

**Table 4.5: Detailed Analysis (Workshop 3): Trainees**

Basic Information	Problems	Strengths	Actions to be Taken
They are looking for job opportunities	Some face difficulties in getting jobs	There are a lot of school leavers	Government / VTI conduct road shows/ exhibition to increase awareness
They need assurance of job stability	Not enough skills / experience	Many of the courses are recognised by industry; easily absorbed because of skills	
Need career growth	Some courses are not recognised by industry		A lot of job opportunities
	There are no job opportunities		
	They are attracted to "trendy" colleges		
	They tend to be passive	Prefer hands-on technical training	
	Trainees or parents select the wrong courses		
Lack of information about training courses before training			

**Table 4.6: Detailed Analysis (Workshop 3): Training Institutions**

Basic Information	Problems	Strengths	Actions to be Taken
They need relevant programmes	Lack of skill trainers in certain fields	Facilities	Continuous needs analysis
They provide value for money	Mismatch in technology	Skilled trainers	Student/ Parent counselling
They are recognized by industry	Low staff morale	Can train students	Set up a central coordinating body for VTIs
They have fixed curriculum	Trainee attitude	Trainees can have working opportunity	
Follow NOSS	Wrong mindset		
Quick employment for trainees	Slow to respond to changing technology		

**Table 4.7: Detailed Analysis (Workshop 3): Government**

Basic Information	Problems	Strengths	Actions to be Taken
Government established a number of training institutes	Financial - limited funds	Competitive vocational institutions	Research / survey studies
Training courses provided	Shortage of qualified trainers	High tech equipment and facilities	Provide training to instructors
Meet industry needs	No effective evaluation of training	Strategic location	To get cooperation or support from industries
Government Policy to provide VET	Students' English weak (poor communication)	Training at affordable cost	To establish more VTIs
	Too frequent transfer of lecturers.	Inputs from JICA etc (G to G projects)	Establish coordination of training institutions
	Facilities/machines are not fully utilized	Community/local government support	Rent out the under utilized facilities
	Too much red tape		Reduce red tape
	Lack of experts to repair machines		

### 4.3 Problems Analysis

The participants conducted Problems Analysis and identified the Core Problem as:

- *Graduates from vocational training institute do not fulfill the industrial needs.*

Direct Causes were identified as:

- *Trainers lack industry exposure.*
- *Trainees lack soft skills (communication, attitude, work ethic)*
- *Many trainees have poor entry qualification.*
- *Curriculum at the vocational institutions does not meet the industry needs.*
- *Long time lag between change of training program and change of industrial needs.*
- *Lack of communication between industries and training institutions.*

A Direct Effect was identified as:

- *Industry lack of skill and committed workers.*

The whole Problem Tree developed in the Problems Analysis is shown in **Figure 4.1**

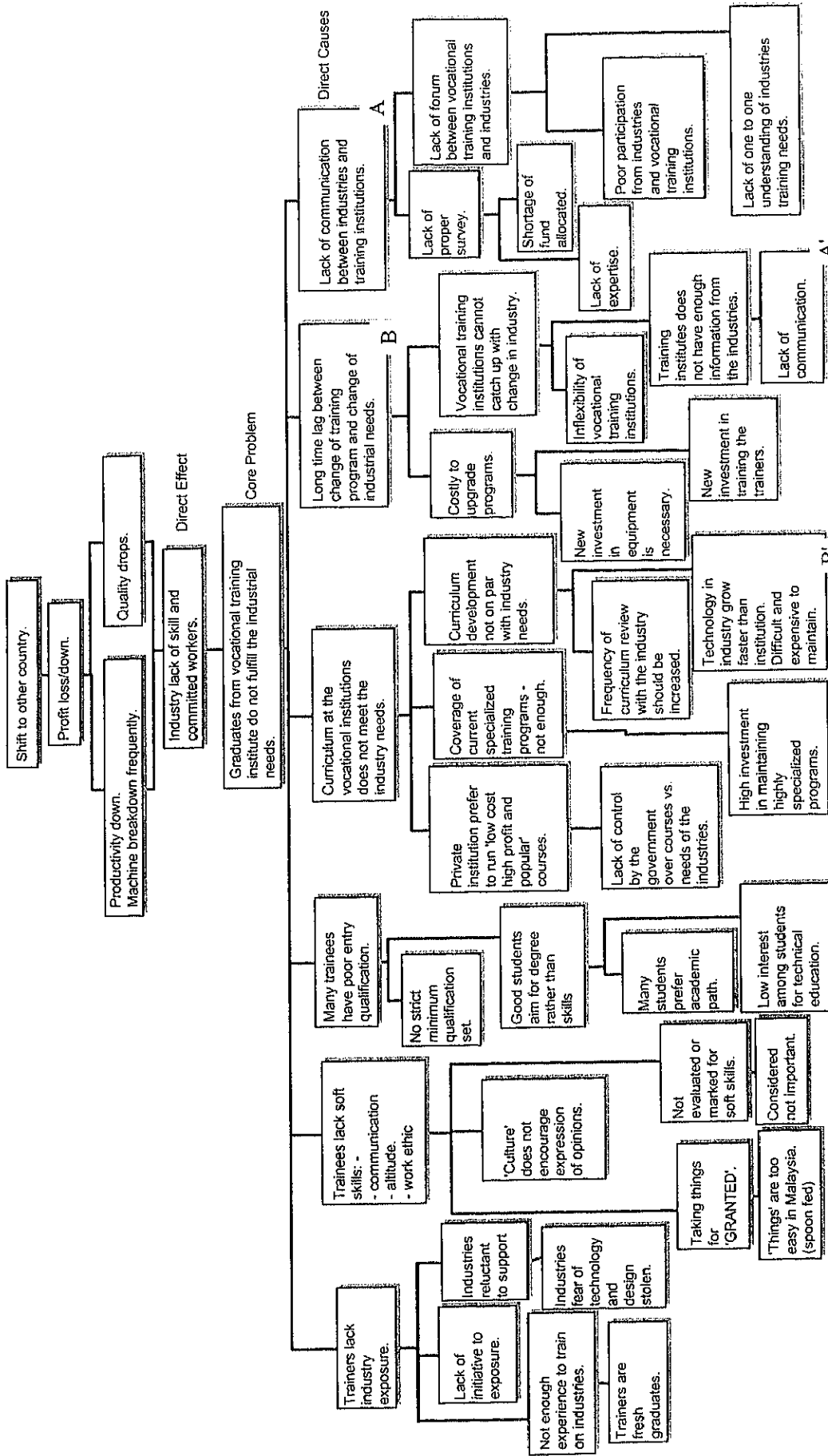


Figure 4.1 Problem Tree (Workshop 3)



## 5. Evaluation of the Workshop

At the end of each workshop, the participants answered some simple questions for the purpose of the evaluation of the workshop itself. The questions and their answers are as follows.

### 5.1 The First Workshop

#### 5.1.1 Evaluation

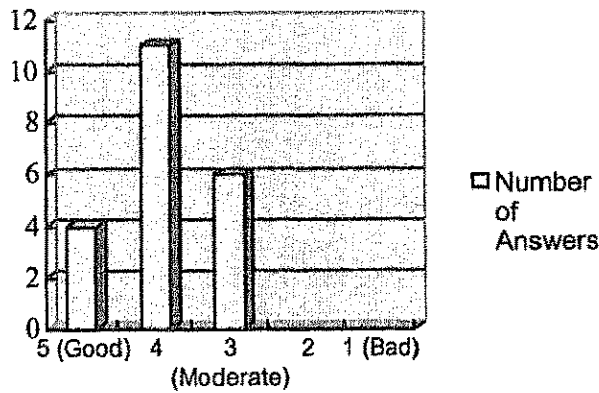


Figure 5.1: "How do you evaluate the workshop?"

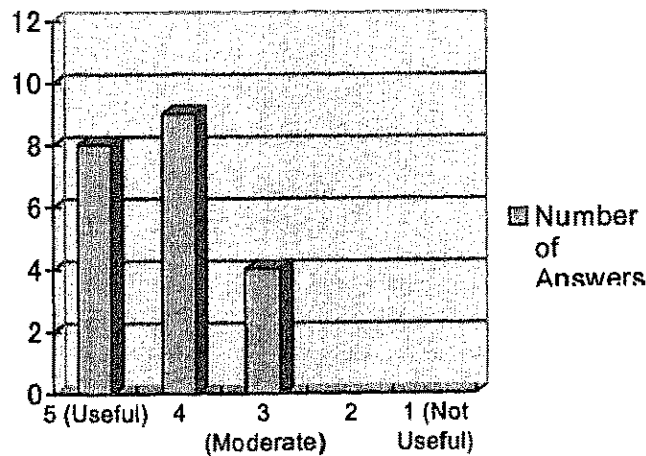


Figure 5.2: "How do you evaluate the usefulness of the PCM method?"

### 5.1.2 Comments

- *Not enough time.*
- *Proper notes on PCM must be given to participants for reference in future.*
- *Same schedule should be used for other training PCM program.*
- *Good type of analysis but need more time in understanding Problem Analysis and Objective Analysis.*
- *PCM is an excellent method to achieve the objective of the workshop in a short duration.*
- *We have completed a part of PCM. We should complete it fully to gain the knowledge.*
- *Should give more information/ explanation before the workshop.*
- *PCM can be used to analyze existing problems that is faced by institute/ vocational training organization.*
- *It was fair; I'll apply it in my organization.*
- *Useful workshop. Can learn a new management method.*
- *The workshop should provide enough notes.*

## 5.2 The Second Workshop

### 5.2.1 Evaluation

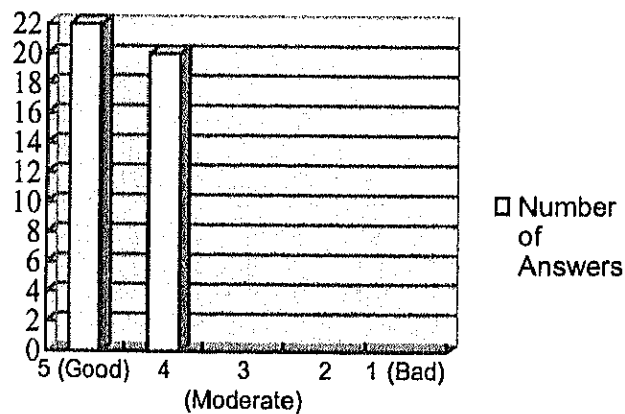


Figure 5.3: "How do you evaluate the workshop?"

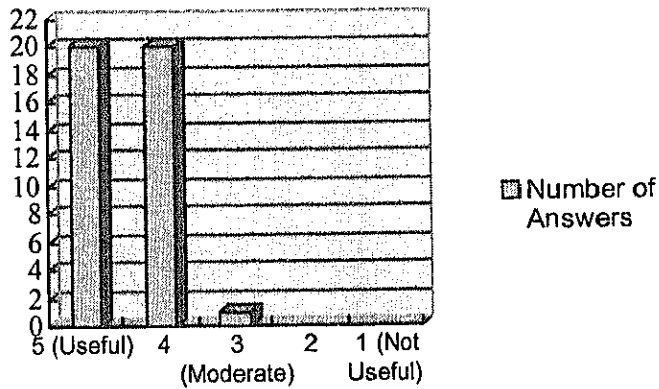


Figure 5.4: "How do you evaluate the usefulness of the PCM method?"

### 5.2.2 Comments

#### Answers to the Question "What did you get in the workshop?"

- *I know problem solving analysis.*
- *Expose to another method for analyzing a problem.*
- *The usage of PCM method and problem solving.*
- *Get new experience to analyze the problem using PCM*
- *Get new problem solving method.*
- *A lot of knowledge and shared experience among everybody.*
- *PCM gives all the participants to express their ideas.*
- *I have learnt a new method of identifying and solving problems.*
- *Solutions for the problems that JTM has.*
- *Method of PCM*
- *The objective of this workshop is achieved. Congratulation.*
- *Gain new experience and knowledge in PCM method.*
- *I got experience on PCM method.*
- *I was exposed to the method of problem solving (PCM).*
- *I learn more new idea to solve problems.*
- *I know the advantage and disadvantage. We have to improve the teaching technique. I get knowledge on problem analysis.*
- *I learn new method to solve problems.*
- *The use of PCM method and problem solving.*
- *I got a new method to solve problem.*
- *I share some knowledge and idea to solve several problems in our department.*
- *PCM is a useful tool in solving problem.*

- *New method to solve problem.*
- *I get new knowledge and learn about PCM.*
- *I have received new information about PCM method.*
- *I get new knowledge on problem analysis.*
- *How to solve the problem.*
- *I know what PCM is.*
- *Problem solving methodology.*
- *New idea and information when I attended this workshop.*

### Open Comments

- *You should add more facilitators.*
- *It is lively activities.*
- *It should be better if it is conducted in a small group.*
- *Discussion should be documented and distributed to the participants.*
- *If possible, conduct it in Bahasa Malaysia.*
- *It should be conducted in more than two days.*
- *Sometimes bored, sometimes interesting.*

## 5.3 The Third Workshop

### 5.3.1 Evaluation

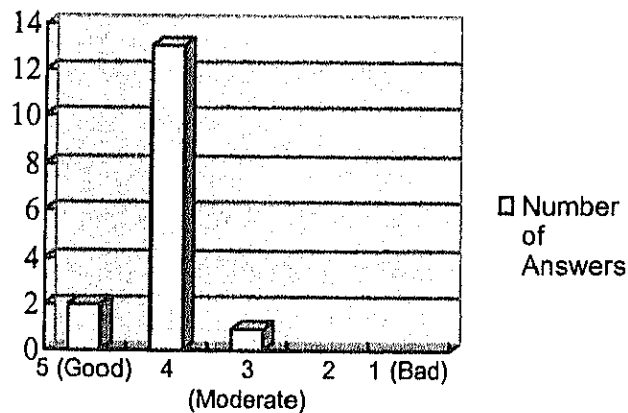


Figure 5.5: “How do you like the workshop?”



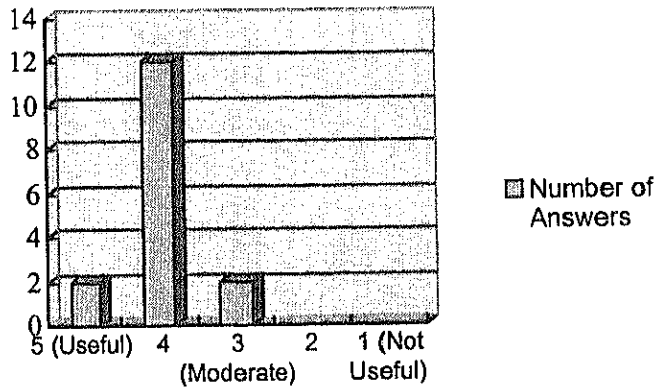


Figure 5.6: "How do you evaluate the usefulness of the workshop?"

### 5.3.2 Comments

- *Very interactive.*
- *More participation from industries and VTI from the other agencies (MARA, IKBN, Kolej universities).*
- *First time being exposed to PCM. Interesting methods of solving problems.*
-



## 6. Workshop Handouts



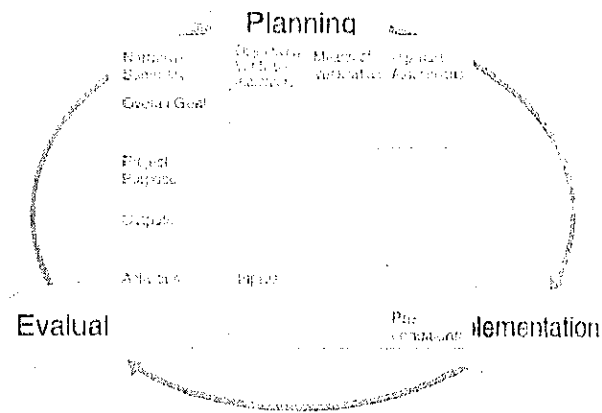
# PCM

## Project Cycle Management

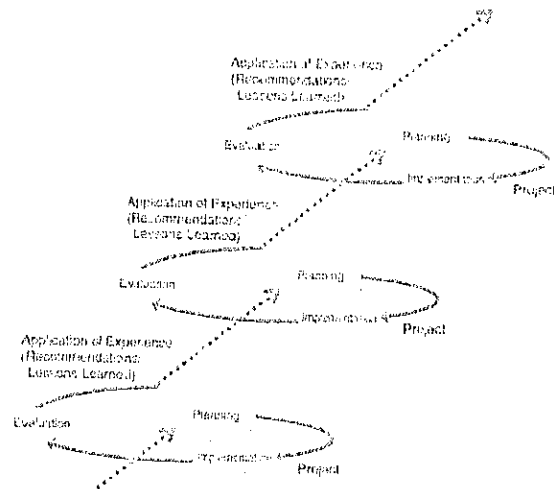
MANAGEMENT TOOL FOR DEVELOPMENT ASSISTANCE

What is PCM?

# The Project Cycle Management (PCM) method



# Project Cycle and Feedback of Experience



## Characteristics

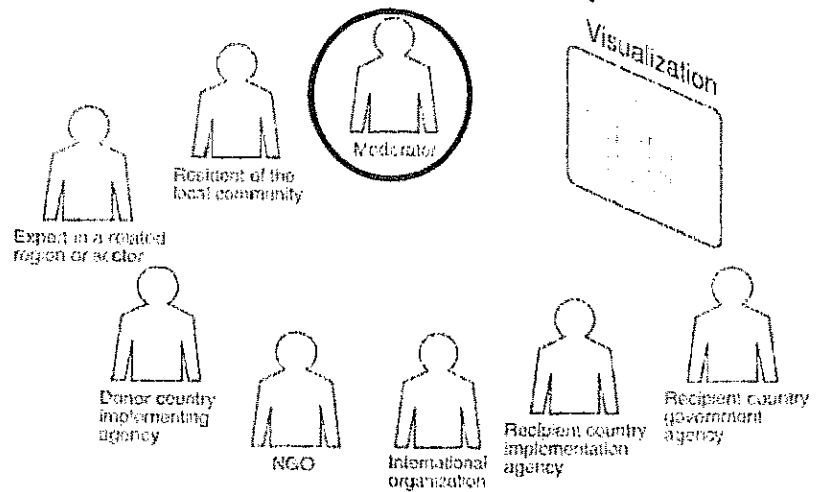
- Participatory Approach
- Logicality
- Consistency

## Advantages

- Accurate and effective project management
- Project planning accommodating recipients' needs
- Assured transparency of ODA
- More effective communication

# PCM Workshop

## PCM Workshop





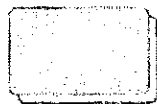
## Rules of PCM Workshop

1. Write your own statement on a card.
2. Write only one idea.
3. Make your statement specific.
4. Stick to the facts and avoid abstractions and generalizations.
5. Make it rule to Write cards before beginning discussion.
6. Do not remove a card from the board before a consensus is obtained.
7. Do not ask who wrote a particular card.

## Traffic Sign Card



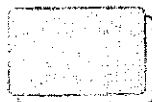
Doubts regarding the content of a card



Lack of information  
(Required further investigation)



Disagreement, conflict, or controversy

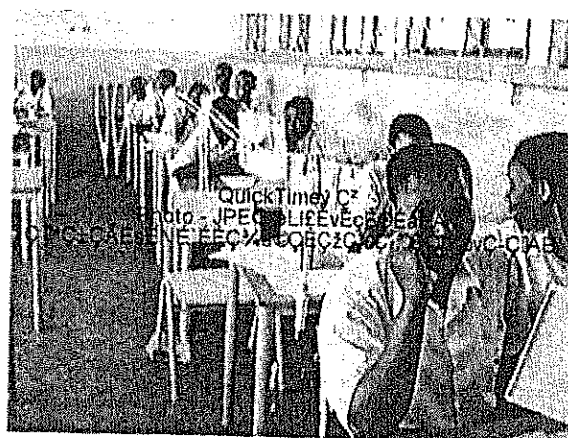


Not required further discussion or analysis  
(Because "taboos" are being touched upon, the expected project framework is being overstepped, etc.)

# Cases of PCM Application

Participatory Planning

## District Level Education Planning in Tanzania



Participatory Planning  
Bornean Biodiversity and Ecosystem  
Conservation in Sabah

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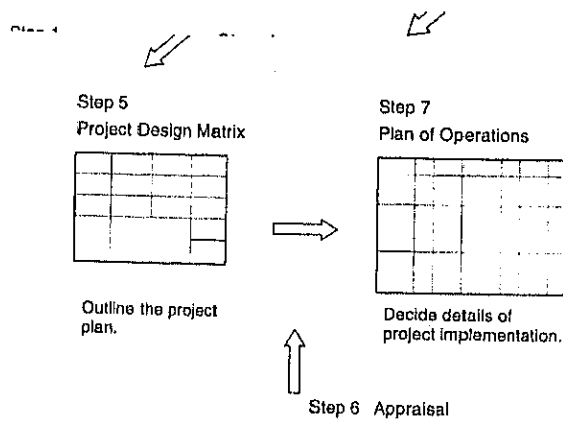
Participatory Planning  
Pilot Watershed Management  
Plan in Iran

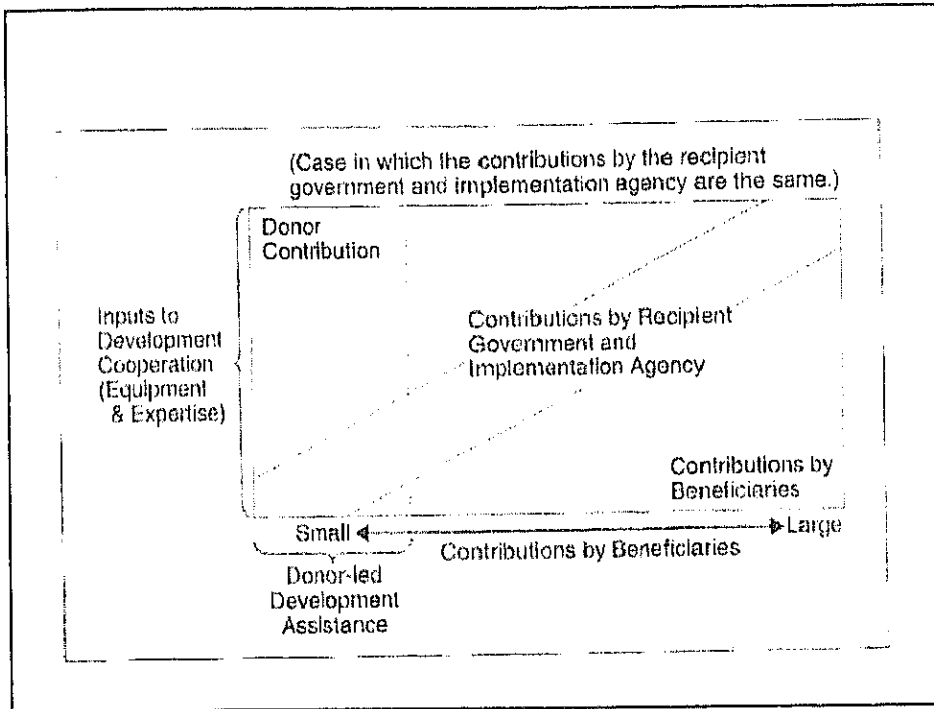


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# Participatory Planning

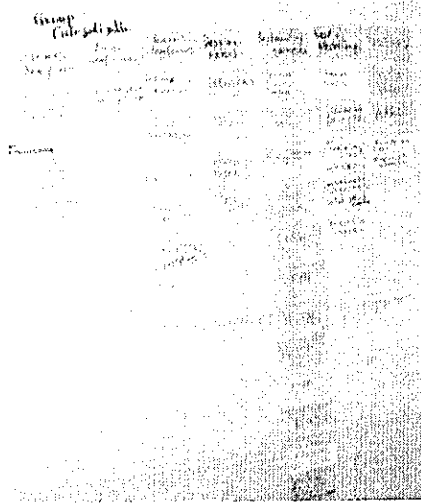
## Main Steps in Participatory Planning





# Stakeholders Analysis

## Stakeholders Analysis



- Identify the issues, problems and current conditions of the target area through analyzing the area and local residents targeted for assistance, related groups, related organizations and agencies.

## Stakeholder Analysis Procedure

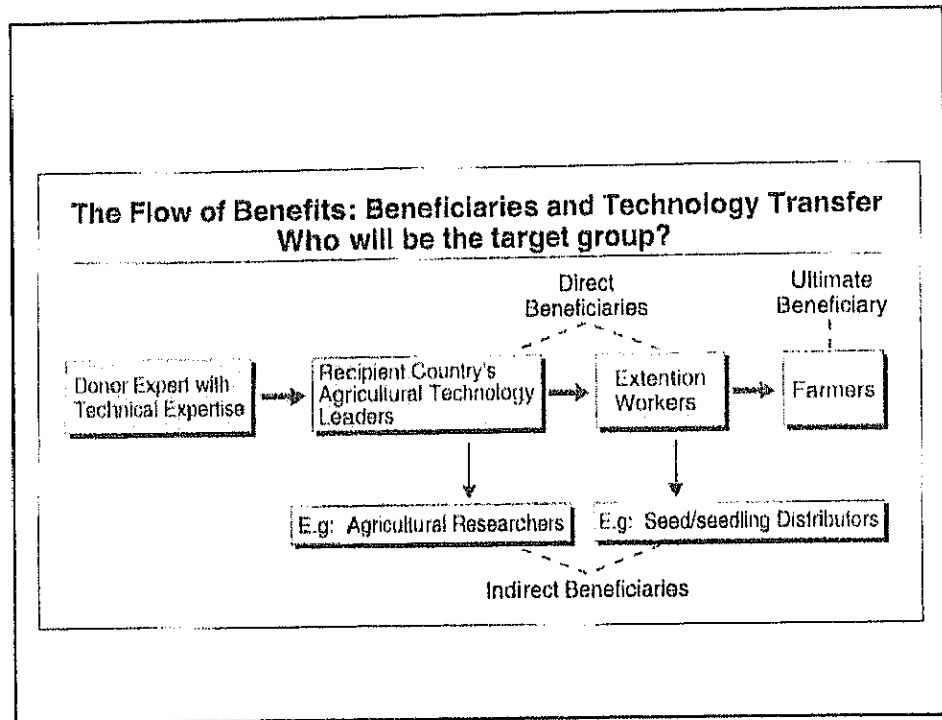
1. Confirm the expected project framework
2. List on cards all individuals, groups, agencies, and organizations within the expected project framework.
3. Sort the cards by category.
4. Select important stakeholders.
5. Analyze the selected stakeholders in detail.
6. Tentatively select a target group.

## Categories to sort stakeholders (example)

Beneficiaries	Implementing agencies
Negatively Affected Groups	Community leaders
Decision-makers	Potential opponent
Funding agencies	Supporting groups

### <Detailed Analysis>

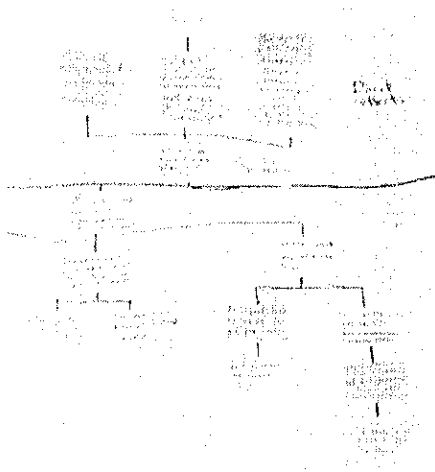
Basic Information	Objective Information such as population, age, budget, education level, organizational structure, socio-cultural characteristics, economy, technical ability, etc.
Problems	What kinds of problems and issues are there in the subject field of assistance? (List major problems outside of the subject field of assistance, if any.)
Needs	What are the desires and demands of the targeted group? What are their needs?
Weaknesses	What kinds of weaknesses exist?
Strengths	What qualitative and resource advantages exist?
Potentials	What are the resources and potential capabilities that are not being used to full benefit under current conditions but that could be in the future?
Actions to Take	What kinds of actions can the project take, given the problems, needs, weaknesses, and potentials given above?



# Problems Analysis



## Problems Analysis



- visually represents the causes and effects of existing problems in the project area and/or sector.

## Problem Analysis Procedure

1. Identify a core problem
2. Write direct causes of the Core Problem
3. Develop the tree downward by identifying causes of the Direct Causes and causes of the causes.
4. Develop the tree upward by identifying direct effects of the Core Problems and effects of the Direct Causes.





## PCM WORKSHOP ON BASELINE STUDY ON MALAYSIAN POLICY IN INDUSTRIAL HRD – VTI

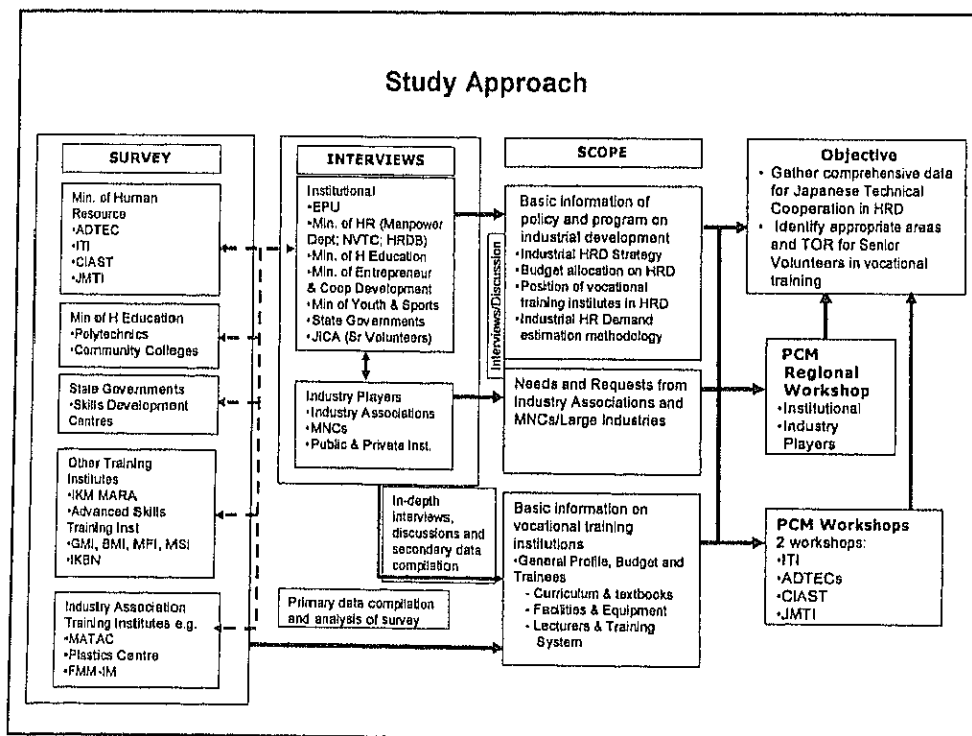
Study Overview  
by  
Lim Pao Li, PE Research Sdn Bhd

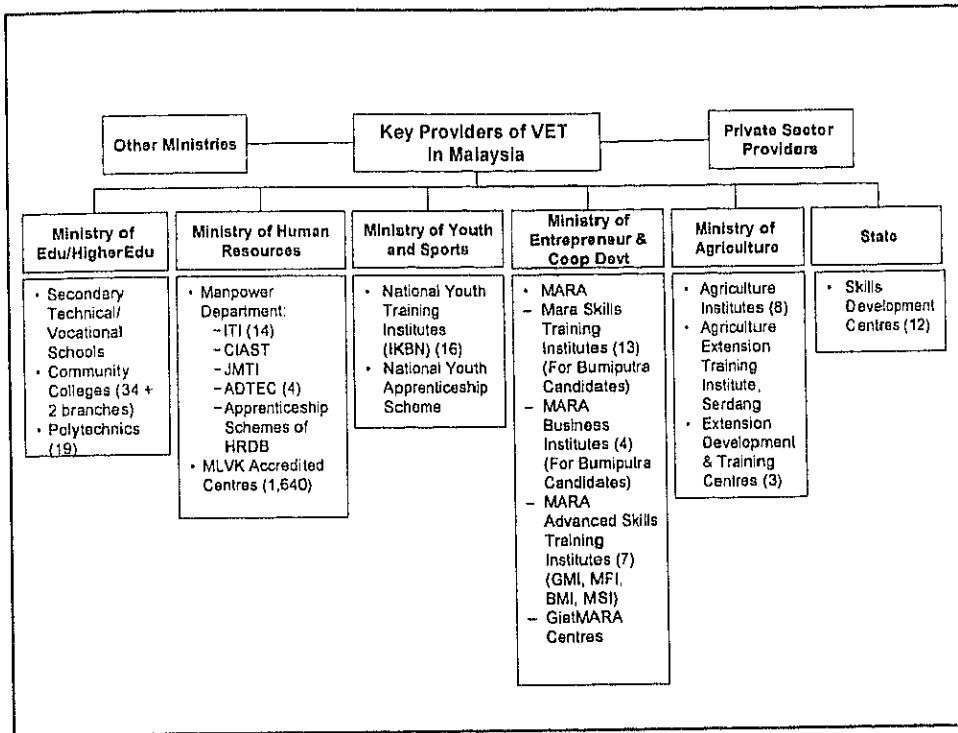
### Objective of Study

- Gather comprehensive data for Japanese Technical Cooperation in HRD
- Identify appropriate areas and to determine the Terms of Reference for Senior Volunteers in vocational training

## Time Frame

- October 2004 – January 2005
  - Survey of Institutions (Mail survey & Interviews)
  - Interview Stakeholders – MoHR, MoHEd, MYS, MECD (Mara), EPU (HR Section), Industry Associations
  - Industry Survey
  - Senior Volunteers Survey
  - 3 PCM Stakeholder Workshops
  - Report





## Public Sector Providers of TVET

- Ministry of Human Resources
  - ITIs (SKM 1 & 2 – 1–1.5 yrs; short courses)
  - ADTECs (Diploma – 2-3 yrs)
  - CIAST (Instructor training dip – 3 yrs; short courses)
  - JMTI (Diploma – 2-3 yrs)
- Ministry of Education/Higher Education
  - Secondary Technical/Vocational Schools (SPM)
  - Polytechnics (Certificate – 2 years; Diploma – 3 years)
  - Community Colleges (Certificate – 2 yrs; Dip – 3 yrs)
- Ministry of Youth & Sports
  - IKBN (SKM 1 - 3 – 18-24 months)
  - IKBTN (SKM 3)

## Public Sector Providers of TVET (2)

- Ministry of Entrepreneurial & Cooperative Development
  - IKM (SKM 1 - 3 – 18 months)
  - IKTM (Diploma – 3 years)
  - Pusat Giat Mara (Certificates – 6-12 months)
  - Mara Business Institutes (Certificate, Diploma, Advanced Diploma)
  - GMI/BMI/MFI/MSI (Diploma – 3 years)
- Ministry of Agriculture
  - Institut Pertanian (Certificate – 3 years)

## Industry Association Providers of TVET

- FMM-Institute of Manufacturing (est 1999)
  - diploma, certificate & short courses;
- MPMA-Plastics Technology Training Centre (est 1993) – SKM 1 & 2; apprenticeship scheme (PIMAS)
- MATAC – certificate

## **Malaysia's HRD Policy**

- Expand supply of highly skilled manpower to support development of K-economy through expansion of education and training;
- Increasing accessibility to quality education and training;
- Improving quality of education and training delivery system;
- Promoting lifelong learning through training and retraining.

Source: EPU

## **IMP2: HRD Initiatives & Strategies**

- Focus on enhancing skills formation and skills upgrading on a continuous basis;
- Re-orientate industrial training system will to allow greater flexibility and autonomy among training institutes to be more market-driven and flexible to adjust to changing demand;
- More flexible and proactive HR supply system to meet the cluster-based manpower needs;
- Focused training strategy to support the regional needs of industrial clusters.

## Historical Context of VET

- 1957 – 1970 (Import substitution)
  - Agriculture Institutes; Skills Training Institutes; Establishment of MARA (1966) – skills training colleges; PUO (1969)
- 1971 – 1990 (OPP1; IMP1; S&T Policy)
  - NITTCB/NVTC; NACIT/ Manpower Devt Board; CIAST (1984); Skills Development Centres
- 1991 – 2000 (OPP2; IMP2; NITA; MSC)
  - HRDF
- 2001 – 2010 (OPP3; K-economy MP; IMP3)
  - Skills development fund; Community Colleges; Dual TVET system

## Salient Statistics

- Population (2004 est) – 25.6 million
- Population (2000 Census) – 23.3 million
- Total Labour Force (2004 est) – 10.9 mil
- LFPR (2004 est) – 68.2%
- 15-64 Population (2000 Census) – 14.6 million (62.8%)
- 15-19 Population (2000 Census) – 2.37 mil
- 20-24 Population (2000 Census) – 2.09 mil

Source: DOS 2000 Census, Economic Report 2004/05

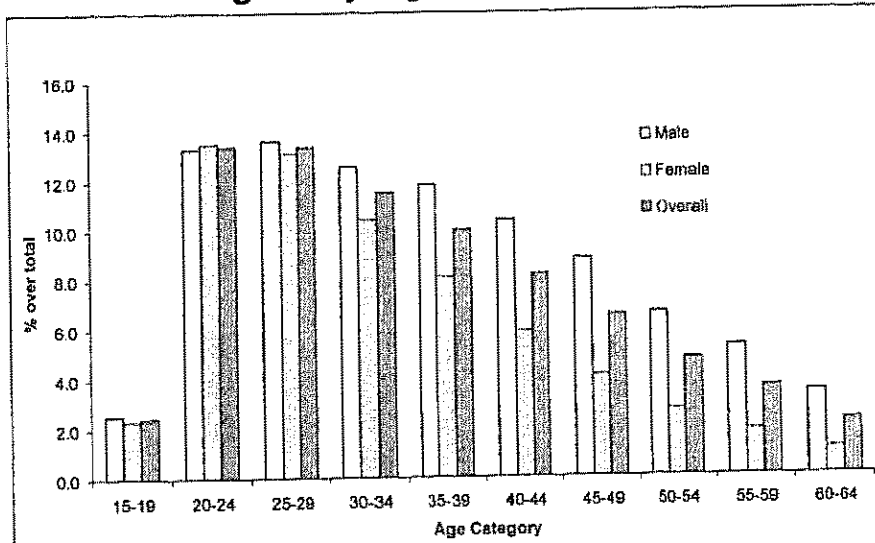


## Summary of Educational Attainment (2000)

	Total	Male	Female
<b>Total Population (15 - 64)</b>	<b>14.62 million</b>	<b>7.45 million</b>	<b>7.17 million</b>
<b>15 - 64 Population with Certificate, Diploma or Degree Qualifications</b>	<b>1.25 million</b>	<b>0.71 million</b>	<b>0.54 million</b>
<i>Percentage over Total 15-64 Population</i>	<i>8.5%</i>	<i>9.5%</i>	<i>7.5%</i>
<b>15-64 Population with Engineering &amp; Skills Qualification</b>	<b>0.18 million</b>	<b>0.16 million</b>	<b>0.02 million</b>
<i>Percentage over Total 15-64 Population</i>	<i>1.25%</i>	<i>2.10%</i>	<i>0.38%</i>
<i>Percentage over 15-64 Population with Certificate, Diploma or Degree Qualifications</i>	<i>14.7%</i>	<i>22.1%</i>	<i>5.1%</i>

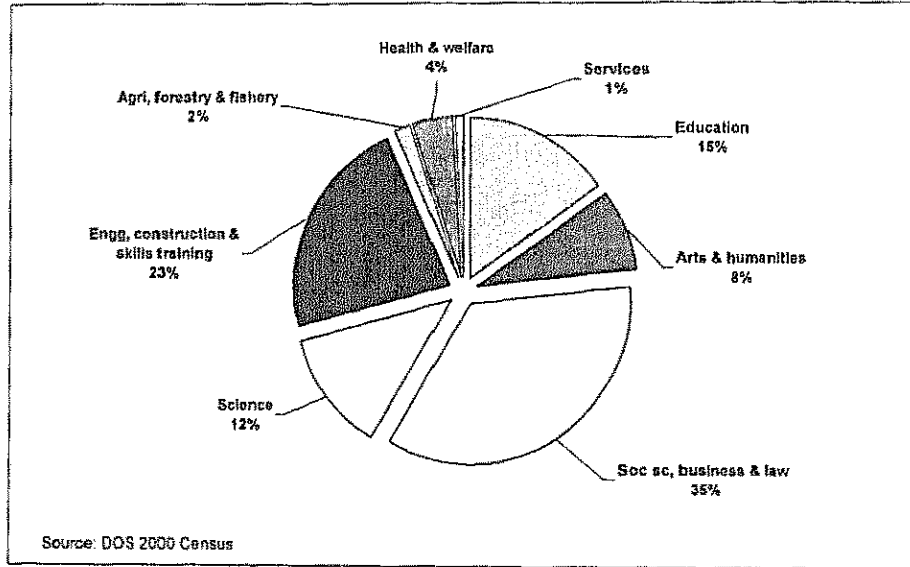
Source: DOS 2000 Census

### 15-64 Years, % With Certificate, Diploma or Degree by Age Category, 2000



Source: DOS 2000 Census

## Main Fields of Study



## Enrolment Rate by Education Level

Level	Age Category	Total Population		Enrolment Rate (% over total population)	
		1991	2000	1991	2000
Pre-School*	5+	506,300*	509,250	74.3%*	80.1%
Primary	6+ to 11+	2,459,700	3,051,400	99.7%	98.5%
Secondary	12+ to 16+	1,870,800	2,488,800	69.7%	80.0%
Lower	12+ to 14+	1,135,300	1,492,100	83.0%	84.4%
Upper	15+ to 16+	735,500	996,700	49.1%	73.5%
Tertiary	17+ to 24+	2760,200	3,833,800	7.1%	13.6%
Post-Secondary, College	17+ to 18+	732,100	992,200	18.9%	24.1%
Higher Education	19+ to 24+	2,028,100	2,841,600	2.9%	9.9%

\* In the case of Pre-School the data is for the year 1997

Source: DOS 1991 & 2000 Census

## Results of PMR, SPM and STPM (MoEd Schools)

	1999	2000	2001	2002	2003
<b>PMR Candidates</b>	371,508	392,962	395,578	388,622	406,306
<b>% PMR Candidates with minimum results</b>	54.8%	53.2%	55.8%	62.7%	61.5%
<b>SPM Candidates</b>	293,476	341,842	322,789	350,015	357,793
<b>% SPM Passes</b>	70.0%	86.8%	89.8%	90.3%	90.9%
<b>STPM Candidates</b>	26,169	29,723	29,341	35,131	43,202
<b>% STPM Passes</b>	95.4%	94.3%	94.8%	94.5%	95.2%

Source: Ministry of Education

## Tertiary Enrolment Distribution by Public & Private Institutions

	1997		2000	
	Number	%	Number	%
<b>Public Institutions</b>	<b>273,538</b>	<b>65.5%</b>	<b>363,863</b>	<b>63.5%</b>
Post Secondary	62,357	14.9%	67,830	11.8%
Colleges	111,140	26.8%	84,535	14.7%
Higher Education	100,041	24.0%	211,498	36.9%
<b>Private Institutions</b>	<b>143,803</b>	<b>34.5%</b>	<b>209,589</b>	<b>36.5%</b>
Post Secondary	17,200	4.1%	17,232	3.0%
Colleges	104,975	25.2%	159,875	27.9%
Higher Education	21,628	5.2%	32,482	5.7%
	<b>417,341</b>		<b>573,452</b>	

Source: Ministry of Education

## Student Intake by VTIs (2003)

VTIs	Certificate Courses	Diploma Courses	Total
ITI	8,496	300	8,796
ADTECs/CIAS/JMTI	-	2,033	2,033
Polytechnics	12,385	11,307	23,692
Community Colleges	3,992	-	3,992
	24,863	13,640	38,513

## Enrolment in VTIs

		No of Inst.	Student Enrolment			
			Total	Cert	Dip	NITP
MoHR	Industrial Training Institute	14	6,838	5,444	1,394	
	ADTECs	4	2,406		2,406	
	CIAS/JMTI	1	940		550	340
	JMTI	1	650		650	
MoHE	Polytechnics	19	51,433	24,093	27,340	
	Community Colleges	34	8,051	8,051		
		73	70,318	37,588	32,340	340

## **MTR 8 Malaysia Plan Targets for VET**

- To increase total enrolment in polytechnics to 71,950
- Intake in Community Colleges – 14,310
- Upgrade Pusat GiatMARA to Community Colleges
- To increase participation rate in tertiary education of 17-23 cohort to 30%
- Output of public training institutions to reach 42,060 with 68.9% in engineering trades
- Output of private training institutions to reach 33,110 with 52.4% in engineering trades

## **Some Policy Recommendations for VET in Draft HRD Master Plan**

- Industry to be partner & participant in planning, design & delivery of VET.
- VET teachers to undertake periodic industry refresher updates.
- Expand capacity of CIIAST & private sector provision of training.
- Annual auditing of training providers.
- Competency-based curriculum to reflect greater relevance & flexibility.
- Incorporate additional soft skills competencies – move beyond production economy – lifelong learning.
- Include cross-skilling and multi-skilling in training.



**SECTION B**

**SURVEYS**





## Section B1 Survey Findings

### B1.1 Survey of Vocational Training Institutions

#### B1.1.1 Introduction

For the Survey of Vocational Training Institutions two sets of questionnaires were used. The **first questionnaire** was mailed out to the various institutions under the following categories:

- **Federal Government:** Ministry of Human Resources, Ministry of Entrepreneurial & Co-operative Development, Ministry of Higher Education and Ministry of Youth and Sports
- **State:** Skills Development Centres

The **second questionnaire** designed for the face-to-face in-depth interviews with key VET institutions in the targeted locations – the Klang Valley (Kuala Lumpur and Selangor), Alor Setar (Kedah), Penang, Ipoh (Perak), Melaka, Johor Bahru (Johor) and Kota Kinabalu (Sabah) - was to:

- analyse the curriculum and text books of the institutes;
- gather more information of facilities and equipment in these institutions; and
- gather more information of the lecturers and the training system.

The sample questionnaires are appended in **Section B7**.

#### B1.1.2 VTI Survey Response

**VTI Mail Survey:** Out of the 119 survey questionnaires mailed out, as at end of December 2004, 58 institutes responded, thus giving a response rate of 49%. However analysis of the response rate by ministry shows that while 85% of the VTIs under the MoHR responded to the survey, the response rate from the VTIs under the MoHEd was only 36%. **Table B1.1** and **Table B1.2** summarise the response by types of institution and coverage by state.

**Table B1.1: Mail Survey Status by Type of Institutes**

Ministry	Type	Number of Institutes Sent Survey Form	Number of Institutes Responded	% Response
MOHR	ADTEC	4	4	100%
	Industrial Training Institutes (ITI)	14	11	79%
	CIAST	1	1	100%
	JMTI	1	1	100%
MoHEd	Polytechnics	19	7	37%
	Community Colleges	34	12	35%
MECD	MARA IKM	13	7	57%
	MARA IKTM	7	0	0%
MYS	Youth Skills Institute (IKB)	14	7	50%
State Government	Skills Development Centres	12	8	67%
		<b>119</b>	<b>58</b>	<b>49%</b>

**Table B1.2: Mail Survey Status by State**

State	Targeted	Completed	% Completed
Johor	11	5	45%
Kedah	12	6	50%
Kelantan	4	2	50%
Melaka	12	7	58%
Negeri Sembilan	6	5	83%
Pahang	10	4	40%
Perak	11	3	27%
Perlis	4	2	50%
Pulau Pinang	6	5	83%
Sabah	6	2	33%
Sarawak	7	4	57%
Selangor	16	9	56%
Terengganu	8	3	38%
WP KL	5	0	0%
WP Labuan	1	1	100%
	<b>119</b>	<b>58</b>	<b>49%</b>

**VTI In-depth Interviews:** As of end of December 2004, 49 in-depth interviews were completed, i.e., 91% out of the targeted 54 institutions. The tables below summarise the coverage of the in-depth interviews by types of institution and coverage by state.

**Table B1.3: In-depth Interviews by Type of Institutions**

Ministry	Institutions	Targeted for Interviews	Interviews Completed	% Completed
MOHR	ADTEC	4	4	100%
	Industrial Training Institutes (ITI)	7	7	100%
	CIAST	1	1	100%
	JMTI	1	1	100%
MoHEd	Polytechnics	12	11	92%
	Community Colleges	8	8	100%
MECD	MARA IKM	7	7	100%
	MARA IKTM *	7	2	29%
MYS	IKBN/IKTBN	0	1	-
State Governments	Skills Development Centres	7	7	100%
		<b>54</b>	<b>49</b>	<b>91%</b>

\* It was decided that in-depth interviews will not be conducted with BMI, MFI and GMI as a JICA study was conducted in 2003.

**Table B1.4: In-depth Interviews by Location**

State	Targeted	Completed	% Completed
Johor	7	6	86%
Kedah & Perlis	10	10	100%
Melaka	8	8	100%
Perak	6	5	83%
Pulau Pinang	5	5	100%
Sabah	4	4	100%
Selangor	9	8	89%
WP Kuala Lumpur	5	3	60%
	<b>54</b>	<b>49</b>	<b>91%</b>

### B1.1.3 Summary of Findings from VTI Survey

Although the response rate to the VTI mail survey was 49%, a large number of the respondents did not fully complete the questionnaires nor provided detailed information. The analysis of the findings from the survey is thus limited by the depth of the information and details provided. Despite the limitations, there are interesting insights that can be drawn from the findings of the VTI survey. The analysis of the findings is divided into various sub-headings.

#### **Capacity and Capability**

For most of the VTIs surveyed, their **original roles and responsibilities** have remained unchanged. Only 12.5% indicated that their original roles and responsibilities have changed over time. This indicates that despite changes in HRD policy, their functions are still relevant as they continue to fulfil the respective policy agenda of the various ministries. Even in the case of the few institutes that indicated role changes, these were limited to matters pertaining to curriculum and training as technological changes have made some courses redundant and as industry demands new courses to be introduced.

One exception is CIAST, which was initially set up as an Instructor Training Centre but has taken on additional responsibilities with the establishment of a Vocational Training Research and Development (VTRD). VTRD currently reviews all training courses offered by the various training institutes under MOHR. It also plays a major role in facilitating the development and implementation of new training curricula as well as in undertaking research and tracer studies to evaluate the effectiveness of training courses and programmes. VTRD is also entrusted to study new technology areas and plan for future training needs. However, VTRD only undertakes the above roles for the training institutes under the ambit of MOHR.

On **whether the institutes have achieved their objectives**, out of the 40 valid responses received, 70.0% indicated that they have fully achieved their objectives, 27.5% have partly achieved their objectives while 2.5% indicated that they have not achieved their objectives.

The main reason cited by institutes for not fully achieving objectives was "poor demand for training courses by industry, especially SMLs". However, it has to be noted that institutes that cited this reason are located in areas with no nearby industrial activity or industrial estates. In the case of the three MARA Skills Institutes that indicated "partial achievement" (2 respondents) and "no achievement" (1 respondent), the reason cited was for electronics

technology for which they cannot keep up with industry demand due to rapid technology changes.

**Table B1.5: Achievement of Objectives by Institutional Groupings**

Institutions under	Fully Achieved	Partly Achieved	Not Achieved	Number of Respondents
MOHR	69.2%	30.8%	-	13
MoHEd	83.3%	16.7%	-	12
MECD	62.5%	25.0%	12.5%	8
MYS	100.0%	-	-	1
State Skills Development Centres	50.0%	50.0%	-	6
Total	70.0%	27.5%	2.5%	40

Source: In-Depth Interview of Vocational Institutes, PE Research, 2004

**Table B1.6: Reasons for Not Fully Achieving Objectives**

Institutes under	Reasons
Ministry of Human Resource	<ul style="list-style-type: none"> <li>▪ Even with annual budget for upgrading equipment and facilities, they are still 3-5 years behind industry level (for ITIs).</li> <li>▪ Poor location of institute i.e., far from industry area.</li> <li>▪ Most of staff/trainers are fresh graduates.</li> <li>▪ Poor marketing undertaken on courses offered.</li> <li>▪ Low demands from industry especially SMIs to training.</li> </ul>
Ministry of Higher Education	<ul style="list-style-type: none"> <li>▪ Poor demand for training course</li> </ul>
Ministry of Entrepreneur and Co-operative Development	<ul style="list-style-type: none"> <li>▪ Electronics Technology changes very fast, but the change and modifications in curriculum is slower.</li> </ul>
State Skills Development Centres	<ul style="list-style-type: none"> <li>▪ SMIs are not responsive to skills training</li> </ul>

Source: In-Depth Interview of Vocational Institutes, PE Research, 2004

Institutes were asked to rate themselves on a scale of 1 to 5 (1 = low; 5 = high) on their **contributions to the needs of industry** based on three parameters, viz. skilled workforce, technology transfer and industry growth.

In terms of **contribution to skilled workforce**, all institutes rated their contribution as 3 and above with 62.5% giving high (5) ratings. Most of the ITI, Polytechnics, Community Colleges, MARA Skills Centres and State Skills Development Centres rated their skilled workforce contribution highly.

In terms of **contribution to technology transfer**, all institutes again rated their contribution between 3 and 5 with 27.8% giving themselves a rating of 5. For Polytechnics, 50% gave themselves high ratings for technology transfer.

However in terms of **contribution to industry growth**, 9.4% of respondents rated their contribution as only 2 and 1. Most of the ITIs and State Skills Development Centres rated their contribution to industry growth highly.

**Table B1.7: Self-Rating by Institutes on their Contribution to the Needs of Industries**

Parameters	Low				High
	1	2	3	4	5
Contribution to Skilled Workforce (n=40)	-	-	15.0%	22.5%	62.5%
Contribution to Technology Transfer (n=36)	-	-	41.7%	30.6%	27.8%
Contribution to Industry Growth (n=32)	3.1%	6.3%	21.9%	43.8%	25.0%
<b>Contribution to Skilled Workforce</b>					
Industrial Training Institutes (n=7)	-	-	-	14.3%	85.7%
ADTECs, CIAST & JMTI (n=6)	-	-	33.3%	50.0%	16.7%
Polytechnics (n=1)	-	-	16.7%	33.3%	50.0%
Community Colleges (n=5)	-	-	-	20.0%	80.0%
MARA Skills Institutes (n=8)	-	-	12.5%	12.5%	75.0%
Youth Skills Institutes (n=1)	-	-	100.0%	-	-
State Skills Development Centres (n=7)	-	-	14.3%	14.3%	71.4%
<b>Contribution to Technology Transfer</b>					
Industrial Training Institutes (n=6)	-	-	50.0%	33.3%	16.7%
ADTECs, CIAST & JMTI (n=5)	-	-	60.0%	20.0%	20.0%
Polytechnics (n=6)	-	-	33.3%	16.7%	50.0%
Community Colleges (n=5)	-	-	40.0%	40.0%	20.0%
MARA Skills Institutes (n=6)	-	-	50.0%	33.3%	16.7%
Youth Skills Institutes (n=1)	-	-	100.0%	-	-
State Skills Development Centres (n=7)	-	-	14.3%	42.9%	42.9%
<b>Contribution to Industry Growth</b>					
Industrial Training Institutes (n=7)	-	-	28.6%	28.6%	42.9%
ADTECs, CIAST & JMTI (n=6)	16.7%	16.7%	-	33.3%	33.3%
Polytechnics (n=5)	-	-	20.0%	80.0%	-
Community Colleges (n=3)	-	-	33.3%	33.3%	33.3%
MARA Skills Institutes (n=6)	-	16.7%	33.3%	33.3%	16.7%
State Skills Development Centres (n=5)	-	-	20.0%	60.0%	20.0%

Source: In-Depth Interview of Vocational Institutes, PE Research, 2004

Feedback from the in-depth interviews indicated that the most important **internal factor that affects the capacity and capability of VTIs positively** is equipment and facility. 63.8% of institutes indicated that they have up-to-date and relevant equipment and sufficient facilities for vocational training offered. Slightly less than half of the institutes indicated that they have **qualified and experienced lecturers**. On the other hand, most of them cited **inexperienced or fresh lecturers (36.2%)** and **shortage of lecturers (34%)** as internal factors that have negative impact on their capacity and capability.

As for **external factors that affect the capacity and capability of VTIs**, positive aspects cited are **industry and government support and linkages**. In terms of negative external

factors, one-fifth of the institutes complained of the **lack of demand for training by industries, notably SMIs.**

**Table B1.8: Factors Affecting Capacity and Capability**

Positive Impacts (% by factors)		Negative Impacts (% by factors)	
<b>Internal Factors (multiple answers)</b>			
<b>Equipment &amp; facility</b>	63.8%	<b>Inexperienced lecturers/fresh graduates</b>	36.2%
Experienced lecturers	48.9%	Shortage of lecturers	34.0%
Committed management & staff	27.7%	Equipment & facilities need upgrading	19.1%
Development & operational costs sufficient	14.9%	Limited funding	14.9%
		Shortage of equipment	12.8%
		Lecturer upgrading poor	10.6%
		Lecturers posted not relevant to Field	8.5%
		No autonomy in hiring & firing	4.3%
		Equipment upgrading costly	2.1%
<b>External Factors (multiple answers)</b>			
<b>Good industry support</b>	48.9%	<b>Poor demand for training</b>	23.4%
Good government/ministry support	42.6%	Located far or outside industry area	14.9%
No problem with student placements for On-Job-Training	25.5%	Industry support weak	10.6%
Develop training for local needs	6.4%	No space for expansion	10.6%
Location good	6.4%	Industry don't co-operate for student placements	8.5%
Graduates able to get jobs	6.4%	Physical infrastructure need upgrading	8.5%

*Source: In-Depth Interview of Vocational Institutes, PE Research, 2004*

Analysis of the **internal factors** by the various institute types shows an interesting perspective. While ITIs, ADTEC, CIAST, JMTI and MARA Skills Centres indicated "equipment and facility" as the main internal positive factor, Polytechnics and Community Colleges cited "experienced lecturers". Regarding internal negative factors, most of the MOHR training institutes indicated "inexperienced lecturers" as a major factor while Polytechnics, Community Colleges and the State Skills Development Centres indicated "shortages of lecturers" as their main negative factor. MARA Skills Institute indicated "limited funding".

**Table B1.9: Internal Factors Affecting Capacity and Capability by Institute Type**

	ITIs	ADTEC, CIASST & JHTI	Polytechnics	Community Colleges	MARA Skills Centres	State Skills Development Centres
<b>Internal Positive Factors</b>						
Equipment & Facility	57.1%	100.0%	45.5%	62.5%	77.8%	50.0%
Experienced Lecturers	42.9%	33.3%	54.5%	87.5%	33.3%	33.3%
Committed Management & Staff	-	16.7%	36.4%	50.0%	33.3%	16.7%
Development & Operational Costs Sufficient	28.6%	16.7%	18.2%	12.5%	-	16.7%
<b>Internal Negative Factors</b>						
Inexperienced lecturers/fresh graduates	57.1%	83.3%	45.5%	-	22.2%	16.7%
Shortage of Instructors	14.3%	33.3%	45.5%	50.0%	22.2%	33.3%
Equipment & Facilities Need Upgrading	28.6%	16.7%	27.3%	-	33.3%	-
Limited funding	-	16.7%	-	12.5%	44.4%	16.7%
Shortage of Equipment	14.3%	-	18.2%	25.0%	11.1%	-
Lecturer Upgrading Poor	28.6%	-	9.1%	-	11.1%	16.7%
Lecturers Posted Not Relevant to Field	28.6%	33.3%	-	-	-	-
No autonomy in hiring & firing	-	16.7%	-	-	11.1%	-
Equipment Upgrading Costly	-	-	-	-	11.1%	-

Source: In-Depth Interview of Vocational Institutes, PE Research, 2004

In the case of **external factors**, while some institutes indicated that they receive good support from industries (MOHR training institutes and SSDCs) some ADTECs complained of "lack of co-operation from industries for student placement". Polytechnics and Community Colleges however indicated that they had government support and were hassle-free with respect to student placement in industries for on the job training.

Negative external factors identified include "poor demand for training" as cited by ITIs, Polytechnics and some SSDCs (poor demand by SMIs) and "lack of space and facilities for expansion" as identified by 50% of the Community Colleges.

Out of the 49 institutes surveyed, only 29% indicated that they have courses and facilities for **e-learning**. More than half of the Industrial Training Institutes and all the four ADTECs have e-learning while three out of the seven State Skills Development Centres interviewed indicated so.

**Table B1.10: External Factors Affecting Capacity and Capability by Institute Type**

	ITEs	ADTEC CAST & JHTI	Polymechanics	Community Colleges	MAPA Skills Centres	State Skills Development Centres
<b>External Positive Factors</b>						
Industry Support Good	71.4%	66.7%	27.3%	50.0%	22.2%	83.3%
Govt/Ministry Support Good	42.9%	66.7%	27.3%	75.0%	-	66.7%
No problems with Student Placements for On-Job-Training	28.6%	-	54.5%	25.0%	22.2%	-
Develop training for local needs	-	-	9.1%	-	-	33.3%
Location good	14.3%	16.7%	-	-	11.1%	-
Graduates able to get occupation	-	16.7%	9.1%	-	11.1%	-
<b>External Negative Factors</b>						
Poor Demand for Training	28.6%	16.7%	27.3%	25.0%	11.1%	33.3%
Located far or outside industry area	14.3%	16.7%	27.3%	-	22.2%	-
Industry support weak	14.3%	-	9.1%	-	33.3%	-
No space for expansion	-	16.7%	-	50.0%	-	-
Industries do not co-operate for student placements	14.3%	33.3%	-	-	11.1%	-
Physical Infrastructure need Upgrading	-	16.7%	27.3%	-	-	-

Source: In-Depth Interview of Vocational Institutes, PE Research, 2004

### Issues and Problems

**Recruitment of teaching and technical staff** remains the most serious issue for the responding institutes with 35.4% of institutes indicating so. The main reasons given are that they do not have autonomy over the selection of staff due to governmental procedures and that these are tied up with Public Services Department<sup>1</sup> (PSD) regulations. There have been cases where lecturer positions are filled with staff with qualification in fields that are different from the courses they have to teach. Thus the institutes have to retrain them before they can utilise them for the needs of the institute. **Approval for teaching and technical staff** is also indicated as an issue by 27.1% of the respondents.

Another issue highlighted by the institutes is the **rapid changing trends in industrial technology**. In most cases the institutes tend to lag behind the technology employed by industry as the curriculum is updated once every 3 to 5 years. Another reason is that investment in equipment and facilities and upgrading and maintaining such equipment and facility to maintain current technology level is costly. This ultimately leads to the **problem of**

<sup>1</sup> PSD is a government department looking after the needs and demand of the entire civil service. PSD fills vacancies based on job-grade requirements, rather than specialised skills requirements of Institutes. PSD receives the bulk of application from public university graduates for positions in the civil service and fills posts according to qualification and job-grade.



**utilisation of equipment and facility** with nearly 44% of MARA Skills Institutes surveyed indicating old and/or obsolete equipment which means more time is spent on maintenance rather than training.

One fifth of the institutes face problems with regards to **co-operation from industries**. The main cause is the lack of places for student placement or attachment programmes during their final year of study. These institutes generally have a tough time to obtain places for industry attachment for students.

**Table B1.11: Issues and Problems Faced by Institutes**

	Percentage indicating issues (multiple answers)						
	ITEs	ADTEC, CIAT, JMTI	Polytechnics	Community Colleges	MARA Skills Institutes	State Skills Development Centres	Overall
Number of Respondents	7	6	11	8	9	7	48
Recruitment of teaching and technical staff	57.1%	66.7%	9.1%	25.0%	44.4%	28.6%	35.4%
Changing trends in industrial technologies	42.9%	66.7%	9.1%	-	44.4%	28.6%	29.2%
Approval for teaching and technical staff	42.9%	33.3%	-	50.0%	22.2%	28.6%	27.1%
Co-operation from industries	14.3%	33.3%	9.1%	12.5%	33.3%	28.6%	20.8%
Utilisation of equipment and facility	14.3%	16.7%	9.1%	12.5%	44.4%	-	16.7%
Funding (for programs, operational and development costs)	-	-	-	-	33.3%	28.6%	10.4%
Approval/budget for acquiring equipment and facility needs	-	16.7%	9.1%	-	22.2%	-	8.3%
Co-operation from government agencies	-	-	-	-	22.2%	-	4.2%

Source: In-Depth Interview of Vocational Institutes, PE Research, 2004

### **Formulation and Implementation of Training Course**

Almost all of the institutes, except for the State Skills Development Centres, rely on their respective Ministries for the formulation and implementation of training course. The respective ministries have their own departments in charge of curriculum formulation and development. Institutes under MOHR rely on NVTC-accredited courses that are developed by VTRD with inputs from other sections in the Ministry. The Technical and Vocational Department of the Ministry of Higher Education formulates curriculum and training for Polytechnics and Community Colleges. In the case of MARA Skills Institutes, they rely on both the NVTC curriculum and MoHEd curriculum respectively for its certificate and diploma courses. The State Skills Development Centres on the other hand are more inclined towards NVTC accreditation. Curriculum formulation and implementation is centrally controlled by the respective Ministries to ensure that respective ministry policy, objectives and goals are achieved.

Parameters that influence the formulation and implementation of curriculum courses likewise differ between the various institutions. Most of the respondents indicated that availability of equipment and facility, lecturers and trainers, co-operation from industries and industry trend changes influence formulation and implementation of training course. So do industry trend changes.

**Table B1.12: Parameters Influencing Formulation and Implementation of Training Courses**

	Percentages Indicating "yes" (multiple answers)						
	ITS	ADTEC, CIAST, JINTI	Polytechnics	Community Colleges	MARA Skills Institutes	State Skills Development Centres	Overall
Number of Respondents	7	6	11	8	9	7	48
Equipment and Facility	85.7%	66.7%	81.8%	87.5%	100.0%	100.0%	87.5%
Lecturers and Trainers	85.7%	100.0%	63.6%	87.5%	100.0%	100.0%	87.5%
Co-operation from Industries	57.1%	66.7%	72.7%	87.5%	88.9%	100.0%	79.2%
Industry Trend Changes	71.4%	100.0%	63.6%	37.5%	88.9%	100.0%	75.0%
Government's Policy Change	57.1%	66.7%	72.7%	75.0%	77.8%	85.7%	72.9%
Textbooks and Reference Materials	42.9%	66.7%	36.4%	62.5%	88.9%	71.4%	60.4%
Co-operation from other Government Agencies	28.6%	50.0%	54.5%	75.0%	77.8%	71.4%	60.4%
Co-operation from Donor Agencies	-	50.0%	9.1%	-	33.3%	42.9%	20.8%

Source: In-Depth Interview of Vocational Institutes, PE Research, 2004

In terms of accreditation, the training programmes are either recognised by NVTC or PSD. Some training courses are also accredited internationally.

**Table B1.13: Internationally Accredited Courses by Institute**

Type	Institute	Description
Polytechnics	Polytechnic Seberang Perai	All Diploma Courses offered recognised by foreign universities.
	Polytechnic Sultan Abdul Halim Mu'adzam Shah	
	Polytechnic Tanjung Malim	
MARA Skills Institute*	IKM Petaling Jaya	Electronics Diploma Course accredited by United Kingdom through BTEC (Business and Technology Education Council)
State Skills Development	Selangor Human Resource Development Centre	Diploma Courses in collaboration with Box Hill College, Australia

Type	Institute	Description
Centres	Johor Skills Development Centre	Fabrication Technology accredited with India; Welding Technology accredited with United Kingdom
	Perak Entrepreneur & Skills Development Centre	Welding Courses recognised by CISWP a certificate scheme for welding and inspection personnel from United Kingdom which is recognised world-wide
	Kedah Industrial Skills and Management Development Centre	Diploma Courses recognised for credit transfer in Australia and Japan
* In the case of MARA Advanced Skills Institute, all 7 have collaborative programmes with foreign universities.		

Source: In-Depth Interview of Vocational Institutes, PE Research, 2004

### Industrial Needs and Inputs

VTIs use various mechanisms to identify current industrial needs. While most of the institutes indicated that they **rely on governmental guidelines and directives** and have **regular discussion with industries**, less than half them carry out **research and studies**. The exceptions are the training institutes under MOHR as more than half of them indicated that they carry out internal research and studies to identify current industrial needs.

Generally the VTIs hold industry discussions either quarterly or twice a year, mostly with the members of the Advisory Committees<sup>2</sup> of the institutes. The lecturers also visit to industries to monitor and evaluate students during their on-job-training and they also take the opportunity to get feedback from the respective industries on industrial trends.

**Table B1.14: Identification of Current Industrial Needs by Institutes**

	Percentages Indicating "Yes" (multiple answers)						
	ITIs	ADTEC, CIAS, JINTI	Politechnics	Community Colleges	MARA Skills Institutes	Skills Skills Development Centres	Overall
Number of Respondents	7	6	11	8	9	7	48
Government guidelines/directives	85.7%	66.7%	90.9%	75.0%	88.9%	85.7%	83.3%
Regular discussion with industries	100.0%	83.3%	54.5%	75.0%	66.7%	85.7%	75.0%
Keep track of industrial trends	85.7%	33.3%	54.5%	37.5%	44.4%	85.7%	56.3%
Dialogue with Industry Associations	71.4%	33.3%	27.3%	25.0%	11.1%	57.1%	35.4%
Internal research and studies	57.1%	66.7%	36.4%	12.5%	22.2%	28.6%	35.4%
External research and studies	42.9%	16.7%	27.3%	12.5%	11.1%	28.6%	22.9%

Source: In-Depth Interview of Vocational Institutes, PE Research, 2004

<sup>2</sup> Almost all the institutes have an Advisory Committee with membership drawn from industries.

Slightly less than half of the institutes surveyed indicated that they **receive co-operation and inputs from industries in the formulation of new training courses**. Inputs from industries include expertise whereby industry players will send experts, institute staff attachment programmes and equipment and material for practical hand-on sessions. All State Skills Development Centres indicated that they receive very good inputs from industries, and two-thirds of Community Colleges indicated likewise. Similarly more than half of the VTIs under the MOHR also indicated the same.

**Table B1.15: Institutes Receiving Co-operation and Inputs from Industries**

	No. of Respondents	No. of Institutes Receive Industry Inputs	Percentage
Industrial Training Institutes	7	4	57.1%
ADTEC, CIAST, JMTI	6	3	50.0%
Polytechnics	11	3	27.3%
Community Colleges	8	5	62.5%
MARA Skills Institutes	9	1	11.1%
State Skills Development Centres	7	7	100.0%
<b>Total</b>	<b>48</b>	<b>23</b>	<b>47.9%</b>

*Source: In-Depth Interview of Vocational Institutes, PE Research, 2004*

### **VTI Lecturers and Courses**

The terms usually used for teaching staff in the VTIS are Instructors, Trainers or Lecturers. At the VTIs under the Ministry of Higher Education they are referred to as lecturers; at VTIs under the Ministry of Human Resource they are either identified as instructors or lecturers. For the purpose of this report we shall use the term lecturers to cover all teaching staff.

There are certain limitations that need to be taken into consideration with regards to the survey findings on lecturers and courses. While the findings on academic qualification and teaching experience of lecturers are based on 2,755 lecturers from 58 VTIs responses to the mail survey, the findings on courses are from 48 VTIs covering 66 courses and 1,600 lecturers as not all the VTIs provided details on all courses taught by them. Neither did they provide details on all the lecturers. The statistical findings thus have to be taken in the context of these limitations and should be regarded as indicative of the current situation.

The number of students per lecturer varies between courses and institutes as well as training methods. For theoretical sessions, these tend to have an average of 25 to 30 students per lecture session. In terms of skills training, i.e., practical hand-on sessions, the number of students monitored per lecturer is smaller due to the intensive technical guidance required. The student-lecturer ratio given below is based only on surveyed institutes and should be taken as an indicative parameter of the existing situation.

Survey results indicate an average of 18 students per lecturer. CIAST has the lowest number of students per lecturer - 6 students. However, it has to be noted that CIAST also provides a lot of short-term courses for skills upgrading of workers and this average ratio is only with respect to full-time students. The other institutes under the Ministry of Human Resource indicate a student lecturer ratio between 11 and 14. The ratio for both Polytechnics and MARA Institutes are higher at 16 students per lecturer. In the case of Community Colleges the ratio is still low, as most of the colleges are not yet fully operational. State Skills Centres tend to use a lot of part-time lecturers (hour-based remuneration).

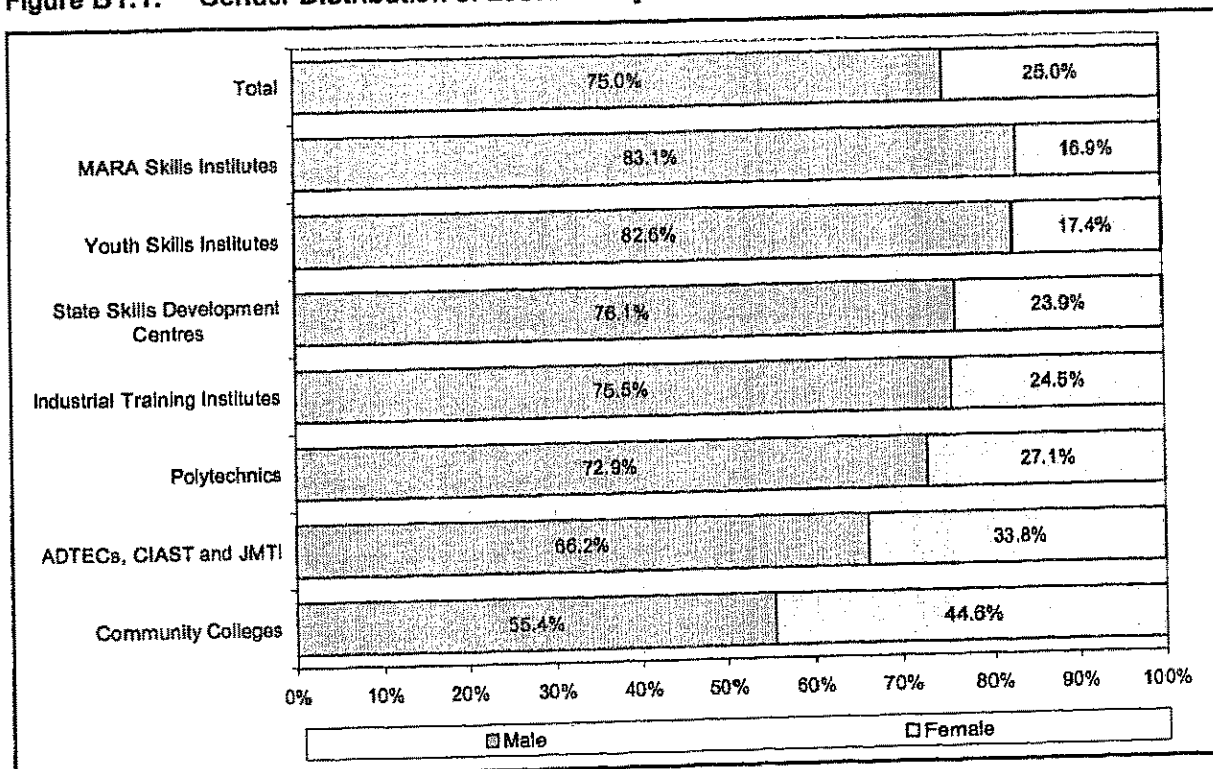
**Table B1.16: Student Lecturer Ratio by Type of Institute, 2004**

Institutes	Valid Responses	Average Lecturers per Institute	Average Students Enrolment per Institute	Student Lecturer Ratio
Industrial Training Institutes	10	68	717	11
ADTECs	4	58	675	12
CIAST	1	163	940	6
JMTI	1	47	650	14
Polytechnics	2	223	3,509	16
Community Colleges	12	25	152	6
MARA Skills Institutes	7	75	1,175	16
Youth Skills Institutes	6	45	337	7
State Skills Development Centres	6	15	775	52
<b>Total</b>	<b>49</b>	<b>54</b>	<b>990</b>	<b>18</b>

Source: Mail Survey of Vocational Institutes, PE Research, 2004

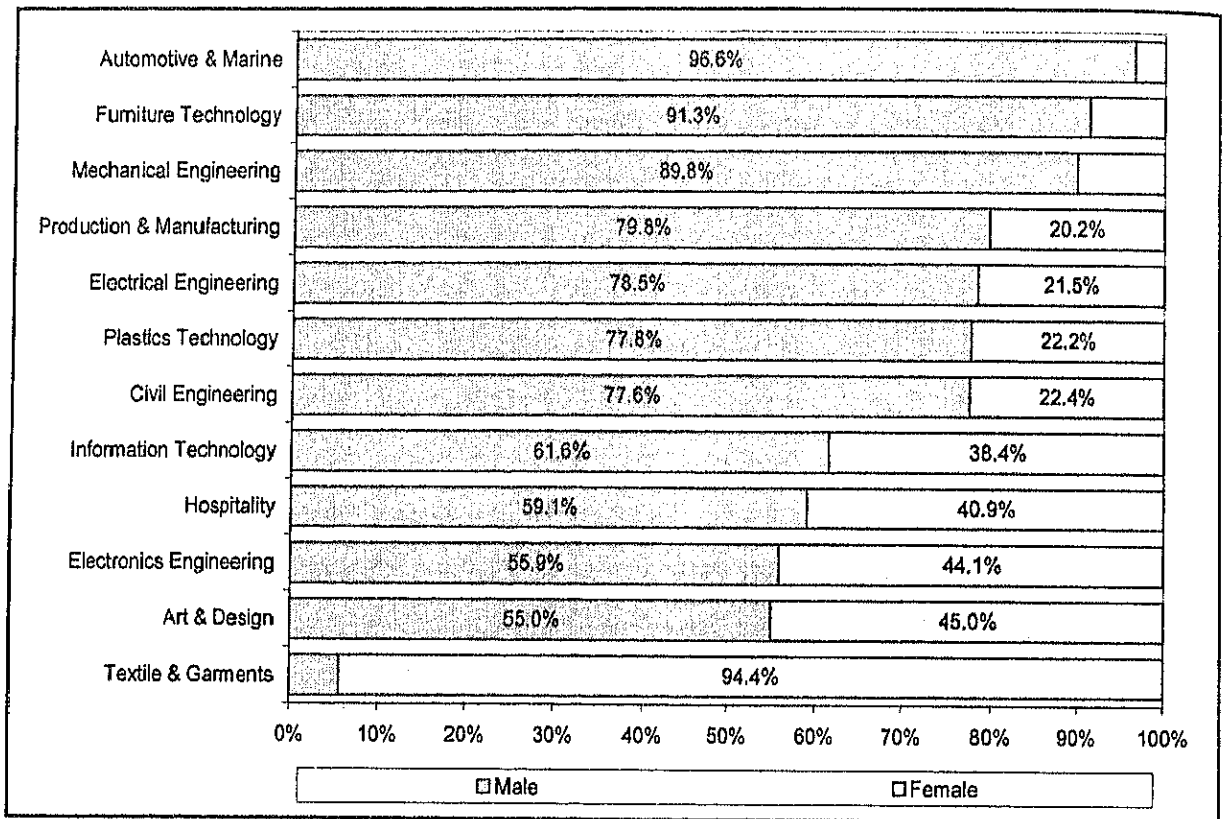
The survey results indicated that the 48 institutes employ a total of 1,600 lecturers. On average, the male: female ratio of VTI lecturers is 3:1 (**Figure B1.1**). The male lecturers tend to dominate in the training areas of civil, mechanical, electrical, manufacturing, production and automotive engineering courses (**Figure B1.2**). However, female lecturers comprise more than ¼ of lecturers in electronics engineering, designing, IT and hospitality courses.

**Figure B1.1: Gender Distribution of Lecturers by Institute**



Source: Mail Survey of Vocational Institutes, PE Research, 2004

**Figure B1.2: Gender Distribution of Lecturers by Course**



Source: Mail Survey of Vocational Institutes, PE Research, 2004

### Qualifications of Lecturers

In terms of qualifications, most of the lecturers in VTIs are diploma (42%) and certificate (22%) holders. 30% are degree holders while only 6% have post-graduate qualifications. Analysis of the qualifications by type of institution reveals that lecturers in Polytechnics and Community Colleges tend to have a higher proportion (two-thirds) of their lecturers with degree and/or post-graduate qualifications. In comparison, ITIs, IKMs, IKBNs and the State Skills Development Centres indicate that two-thirds of their lecturers hold diploma and/or certificate qualifications. The IKMs and State Skills Centres reported proportionately more lecturers with certificate qualifications only (Table B1.17).

**Table B1.17: Distribution of Lecturers by Academic Qualification, 2004**

	Postgraduate	Degree	Diploma	Certificate
ITIs	0.4%	12.1%	60.6%	26.9%
ADTECs, CIAST, JMTI	1.7%	36.3%	60.9%	1.1%
Polytechnics	26.1%	48.8%	22.3%	2.9%
Community Colleges	10.1%	65.6%	20.8%	3.5%
MARA Skills Institutes	0.7%	18.0%	30.7%	50.5%
Youth Skills Institutes	-	10.1%	58.3%	31.7%
State Skills Devt. Centres	1.1%	33.7%	29.2%	36.0%
<b>All (n=2,755)</b>	<b>6.0%</b>	<b>29.6%</b>	<b>42.0%</b>	<b>22.4%</b>

Source: Mail Survey of Vocational Institutes, PE Research, 2004

Correlating the qualifications of lecturers with course reveals that a higher percentage of lecturers in non-technical courses have degree and postgraduate qualifications compared to technical course lecturers (Table B1.18).

While 64% of lecturers for the hospitality course hold degrees or post-graduate qualifications, less than 10% of the lecturers for the electrical engineering, mechanical engineering and plastics technology courses hold degrees or post-graduate qualifications. In the case of the course on furniture technology, there are no lecturers with degrees or post-graduate qualifications at all.

For the technical courses, the survey findings reveal that more than half of the lecturers hold diploma qualifications while one-third have certificate qualifications.

**Table B1.18: Distribution of Lecturers by Qualification and Course**

Course	Qualification of Lecturer		
	Certificate	Diploma	Degree & Post Graduate
Furniture Technology	13.6%	22.7%	63.6%
Automotive & Marine	33.3%	16.7%	50.0%
Electrical Engineering	4.7%	51.2%	44.2%
Civil Engineering	13.2%	61.9%	24.8%
Textile & Garments	27.5%	50.0%	22.5%
Mechanical Engineering	24.1%	59.9%	16.0%
Art & Design	33.7%	53.7%	12.7%
Production & Manufacturing	39.7%	50.0%	10.3%
Hospitality	38.5%	53.0%	8.5%
Electronics Engineering	31.1%	61.8%	7.1%
Plastics Technology	11.1%	83.3%	5.6%
Information Technology	69.6%	30.4%	0.0%

### Teaching Experience

While almost a quarter of the lecturers in VTIs have more than 10 years' teaching experience, the more than half of them have less than 5 years' teaching experience. In fact 24% of the lecturers have less than 2 years' experience (Table B1.19).

**Table B1.19: Distribution of Lecturers by Experience, 2004**

	Teaching Experience of Lecturers			
	> 10 years	5 - 10 years	3 - 4 years	1 - 2 years
ITIs	22.8%	19.2%	41.1%	17.0%
ADTECs, CIAST, JMTI	24.1%	17.0%	38.9%	20.1%
Polytechnics	18.7%	30.7%	34.3%	16.3%
Community Colleges	17.1%	3.4%	15.8%	63.7%
MARA Skills Institutes	37.3%	32.9%	20.0%	9.9%
Youth Skills institutes	15.9%	13.9%	23.4%	46.8%
State Skills Devt. Centres	11.8%	12.9%	36.6%	38.7%
<b>All (n=2,590)</b>	<b>23.8%</b>	<b>21.7%</b>	<b>30.8%</b>	<b>23.6%</b>

Source: Mail Survey of Vocational Institutes, PE Research, 2004

The relationship between lecturers' qualifications and the level of courses taught reveals some interesting points:

- 32.4% and 50.5% of the lecturers who are teaching certificate level courses have certificate and diploma qualifications respectively.
- 51.4% of the lecturers teaching diploma level courses have either diploma or degree qualifications.
- Only 9.7% of the lecturers teaching advanced diploma level courses have either advanced diploma or degree qualifications.

The following table shows the correlation between the lecturers' qualifications and the courses taught.

**Table B1.20: Correlation between Lecturers' Qualifications and Type of Courses Taught**

Type of Courses Taught	Lecturers' Qualifications			
	Certificate	Diploma	Advanced Diploma	Degree
Certificate	32.4%	50.5%	6.3%	10.9%
Diploma	6.6%	42.0%	14.9%	36.5%
Advanced Diploma	34.1%	56.1%	2.4%	7.3%
<b>All (n=1,600)</b>	<b>26.8%</b>	<b>48.8%</b>	<b>8.1%</b>	<b>16.4%</b>

Source: Mail Survey of Vocational Institutes, PE Research, 2004

Correlation between lecturers' qualifications and the subjects taught indicate that overall, 13.6% of the lecturers are teaching subjects that are not related to their academic



qualification. ADTECs and Community Colleges have the highest percentages of lecturers teaching subjects that are not related to their academic qualification, i.e. 26.9% and 21.7% respectively. **Table B1.21** highlights the percentage of lecturers teaching subjects not related to their academic qualifications by institute and course.

**Table B1.21: Percentage of Lecturers Teaching Subjects not related to their Qualifications**

Institute	%	Course	%
ADTECs, CIAST and JMTI	19.7%	Automotive & Marine	11.0%
Industrial Training Institutes	11.6%	Civil Engineering	6.8%
Polytechnics	14.6%	Mechanical Engineering	6.2%
Community Colleges	21.7%	Production & Manufacturing	7.4%
MARA Skills Institutes	12.3%	Electronics Engineering	20.9%
Youth Skills Institutes	9.6%	Electrical Engineering	12.0%
State Skills Development Centres	12.7%	Furniture Technology	30.4%
<b>Overall</b>	<b>13.6%</b>	Plastics Technology	38.9%
		Information Technology	34.9%
		Art & Design	25.0%
		Textile & Garments	11.1%
		Hospitality	9.1%

Source: Mail Survey of Vocational Institutes, PE Research, 2004

### Equipment

While the respective line ministries procure most of the equipment used in the surveyed vocational training institutions, some VTIs have received equipment from industry (11 VTIs) or donor agencies (12 VTIs). It is interesting to note two-thirds of the State Skills Development Centres (SSDC) indicated that they have received equipment from industry. Half of the SSDC respondents have also received equipment from donor agencies.

One key issue regarding equipment in VTIs is the **lack of maintenance**. Yet three-quarters of the respondents indicated that they have a standard system/procedure for maintenance of equipment.

Response from VTIs on the frequency of usage, relevance and breakdown/downtime of equipment (**Table B1.22**) reveal that:

- Two-thirds of the VTIs rate the frequency of equipment usage as high;
- 84% of the VTIs rate the relevance of the equipment at their institute as high;
- Two-thirds of the VTIs rate the frequency of equipment breakdown/downtime as low.

**Table B1.22: Frequency of Usage, Relevance & Breakdown/Downtime of Equipment (n = 49)**

Frequency of ....	High	Average	Low
Usage	67.3%	28.6%	4.1%
Relevance	83.7%	16.3%	0.0%
Breakdown/downtime	4.1%	30.6%	65.3%

Source: In-Depth Interview of Vocational Institutes, PE Research, 2004

Furthermore, 46% of the respondents indicated there is a shortage of equipment to support the vocational programme. While more than 50% of the public sector VTIs reported facing a shortage of equipment only 1 (out of 7) State Skills Development Centre reported so.

## B1.2 Industry Survey

### B1.2.1 Industry Response

280 firms were contacted for the industry survey using two sets of questionnaires (attached in **Section B7**). The first set of industry survey targeted local and non-Japanese MNCs while the second set targeted Japanese MNCs<sup>3</sup>. Although the surveys were conducted utilising two different sets of questionnaires, wherever possible the findings were merged to give an overview of the current situation.

As at mid-January 2005, 58 firms have responded thus giving a response rate of 21%. The table below highlights the survey status and response rates.

**Table B1.23: Industry Survey Status**

Industry Survey	Number of Firms Contacted	Number of Firms Responded	% Response Rate
Local & Non-Japanese MNCs	80	20	25%
Japanese MNCs	200	38	19%
<b>Total</b>	<b>280</b>	<b>58</b>	<b>21%</b>

*Source: Industry Survey by PE Research and JICA Malaysia Office*

Analysis of the respondents by their main activity shows that 55% of the firms are in electrical, electronics and machinery, 17% in fabricated metal and non-ferrous metal products, 5% in chemicals, rubber & plastic products while the balance 22% are in other manufacturing activities. All the non-Japanese MNCs surveyed are in electrical, electronics and machinery while the Japanese MNCs surveyed are engaged in a wide range of activities (**Table B1.24**).

**Table B1.24: Distribution of Respondents by Main Activity and Ownership**

Main Activity	Local Companies	Non-Japanese MNCs	Japanese MNCs	Total
Electrical, Electronics & Machinery	3	6	23	32
Fabricated Metal, Non-ferrous Metal	3	-	7	10
Chemicals, Rubber & Plastics	3	-	-	3
Other Manufacturing	5	-	8	13
<b>Total</b>	<b>14</b>	<b>6</b>	<b>38</b>	<b>58</b>
Electrical, Electronics & Machinery	21.4%	100.0%	60.5%	55.2%
Fabricated Metal, Non-ferrous Metal	21.4%	-	18.4%	17.2%

<sup>3</sup> The second set of questionnaires (in Japanese) were sent out and received by JICA Malaysia Office but the returns were given to PE Research for analysis.

Main Activity	Local Companies	Non-Japanese MNCs	Japanese MNCs	Total
Chemicals, Rubber & Plastics	21.4%	-	-	5.2%
Other Manufacturing	35.7%	-	21.1%	22.4%
Total	100.0%	100.0%	100.0%	100.0%

Source: Industry Survey by PE Research and JICA

Analysis by size shows that more than two-thirds of the firms are large firms (Table B1.25). In the case of the MNCs (both non-Japanese and Japanese) large firms accounted for more than three-quarters of the respondents. However, in the case of local firms, more than two-thirds are small and medium firms.

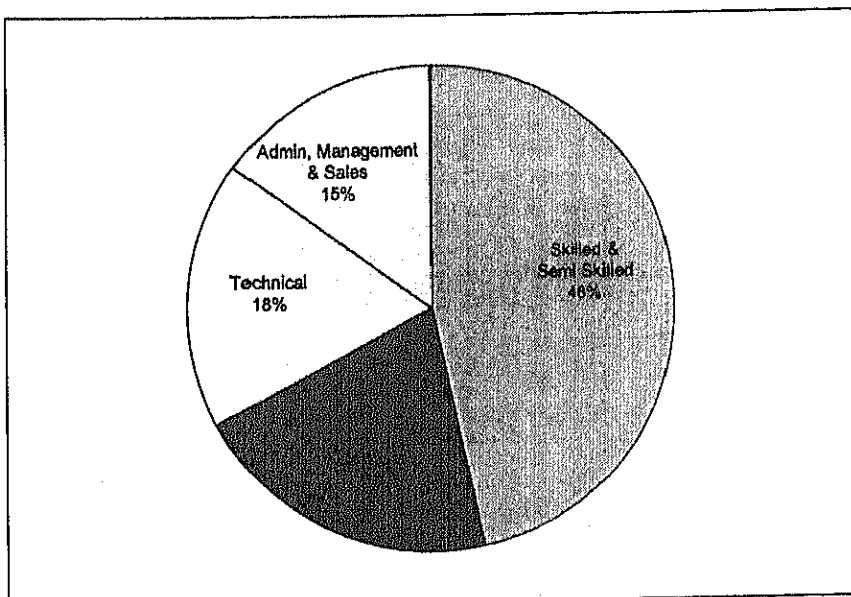
Table B1.25: Distribution of Respondents by Size and Ownership

Size	Local	Non-Japanese MNCs	Japanese MNCs	Total
Small & Medium	9	1	9	19
Large	5	5	29	39
Total	14	6	38	58
Small & Medium	64.3%	16.7%	23.7%	32.8%
Large	35.7%	83.3%	76.3%	67.2%
Total	100.0%	100.0%	100.0%	100.0%

Source: Industry Survey by PE Research and JICA

For all the 58 respondents, skilled and semi-skilled workers account for the largest proportion of the employees as shown in Figure B1.3.

Figure B1.3: Distribution of Employment by Categories



Source: Industry Survey by PE Research and JICA

Analysis of employment by ownership (**Table B1.26**) shows that while unskilled workers in non-Japanese MNCs account for less than 7% of total employment, in Japanese MNCs unskilled workers account for more than 30%. This is almost double the percentage in local firms (18%). Both non-Japanese MNCs and local firms employ more skilled and semi-skilled workers - 63% and 56% respectively compared to only 34% in Japanese MNCs. The percentage of technical workers in non-Japanese MNCs is also higher than in Japanese MNCs (22% vs. 17%).

Analysis of employment by size of firm show that irrespective of ownership, small and medium-sized firms tend to have a higher percentage of administration, management and sales workers compared to large firms. Although SMIs generally have a lower proportion of technical workers compared to large firms, the Japanese SMIs seem to employ a larger proportion of technical workers.

**Table B1.26: Distribution of Employment by Categories, Size and Ownership**

	N	% Skilled & Semi Skilled Worker	% Unskilled Worker	% Technical Worker	% Admin. Management, Sales Worker
Local Companies	13	56.3	17.7	15.0	8.0
SMIs	8	39.0	12.1	9.4	16.1
Large Firms	5	58.7	18.5	15.8	6.9
Non-Japanese MNCs	6	62.7	6.2	21.7	9.4
SMIs	1	68.9	2.7	8.0	20.4
Large Firms	5	62.6	6.2	21.8	9.3
Japanese MNCs	38	34.0	30.5	17.0	21.1
SMIs	9	29.0	15.6	22.0	31.1
Large Firms	29	34.1	30.8	16.9	20.9
<b>Overall</b>	<b>58</b>	<b>47.0</b>	<b>20.7</b>	<b>18.0</b>	<b>15.1</b>
<b>SMIs</b>	<b>19</b>	<b>37.6</b>	<b>12.6</b>	<b>13.3</b>	<b>21.0</b>
<b>Large Firms</b>	<b>39</b>	<b>47.4</b>	<b>21.0</b>	<b>18.2</b>	<b>14.8</b>

Source: Industry Survey by PE Research and JICA

The survey of non-Japanese MNCs and local firms shows that on average, 19% of the employees hold qualifications from vocational training institutions (**Table B1.27**). Of these almost 90% of the VTI graduates are engaged in production and technical-related jobs. However analysis by size shows that while 90% of large firms utilise VTI graduates in production and technical-related jobs, the average percentage drops to only 67% in SMIs.

Analysis by activity shows that firms in the electrical, electronics and machinery, and the fabricated metal industry sector utilise the majority of the VTI graduates (almost 90% and above) in production and technical related jobs. Comparatively firms in other manufacturing activities utilise on 18% of the VTI graduates in these jobs.

The industry respondents were asked to assess the ability of their employees from VTIs based on several criteria as shown in **Table B1.28**. While local firms rated their employees from VTIs as average and above for all criteria, non-Japanese firms gave below average ratings on all criteria except for technical knowledge for employees from public VTIs. Non-

Japanese MNCs also gave below average ratings for operational skills, management and supervisory skills and personal development for employees from both private VTIs too.

Japanese MNCs rated their employees from public VTIs as only average for most criteria while their “knowledge on the concept of 5S” and “ability to communicate” were rated below average. The Japanese MNCs assessed their employees from ITIs/ADTECs and Polytechnics/ Community Colleges to be about the same level (average – 3.3) but they assessed those from the MARA Skills Centres as below average (2.6).

**Table B1.27: Percentage of Employees with VTI Qualifications and Working in Production & Technical Related Jobs by Ownership, Size and Activity (Local Companies and Non-Japanese MNCs only)**

		N=19	% Having Qualifications from VTIs	% of VTI qualified in Production & Technical Related Jobs
<b>By Size</b>	<b>Local Companies</b>	13	9.2%	90.3%
	SMLs	8	12.1%	65.9%
	Large Firms	5	8.8%	95.0%
	<b>Non-Japanese MNCs</b>	6	24.9%	88.8%
	SMLs	1	11.1%	80.0%
	Large Firms	5	25.0%	88.8%
	<b>Overall</b>	19	18.8%	89.1%
	SMLs	9	12.0%	66.9%
	Large Firms	10	19.1%	89.8%
<b>By Activity</b>	<b>Local Companies</b>	14	9.2%	90.3%
	Electrical, Electronics & Machinery	3	12.6%	100.0%
	Fabricated Metal, Non-ferrous Metal	3	15.8%	89.4%
	Chemicals, Rubber & Plastics	3	9.8%	43.2%
	Other Manufacturing	5	2.1%	17.9%
	<b>Non-Japanese MNCs</b>	6	24.9%	88.8%
	Electrical, Electronics & Machinery	6	24.9%	88.8%

Source: Industry Survey by PE Research

**Table B1.28: Assessment of Industry Employees by VTIs Graduated (Rating: 1=low; 5=high)**

Criteria	Local Firms		Non-Japanese MNCs		Japanese MNCs*
	Public VTIs	Private VTIs	Public VTIs	Private VTIs	Public VTIs
Technical Knowledge	3.8	4.2	3.3	3.4	3.1
Basic/Practical Knowledge	3.4	4.0	2.8	3.2	3.1
Operational Skills	3.5	3.7	2.4	2.5	n.a.
Management & Supervisory Skills	3.2	3.3	1.6	2.0	n.a.
Upgrading/Acquiring New Skills	3.0	3.3	2.7	3.0	3.2
Personal Development	3.4	3.4	2.6	2.8	n.a.
Willingness to Work	n.a.	n.a.	n.a.	n.a.	3.1
Concept of 5S	n.a.	n.a.	n.a.	n.a.	2.4
Capability for Application	n.a.	n.a.	n.a.	n.a.	3.0
Capability for Communication	n.a.	n.a.	n.a.	n.a.	2.8

Source: Industry Survey by PE Research & JICA

Note: \* Japanese MNCs were only asked to assess the employees from public VTIs;  
n.a. = not available as these criteria were not assessed.

Analysis of the industry survey shows that 83% of the respondents have a **training policy** with a higher percentage of Japanese MNCs having training policy in place (Table B1.29). Although 91% of the respondents indicate that they are contributing to the HRDF, only 63.8% fully utilise their contributions. Fully utilisation of HRDF is slightly higher for SMIs (71%) compared to large firms (69%).

**Table B1.29: Firms with Worker Training Policy; Contribution and Utilisation of HRDF**

	N=58	% with training policy	% contributing to HRDF	% HRDF contributors fully utilising the fund
<b>Local Companies</b>	<b>14</b>	<b>71.4%</b>	<b>78.6%</b>	<b>90.9%</b>
SMIs	9	66.7%	66.7%	100.0%
Large Firms	5	80.0%	100.0%	80.0%
<b>Non-Japanese MNCs</b>	<b>6</b>	<b>66.7%</b>	<b>100.0%</b>	<b>66.7%</b>
SMIs	1	n.a.	100.0%	100.0%
Large Firms	5	80.0%	100.0%	60.0%
<b>Japanese MNCs</b>	<b>38</b>	<b>89.5%</b>	<b>94.7%</b>	<b>63.9%</b>
SMIs	9	77.8%	77.8%	42.9%
Large Firms	29	93.1%	100.0%	69.0%
<b>All Firms</b>	<b>58</b>	<b>82.8%</b>	<b>91.4%</b>	<b>63.8%</b>
SMIs	19	68.4%	73.7%	71.4%
Large Firms	39	89.7%	100.0%	69.2%

Source: Industry Survey by PE Research & JICA