

## **Women's Participation in Scientific and Technical Fields in Malaysia**

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*Abstract: The scientific and technical fields are generally dominated by men. Women tend to shy away from using technical devices and from trying to understand the principles behind their operation. One of the major reasons for their seemingly lack of interest is the lack of encouragement from their family and society. This paper discusses the steps taken by a country, namely, Malaysia, to encourage its female population to venture into this area. Policies were created by the government for this purpose. Great emphasis is given on education, which is one of the important factors influencing one's choice of vocation. In its process of restructuring the society, the government has effectively increased the involvement of women particularly the Muslims in the professional and technical fields as the vast opportunities are provided for them to pursue their studies in this area. There is a marked increase in the number of female student intake in technical and vocational institutions. There is also an increase in the number of females in related fields such as accountancy, engineering, architecture and medicine. The ratio of male to female involvement has however not changed much when the figures are analysed.*

When the word technology is used, it is often associated with work, which is done by men. It is often used to refer to the "devices, machinery and processes which men are interested in."<sup>1</sup> Although basically men and women use the same form of machines or systems, some tend to be gender-based. Benston mentions the differences between them. She argues that, "There are machines and tools 'suitable' for men—saws, trucks, wrenches, guns and forklifts, for example—and those 'suitable' for women—vacuum cleaners, typewriters and food processors. Even on assembly lines, men make cars and women assemble electronic components or pack fish. Most often, women are excluded from control of large or powerful pieces of equipment. More

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importantly, women are excluded from an understanding of technique and of the physical principles by which machines and tools operate."<sup>2</sup> She also claims that, "The exclusion of women not only from active practice in scientific and technical fields but from training in basic physical and mechanical principles means that even when women use tools or machines, they are marginal to a male-created and male-dominated technology."<sup>3</sup> However, where labour is scarce, 'infiltration' into gender-related jobs might take place. Malaysia is one situation where its women population are needed to participate effectively in the country's economic development since there exists dire needs for skilled and semi-skilled labour for its growing industries. This paper discusses women's participation in the scientific and technical fields in Malaysia. There are many factors that can influence women's choice of vocation. This paper, however, would focus on the role of education because education is one of the major contributing factors to the growing interest in this area.

### **Background Information**

Women constitute nearly half of the population of Malaysia. Of an estimated total population of 20.2 million persons recorded in April 1997, about 10 million were women.<sup>4</sup> Out of these about 48 percent were in the working-age group, that is, in the age group 15-64 years.<sup>5</sup> However, only one-third of them were employed. The term employed here is defined as "all persons who, at any time during the reference week worked at least an hour for pay, profit or family gain (as an employer, employee, own account worker or unpaid family worker)."<sup>6</sup>

Women contribution is expected in developing the country which is going through a rapid socio-economic change. In the country's 30 year-plan, Vision 2020, its citizens are expected to participate fully in the nation's development. One of the challenges addressed in this vision is the creation of a more scientific and industrial society. In the Seventh Malaysia Plan (1996-2000), it was forecasted that as the industries move into a higher technology-based manufacturing activities there would be an increased need for skilled and semi-skilled labour. Women's active involvement is expected to help provide the labour force in this area.<sup>7</sup>

To promote women's active involvement, the Government of Malaysia planned to implement programmes under the Platform for Action for the Advancement of Women to the Year 2000 as agreed at the Fourth World Conference on Women held in Beijing in 1995.<sup>8</sup> The steps that the government is taking are outlined in its Seventh Malaysia Plan. They are:

1. promoting greater female participation in the labour market through the provision of more flexible working arrangements and support facilities;
2. providing more educational and training opportunities for women to improve their upward mobility in the labour market;
3. Improving further the health status of women;
4. reviewing laws and regulations that inhibit the advancement of women in the economy;
5. strengthening the institutional capacity for the advancement of women;
6. operationalizing the National Policy for Women through the implementation of an action plan; and
7. forging closer linkages at the international level through effective participation at international fora and implementation of commitments for the advancement of women.<sup>9</sup>

### Evolution in Activities

There are mainly three distinct ethnic groups in Malaysia. Each of these groups is different linguistically and culturally. They also differ in their religious beliefs. The Malays are predominantly Muslims. The majority of the Chinese are Buddhists, and most of the Indians are Hindus. There exist imbalances in the wealth distribution among the different races. This issue was addressed by the country's earlier economic policy, which is known as the New Economic Policy (NEP). NEP lasted till 1990. It sought to eradicate poverty and restructure society in line with the objectives of the National Ideology. Education plays a crucial role in such restructuring for it provides an important means for people to acquire the necessary knowledge and skills for them to try other venues. This is supported by a study done by Rabieyah Mat.<sup>10</sup> She found that educational achievement was more important in determining survival for all groups—Malays, Chinese, rural, urban, male and female, except for the Indians. In their case, socio-economic background is more important than education. In another study done by Singh, it was found that the more educated one is, the greater is the possibility of getting a good job.<sup>11</sup> This applies to both sexes.

With education, women have access to employment other than the traditional jobs. The Malay women, for example, have always been involved in development. In the fishing villages they worked along with the men in mending nets and gutting fish. In the agro-based village economies women worked in the fields, reared poultry and sold produce and handicrafts. With urbanisation and education, Malay women have

started to turn to other openings. Education makes it possible for more of them to join the service and administrative jobs.<sup>12</sup>

**Table 1: Employment Distribution by Industry and Sex, 1990 and 1995 (in Percentage)**

<i>Industry</i>	<i>1990</i>		<i>1995</i>	
	<i>Male</i>	<i>Female</i>	<i>Male</i>	<i>Female</i>
Agricultural, Forestry, Livestock & Fishing	65.6	34.4	71.6	28.4
Mining and Quarrying	87.1	12.9	88.1	11.9
Manufacturing	53.6	46.4	56.6	43.4
Construction	93.1	6.9	87.6	12.4
Electricity, Gas and Water	95.7	4.3	92.2	7.8
Transport, Storage and Communications	61.4	38.6	88.8	11.2
Wholesale & Retail Trade, Hotel and Restaurants	88.9	11.1	62.4	37.6
Finance, Insurance, Real Estate & Business Services	65.8	34.2	59.7	40.3
Other Services*	62.1	37.9	60.8	39.2
Social and Related Community Services	47.2	52.8	44.9	55.1
Personal and Household Services	47.0	53.0	49.4	50.6
Public Administration	81.5	18.5	78.4	21.6
Total	68.6	31.4	66.3	33.7

Source: Government of Malaysia, *Seventh Malaysia Plan 1996-2000* (Kuala Lumpur: Percetakan Nasional Bhd, 1996), 623

\* This category comprises of six sub-categories but only three major sub-categories are shown.

The Chinese have been known to work hard. Apart from bringing up

their children, the women also worked in the fields and they helped in managing the family business. They have a long tradition of involvement in business enterprises. With education many of them have made their way into managerial positions in firms.<sup>13</sup>

A great majority of the Indians were rubber-tappers. However, there has been an increase in the number of Indian women who chose other careers and have successfully entered the various professions.

Women's relatively high level of education and exposure to other values have brought about changes in them. Foo and Lim state that, the women's values of independence and individualism are, "at odds with those of their traditional cultures and society ... yet they appear to be firmly and universally entrenched without causing conflict."<sup>14</sup> The seemingly changed society might not be in conflict because working is not a new experience to the women but what is new is the field that they ventured into.

**Table 2: Employment Distribution by Occupation and Sex, 1990 and 1995 (in Percentage)**

<i>Occupation Category</i>	<i>1990</i>		<i>1995</i>	
	<i>Male</i>	<i>Female</i>	<i>Male</i>	<i>Female</i>
Professional, Technical & Related Workers	6.4	9.4	8.4	13.5
Administrative & Managerial Workers	2.8	0.6	4.4	1.9
Clerical & Related Workers	7.0	14.1	7.3	17.6
Sales & Related Workers	11.4	11.4	10.9	11.3
Service Workers	9.9	14.1	9.9	13.4
Agricultural Workers	29.4	28.1	20.9	15.8
Production & Related Workers	33.1	22.3	38.2	26.5
Total	100.0	100.0	100.0	100.0

Source: Government of Malaysia, *Seventh Malaysia Plan 1996-2000* (Kuala Lumpur: Percetakan Nasional Bhd, 1996), 624.

Table 1 (above) reflects the employment distribution by industry and

sex for the year 1990 and 1995. The table shows a decrease in the percentage of women employed as agricultural workers, mining and quarrying, manufacturing, transport, storage and communication, and personal and household services. On the other hand, there is an increase in the percentage of women working in the other sectors. In terms of occupational structure, there is a marked increase in the number of women in the professional and technical fields as well as administrative and managerial categories. This is shown in Table 2 (above). The percentage increases from 9.4 and 0.6 in 1990 to 13.5 and 1.9 in 1995, respectively

### **Factors Influencing Choice of Vocation**

The choice of job is very much related to one's educational background.<sup>15</sup> Parents usually emphasise academic qualifications more than students' aptitude for technical/vocational education. This was also the opinion of the graduates of polytechnic, technical and vocational schools which were surveyed by Mohamed Hussain and his colleagues.<sup>16</sup> Despite the lack of parental encouragement, women continue to explore the different fields. Other factors like one's academic achievement and scholarship availability are some of the variables influencing their choice of field of study and work. The NEP, for example, has a major contribution to the increase of women's involvement in science and technology. A survey that was carried out in 1994 on women staff members of five of the Universities in Malaysia shows that many (89.52%) of the respondents to the survey were between the age of 20-40. Most of them mentioned that they benefited from the scholarships and research grants which were allocated under NEP. The survey reflects the increasing number of women who were involved in this field. When each of the subjects was analysed, biological science seemed to be the most popular (29%) followed by chemistry (17%), mathematics (9%) and physics (5 %).<sup>17</sup> The other major fields that they ventured into are computer science, agriculture and engineering.

### **Technical and Vocational Education in Malaysia**

The education sector plays a crucial role in manpower development. The streaming done at school tends to influence the students' choice of vocation in the later part of their life. The formal education in Malaysia has a 6-3-2-2 pattern. This structure represents the number of years at the primary, lower secondary, upper secondary and pre-university levels respectively. At the end of Form Three, the students are required to take the national level examination, namely the Lower Secondary

Examination. They then have the option of remaining in the academic stream or going to the technical or vocational stream. In their first year of education, students in the vocational stream are provided with academic and vocational courses. In the second year, the vocational students are channelled to either the academic stream or to the skill training stream. In the first instance, the students would sit for an examination which is prepared by the Malaysian Ministry of Education (the same examination is taken by the academic and technical students). In the later, their examination is conducted by the National Industrial Training and Trade Certification Board. The courses offered by the technical and vocational schools and also their enrolment figure are important to the Muslim community in Malaysia as the majority of the students chosen to pursue their studies in those institutions are Muslims.

The Technical and Vocational Education Division of the Malaysian Ministry of Education aims to train the upper level professionals as well as the lower level technicians and craftsmen. The Division's activities are in line with the national educational objective which is to ascertain that the short and long term manpower needs are fulfilled. It also ensures that the education system can fulfil the nation's desire to produce an integrated, well-disciplined and trained society.

One of the steps taken by the Malaysian Ministry of Education to promote the technical subjects was the introduction of four new subjects at the Lower Secondary level under the Comprehensive Education System in 1965. These were Industrial Arts, Agricultural Science, Commerce and Home Science. Students are required to take at least one of the subjects in addition to their academic subject. As a result of this, "more students are being motivated to proceed to technical and vocational schools."<sup>18</sup>

The implementation of the National Education Policy as embodied in the Razak Report is periodically reviewed. In one of the reports, namely the *Mahathir Report*, among the problems mentioned was that the scope of education left little room for mobility of manpower from one sector to another to occur.<sup>19</sup> The report thus recommended for specialisation areas such as arts and technical sciences to be abolished. In its place only academic and vocational streams will be offered to the students. The expected changes in the output are indicated in Table 3 below.

**Table 3: Expected Student Output in the Various Courses (in percentages)**

<i>Name of Courses</i>	<i>1984</i>	<i>1990</i>
Pure Arts	18.6	1.4
Professional Arts	35.6	53.0
Pure Sciences	9.4	1.4
Applied Sciences	22.0	24.0
Engineering/Technology	15.0	20.0

Curricular changes in the Vocational schools effected in 1987 was one of the positive steps that was taken to elevate the status of these schools. Procedures to take better performing students were introduced and steps were taken to better equip the vocational schools.<sup>20</sup> The number of vocational schools was increased to provide for the eventual streaming into general and vocational education. This is illustrated in table 4.

**Table 4: Number of Polytechnic, Technical and Vocational Educational Institutions in Malaysia (1985-1994)**

<i>Year</i>	<i>Technical</i>	<i>Vocational</i>	<i>Polytechnic</i>
1985	9	26	4
1987	9	45	NA
1988	9	45	NA
1989	9	57	NA
1990	9	57	NA
1991	9	57	NA
1994	9	57	7

Source: Malaysian Ministry of Education, *Educational Statistics of Malaysia 1980-85* (Kuala Lumpur: Maziza, 1986). Other reports for the years 1987, 1988, 1989, 1990, 1991 and 1994, published by Dewan Bahasa dan Pustaka, Kuala Lumpur).



**Table 5: Number of Female Students at the Technical and Vocational Institutions**

<i>Institutions</i>	<i>1985</i>			<i>1994</i>		
	<i>Number</i>	<i>(%)</i>	<i>Total</i>	<i>Number</i>	<i>(%)</i>	<i>Total</i>
Technical	1918	(34.2)	5,614	2313	(40.9)	5,653
Vocational	3,763	(26.9)	13,987	9,870	(23.9)	41,251
Polytechnic	1298	(22.5)	5,778	4641	(25.7)	18,046

Source: Malaysian Ministry of Education, *Educational Statistics of Malaysia 1980-85* (Kuala Lumpur: Maziza, 1986), and Malaysian Ministry of Education, *Educational Statistics of Malaysia 1996* (Kuala Lumpur: Dewan Bahasa dan Pustaka, 1996).

**Table 6: Number and Percentage of Female Students in Technical Schools by Type of Courses**

<i>Type of Course</i>	<i>1986</i>	<i>1990</i>	<i>1992</i>	<i>1994</i>
	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>
	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>
	<i>Total</i>	<i>Total</i>	<i>Total</i>	<i>Total</i>
Civil	912	765	672	621
	38.4%	36.8%	31.1%	31.8%
	2,376	2,081	2,164	1953
Mechanical	289	145	207	208
	14.3%	8.3%	14.3%	18.8%
	2,031	1,751	1,445	1,105
Commerce	566	722	777	851
	68.9%	70.9	73.7%	76.2%
	822	1,018	1,054	1,117
Agriculture	218	239	287	391
	51.9%	56.0%	53.8%	39.2%
	420	427	533	998
Science	65	72	176	45
	23.7%	29.6%	65.7%	24.2%
	274	243	268	186

Source: Malaysian Ministry of Education, *Educational Statistics of Malaysia 1986* (Kuala Lumpur: Naz Sdn. Bhd., 1988). Other reports for the years 1990, 1992, and 1994, published by Dewan Bahasa dan Pustaka, Kuala Lumpur.

The steps taken have successfully increased the number of students who are taking technical and vocational courses at secondary level (see

table 5). However, although there was a rise in the number of female students enrolled in the various technical and vocational institutions, the ratio was still imbalanced in that there was no marked increase in the percentage of female students' intake compared to the males. In fact at the vocational schools, the overall percentage decreased from 26.9% in 1985 to 23.9% in 1994.

**Table 7: Number and Percentage of Female Students in Vocational Schools by Type of Courses**

Type of Course	1986	1990	1992	1994
	Number	Number	Number	Number
	%	%	%	%
	Total	Total	Total	Total
Engineering	419 3.8%	595 3.6%	922 5.3%	1969 8.6%
Commerce	11105	16363	17471	22794
	2258 90.4%	3003 79.5%	3458 82.0%	3636 82.8%
Agriculture	2497	3776	4216	4393
	—	219 29.2%	278 37.7%	293 43.1%
Home	1178	751	737	680
Economics	99.9%	1480 100%	1836 92.6%	2116 92.4%
	1179	—	1982	2291
Skills NVIC	—	321	580	1856
	—	13.0%	17.4%	16.7%
		2475	3333	11093

Source: Malaysian Ministry of Education, *Educational Statistics of Malaysia 1988* (Kuala Lumpur: Naz Sdn. Bhd, 1988). Other reports for the years 1992, 1993, and 1996, published by Dewan Bahasa dan Pustaka, Kuala Lumpur).

When the subjects are analysed, the choice of some of them seemed to be gender-based (see tables 6 and 7). A large percentage of the female students seemed to be concentrated on Home Economics and Commerce whilst subjects which involved the understanding of techniques and the principles behind the operation of a machine or tool seemed to be less popular.

In the survey on graduates of Polytechnics, Technical and Vocational schools, 82.8% of their respondents were males. Based on the rate of response they conclude that males outnumbered females in all areas

Polytechnic, Technical and Vocational education, except in Data Processing for the Polytechnic programme and in Commerce and Home Science for the Vocational programme.<sup>21</sup>

Table 8 and 9 (below) serve to support their arguments where based on the census given by the Statistics Department certain profession seemed to be dominated by a specific gender. Students who did commerce at school usually become an accountant, that is, if they chose to continue that line. Except for 1990, Table 8 reflects that there is a steady increase in the number of female accountants from 1986 to 1994. Up to 1994, the ratio of males to females is almost equal. The picture is a bit different with engineering.

**Table 8: Number and Percentage of Female Accountants by Year**

	1986	1988	1990	1992	1994
Type of Accountant	Number %	Number %	Number %	Number %	Number %
	Total	Total	Total	Total	Total
Professional	332 34%	375 37.8%	380 37.7%	505 38.9%	749 45.4%
Non-Professional	964 394 46%	992 447 48.5%	1008 827 44.6%	1299 900 49.1%	1650 926 50.3%
Total	862 726 40%	922 822 42.9%	1855 1207 42.2%	1833 1405 44.9%	1838 1675 48.0%
	1826	1914	2863	3132	3488

Source: *Census of Professional and Institutional Establishments- Private Sector*, published by the Department of Statistics, Kuala Lumpur, for the years 1986, 1988, 1990, 1992, 1994).

Table 9 shows that engineering is not as popular as accountancy among the females. As with the professional engineers, from 1986 to 1992, there was a marginal increase, then it dropped to 9.5 percent in 1994, compared to 9.8 percent in 1992. However, when the number of heads are counted, the increase seemed to be quite significant. It is just that the number of males who opted for this job increased manifold. On the other hand, in the non-professional category, the increase is rather drastic, with only 4% in 1986 to 26.1 percent in 1994.<sup>22</sup>

Apart from Engineering and Accountancy, it is also interesting to see

the trend in other technical related posts under the managerial and professional category. Tables 10, 11 and 12 give the figures of architects, surveyors and doctors employed from the year 1986 to 1994 respectively. The tables show a steady increase in the percentage of professional female architects and surveyors but not doctors. No significant changes are seen in their percentage since the year 1986.

However, when compared to the professional architects and surveyors, their percentage is still higher than them. Although the percentage in the first two has gone up, it is still small compared to the males. The picture, however, is different when we look at the non-professionals. The female doctors outnumbered their males counterparts. With the architects and surveyors, we see fluctuations in the trend. The percentage was higher in 1990 than in 1992 and 1994 for the architects, and 1992 was higher than 1994 for the surveyors. Nevertheless, the number of women who chose these professions has increased in both cases.

**Table 9: Number of Female Engineers Employed (1986-1994)**

Type of Engineer	1986	1988	1990	1992	1994
	Number (%) Total	Number (%) Total	Number (%) Total	Number (%) Total	Number (%) Total
Professional	69	77	190	316	380
	4%	4.8%	7.4%	9.8%	9.5%
	1704	1619	2563	3237	4016
Non-Professional	15	25	34	51	103
	16%	18.1%	15.9%	22.6%	26.1%
	96	138	214	226	395
Total	84	102	224	367	483
	4.7%	5.8%	8.1%	10.6%	10.9%
	1800	1757	2777	3463	4411

Source: *Census of Professional and Institutional Establishments-Private Sector*, published by the Department of Statistics, Kuala Lumpur, for the years 1986, 1988, 1990, 1992, 1994)

One of the reasons for the concentration on a particular subject could be the 'streaming' done at Lower Secondary Level. Commerce and Agricultural Science are taught to the whole class whilst the boys are usually asked to do Industrial Arts and the girls, Home Economics.

**Table 10: Number of Female Architects Employed (1986-1994)**

<i>Type of Architect</i>	<i>1986</i>	<i>1988</i>	<i>1990</i>	<i>1992</i>	<i>1994</i>
	<i>Female</i>	<i>Female</i>	<i>Female</i>	<i>Female</i>	<i>Female</i>
	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>
	<i>Total</i>	<i>Total</i>	<i>Total</i>	<i>Total</i>	<i>Total</i>
Professional	49	52	91	164	241
	9.5%	12.1%	15.3%	18.3%	18.8%
	516	430	593	898	1285
Non-Professional	19	20	39	64	94
	22.4%	24.1%	33.3%	28.1%	32.9%
	85	83	117	228	283
Total	68	135	130	228	335
	11.3%	30.0%	18.3%	20.2%	13.0%
	601	450	710	1126	2577

**Table 11: Number of Female Surveyors Employed (1986-1994)**

<i>Type of Surveyors</i>	<i>1986</i>	<i>1988</i>	<i>1990</i>	<i>1992</i>	<i>1994</i>
	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>
	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>
	<i>Total</i>	<i>Total</i>	<i>Total</i>	<i>Total</i>	<i>Total</i>
Professional	38	35	86	156	243
	7.4%	7.7%	13.5%	17.2%	19.4%
	517	457	636	905	1252
Non-Professional	64	52	72	117	132
	21.2%	15.6%	19.5%	23.7%	22.1%
	302	333	369	493	596
Total	102	87	158	273	375
	12.5%	11.0%	15.7%	19.5%	20.3%
	819	790	1005	1398	1848

Such a practice tends to fossilise society's view that tools are for men, hence, the association with certain jobs. The girls might 'interpret' such division as the norm of the society. Hence, for them being an accountant might be seen as more feminine than being an engineer. However, statistics show that more women are venturing into the male-dominated fields. In fact it is interesting to note the increasing number of female teachers in the technical and vocational institutions (see Table 13). The teacher may serve as a role-model to the students. Hence, their involvement in the technical field may be taken as a sign that it is socially acceptable for a particular sex to take up the once gender-based subject.

**Table 12: Number of Female Malaysian Doctors Employed (1986-1994)**

<i>Type of Doctors</i>	<i>1986</i>	<i>1988</i>	<i>1990</i>	<i>1992</i>	<i>1994</i>
	<i>Female</i>	<i>Female</i>	<i>Female</i>	<i>Female</i>	<i>Female</i>
	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>
	<i>Total</i>	<i>Total</i>	<i>Total</i>	<i>Total</i>	<i>Total</i>
Professional	136	125	181	242	267
	24.7%	21.2%	24.4%	26.7%	27.3%
	550	589	741	905	979
Non-Professional	35	76	125	223	262
	58.3%	62.8%	74.4%	82.35	80.6%
	76	121	168	271	325
Total	171	201	306	465	529
	28.0%	28.3%	33.7%	39.5%	40.6
	610	710	909	1176	1304

**Table 13: Number of Female Teachers in Technical and Vocational Education (1980-1993)**

<i>Year</i>	<i>Technical</i>			<i>Vocational</i>		
	<i>Female</i>	<i>%</i>	<i>Total</i>	<i>Female</i>	<i>%</i>	<i>Total</i>
1980	94	30.0	362	225	20.5	1,100
1987	153	41.1	372	416	22.8	1,822
1988	155	42.3	366	518	26.2	1,977
1989	166	44.0	377	662	28.6	2,315
1990	180	46.0	391	763	29.7	2,570
1991	202	46.0	412	866	31.9	2,717
1992	198	48.2	411	994	32.3	3,078
1993	224	52.5	427	1,290	34.3	3,758
1994	233	53.7	434	1,363	33.6	4,056

Source: Malaysian Ministry of Education, *Educational Statistics of Malaysia 1980-85* (Kuala Lumpur: Maziza, 1986); other reports for the years 1987 to 1994 published by Dewan Bahasa dan Pustaka, Kuala Lumpur).

### **Discrimination at Work**

In Islam, the status of woman is equal to that of man. This includes the right to receiving equal rewards for her deeds. Allah (S.W.T) says:

And their Lord answers them, saying: 'I will deny no man or woman the reward of their labours. You are the offspring of one another.'

(al-Qur'ān, 3:195).

Although this is clearly stated in the Qur'ān, it is not always the case in reality. In fact, one of the reasons that might discourage women to join the technical field is the possibility of being discriminated. Although it is stated in the Constitution of Malaysia that, "...there shall be no discrimination against citizens on the ground only of religion, race, descent or place of birth..." (clause 2, article 8) such discrimination might occur. Sex is a suspect criterion as this is not mentioned in the Constitution. In the National Policy on Women, women are guaranteed equal involvement in the country's development.<sup>23</sup> This, however, does not mean that there is no discrimination in job opportunities in the various sectors including the technical field. In a study carried out by Singh and others, the females were found to be more dependent on education and first job status than males.<sup>24</sup> The males have a more open opportunity structure than females. In a survey, which was conducted on women staff who worked in the area of science and technology at five of the Universities in Malaysia, 29.5% of them reported that they felt the existence of discrimination at their place of work. Half of them believed that it was due to gender differences.<sup>25</sup> A similar finding was made in a study on the graduates of Polytechnics, Technical and Vocational Schools. They found that employers preferred male employees in technical fields and female employees in the non-technical fields.<sup>26</sup> The authors observed that 22.0% of the female graduates were unemployed as opposed to only 10.9% males in the technical fields. They also found that only 9.7% male graduates were employed in the non-technical jobs compared to 20.3 % females. When the waiting period was compared, they also noticed that there were differences between the males and females graduates.<sup>27</sup> The report says that, "for Polytechnic graduates, 57.7% of males and 53.3% of females are employed within a year after graduation. For Technical Schools, the employment figures within the same period are 71.5% and 61.1 % respectively. The figures for Vocational Schools within the same period are 81.3% and 77.5% respectively for males and females." With regard to wage distribution, at the higher level no differences were reported between the two sexes but income was highest among those employed in technically related jobs.<sup>28</sup> However, when we compared the wage of some blue collar workers, it was found that the males were paid more than the females. This is evidence from a survey done by the Ministry of Human Resources in 1993.<sup>29</sup> This is shown in Table 14 below.

### Women in the Economic Crisis

Malaysia started to experience economic crisis in the middle of 1996. With fewer job openings, the opportunity to work in the technical fields might be less for women. However, no research is yet available on employers' criteria of preferred workers in this crisis situation. However, the government is taking steps to ensure women's participation in the development of the country.

**Table 14: Wage Distribution of Certain Blue Collar Workers by Sex**

<i>Occupation</i>	<i>Sex</i>	<i>Average daily rate (RM)</i>	<i>Average daily work</i>	<i>Average monthly rate (RM)</i>
Factory worker	Male	13.00	23	390
	Female	11.50	22	360
Transporters	Male	21.00	24	453
	Female	14.00	24	386
Pruners	Male	15.00	23	325
	Female	13.00	23	300

In the 1997 budget, the government had allocated a RM50 million assistance to the NGOs who are involved in women development. This assistance was continued in 1998. The Department of Women's Affairs was also given the responsibility of ensuring that the development programmes for women are expeditiously and effectively implemented. One area where both the males and females would be affected is education. The Ministry of Education has resorted to reverse policy concerning sending students overseas. This means that the local institutions would become more competitive in their student intake.<sup>30</sup> Further studies would need to be done to find whether these institutions practice discrimination in their student intake.

### Conclusion

Based on the discussion above, we can conclude that education plays an important role in increasing Malaysian women's participation in the scientific and technical fields. However, education alone is not enough



to bridge the gap between the two sexes. Many other steps would need to be taken to tackle the problem. One of them is by enacting legislation to ensure equal job opportunity so that women would not be subjected to discrimination at work. Women organisations and politicians can promote the said areas by giving their support and taking actions to encourage their participation. The Government of Malaysia itself is committed to promote women's active involvement in developing the country. The programmes undertaken by the government might help to elevate women's participation in the scientific and technical fields also.

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### Notes

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22. The difference between the professional and non-professional groups lies in their status of membership of the professional body. For example, for the accountants, under the Accountant act 1967, they have to register under the Malaysian Institute of Accountants before they get their professional status.

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24. Singh, *Socio-Economic Environment*, 214.

25. Baharuddin et al, *Women's Involvement in Science*, 15.

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28. Ibid.

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30. Zaini Ujang, "Pengajian Tinggi: Dalam Atau Luar Negara?" *Dewan Ekonomi* (April 1998), 52-55.