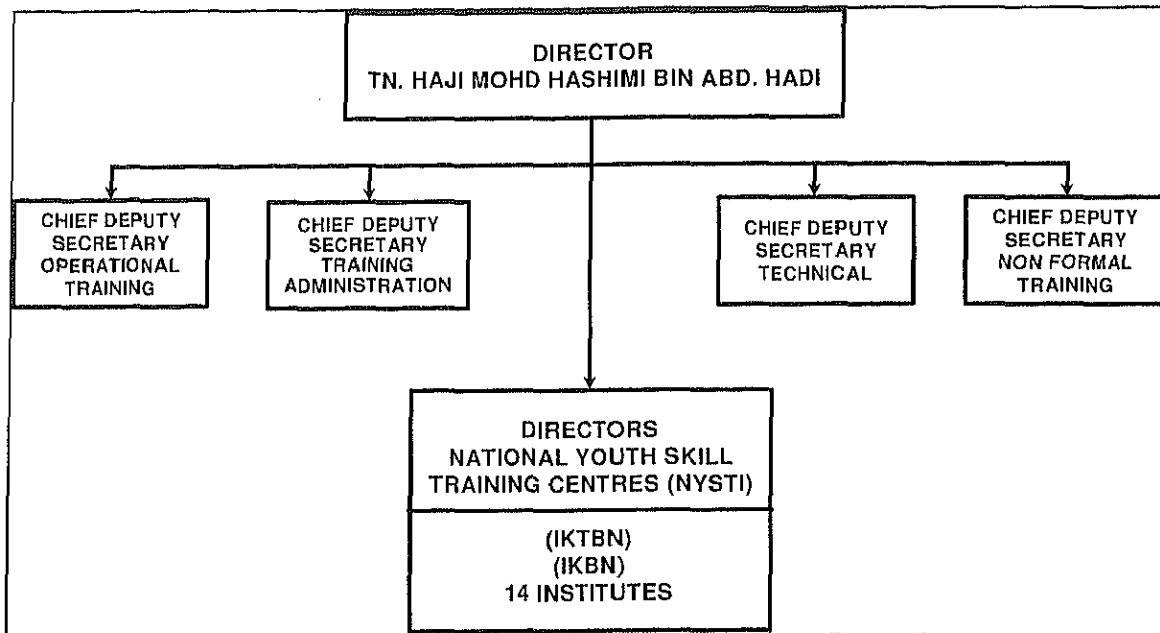
5.6   Ministry of Youth and Sports

The Ministry of Youth and Sports (MYS) is also involved in the provision of vocational education and training through the Youth Skills Training Programme which is under the ambit of the Skills Development Department. **Figures 5.16** and **5.17** show the organisational charts of the Ministry and of the relevant department. The main task of the MYS is to provide training facilities as well as ensure proper running of these facilities. The ministry has autonomy in planning, supervising, co-ordinating and evaluating its operations, student recruitment, curriculum and development. The Skills Development Department implements these decisions.

Figure 5.16:   Organisation Structure of Ministry of Youth and Sports
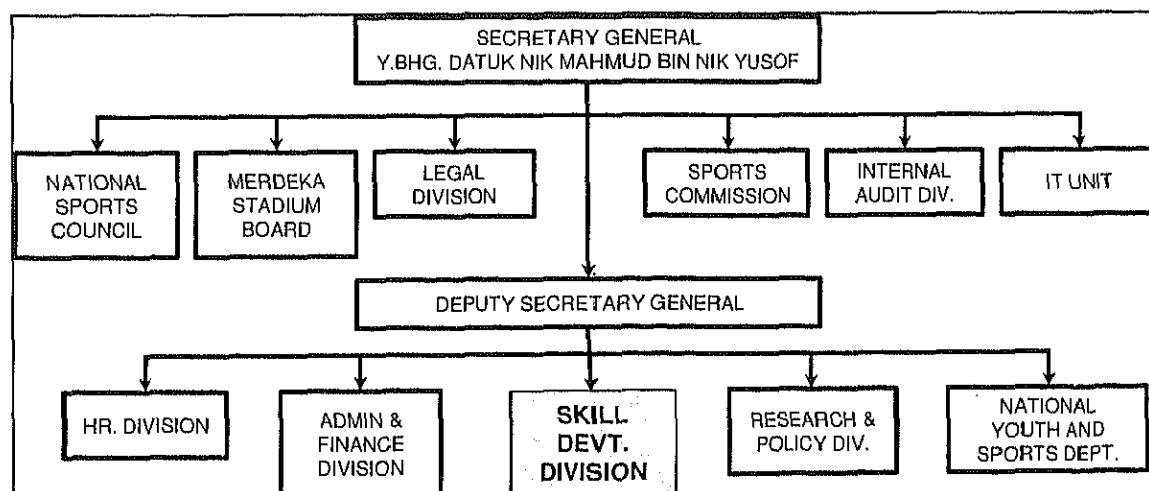
Source: Ministry of Youth and Sports

Figure 5.17:   Organisation Structure of Skills Development Division

Source: Ministry of Youth and Sports

5.6.1   MYS Youth Skills Training Programme

The Youth Skills Training Programme is the main thrust of the MYS to develop youths that are skilled. This is articulated in the National Youth Development Plan[53]. The objective is to prepare skilled and semi-skilled youths for the industrial sector. The MYS through the Skills Development Department provides this programme for the youths. Two approaches are used – the institutional approach and the informal approach.

The **institutional approach** is carried out through full time training provided at the National Youth Training Institutes (*Institut Kemahiran Belia Negara* - IKBN). The vocational courses offered are mechanical, automotive, electric, electronic, civil engineering, textile, and apparel. These courses are certified following the NOSS SKM, the CIDB and the Energy Commission (Suruhanjaya Tenaga – Jabatan Bekalan Elektrik dan Gas) for the respective skill certifications. There are 15 IKBNs throughout Malaysia (including one IKTBN and one currently under construction).

The **informal approach** is mainly short-term or weekends courses and modular style. It is held at various public facilities such as at youth or sports complexes. It is 'flexible' in its approach in duration, methodology and premises. The non–formal skill training is provided by outsourcing the training (sending students to private colleges), apprenticeship schemes, short courses at youth or sports complexes, weekend training and non – resident training. Some of the non–formal programmes conducted are short term courses and modular form at IKBNs, National Youth Pioneer Scheme, On-the-Job Training, and Light Skills Training at Youth and Sports Complex.

The following table summarises the various types of training offered by the Youth Skills Institutes.

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[53] http://www.unescap.org/esid/hds/youth/youth_malaysia.pdf

Table 5.13: Training Offered by Youth Skills Institutes

Type of Training	Profile
Full Time Courses	• Offering Certificate and Diploma courses in Mechanical, Automotive, Civil Engineering, Textile & Apparel, Hospitality, Personal Service, Electrical & Electronics and Information Technology fields • Duration: SKM1/SKM 2 (6-12 months), SKM 3 (12-24 months) and Diploma (36 months) • Intake: twice yearly • Accreditation : NVTC • Allowance of RM100 (SKM2), RM200 (SKM3 and Diploma) and RM300 (on job training) given to each student. • Free lodging, food, medical treatment, uniform and course materials.
Short Term Courses	• 51 short courses in Pneumatic, Welding, Plastic, Moulding, CNC, IT and Graphic Design. • Duration for each short course is 16 hours. • Fee is between RM300 and RM400 per course.

Source: Skill Development Department, Ministry of Youth and Sports

The shortage of places at IKBN is a long-standing problem. The number of application far exceeds the number of places available. The Ministry is addressing it by providing non–residential training as well as expanding and increasing the number of facilities.

5.6.2 Statistics

The following tables below provide the statistics of the IKBNs as at July 2004 for its residential programmes. Application is more than intakes by 45%. Malays are the largest group with almost 68%. Females form approximately 31% of the intake, 27% of enrolled and 29% of graduates for 2004. Over the past 38 years, the IKBN has produced approximately 57,000 graduates through its various programmes.

Table 5.14: Number of Students at IKBN (2004)

	Application	Intake	Enrolled	Output
Total	**5,459**	**3,764**	**5,058**	**3,390**
Males	3,282	2,590	3,669	2,406
Females	2,173	1,174	1,389	9,84
Malays	4,761			3,235
Chinese	33			14
Indians	59			18
Other Bumiputera	531			123

Application – the total number of students who applied for term 2/2004
Intake – number of students offered places for term 2/2004 (July 2004)
Enrolled – number of students at IKBN/IKTBN for term 2/2004 (July- Dec 2004)
Output – Students graduating at end term 2/2004 (Dec 2004)
Source: Skills Development Department, Ministry of Youth and Sports

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Table 5.15:   Total Student Output from IKBNs/IKTBN (1966 –2004)

Programme	Year	Total
Youth the Nation Builders	1969 – 1991	21,629
Youth the Special Builders	1970 – 1985	918
Skills/Kemahiran	1966 - 2004	34519
Total	1966 – 2004	57,066

Source: Skills Development Department, Ministry of Youth and Sports

5.7   Other Ministries

Other ministries that are involved in vocational education and training programmes for the industrial sector include the following:

The **Ministry of Agriculture** provides VET for the agriculture sector. The Agriculture certificate is accredited similar status as the Polytechnic Certificate (Technical) from the Ministry of Higher Education (Polytechnic Management Section). The courses offered include skills in soil management, livestock management, horticulture, agriculture engineering. Students are allowed to specialise in landscaping, livestock management, farm mechanisation, food crop production technology and agriculture food processing technology. Basic subjects such as English, general management and agribusiness are also taught. The duration of the course is approximately two years or four semesters. There are currently five agriculture-training institutes under the Ministry of Agriculture.

The **Ministry of Plantation Industries and Commodities** through the Malaysian Timber Industry Board (MTIB) has set up a Wood Industry Skills Development Centre (WISDEC). WISDEC's objective is to:

- Provide an industry-oriented skills training
- Produce adequate skilled human resources for the wood based industry.
- Expedite technology transfer through technical training
- Provide technical advisory services in furniture manufacturing

MTIB has also introduces a Wood-based Industry Apprenticeship Scheme (Furniture) under the HRDB at WISDEC. Upon completion of this training, the apprentice will receive the Malaysian Skills Certificate Level 1 and 2 (SKM1 and 2). This certificate is jointly awarded by NVTC and HRDB. For more information on WISDEC, please see **Volume 2** of the report.

The **Ministry of Rural and Regional Development** (MRRD) is another Ministry that provides VET as a strategy to address challenges faced by its constituency. The MRRD does not have any vocational institutes or colleges of its own. However, the agencies under its purview operate training colleges that offer vocational training. RISDA and FELCRA have their own training colleges which offer NVTC certificates.

5.8   Coordination of Vocational Training

Despite the numerous Ministries and agencies that are involved in the provision of VET, currently there is no coordinating body which is given the primary control to coordinate the entire vocational education and training activities. Rather each ministry has its own budget, develops its own infrastructure and curricula, and pursues its own objectives. The absence of a focal point, to some extent has resulted in duplication and has lost out on the advantages of scale and coordination.