

- CORRIGENDUM -

1. Page vii, no.VI : the words Wood-Based Training Centre are to be read as Wood-Based Industrial Training Centre.
2. Page viii under Members : to include Y.B. Encik Law Hieng Ding (October 27, 1990 - to present) under Minister of Science, Technology and Enviroment.
3. Page 43, para 2, line 2 : the word sixteen is to be read as fourteen.
4. Page 64, no.16 : the words Malaysian Timber Industry Board are to be read as Malaysian Industrial Development Authority.
5. Page 91 : the title, para 1, line 1 and para 2, line 5 : the words Wood-Based Training Centre are to be read as Wood-Based Industrial Training Centre.

- ⑥ “Managing Industrial Transition:Policies for the 1990s”
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MANAGING INDUSTRIAL TRANSITION: POLICIES FOR THE 1990s

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EDUCATION AND SKILLS TRAINING IN MALAYSIA
- POLICIES FOR INDUSTRIAL TRANSITION

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The assessments and views expressed in this paper
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EDUCATION AND SKILLS TRAINING IN MALAYSIA - POLICIES FOR INDUSTRIAL TRANSITION

I. INTRODUCTION

The Malaysian economy has undergone significant changes in the last few years as a result of the various economic adjustment measures undertaken by the government to meet the changing world economic environment. The prudent management of the nation's economy had brought about structural changes in the economy which by itself introduced new and challenging issues to the economic planners and implementors. This requires a significant reorientation of how Malaysians view the development of the economy and the need to develop new and effective approaches of meeting these challenges as we approach the twenty first century and our target to achieve a fully developed status by the year 2020.

II. GROWTH AND TRANSFORMATION OF THE MALAYSIAN ECONOMY

During the last twenty years the Malaysian economy is guided by the First Outline Perspective Plan (OPP1) which introduced the New Economic Policy (NEP). Under the NEP the Malaysian economy had developed into a robust and resilient economy. The structure of the economy since then has shifted from one which is basically an agricultural and resource based economy to a one which is more diversified with manufacturing and services sectors taking the lead role. Since 1987, the agriculture sector, in terms of value added contribution to the gross domestic product (GDP), has been overtaken by the manufacturing sector which is fast becoming the main engine of growth for the economy. In line with this development, the services sector has also grown to keep up with the increasing demand of a modern manufacturing based economy. This development is well illustrated by Table 1(a) and Table 1(b).

TABLE 1 (a)
MALAYSIA: GROSS DOMESTIC PRODUCT BY MAIN SECTORS, 1980 - 2000
(\$ MILLION IN 1978 PRICES)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	2000
Agriculture, Forestry, Livestock & Fishing (%)*	10190 (1.3)	10604 (4.9)	11395 (6.5)	11302 (-0.6)	11624 (2.8)	11854 (2.0)	12348 (4.2)	13216 (7.0)	13928 (5.4)	14737 (5.8)	14829 (0.6)	20820 (3.5)
Mining & Quarrying (%)*	4487 (-2.2)	4289 (-4.4)	4617 (7.6)	5344 (15.7)	6074 (13.7)	5958 (-1.5)	6362 (6.8)	6408 (0.7)	6803 (6.2)	7385 (8.6)	7688 (3.8)	8910 (1.5)
Manufacturing (%)*	8742 (9.2)	9155 (4.7)	9671 (5.6)	10429 (7.9)	11711 (12.3)	11263 (-3.8)	12111 (7.5)	13734 (13.4)	16151 (17.6)	18089 (12.0)	21381 (18.6)	58010 (10.5)
Construction (%)*	2066 (17.3)	2367 (14.6)	2598 (9.8)	2867 (10.4)	2988 (4.2)	2738 (-8.4)	2354 (-14.0)	2077 (-11.8)	2133 (2.7)	2380 (11.6)	2788 (17.1)	5470 (7.0)
Services (%)*	17834 (10.7)	19895 (11.6)	21201 (6.6)	22610 (6.6)	24419 (8.0)	24869 (1.8)	24707 (-0.7)	26013 (5.3)	27972 (7.5)	30370 (8.6)	33465 (10.2)	70711 (7.8)
Less: Imputed Bank services charges (%)*	854 (16.5)	877 (2.6)	1152 (31.3)	1397 (21.3)	1595 (14.7)	1834 (15.0)	1891 (3.1)	2235 (18.7)	2820 (26.1)	3356 (19.0)	4020 (19.8)	13702 (13.0)
Plus: Import duties (%)*	2046 (25.3)	2087 (2.0)	2116 (1.4)	2429 (14.8)	2522 (3.8)	2745 (-11.0)	1759 (-21.7)	1650 (-6.2)	2131 (29.2)	2529 (18.7)	2972 (17.5)	5563 (6.5)
TOTAL GDP (%)*	44511 (7.4)	47600 (6.9)	50446 (6.0)	53584 (6.2)	57743 (7.8)	57093 (-1.1)	57750 (1.2)	60863 (5.4)	66298 (8.9)	72134 (8.8)	79103 (9.7)	155782 (7.0)

Notes: * - Average Annual Growth Rate
Source: Economic Planning Unit

Table 1.(b)
 MALAYSIA : PROPORTION OF GROSS DOMESTIC PRODUCT BY MAIN SECTORS, 1985-2000
 (%)

INDUSTRY/GDP	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
AGRICULTURE, FORESTRY, LIVESTOCK & FISHING	20.75	21.38	21.71	21.00	20.43	18.75	17.87	17.18	16.79	16.08	15.47	14.92	14.54	14.15	13.78	13.36
MINING & QUARRYING	10.48	11.02	10.53	10.26	10.24	9.72	9.42	8.83	8.29	7.77	7.28	6.94	6.63	6.31	6.01	5.72
MANUFACTURING	19.72	20.97	22.57	24.36	25.08	27.03	28.03	29.14	30.11	31.24	32.44	33.38	34.41	35.35	36.28	37.24
INSTRUCTION	4.79	4.08	3.41	3.22	3.30	3.52	3.59	3.65	3.64	3.63	3.61	3.59	3.57	3.55	3.53	3.51
SERVICES	43.54	42.78	42.74	42.20	42.10	42.31	42.58	43.03	43.22	43.54	43.84	44.30	44.46	44.70	45.07	45.39
LESS : IMPUTED BANK SERVICE CHARGES	-3.21	-3.27	-3.67	-4.25	-4.65	-5.08	-5.32	-5.58	-5.78	-5.99	-6.39	-6.78	-7.24	-7.68	-8.20	-8.80
US : IMPORT DUTIES	3.93	3.05	2.71	3.21	3.51	3.76	3.83	3.75	3.73	3.74	3.75	3.66	3.63	3.61	3.59	3.57
GDP	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source : Economic Planning Unit
 Tenname: GDP2
 Date : 23 August 1991
 Username: Education Data

The momentum of the strong growth recovery after the recession of the mid-eighties is expected to continue into the nineties as the economy firms up further with private investment and exports remaining buoyant. The Malaysian economy is targeted to grow by an average of 7 per cent per annum in the decade of the OPP2 as compared with the average growth rate of 6.7 per cent achieved during the 1971-90 period. The share of manufacturing in GDP is projected to increase from 27 per cent in 1990 to about 37 per cent by the year 2000, making Malaysia an industrial oriented economy, increasingly dependent on manufacturing exports for the growth of income and employment in the country. Manufacturing exports are projected to account for about 81 per cent of total exports by the year 2000, while the share of agricultural exports will decline to 6 per cent.

The changing structure of the economy has a significant impact on the human resource development in the country. By the very nature of differences in the sectoral requirements of the economy the type of manpower requirements also differs. This coupled with the more and more sophisticated and fast changing technological development taking place in the manufacturing sector requires a different set of quality manpower. The industrial manufacturing sector requires more trained and skilled manpower, technically oriented with a set of industrial values which are essential to maintain a productive and competitive production entity that will ensure the maintenance of Malaysia's competitive edge in the world market.

III. IMPLICATIONS ON HUMAN RESOURCE DEVELOPMENT

The demand for a highly skilled and trainable workforce that is expected to power Malaysia into a developed nation by the year 2020, if not earlier, is not limited to the manufacturing sector only but also to all other sectors of the economy. The changes that are taking place in the economy now is expected to bring about greater demand for more trained,

trainable manpower, skilled workers who should have a strong basic education, well grounded in mathematics, science and a good communication ability not only in Bahasa Malaysia but also in a foreign language.

What are the implications of these changes that are taking place in our economy on our education and training delivery system? What are the relevant changes and adaptations that need to be carried out? These are the challenges facing these organizations and the men behind them. Are the relevant organization prepared to meet these challenges? What are the Government policies that are being developed or formulated now?

IV. PRESENT EDUCATION AND TRAINING DELIVERY SYSTEM

A look at the present existing situation such as the physical facilities, the teachers and instructors, their scheme of service the courses offered, the management style will enable us to gauge the situation as well as gives us an idea of our preparedness.

In terms of infrastructure i.e the school buildings, the polytechnic and the universities we can safely say we do not lack the necessary basic infrastructure. All the buildings have good access to water, electricity supplies and transportation as well as modern telecommunication facilities. Generally the physical facilities are good. However certain areas especially those in the underdeveloped region of the country do need more and improved facilities in order to make available education and training to all Malaysians. The number of teachers and instructors are also quite sufficient. However with the present tight labour market experienced teachers, lecturers and instructors tend to be drawn to the industry attracted by the better pay and service incentives. The present scheme of service for teachers and instructors are too inflexible and unattractive to retain the

experienced personnel from leaving the service. As such there is the difficulty not only to fill up vacancies but also to attract good and qualified candidates.

The tight labour market not only shrinks down the number of teachers, lecturers and instructors but also shrinks down the number of trainees since potential trainees are more attracted to getting employment rather than to spend their time undergoing training. As such there are courses which have to be cancelled or are run without their full capacity. This increases further the under utilization of public sector education and training facilities.

Aside from the question of the numbers of teaching and training personnel there is also the question of quality. With the expansion of the education and training programmes in the country more young, inexperience and lacking in industrial exposure are drawn into the teaching and training profession. The chances are that they will be posted to serve in the rural areas are great so as to replace those who have request for transfers to a more urban surrounding. Generally for the rural areas there is the difficulty of retaining the best teachers and trainers. Putting aside the issue of dedication and idealism ultimately what is important will be what are the incentives of serving in the rural and the underserved areas of the nation. Often teachers will request for transfers. As a result those remaining behind will normally be the young and inexperience. As long as service situation treats any point of service as equal without regards to qualification, expertise experience the rural areas and the underserved regions's schools will find it hard to have a good set of experienced teachers as is available in most urban schools.

The management of the training institute is also handicapped by the inability to act independently in certain areas of managing the institute such as recruitment of personnel, changing the standard course design, developing customised courses to cater to private sector needs and involving

the private sector or the industry as a whole. However this can be considered a short term problem that can be dealt with administratively by the central authority. Nevertheless the responsibility of taking a greater form of initiatives should increasingly be shouldered by the managers of the institutes. Overall the managers of these institutes do not have a high degree of freedom to really manage and adapt to changing skill market requirement.

After having looked at the present situation let us consider the prospect of meeting these challenges facing the educational and training institutions in the country.

As mentioned earlier the physical facilities of the education and training institutions in the country are reasonably good. The Sixth Malaysia Plan has allocated sufficient provision to cater for the establishment of new additional facilities, the expansion of existing ones, upgrading of equipment etc. A total of \$8.5 billion has been allocated for the development of education and training in the Sixth Malaysia Plan as compared to \$5.8 billion in the Fifth Plan. However all these efforts will be of little benefit if we are not able to make the optimum use of these facilities especially with regard to the utilization of expensive and specialised equipment.

With regards to the teachers and instructors there is no doubt that serious attention should be paid to improving their scheme of service not necessarily to be competitive with the private sector but flexible enough to encourage a free movement of personnel from the public sector to the private sector vice versa. Under such scenario it is anticipated that a private sector personnel with the necessary industrial exposure may be willing to move to the public sector either on a temporary basis or part time basis without the feeling of monetary loss or deprivation, loss of status or prestige or career prospect. It is envisaged that a private sector personnel who may want to do some teaching or research work can be attracted to join the public sector under this new arrangement.

Another area regarding personnel that must be given serious consideration is the development of a continuous training and retraining programme for teachers and instructors not only to keep them abreast of new methods and technology but also to maintain a high degree of industrial exposure so that their teaching methods and approaches produce the desired quality of manpower that is needed by the industry.

V. THE SECOND OUTLINE PERSPECTIVE PLAN (1991-2000)

The Government recently has introduced the Second Outline Perspective Plan covering a ten year period 1991 to 2000. The OPP2 has been formulated based on the National Development Policy (NDP). It marks a watershed between the past 20 years of social engineering unparalleled in its success and another 30 years of things to come before we reach the stage of an advanced country. The OPP2 represents only a third of the time targeted to achieve the 2020 vision. And yet it is this next ten years that will determine whether we make or break.

The OPP2 based on the NDP is framed on a continuation of the growth momentum over the last 20 years. The Malaysian economy recorded an average annual growth rate of 6.7 per cent during the period 1970-90.

The NDP i.e the successor to the New Economic Policy reflects the continuing concern of the Government for striking a balance between growth and the distribution of the benefits of development. Given the demographic and multi-ethnic characteristics of the population, the differential growth patterns between regions and the continuing income imbalances within and between ethnic groups, the issue of growth with equity is an important consideration in the long term policy calculus. Thus the

continued emphasis on eradicating poverty and restructuring society as to correct social and economic imbalances, thereby contributing towards national unity.

The NDP however emphasises the achievement of a more balanced development and encompass the following critical aspects:-

- a balance between growth and equity;
- a balanced development of sectors;
- equitable sharing of the benefits of growth; between individuals, ethnic groups and regions;
- a balance between material welfare and spiritual/moral values;
- a balance between an emphasis on merit and the attainment of the restructuring objectives;
- promotion of a science and technology culture compatible with building an industrial society; and
- a balance between the pursuit of economic development and the protection of the environment.

The balanced development of the economy is premised on the need to ensure stable growth, reduce social conflict and enhance national unity.

As the formulation of the NDP is based on the strengths and weaknesses of past development strategies as well as cognisant of present realities, the NDP contains significant shifts in strategy to achieve national goals.

- 1) The focus of the anti-poverty strategy is shifted to the eradication of hard core poverty while reducing relative poverty at the same time;
- 2) In order to increase meaningful participation of Bumiputera in the modern sectors of the economy, the focus will be on a strategy of employment and the rapid development of an active Bumiputera Commercial and Industrial Community (BCIC);
- 3) There will be greater reliance on the private sector to participate in the process of restructuring by creating more growth opportunities; and
- 4) Human resource development will be given greater focus as a means to achieve the growth and distributional objectives.

As mentioned earlier the OPP2 represents a third of the time targeted to achieve the 2020 Vision. It provides the guidelines of the nation's development philosophy and broad policy areas which will form the basis of development strategies and programmes for the Sixth and Seventh Malaysia Plans. Among the major areas touched by the OPP2 is human resource development which provides the basis of Malaysia's education and training policies.

The OPP2 occupational scenario sees the fastest growing occupations to be in those areas related to administration and managerial, sales, professional and technical, and production categories in line with the growth in the manufacturing and tertiary sector activities as shown in Table 2. These occupations will account for 1.8 million new jobs or 76.7 per cent of the new jobs created during the period. The demand for production workers alone, especially in manufacturing and construction activities is expected to account for 38.4 percent of the new jobs created in the economy during the OPP2 period.

In the professional and technical category about 48 percent out of the total 320,000 new jobs created will be in the technical occupations. With the continuation of the present upgrading of production technology from the simple assembly and process type operations to the more sophisticated automated processes, there will be increase demand for about 153,000 engineers and engineering assistants during this period. This demand will be more pronounced in the civil, mechanical electrical and electronics fields. There will be increase demand for scientists and technologies in research and development (R&D) activities. In view of the commitment of the Government towards maintaining and upgrading the quality of educational and health care for the population, the demand for teachers as well as medical and health personnel will remain high during the period as indicated in Table 3.

As administration and management becomes more sophisticated changes in job contents are expected to accompany the growth in management. Managers and supervisors both in the public and the private sectors will, therefore, need a wider range of technical competence to handle more complex operations as well as oversee a greater mix of capital equipment and skilled employees. With regards to sales and clerical occupations, greater stress is being placed on a higher level of product knowledge, interpersonal communication skills, keyboard skills, software

TABLE 2
OCCUPATIONAL STRUCTURE, 1990 and 2000

Occupational Groups	1990 c		2000 f		Net Increase 1991-2000		Average Annual Growth Rate (%) 1991-2000
	('000)	(%)	('000)	(%)	('000)	(%)	
Professional and Technical	580.8	8.8	900.8	10.0	320.0	13.5	4.5
Administrative and Managerial	162.4	2.4	263.7	2.9	101.3	4.3	5.0
Clerical	645.9	9.8	891.3	10.0	245.4	10.4	3.3
Sales	761.3	11.5	1,243.2	13.8	481.9	20.4	5.0
Service	770.3	11.6	1,131.5	12.6	361.2	15.3	3.9
Agricultural ^{1/}	1,872.5	28.3	1,818.2	20.2	-54.3	-2.3	-0.3
Production	1,827.8	27.6	2,737.6	30.5	909.8	38.4	4.1
TOTAL	6,621.0	100.0	8,986.3	100.0	2,365.3	100.0	3.1

Notes: c - estimate
f - forecast

^{1/} Negative growth of this occupational group is due to a net reduction in job creation in the agriculture sector.

Source: The Second Outline Perspective Plan (1991-2000)

TABLE 3

CAPACITY OF LOCAL INSTITUTIONS TO MEET THE DEMAND
FOR SELECTED PROFESSIONAL AND TECHNICAL OCCUPATIONS
1991-2000

Occupation	Stock 1990	Employment 2000	Net Increase 1991-2000	Output (1991-2000) ¹	
				Local Public	Local Private
ENGINEERS	26,500	56,600	30,100	21,000	—
Civil	11,100	19,500	8,400	3,700	—
Electrical & Electronic	6,200	14,600	8,400	4,200	—
Mechanical	5,200	10,800	5,600	4,000	—
Chemical	800	2,000	1,200	900	—
Others	3,200	9,700	6,500	8,200	—
ENGINEERING ASSISTANTS	72,400	195,300	122,900	84,070	20,900
Civil	27,100	58,500	31,400	20,400	600
Electrical & Electronic	32,300	75,900	43,600	21,200	8,800
Mechanical	6,400	32,400	26,000	11,600	9,600
Chemical	600	6,000	5,400	570	—
Others	6,000	22,500	16,500	30,300	1,900
MEDICAL AND HEALTH	11,600	17,600	6,000	6,200	—
Physicians & Surgeons	7,900	12,300	4,400	4,600	—
Dental Surgeons	1,700	2,200	500	700	—
Pharmacists	2,000	3,100	1,100	900	—
MEDICAL AND HEALTH ASSISTANTS	47,300	57,400	10,100	5,660	1,050
Medical & Lab. Med. Assts	9,500	13,000	3,500	1,000	—
Dentists & Dental Nurses	2,000	2,700	700	200	—
Pharmaceutical Assts.	1,500	2,400	900	360	—
Professional Nurses	34,300	39,300	5,000	4,100	1,050
SCHOOL TEACHERS	177,600	252,500	74,900	74,900	—

Notes:

¹ output does not include graduates from education and training institutions overseas.

Source : The Second Outline Perspective Plan (1991-2000)

knowledge, and wider commercial awareness. A total of 828,600 new jobs will be created in these three occupational categories.

In the agricultural workers category, a net reduction in employment is expected as more educated and better trained Malaysian workers opt for employment in the manufacturing and the services sectors. Nevertheless the agriculture workers productivity is expected to increase further with modernization of the sector, mechanization, application of new technologies and increasing R & D in upstream activities. All these developments will require a new breed of technically oriented skilled agricultural workers.

With the move towards greater industrialization and the adoption of new technologies, more skilled workers at the production level will be required. This will lead to an increased demand for or manpower with wide craft-based competence and complementary skills.

In order to supply the necessary manpower to meet the needs of the nation in the future the education and training delivery system in the country must be geared to produce an industry driven type of manpower. In other words the future workers that will manned our industries will have to meet the demand for the types of skill that is patterned on the overall development and expansion of the industries. The manpower needed must not only have the skilled required but also posses values which will make them an efficient, disciplined and productive workers.

Education and training is looked upon as an important means of building upon the on-going thrust of the NEP in eradicating and restructuring society. Through education and training all Malaysians will be provided with the opportunities to participate actively and equitably in the economic life of the nation. In the process of restructuring the Malaysian society, education and training programmes will accompany on going efforts

to redress inequalities in income, employment, and the ownership and control of productive resources among ethnic groups. As such this will require closer collaboration between the public and private sectors in education and training efforts so as to bring about the realization of this objective.

As mentioned earlier Malaysians need to be instilled with greater positive values shared together by all especially among the young ones. They are the new generation who lacks the social, political economic perspective of the development of the nation and yet will be the mainstay of our pursuit to be a fully developed nation. They must have a strong sense of belonging, loyalty and love for the country. At the work place they must have greater degree of industrial discipline, and enhance the pursuit of excellence and the continual search for improvement, alongside other positive values attributes such as honesty, integrity, diligence, discipline, cooperation, dynamism and creativity. An important means of inculcating these values will be a forward looking and pragmatic education and training system geared to meet the needs the needs of the nation.

The future growth of the economy will require skilled and versatile workforce which is adaptable to a changing industrial environment. To meet this demand, the education and training delivery system will have to be more responsive to the demand of a dynamic labour market. As such there must be constant monitoring of the quality of output from the education system so as to make the necessary adjustment. As the output of the education system involve an element of time before the students can enter the labour market, nine years at the moment (i.e Form Three), it is therefore essential that educationist be aware of the type of future technological development that will takes place in the industry. This requires close contact with the industry and scientific world. At the same time teachers' training must be constantly upgraded in line with technological development as well as having the necessary industrial exposure.

Since disparities of educational and training facilities and opportunities still exist between the urban and rural areas the Government will continue to provide those in the rural areas and less developed region in the country with the necessary facilities to upgrade their education and skills, there by increasing their access to and participation in the modern sectors of the economy. The provision of equal opportunities and improved facilities will help eliminate the disparity in the quality of education and training between urban and rural areas and among the different segments of the society.

As the quality of the output of the education and training delivery system not only depends on the facilities provided but also on the quality of teachers and instructors it also essentials that teacher training will be upgraded. More graduate and specialist teachers will be trained. Specialist training institutes will be established to provide the demand for better trained teachers and instructors. At the moment the minimum entry qualification for teachers is the Sijil Pelajaran Malaysia. It is desirable that entry qualification be raised so as to ensure a high level quality teachers of the future. At the same time the raised level of entry will also ensure that those who enter the teaching profession are those that consider teaching as their first career preference rather than as secondary option. Greater intake of graduate teachers will also do away with the present practice of upgrading non graduate teacher through in-service graduate training. The target in the long run will be to have all teachers even at the primary level to have degree qualification.

Apart from increasing the entry level of teachers and instructors more emphasis will be given to taking in more technically oriented teacher and instructor candidates. This is essential to ensure that only teachers and instructors with the relevant orientation and qualification only becomes teachers and instructors in these areas. Teachers and instructors are moulders of the nation's future work force. As such failure to pursue this will

be detrimental to our effort to produce the relevant technically competent workforce that is needed to propel our industrial growth.

In line with the changes made to teacher and instructor entry requirement, the course design and curriculum in the school and training institution must be adapted to the industrial needs so that the output of skilled and technically competent workers produced may be readily accepted by the industry. If the training is closely geared to meet industry need then specialised inhouse training by the industry to adapt their new workers to specialised technology or machine will have shorter learning curve and proved that Malaysian workers are trainable and adaptable. This is very essential to enable greater flexibility to our industries to adapt their production capability to the changing world economic environment.

As the establishment of new facilities requires a large amount of expenditure especially in the case of establishing new universities and at the same time there is a need to provide more higher education opportunities to all Malaysians new ways or approaches to the provision of education and training will have to be developed. Presently private institutions are allowed to developed twinning arrangement with universities overseas. This will not only allow students access to higher education from overseas institution but also reduce the cost of attending overseas universities. Apart from having twinning programmes, distance learning facilities in the form of correspondence courses is another means of increasing education and training facilities. However as higher education seems to attract a lot of interest in Malaysia the Government is looking into the possibilities of introducing an Open University in the country. Through this approach it is anticipated that more Malaysian will be able to pursue their interest to have a university education which is cheaper and more flexible. This open university programme is expected to benefit those who are already working or those who need to continue working and yet would like to further their education at the university level without having to give up their jobs.

As the Government is pursuing the policy of encouraging the private sector to play a more important role in the development of the economy, it is also encouraging the private sector to work closely with the public sector education and training institution so that the type of training carried out will be more industry oriented. The private sector is also encourage to move into the provision of more training facilities especially in specialised areas or enterprise/industry based training. It is hoped that through all these efforts more training facilities will be established to meet the training needs of the country.

As the needs for training increases to adapt workers to newer technologies there must be conscious effort on the part of both the public and private sectors to look upon training as a continuous process of updating and improving the capabilities of the workers in the country. In order to achieve this education and training facilities in the country must be fully utilised, especially those in the public sector. As such public sector facilities will be made available to the private sector for customised courses, evening and weekend courses.

Though efforts will be carried out to create more education and training facilities both in the public and the private sectors nevertheless it is felt that this is still not sufficient to meet all the training need of the country. As such the Government will still continue to provide scholarship to send students abroad to study in well established and reputable universities and training institutions abroad. The students will be encouraged to gain working experience overseas before returning to serve the nation. Arrangements will also be made on government to government basis for the training of Malaysian workers in foreign countries especially those with large investment in Malaysia.

VI. THE CABINET COMMITTEE REPORT ON TRAINING

As the needs to provide relevant education and training to Malaysian becomes more critical with the increasing inflow of investment in the country the Government established a Cabinet Committee on Training on 21 March, 1990 under the Chairmanship of the Minister of Education to undertake a study on training needs especially for the manufacturing sector. The study entitled the "Report of the Cabinet Committee on Training - Training for Industrial Development, Challenges for the Nineties" was released to the public on July , 1991. The report contained a study by six Working Groups comprising members from the private sector, the public sector, professionals and academicians. The Working Groups coordinated by the Economic Planning Unit of the Prime Minister's Department focused on the industrial structure as well as skill profile and shortages of six industries where rapid growth was anticipated in the next five years. The industries were construction, electric and electronics, information technology, textile, and wood-based industry and five selected manufacturing sub-sectors namely ceramics, chemical, machinery and engineering foundry and plastic. In addition, the Working Groups also examined the effectiveness and adequacy of the training provided by the public and private sectors in supplying skilled manpower.

In its overview of the industries, the Report indicates that while industries like construction, wood-based, textiles, electrical and electronics, plastics, ceramics and chemicals industries are important in terms of employment creation, industries which contribute significantly to export-value include wood-based, textiles, electrical and electronics, construction and plastics are the major contributors. However, industries such as information technology, textiles and machineries and engineering still depend on imports for raw materials.

Each of the industry covered by this study has its own problems peculiar to the industry, nevertheless problems common to all of them relate to low level of technology or relatively young with good potential, shortage of skilled workers, supervisors and technicians and in some cases high turnover of workers due the tight labour market contributing to greater mobility of labour in search of better working condition and remuneration.

In discussing the issue of skills shortages, a few factors were considered by the Report. The problem of skills shortages has been identified to be more than the issue of the narrow technical skills that workers must have. The real issue at hand is the shortage of skilled workers with the appropriate experience i.e it is not so much as the electrical engineer that is not available but the electrical engineer with the five years of experience.

Secondly, there are a few key skills on which the vitality and competitiveness of every industry depends. These skills include strong, or uncanny, entrepreneurial, managerial and marketing abilities, particularly in the international markets, that can help to bring about rapid expansion and modernization in industry. There is always a great demand for these skills which cannot be easily developed in the classroom of formal training institutions.

Thirdly labour shortage faced by industries has risen from several causes and the direct solution to the problems is not always the provision of training.

The Report also considers that the existent of skill shortages need not be viewed negatively as is often the case. In fact the most important phase of skill development is when the worker enters the labour force, and this tends to be demand driven. A worker can only gain experience and the relevant exposure when he is exposed to the workload

requiring him to move up to a higher skill level. Thus an experienced worker cannot be a supervisor unless there is a vacancy to be filled within the firm.

Therefore within limits an increase in the demand for workers with a particular competence creates its own supply, setting off chain reaction of recruitment and upward mobility of workers at the lower skill levels. This process will be greatly facilitated if there is a ready pool of trained labour and concerted actions taken by various parties concerned to address the shortages through training rather than 'poaching' from other firms.

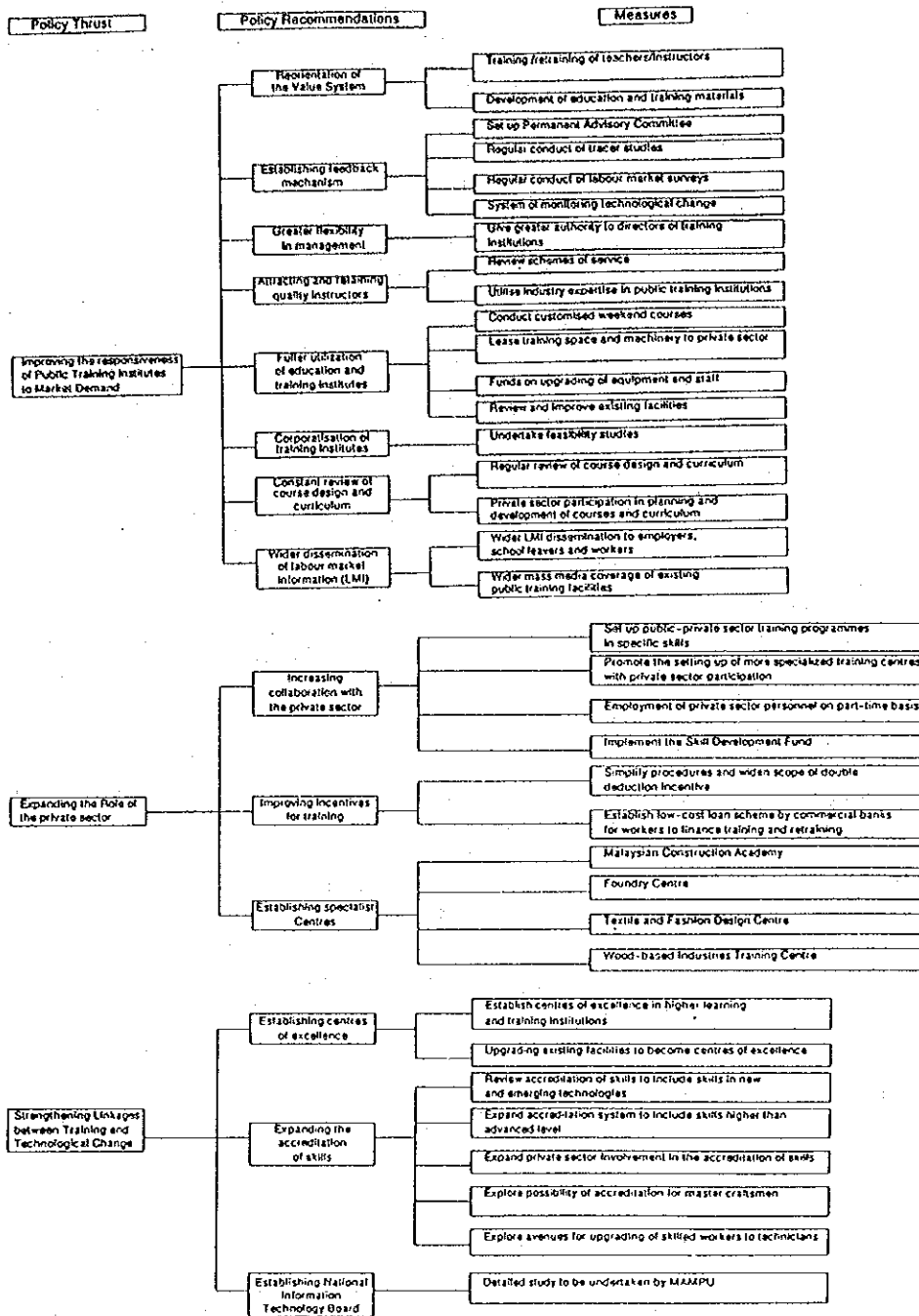
The Report identified three major policy areas with fourteen policy recommendations and thirty six measures to bring about a major reform in the education and training delivery system as shown in Chart 1. The three policy areas are expected to bring about major improvements in the public and private sector collaboration in the education and training delivery system. They dealt with the need to improve the responsiveness of the public training to market demands, expanding the role of the private sector and strengthening linkages between training and technological change. (Please see detail of the report's recommendation in Appendix 1).

In order to ensure the implementation of the recommendations of the Report, the Cabinet had instructed the Committee to continue to monitor the implementation of the recommendations. A monitoring committee chaired by the Director-General of the Economic Planning Unit was established for this purpose.

The implementation of the recommendations of the Report of the Cabinet Committee on Training is not the overall answer to meet the challenges of producing the manpower needed by the economy. It must be seen as a component to a package of economic reforms and adjustment taking place in the Malaysian economy. The introduction of the double tax deduction to companies that carry out training which was introduced in 1987

Chart 1

RECOMMENDATIONS OF THE CABINET COMMITTEE ON TRAINING AND EMPLOYMENT



Appendix I is an earlier attempt in improving human resource development. This is later widened to cover the manufacturing as well as the non manufacturing industry. The incentives for the industry to provide training for their workers is further enhanced when the incentives is extended to cover pre-production training.

VII. THE HUMAN RESOURCE DEVELOPMENT FUND

The Government is also working on the establishment of a skill development fund known as the Human Resource Development Fund. This is a fund to be created from a levy imposed on certain industries. The fund is to be used for the promotion, development and upgrading of skills of employees and the provision of financial assistance to employers by way of grants, loans or otherwise for the above mentioned purposes. As presently conceptualised, the fund is expected to cover, initially, large and medium size firms in the manufacturing and tourism sectors. The scope can be expanded and broadened in time. It is anticipated that this fund will be a boost to the training industry and will encourage the private sector to set up training facilities especially in specialised areas either as an independent operation, in house training unit or on enterprise or industry basis.

The present shortage of workers in certain sectors of the industry has led to the request by the industry concerned especially the manufacturing industry to be allowed to bring in foreign workers as production operators or other specific category of critical skill workers which are in short supply. Though the Government has shown favourable stand on this matter, it should not be taken as an excuse by the private sector to continue their labour intensive operation and delay the process of upgrading their production lines to one which is less labour intensive.

VIII. THE VALUE SYSTEM

As mentioned earlier the country is fast moving from an agricultural based to an industrial based economy. In this process of transformation there is the need to look into the value system that is being practised in the country. We can see that development is fast changing the values of those residing in a more industrial and urbanised environment. However a large portion of our population is residing in the rural areas where things are moving much slower and yet it is this group of the population which is becoming the source of industrial labour. A serious attempt must be made to adjust our value system in order to achieve a relatively smooth transformation of our society to an industrial society. The transition from an agricultural to an industrial society involves a simultaneous transition to a new set of values. Survival in a volatile and a highly competitive world trading environment requires that Malaysian products maintain a competitive edge, both in terms of cost and quality. It is incumbent, therefore, that Malaysians are constantly and continuously imbued with increasing consciousness towards productivity and quality.

While skill training provides the means of garnering new skills and enhancing efficient work practices, a fundamental requirement for an industrial workforce is proper work attitudes, such as integrity, discipline, punctuality, loyalty to company, diligence, a dedication towards improving oneself and society, cost consciousness and attention to details. It is the sum total of all these that help to raise quality. And it is the result of all these and more that makes an economy competitive.

Values are behavioral practices accepted by a society. Therefore behavioral practices which fall into disuse will ultimately lose their acceptance as standard norms of behaviour and their values to the society. As such new values can be introduced into the society through education and repetitive and exemplary practices by leaders who can set the trend of usage. The

earliest stage of inculcation of new values can start at the school level and to be continued at all levels of education and training and even in the work place. To ensure a faster internalization of new values there must be concerted effort to educate the public through the mass media. The inculcation of new values has its own gestation period, the development of these values and work culture will have to begin in the schools and in the workplace. It is imperative, therefore, that our school system be geared to develop positive attitude and values required for industrial development. Since teachers and instructors are leaders, they are the first base line moulders of the future industrial workforce, they must be reoriented to meet the new challenges of building new values into the future industrial workforce. As such the training of teachers, both existing and new entrants into the teaching profession, will have to be re-oriented to meet the new challenges.

As such, the Government must seriously consider the development of a mental reorientation programmes through motivational and attitudinal training to develop such desirable values and make Malaysians more responsive to the demands of development.

Apart from this, reading and teaching materials must be developed and produced to meet the needs to revamp unacceptable values and to give greater emphasis to the new set of values. People will need to be weaned away from being slow, contented and resigned to fate, an orientation of values often characteristic of a traditional agricultural society. Books must be re written with an industrial orientation, reflecting the new values of an industrializing society. Teaching aids and educational kits should be made accessible to all in order to speed up the absorption of the new values. Books, teaching aids and educational kits should enhance curiosity and the search for knowledge, thereby laying the basis for the development of an industrial culture, as well as the creation of a scientific and progressive society, that is innovative and forward looking.

IX. CONCLUSION

Malaysia enters the last decade of the twentieth century on a strong economic foundation, with the GDP growing at 9.9 percent in 1990 and a forecast of 8.0 percent for the year 1991. The structure of the economy has now become more industrial oriented and thus increasing further its position in the world market. During the early stage of the implementation of the NEP Malaysia is known for its commodity exports, since then however its manufacturing exports has been making headway in the world market. In the international scene the market is highly competitive, be it in the quality of the products or their prices as well as the supporting services that will enable the market to be maintained or expanded. There is greater urgency for Malaysia to capitalise on its present strength in the world market and improve further its competitive edge. Malaysia can no longer depend on cheap labour to maintain the price advantage of its export. With this realization more emphasis must be given to the development of its human resource as the best investment that will ensure future growth of the economy. It is the quality of its manpower that will enable Malaysia to forge ahead in its industrialization programme and hence maintain its competitiveness in the world market. In the final analysis it is Malaysians who are technically oriented, skilled and trainable as well as possessing the appropriate values that will be responsible for creating new growth opportunities, open new markets and generate new and competitive products that contribute to the growth and prosperity of the economy.

The challenge to produce the necessary manpower that will man our industries will rest on a pragmatic education and training delivery system that is sensitive to future technological changes. The system must produce the desired type of skilled manpower that place premium on excellence in efforts and quality in production so as to ensure our competitiveness in the region as well as in the world.

RECOMMENDATIONS OF THE CABINET COMMITTEE ON TRAINING

(Extracted from the "Report of the Cabinet Committee on Training")

RECOMMENDATIONS

Analysis of skill shortages and manpower requirements as well as findings of the six Working Groups highlight several features:-

- 1) While the rapid growth in industrial activities has resulted in an increased demand for skills, on the supply side, the training institutions have been unable to meet these demands due to various rigidities.
- 2) Rapid technological changes in the production process require significant changes in the skills required by the affected industries. Consequently, there is a need for flexibility by skill supply mechanisms to respond to the changing skill requirements. In particular, skill upgrading/retraining of the existing workforce in addition to pre-employment training needs to be enhanced.
- 3) In addition to basic formal training, much of the required skills that are short in supply have to be acquired on-the-job.
- 4) Existing government training institutions are not market driven. Market demand for skills are not well monitored and the mechanism for ensuring relevance of output is inadequate.

Based on the preceding analyses, this part of the report proceeds to a more generalised level, going beyond the training needs of the industries examined by the Working Groups. In order to strengthen the current training delivery system, thirteen broad policy directions for a comprehensive programme of policy reforms are recommended.

Together, they encompass close to fifty discrete policy measures that seek to set in place a dynamic and forward-looking framework for improving the effectiveness and efficiency of skills training in the country. The scope of the proposed reforms is wide, and the individual elements are highly inter-related.

The policy directions outlined below had not only gained from the discussions and reports of the Working Groups, but also drew on the research done by the EPU. Care was taken to ensure a high degree of integration between the strategies for industrial and technology development, on one hand, and training policy reforms, on the other. From the point of view of policy implementation, it is useful to group the proposed measures according to their principle objectives:

1. Improving the responsiveness of public training to market demands.
2. Expanding the role of the private sector.
3. Strengthening linkages between training and technological change.

1. Improving the Responsiveness of Public Training to Market Demand

The ability of institutions to respond quickly and effectively to changing patterns of skilled employment constitutes a key factor in improving efficiency in the utilisation of public training capacity. For public training to be more responsive, the development of mechanisms for feedback response on skill requirement and the effectiveness of training is essential.

- 1) Establish Feedback Mechanisms

- Permanent advisory committees (jointly with employers) for education and training institutions to

be set up to cater for local training needs. These committees will complement the NVTC.

- Tracer studies to be institutionalised and conducted on a regular basis.
- Regular labour market surveys should be undertaken by relevant agencies.
- A system of monitoring technological changes to be instituted as a means of forecasting skill requirements. This can provide inputs to the planning of and adjustments to training programmes.

2) Greater Flexibility in Management of Education and Training Institutes

- Greater authority to be given to the directors of training institutes in decision-making with regards to course design, curriculum planning and management of the institutes.

3) Attract and Retain Quality Trainers/Instructors

- The Public Services Department should give high priority to review the schemes of service of trainers/instructors in public training institutions, especially in its current exercise of reviewing schemes of service. The review should ensure that improved schemes of service for trainers and instructors provide for:
 - * remuneration which are commensurate with market rates
 - * better promotion and career prospects
 - * greater opportunities for training

* more flexibility in the schemes of service

- Utilisation of private sector/industry expertise in government training institutions and provision of more opportunities for instructors in public training institutions to gain industrial exposure.

4) Fuller Utilisation of Education and Training Institutes

- Conduct customised weekend and evening courses for private sector employees.
- Allow private sector to lease training space and equipment to conduct their courses in public training institutions.
- Reduce expenditure on elaborate infrastructure/buildings for training institutes. Future design of new training institutes should be more practical and factory-oriented.
- Spend funds on upgrading of equipment and staff.
- Review and improve existing facilities in educational and training institutions to ensure that the facilities are fully utilised.

5) Corporatisation of Training Institutes

- Undertake studies to explore the feasibility of corporatising public training institutions. This measure will also allow for more flexibility in remuneration and teaching hours.

6) Constant Review of Course Design and Curriculum

- Regular review of courses and curriculum according

to labour market needs. The systems approach to a total competency based technical/vocational education (CBE) and developing a curriculum approach (DACUM) could be explored.

- Private sector participation in the planning and development of courses and curriculum.
- Courses at the craftsman level in training institutions should be shortened and compressed by reducing time spent in non-technical subjects.
- Training institutes should promote short-term industry specific or customised courses.
- 'Sandwich' courses i.e. courses which incorporate practical training/industrial attachments between sessions of academic/theoretical training should be given priority.
- NVTC should increase the frequency of its trade skills examination to more than twice a year.
- Technical courses for professionals should include a managerial component.

7) Wider Dissemination of Labour Market Information

- Wider dissemination of labour market information to employers, school-leavers, and workers.
- Wider mass-media coverage of existing public training facilities.
- A regular publication of information on training facilities and the expected supply of trained graduates and trainees should be produced by all relevant agencies involved in training.

2. Expanding the Role of the Private Sector

Enterprises are best placed to identify the training needs for skill upgrading and retraining. They can also identify the technology that is being used in industry as well as acquire expertise in the usage of that technology from vendors.

1) Increase Collaboration with the Private Sector

- Set up public-private sector training programmes in specific skills. This could be undertaken through joint R&D projects such as those undertaken by Intel and University Sains Malaysia (in electronics), Proton and Universiti Malaya (in foundry) and the proposed Proton-Lotus and Universiti Teknologi Malaysia project for the setting up of an Automotive Engineering Institute.
- Consultancy work involving public and private personnel.
- Promote the setting up of more specialised training centres, with private sector participation. The Penang Skills Development Centre could be used as a model.
- The practical training programmes in public training institutions should be made more effective. The private sector should be encouraged to participate in the design and development of these practical training programmes.
- Employ private sector personnel on part-time basis.
- The Skills Development Fund should be imple-

mented with a greater role envisaged for the private sector in determining training needs.

- Review the existing apprenticeship with the view of strengthening and widening apprenticeship in industries. The implementation of the Skills Development Fund could be a mechanism by which apprenticeship can be promoted.

2) Improve Incentives for Training

- Simplify procedures for the application of double deduction incentives and widen coverage on accredited and approved skills.
- Establish a low-cost loan scheme by commercial banks for workers to finance training or retraining in specific areas.
- Encourage formation of industrial associations that will collectively organise training programmes for the member firms.

3) Establish Specialist Training Centres

- The private sector on its own initiative or with government collaboration should be encouraged to set up specialist centres for particular industries which will incorporate facilities for training. Proposals have been received for the setting up of the following centres:-
 - * The Malaysian Construction Academy proposed by the Master Builders' Association and the Bumiputera Contractors' Association. (Appendix III).
 - * Foundry Centre proposed by the Foundry

Association. (Appendix IV).

- * Textile and Fashion Design Centre (Appendix V).
- * Wood-based Industries Training Centre is to be set up to provide training to cater for the manpower needs of the wood-based industry. Initially, emphasis will be given to the setting up of a Wood-Working Centre. The MTIB had proposed the setting up of this Centre in 1988 to provide training of skilled workers at operators and technicians level in wood working with emphasis on furniture technology, quality control and finishing (Appendix VI).
- Industry associations/groups should also be encouraged to conduct training especially at the technical staff and craftsman level for their members.
- Private training institutions catering for specialised skills for industry should be considered for government assistance.

3. Strengthening Linkages Between Training and Technological Change

This report seeks to link training to technological change so that Malaysian workers are able to face the challenge of absorbing and adjusting to newer technologies in industry, as well as to foster the creation of a forward-looking Malaysian society which is supportive of and contribute to invention, innovation and technological advancement. The monitoring of technological change and advancement will be focussed on areas which have a bearing on Malaysian industries.

1) Establish Centres of Excellence

- Higher learning and training institutions should establish Centres of Excellence in specific fields to support the industries. Each institution can have more than one Centre of Excellence. These Centres will enable them to:
 - * Develop and implement R&D activities in close consultation and collaboration with industry so as to ensure that R&D is tailored to industrial needs and can be commercialised.
 - * Develop a system in local universities which allow their students to transfer credit across universities in specialised fields. The degree will be conferred by the university in which the student registers or has taken the most number of credits.
 - * Develop a coordinating mechanism for R&D activities to allow the sharing of information and to avoid duplicating R&D activities.
 - * Develop a mechanism to overcome shortages of experienced lecturers and trainers in specific fields, and reduce the loss of quality lecturers and trainers to industry.
- These centres should emphasise R&D and training in emerging technologies such as:-
 - * automated manufacturing technology
 - * advanced materials
 - * biotechnology
 - * electronics
 - * information technology
 - * CAD techniques and robotics
- Institutions which have the potential to become Centres of Excellence could be identified and be

given priority for upgrading existing facilities.

- Training institutions such as polytechnics/ITIs should specialise in a few specific fields so as to optimise their use of equipment, facilities and expertise.

2) Expand the Accreditation of Skills

- Review the accreditation of skills to include skills in the new and emerging technologies. A high-level committee should be set up to review the accreditation of all skills.
- Expand the accreditation system to include skills higher than the advanced level.
- Explore the possibility of accreditation for master craftsman so that there is a career path for skilled craftsman.
- Expand private sector involvement in the accreditation of skills.
- Explore avenues for the upgrading of skilled workers to technicians and higher level job for the NVTC certificate holders.

3) Establish a National Information Technology Board

- Currently, there are many public sector organisations which are involved in training, R&D and consultancy activities in the field of information technology. There is therefore a need to establish an Information Technology Board to formulate

policies, as well as implement, coordinate and manage IT activities. (Appendix VII).

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