

**TOTAL QUALITY MANAGEMENT STRATEGIES  
FOR SMALL AND MEDIUM INDUSTRIES IN MALAYSIA  
A CRITICAL SYSTEMS APPROACH**

**BEING A THESIS SUBMITTED FOR  
THE DEGREE OF DOCTOR OF PHILOSOPHY**

**IN THE UNIVERSITY OF HULL**

By

**ABU BAKAR BIN MOHD. YUSOF**

Registered Accountant (Malaysia)

ADIA (Mara Institute of Technology)

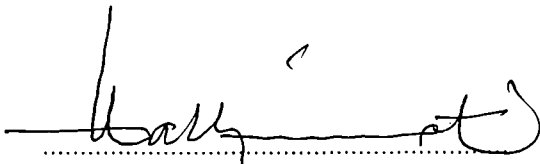
AICA (Institute of Cooperative Auditors, Malaysia)

MBA Finance (University of Hull, U.K.)

Dedicated to my wife Fatimah Mariah, my children Aida Rahayu, Ainul Zakiah and Aina Fadilah, and my parents who have always encouraged me to achieve my best.

## DECLARATION

I hereby declare that this thesis was the effort of my own research work in Malaysia. This thesis has not been included in any previous application for a degree. All verbatim extracts have been distinguished by quotation marks and sources of information have been acknowledged.

A handwritten signature in black ink, appearing to read 'Abu Bakar Bin Mohd. Yusof', written over a horizontal dotted line.

ABU BAKAR BIN MOHD. YUSOF.

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## ABSTRACT

A great amount of effort has been given to the development of Malaysian Small and Medium Industries (SMIs) in the last 25 years. 13 Ministries and more than 30 agencies have been involved in these efforts. A large amount of money and other resources were also allocated for their development. These initiatives were clearly shown in all the 7 Malaysia Plans. However, the success of these efforts has been negligible. With 25 years remaining in which to achieve Vision 2020, the question is, are we going to make no more progress than in the past 25 years?

Sustained economic growth is the key to obtaining the objectives of the Malaysian Vision 2020 which requires an average 7 percent growth per year for the next 25 years. This growth target is to be met, largely, from the manufacturing and services sector according to the time frame of the Second Outline Prospective Plan (OPP2), which emphasized the supportive and complementary role played by SMIs in contributing towards a more dynamic and competitive industrial sector.

Many believed and still hope that SMIs will assume a pivotal role in Malaysia's industrialisation process towards the year 2020. Their role as suppliers of parts and components to the big industries for the production of final products is crucial in the process of widening and deepening industry.

As quality and productivity among SMIs develop as a result of the application of quality initiatives and the undertaking of quality programmes, including Total Quality Management (TQM), and their production capacity increases to supply the requirements of the local industries, their excess capacity can be utilised to produce parts and components for the export market. This will not only replace the dependency of local industries on imported parts and components, but will also reduce the outflow of foreign exchange.

The Government has promised to devise appropriate assistance schemes and will seek to raise the level of management expertise, technological know-how and skills of the employees in this very important and, in many ways, neglected sector of the economy. SMIs will be one of the primary foundations for Malaysia's future industrial thrust. The Government is fully committed to their healthiest development. Now, it is up to SMIs to take up the challenge.

This study focuses on the evaluation of TQM Strategies for SMIs in Malaysia. Data acquired from a survey in Selangor and Federal Territory, Kuala Lumpur and the Prime Minister's Quality Award are used to establish the background of the quality models and initiatives undertaken by Malaysian SMIs and the quality standards requirements for Malaysian companies, their attributes and the interrelationship between various quality programmes practiced by the industries. Besides, the interdependency of the SMIs, the Development Agencies, Government Policies, the environment and related quality management approaches are identified. These findings can be useful for the development

of an integrated quality system approach leading to social, quality and environmental balance.

In addition, a structural organizational model for the SMIs is presented and the purpose of quality initiatives and the proper understanding of quality practices and its areas of concentration are discussed at length, in order to give a better guide to SMIs as to how to determine the selection of approaches to achieve the maximum results on their quality initiatives and programmes.

Finally, information on various quality initiatives, quality training, quality programmes and the effect of government subsidies highlighted in the study, could be used to aid the formulation of a quality policy for Malaysian SMIs and achieve better management and procedures in this area.

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## **LIST OF ABBREVIATIONS**

AJDF	Asian Japan Development Fund.
AIC	Asean Industrial Council.
AIJV	Asean Industrial Joint Venture.
AIP	Asean Industrial Partnership..
ANOVA	Analysis of Variance.
AOTS	Australian Overseas Training Society.
ASEAN	Association of South East Asia Nations.
ASQC	American Society of Quality Control.
AQL	Acceptable Quality Level.
BBMB	Bank Bumiputra Malaysia Berhad.
BCIC	Bumiputra Commercial and Industrial Community.
BIMB	Bank Industry Malaysia Berhad.
BESTA	Besta Distribution Sendirian Berhad.
BNM	Bank Negara Malaysia (Central Bank of Malaysia).
BPMB	Bank Pembangunan Malaysia Berhad.
BPM	Bank Pertanian Malaysia.
BPR	Business Process Reengineering.
BSI	British Standards Institute.
CBI	Commercial Business Interchange.
CCDSI	The Coordinating Council for Development of Small-Scale Industry.
CEO	Chief Executive Officer.
CEFE	The Creation of Enterprises and Formation of Enterprises.
CGC	Credit Guarantee Corporation.
CIMA	The Chartered Institute of Management Accountants.
CKD	Completely Knock Down.
CPI	Continuous Process Improvement.
CSME	Cottage, Small and Medium Enterprise.
DOS	Department of Statistics.
DSI	Directorate of Small Industries.
DFIs	Directorate of Foreign Investments.
EON	Edaran Otomobil Nasional (National Automobile Distributor).
DSE	Division of Small Enterprises.
EPU	Economic Planning Unit.
FIMA	Food Industry of Malaysia.
FMM	Federation of Malaysian Manufacturers.
FRIM	Forest Research of Malaysia.
GDP	Gross Domestic Product.
GMP	General Manufacturing Practice. Good Manufacturing Practice.
HELP	Higher Education Learning Programme.
HICOM	Heavy Industry Corporation of Malaysia.
HSBC	Hong Kong and Shanghai Banking Corporation.
HRM	Human Resource Management.
HRSI	Human Resource Support Institutions.
IBM	International Business Machines.

ICA	The Industrial Coordination Act.
ICU	The Implementation and Coordination Unit.
IDCJ	Industrial Development Cooperation of Japan.
IMP	Industrial Master Plan.
IT	Information Technology.
ITAF	The Industrial Technical Assistance Fund.
ITC	International Trade Commission.
ITI	Industrial Training Institute.
ITT	International Telegraphic and Telecommunication.
ISO	The International Standards Organization.
JICA	Japanese International Cooperation Agency.
JIT	Just-In-Time.
JPM	Jabatan Perdana Menteri. (Prime Minister's Department).
JPA	Jabatan Perkhidmatan Awam (Public Service Commission).
KLIA	KL International Airport.
LSIs	Large Scale Industries.
MAC	Malaysian Accreditation Council.
MARA	Majlis Amanah Rakyat.
MARDI	Malaysian Agriculture Research and Development Institute.
MBA	Master of Business Administration.
MBO	Management by Objectives.
MECIB	The Malaysian Export Credit Insurance Berhad.
MEDEC	Malaysian Entrepreneurial Development Centre.
MESEAM	Medium and Small Enterprises Association of Malaysia.
MEXPO	Malaysian Exposition.
MIDA	Malaysian Industrial Development Authority.
MIDF	Malaysian Industrial Development Finance.
MIEL	Malaysian Industrial Estate Limited.
MIM	Malaysian Institute of Management.
MIT	Mara Institute Of Technology.
MITB	Mara Institute of Technology Berhad.
MITI	Ministry of International Trade and Industry. Ministry of Internal Trade and Industry.
MITIC	Malaysian Industrial Technology Information Centre.
MNC	Multi National Corporation.
MoS	Ministry of Small and Medium Industries.
MSC	Multimedia Super Corridor.
MP1	First Malaya Plan (1960-1965).
MP2	Second Malaya Plan (1966-1967).
MSIs	Medium Scale Industries.
NCQR	National Council for Quality Reliability.
NDC	National Development Council.
NDP	New Development Policy.
NEDC	National Entrepreneurial Development Council. National Economic Development Council.
NEDRA	National Entrepreneur Research Development Association.
NEP	New Economic Policy.
NGOs	Non-Government Organizations.
NIC	New Industrialised Country.

NPC	National Productivity Corporation.
OPP1	The First Outline Prospective Plan (1970 to 1990).
OPP2	The Second Outline Prospective Plan (1991 to 2000).
OPP3	The Third Outline Prospective Plan (2001 to 2010).
OPP4	The Fourth Outline Prospective Plan (2011 to 2020).
PAF	Prevention, Appraisal and Failure.
PDCA	Plan, Do, Check and Action.
PIA	Promotion Investment Act.
POC	Price (Cost) Of Conformance.
PPB	Parts Per Billion.
PPH	Parts Per Hundred.
PPM	Parts Per Million.
PONC	Price of Non Conformance.
PROTON	Perusahaan Otomobil Nasional (National Automobile Enterprise).
PM	Productivity Maintenance. Productivity Management. Production Maintenance. Product Management.
PNB	Permodalan Nasional Berhad.
PWTC	Putra World Trade Centre.
QCC	Quality Control Circle. Quality Control Council.
QIP	Quality Improvement Practice. Quality Improvement Programmes.
R&D	Research and Development.
RICOM	The Registry of Industrial Contracting Manufacturers.
RIDA	Rural Industrial Development Authority.
RM	Ringgit Malaysia (Malaysian Ringgit: RM4.00 = £1.00.).
RM1	First Malaysia Plan (1967-1970).
RM2	Second Malaysia Plan (1971-1975).
RM3	Third Malaysia Plan (1976-1980).
RM4	Fourth Malaysia Plan (1981-1985).
RM5	Fifth Malaysia Plan (1986-1990).
RM6	Sixth Malaysia Plan (1991-1995).
RM7	Seventh Malaysia Plan (1996-2000).
RRIM	Rubber Research Institute of Malaysia.
SAPURA	Sapura Holding Sendirian berhad.
SDP	Sime Derby Pemas Trading Corporation.
SEDC	State Economic Development Corporation.
SEDCs	State Economic Development Corporations.
SIDO	Small Industries Development Organization.
SIRIM	Standards and Industrial Research Institute of Malaysia.
SIRIMEX	Standards and Industrial Research Institute Malaysia (SIRIM) Excellent.
SME	Small and Medium Enterprise.
SMEs	Small and Medium Enterprises.
SIMs	Small and Medium Scale Industries.
SMIDEC	Small and Medium Industries Development Corporation.
SPC	Statistical Process Control.
SPSS	Statistical Package for Social Science.

SSIs	Small Scale Industries.
S&T	Science and Technology.
SQC	Statistical Quality Control.
TC	Total Cost.
TPM	Total Productivity Maintenance. Total Productivity Management.
TQC	Total Quality Control.
TQM	Total Quality Management.
TQL	Total Quality Leadership.
TR	Total Revenue.
TSIs	Tiny Scale Industries.
UMIST	University of Manchester Institute of Science and Technology.
UNDP	United Nations Development Programme.
UPM	Universiti Pertanian Malaysia (University of Agriculture Malaysia).
USA	United States of America.
VAT	Value Added Tax.
VDP	Vendor Development Programme.
VSM	Viable System Model. Viable System Management.

# CHAPTER ONE

## Introduction

### 1.0 Introduction to Research

Sustained economic growth is the key to obtaining the objectives of the Malaysian Vision 2020 which requires an average 7 percent growth per year for the next 25 years. This growth target is to be met, largely, from the manufacturing and services sector according to the time frame of the Second Outline Prospective Plan (OPP2), which emphasized the supportive and complementary role played by SMIs in contributing towards a more dynamic and competitive industrial sector.

*‘In order to achieve the above targets, the manufacturing sector must grow at an average of 10.5 percent per year (from 1990-2000). There is also a high expectation for manufacturing to be the main export earner (from 27.0 percent in 1990 to 81.3 percent in 2020). Malaysia will continue to prosper and progress to reach the ultimate goal to become a fully developed nation by the year 2020’* (Omar A. R., 1993). Hence, effort is now being focused on transforming Malaysia into a truly industrialised economy, strengthening and widening the industrial base and maintaining competitiveness of manufactured products in the world market.

Central to the question of competitiveness is the need for continuous improvement and innovation at the firm’s level. Hence the theme selected for the SMI EXPO 1993,

**'STRENGTHENING SMIs' INDUSTRIAL COMPETITIVENESS'** was most appropriate. The EXPO was organised by the Ministry of International Trade and Industry (MITI) in August 1993 at Putra World Trade Centre (PWTC), Kuala Lumpur.

In his speech 'Malaysia: The Way Forward' (1992, pp. 412-413), the honorable Prime Minister Dr. Mahathir bin Mohamad stressed that:

*'Small and medium-scale Industries (SMIs) have an important role to play in generating employment opportunities, in strengthening industrial linkages, in penetrating markets and generating export earnings. They have a crucial role as a spawning ground for the birth of tomorrow's entrepreneurs.'*

*The Government will devise appropriate assistance schemes and will seek to raise the level of management expertise, technological know-how and skills of the employees in this very important and in many ways neglected sector of our economy.*

*The SMIs will be one of the primary foundations for our future industrial thrust. The Government is fully committed to its healthiest development.'*

Under the Seventh Malaysia Plan (RM7), the Government has adopted a new strategy, moving away from labour-intensive and investment-driven schemes in favour of productivity-driven projects. This shift is necessary because the country cannot continue to rely on cheap labour, especially foreign workers (The Star, May 7th. 1996).



The promotion of SMIs also aims at making them more efficient and competitive as suppliers and manufacturers of industrial inputs, components and related services, as well as nurturing them to grow into large companies which can take advantage of international markets, thus enhancing linkages between SMIs and the large companies, internally and externally.

The Ministry of International Trade and Industry, as the lead agency for market promotions and incentives, implements various assistance programmes for the SMIs. Among them are market promotion packages like the Vendor Development Programme (VDP), the main objective of which is to enable local SMIs to become the suppliers and manufacturers of industrial inputs, machinery and equipment used by large companies.

Currently, the formulation of policies and strategies for the development of SMIs is carried out by the Ministry of National and Rural Development in conjunction with the Economic Planning Unit (EPU) and the Implementation and Coordination Unit (ICU) of the Prime Minister's Department. Financial facilities are provided by the Bank Pembangunan Malaysia Berhad (BPMB), Malaysian Industrial Development Finance (MIDF), Majlis Amanah Rakyat (MARA) and commercial banks. Training and apprenticeship are provided by the National Productivity Corporation (NPC), the Standards and Industrial Research Institute of Malaysia (SIRIM), the Ministry of Agriculture, the Ministry of Human Resources and the Ministry of Youth and Sports. Consultancy and advisory services are available at the Malaysian Industrial Development Authority (MIDA), NPC, SIRIM, MIDF, Food Industry of Malaysia (FIMA) and MARA.

Marketing services are available through FIMA, and the various agencies under the Ministry of National and Rural Development.

In addition to the assistance given by the Government to SMIs, the World Bank has also co-financed a *Special Loan Scheme Project* for small scale enterprises with a view to accelerate further the growth of the commercial and industrial sector of the enterprises. The project, costing RM234.2 million, comprises a credit component (RM210 million) and technical assistance (RM21.3 million) as well as an allocation (RM2.9 million) for contingencies. The credit component is administrated by BPMB (RM150 million) and MIDF (RM60 million). The technical assistance component is given as a budgetary grant to participating agencies which include the Malaysian Agriculture Research Institute (MARDI), the Malaysian Entrepreneurial Development Centre (MEDEC) and the NPC. Initially, the scheme was reserved for Bumiputra enterprises and companies with owners' equity of up to RM300,000. As of 18 February, 1988, the limit was increased to RM1.5 million. Under the scheme, the maximum loan eligibility of each company is RM3 million. This facility was extended to Non-Bumiputra entrepreneurs and companies with effect from 16 July, 1988 [Information Malaysia (1995) Year Book, pp. 259-261].

As Malaysian companies grow, it is expected that they will venture overseas to form strategic alliances and establish networks with foreign partners, make inroads into foreign markets, source local inputs for foreign ventures and internationalise their production structure.

As evidenced by the experience of Japan and the newly-industrialised economies, e.g. Taiwan and Republic of Korea, SMIs have played a significant role in providing the feeder and technological linkages for the successful development of the larger enterprises. These SMIs in turn were financially and technically backed by the same larger enterprises. For Malaysia too, SMIs have vast potential for contributing towards enhancing dynamism and competition with a complementary role to larger industries in supplying parts, components and services at lower unit costs than the large industries would incur if they were to provide these elements themselves (buy or make decision). In addition, SMIs have also been found to generate more employment per unit of capital than large firms, have favourable impact on income distribution, stimulate personal savings and promote agro-industrial linkages (Chee, 1990).

At present it cannot be claimed that Malaysia has any locally-based multi-national companies, like some of its neighbours. Australia has BHP (resource and power), Thailand has Charoen Pakphand (agri-business), Taiwan has Acer (computers) and Hong Kong has HSBC Group (international banking). The Malaysian company that comes closest to being a multi-national is Robert Kuok's Shangri-la Hotels.

Neighbouring countries like Thailand and Indonesia, with far more abundant labour than Malaysia, are learning the investment process quickly and Malaysia will not be able to compete on this score because currently the country is facing shortages of manual labourers, the local people are not interested to take up manual jobs especially in the plantation industry. Therefore, the logical next step, if the country is to increase its share

of global markets, is the development of large-scale production for exports and encouragement of SMIs to participate as vendors to this large-scale conglomerate.

The Government wants the move to large-scale production for world markets to spawn the development of industrial clusters. An industrial cluster is an agglomeration of firms and industries interlinked through vertical and horizontal relationships. Each cluster will have primary industries supported by suppliers of components, raw materials, supporting services and cluster-specific infrastructure. We are already seeing the emergence of such an industrial cluster in the car industry.

To support the above strategies, the Government plans to accelerate the country's Research and Development (R&D) Programmes, particularly in the fields of Science and Technology (S&T). A new industry targeted by RM7, is Information Technology (IT), which will play a significant role in national development, particularly in improving efficiency, quality, productivity and competitiveness. The Government has initiated the construction of the Multimedia Super Corridor (MSC) linking Kuala Lumpur to the new KL International Airport (KLIA) at Sepang (The New Straits Times, May 7th, 1996).

The MSC is expected to provide the catalyst for IT development in the country through:

- demonstrating the effectiveness of multimedia in increasing efficiency and productivity in the production and delivery of goods and services in both the public and private sectors;
- creating supply and demand for the multimedia industry located in Malaysia for the world market; and

- ensuring the installation of appropriate technology to maximize the utilisation of the infrastructure available in the MSC, including KLIA, Putrajaya, the transportation network and the electronic superhighway.

The Government will develop the KLIA and Putrajaya which will be equipped with state-of-the-art communications technology and IT infrastructure, while the private sector, especially world-class multimedia companies, will be encouraged to locate in the MSC to undertake remote manufacturing and introduce high value-added IT goods and services, enabling Malaysia to become an IT hub. Software and systems companies in the computer, telecommunications and broadcasting industries will be promoted in the MSC. In addition, priority will be given to business integrating both the print and electronic media, including publishing information services, broadcasting and film industries.

The Industrial Technical Assistance Fund (ITAF) was set up by the Government in July 1993 with the purpose of modernising and enhancing the development of SMIs into a progressive and modern sector capable of supporting the large industries in the country. The fund provides matching grants for SMIs which are eligible to participate in any of the following 4 schemes:-

ITAF 1	Feasibility Study Scheme
ITAF 2	Product Development and Design Scheme
ITAF 3	Quality and Productivity Scheme
ITAF 4	Market Development Scheme

These options and many other development strategies should be considered seriously by SMIs so that they, as a sector, can develop a corporate image and become more dynamic and resilient. In the 1994 pre-budget dialogue with the Finance Ministry, the Federation of Malaysia Manufacturers (FMM) called for the 1990s to be designated the '*Decade of the SMIs*' (The STAR, 1993). In order for this to be achieved, a national plan of action and a central authority for these enterprises are needed. A set of guidelines and directions for SMIs to overcome problems would be useful.

### **1.1 Statement of Research Problem**

Vision 2020 which aims for Malaysia to become a fully developed country by the year 2020 has become the main goal of the nation's population. They will have to attain this goal by maintaining stability by concentrating on national unity and old-fashioned values such as thrift, honesty, family responsibility, fairness, tolerance, etc. In simple terms stability is the foundation for growth; growth is the raw material for stability. They will also have to actively maintain a consensus democracy facilitating a 7 percent average annual economic growth while keeping inflation under control and promoting free enterprise and the private sector as the engine of growth. The need to develop the government-private sector dialogue process, give priority to education and training, nurture the environment and enabling Malaysian business to become internationally competitive gives rise to an urgent need for the implementation of supportive measures for the promotion and dissemination of ISO 9000 series quality standards and Total Quality Management (TQM). SMIs are also encouraged to help to develop local

entrepreneurship in order to sustain their business activities and to globalise their business operations.

The International Trade and Industries Report 1993 by MITI reported that an industrial survey carried out in 1988, revealed the existence of 28,335 manufacturing establishments in Malaysia, of which 92.6 percent were SMIs. Their contribution to the country's economy was very significant, amounting to 40.2 percent of the total industrial employment and 19.6 percent of value-added. However, the survey indicated that in terms of productivity and capital intensity per worker, the SMIs' figures were relatively lower, amounting to RM11,900 and RM12,300 respectively, as against RM33,700 and RM45,400 for large-scale industries. Another survey commissioned by MITI in 1988/89 on 13,993 Small Scale Industries (SSIs) indicated that 69 percent of these SMIs were organised as family businesses or sole proprietorships.

Since 1987, Standards and Industrial Research Institute Malaysia (SIRIM) registered a total of 394 organizations for compliance to ISO 9000 series quality standards. (As at March 30th, 1996, 596 organizations had received their ISO 9000 quality standards certification and there were many more companies on the waiting list for certification). However, very few of them are SMIs. A survey conducted on a sample of 30 medical latex glove manufacturers at the end of 1990 provided SIRIM with some insight to quality management levels in Malaysian industry. As the sample excluded the multinational corporations, inferences can only be drawn from Malaysian based organizations. The survey indicated that only about 30 percent of the companies had quality systems complying with more than 70 percent of the General Manufacturing

Practice (GMP) requirements. Many of these companies did not provide adequate training, nor did they conduct internal audits (Ahmad Tajuddin Ali, 1994).

In the largest portion of the companies, i.e. 47 percent, the quality system was basically limited to production in process and final testing or inspection. Preventive and corrective quality activities, such as failure investigation and documentation control, were additional areas of weakness in those companies. Quality management was practically absent [R. RAJ (1990) Rubber Industry task force (unpublished)].

The well worn equation:

$$\textit{Profits} = \textit{Total Revenue (TR)} - \textit{Total Costs (TC)}.$$

now takes on a new dimension. The pressure to reduce selling price is relentless and this results in even greater pressure to reduce production costs. At this point the focus is on what might be termed the *Quality Productivity Equation*, which implies that business needs to find some way of reducing costs by improving both quality control and productivity. The question is, can SMIs take up this challenge?

Mah, (1993 and 1994) stated that:

‘most SMIs do not favour long term planning. This tendency towards *short termism* stems from their belief that planning would not affect long term performance, that it is pointless to plan for an uncertain future and that they cannot spare their *limited resources* for the exercise’. ‘SMIs are suspicious of *management theories*. They do not believe that theories have much to offer in a pragmatic world. As they see themselves as risk-takers (note, these are not risk-lovers!), they tend to take sudden changes as challenges. So long as business remains satisfactory, strategic planning seems unnecessary and a waste of time and resources.’

‘As far as skills are concerned, *reductionist thinking* is still favoured over *holistic thinking*. Many managers in the SMIs still believe that they can achieve synergy



by improving all the individual functions of their organizations. This belief is an additional psychological obstacle to overcome when international business is being considered. Managers of the SMIs (most of whom are not educated beyond secondary school level) in general are poor in *critical thinking skills*. They are not knowledgeable about their working environment and experience (usually entrepreneurial) making *intuitive decision making* more attractive. While nothing can replace experience and a good business sense, they should not exclude all else in facing increasing complexity in their business operations.’

These beliefs are contrary to TQM’s basic requirement of continuous improvement. Research on quality and the quality standards in Small and Medium Industries in Malaysia is very limited. However, there is a growing number of SMIs aware of, and beginning to take up, some quality initiatives such as the Quality Improvement Practice (QIP), Quality Control Circles (QCC), Total Quality Control (TQC), Just-In-Time (JIT), Total Productivity Maintenance (TPM), Productivity Measurement (PM), the 5Ss, Total Quality Management (TQM) and such Programmes / Philosophies put forward by the quality experts.

## **1.2 Objective of the Research.**

Despite extensive media attention, there has been little academic exploration of the motivations for, and implications of, implementing quality in SMIs. Therefore, the main objective of the research is to review quality initiatives in relation to SMIs. This will help develop a position from which it will be possible to conduct further research in the future. The focus of the study is to illustrate the difficulties experienced with quality implementation by SMIs’ managers, working in different types of manufacturing and services and to find out whether there are differences in acceptance levels on quality

initiatives between the Bumiputra (native Malays and other indigenous groups living in Malaysia; they constitute approximately 55 percent of the total population of the country), Non-Bumiputra (those, other than Bumiputra living in Malaysia, who constitute approximately 45 percent of the total population of the country); and to study the Payong or Umbrella SMIs as well as the critical issues that have to be resolved before designing, implementing and sustaining a viable quality system in SMIs. These will hopefully be in line with the RM7 strategy to concentrate on productivity-driven activities of the country's industries.

The study will see whether there is a better approach to reduce production unit cost based on the equation that  $Profit = TR - TC$ . It is believed that improved quality with low Prevention, Appraisal and Failure costs (PAF) plus the acceptance in practice of the Just-In-Time (JIT) concept of inventory control and the 5Ss [Japanese house-keeping principles of *seiri* (organization), *seiton* (neatness), *seiso* (cleanliness), *seiketsu* (standardisation) and *shitssuke* (discipline)] and the utilisation of IT will help improve waste thus in the long run will reduce selling price, as well as streamline production processes, without reducing the expected or budgeted profits.

Finally, it is intended by this research to create awareness on the part of managers, of the need for critical thinking and the importance of management theories, especially the application of TQM in managing SMIs, in order to ensure their *continuous survival in the competitive international market*. The setting up of the ITAF in July 1993, to encourage quality initiative and modernisation of SMIs, provided a timely boost to the development

of modern, quality-conscious SMIs in the country, encouraging more SMIs to register into quality systems. This study will complement and enhance those efforts.

### **1.3 Significance of the Study**

According to the Sixth Malaysia Plan (RM6, 1990), SMIs constituted about 80 percent of manufacturing establishments, but accounted for less than half of total investment and only one-third value added in the manufacturing sector of the country. The target for Vision 2020 is to ensure that SMIs will contribute 70 percent of the country's employment, 50 percent of value added and 50 percent of industrial investment in the manufacturing sector. *Lack of capital, low technology, shortage of skilled workers, poor data base and poor quality* are among the major inter-related constraints to the development of SMIs. The traditional role of SMIs as suppliers of parts and components for large companies is emphasized in Malaysia's development plans as it is expected that those enterprises will spearhead the efforts to broaden and deepen the structural base of the manufacturing sector.

The Government has undertaken a special study to formulate a comprehensive programme for the development of SMIs, in order to enhance their role in the economy (RM6 p.143). The Government has also devised appropriate assistance schemes and sought to raise the level of management expertise, technological know-how and skills of the employees.

*'It is blindingly clear that the most important resource of any nation must be the talents, skills, creativity and will of its people. What we have between our ears, at our elbows and in our hearts is much more important than what we have below our feet and around us. Our people is our ultimate resource. Without a doubt, in the 1990s and beyond, Malaysia must give the fullest emphasis possible to the development of this ultimate resource.'*

(Malaysia: The Way Forward, 1991, p.415).

It is imperative therefore, for the SMIs to be integrated into the main stream of Malaysian economic and industrial development. They need to establish a symbiotic relationship with Large Scale Industries (LSIs) and Multi-National Corporations (MNCs) (MITI Report 1993, p. 188).

#### **1.4 Purpose of the Study**

The purpose of the study is to answer the following questions:

1. What is the status of quality activities undertaken in the Small and Medium Industries (SMIs) concerned?
2. What are the different quality programmes undertaken by SMIs?
3. What are the most common quality programmes undertaken by SMIs?
4. What are the preferred quality programmes undertaken by SMIs?
5. What are the most common reasons for SMIs not undertaking quality programmes?
6. Is (a major) reshuffling required on the part of the agencies responsible for the well being of SMIs in the future, in relation to the Vision 2020 requirement?

Last, but not least, the study intends to come up with a TQM Model and Strategy for SMIs and recommendations to help in promoting the application of TQM in the SMIs.

Such information is necessary and will provide a basis for suggestions on the scope of the training programmes undertaken by most training institutions in the country, and for planning the implementation of TQM in SMIs. It will also be used to advise the Government, and, in particular, those government agencies responsible for the development of quality in SMIs on any need to revise the existing policy or policies and improve, modify, or upgrade the existing courses offered by the training institutions and the incubator projects agencies, so that their efforts will be more efficient, effective and meaningful.

In this context, the researcher felt that it is timely and appropriate to conduct a survey on SMIs at least in the Klang valley, to find out the present status of acceptance of TQM implementation in SMIs; for example, the Quality and Productivity Programmes undertaken by SMIs, the popularity of the programmes, and the reasons for failure in implementation of such programmes.

### **1.5 Scope of the Research**

The research covers small and medium industrial establishments in the Klang valley. Selection of population was done to those SMIs, listed by SMIs Directory 1995 (published by Asia media line), the Selangor Malay Chamber of Commerce and Wilayah

Malay Chamber of Commerce, BESTA Distribution Sdn. Bhd. (BESTA), Guthrie Manufacturing, and Edaran Otomobil Nasional (EON), under the umbrella of *incubator projects* headed by MITI. Therefore, the companies were selected at random to represent SMIs of the whole Klang valley. Further details are given in **Chapter Six**.

## **1.6 Research Design**

This research is based on primary data collected through a mailed questionnaire. The primary data consist, inter alia, the information on the company background, their nature of trade, their years of operation, the type of quality programmes undertaken, the number of employees who have participated in the quality programmes, agencies responsible for training, where the training took place, whether in-house or external, post-course activities, preferred programmes, the reasons for not undertaking quality programmes, and evaluation of: (a) Quality Programmes undertaken and (b) SMIs development strategies. The details are discussed in Chapter Five, Six, Seven and Eight of this thesis.

### **1.6.1 The Definition of Terms**

Various criteria have been used as a basis to distinguish between enterprises of different sizes within an industry. These include employment, value of fixed assets, total investment and sales. Owing to the problem of lack of data on Malaysian SMIs, the level of employment is often used to differentiate Tiny Scale Industries (TSIs), Small Scale

Industries (SSIs), and Medium Scale Industries (MSIs) from their large counterparts. The cut-off point adopted varies from one country to another, usually reflecting differences in the level of economic development. In a continent like Asia, the cut-off point in most countries may be as low as 4 workers for the TSIs and 300 workers for MSIs. Even within the same country, organizations which are concerned with small industries, may adopt different definitions of SMIs.

For the purpose of this research, and following the convention used by the World Bank as well as the Industrial Master Plan (IMP), the following definitions are adopted. SSIs are firms employing *less than 50 employees* and with *paid up capital RM500,000 and below*, while MSIs are those firms employing *between 50 and 199 employees* and with *paid up capital of RM500,000 but not more than RM2.5 million*. Those industries employing *more than 200 employees* are considered to be large scale industries (LSIs).

### **1.6.2 Reliability Test and Pilot Study**

A reliability test on the questionnaire was done using SPSS (The Statistical Package for Social Science) and *Alpha values* for most items were well above 0.7 points. Then, a pilot study of the questionnaire was conducted on 18 managers from Malaysia. Further study was conducted with the help of managers who are currently undergoing the MBA finance programme at the Higher Education Learning Programme (HELP) Institute, and managers attending the MBA (HRD) programme at the Malaysian Institute of Management (MIM); both of which institutes are in Kuala Lumpur, Malaysia.

On the basis of their suggestions, several additional points were noted and incorporated in the questionnaire. The glossary which was attached to the mailed questionnaires, which aimed to give a clear explanation of the type of quality programmes and popular quality programmes currently undertaken by most SMIs was also amended during this study. It was felt that, although a variety of measurements of efficiency for an individual organization or company may be used, individual organizations or companies need to assess their own performance level, based on a reliable measurement system and correct methodology.

Additional questions were included under the title of evaluation, which was divided into two parts (a) quality programmes undertaken and (b) the SMIs development strategies. This section aimed to evaluate whether the present initiative to enhance quality programmes by those agencies responsible is really effective.

### **1.7 Selection of Sample and its Limitation**

As in 1.4, the list of SMIs provided by the SMIs directory 1995, published by the Asia media line, No. 30 A&C, Jalan 6/18, Kelana Jaya, Malaysia. was counter-checked by the lists provided by Selangor Malay Chamber of Commerce, Wilayah Malay Chamber of Commerce , BESTA, Guthrie Manufacturing and EON to eliminate the possibilities of double selection. As also indicated in 1.4 and 1.5.1 above, selection of the sample for the survey was confined to SMIs in Klang valley. Pending an intended census (originally



planned) to be conducted in 1996 (but was postponed to a later unknown date because of the 1995 general election) by MITI, these lists are the most comprehensive available. However, they cannot be guaranteed representative of the entire population of SMIs in Malaysia, or even of the Klang valley.

### **1.7.1 Data Gathering**

Questionnaires were mailed together with a covering letter, a glossary of the quality programmes (for reference) and a self-addressed prepaid envelope for respondents to send back their completed questionnaires.

The Malaysian Accreditation Council (MAC), head office in Shah Alam, was used as the collecting centre for the completed questionnaires.

### **1.7.2 Data Analysis**

Data collected by the questionnaires were analysed mainly by computer in order to minimise errors and to facilitate handling. As the questions in the questionnaire consist of different formats, i.e., single response and multiple-response questions, different methods of data analysis were applied. Of the various computer packages available, the SPSS was chosen for its comprehensiveness and flexibility. It has facilities for the extensive manipulation and transformation of data, and includes a wide range of procedures for

both simple and highly complex statistical analysis such as frequency distribution, percentages, mean, standard deviation etc.. It also provides the opportunity for the researcher to produce fully labelled tables which can be easily incorporated into a final thesis report.

## **1.8 Organization of the Thesis**

The thesis is divided into three parts. Part 1 describes the nature of SMIs, problems and the assistance provided to them in the selected countries, while part 2 presents a Literature Review of TQM with particular focus on the development of Quality Strategies for SMIs. Part 3 presents the Analysis, Discussion, Conclusions and Recommendations of the study.

Following this introductory Chapter, Chapters Two and Three, in part 1, provide the background perspective and rationale for changes in SMIs. Chapter Two presents a statistical profile of SMIs in Malaysia in comparison with those in Japan, Republic of Korea, and Philippines, including their relative importance in their individual countries' economic development. The *Look East* Policy, a strategy used by the Malaysian government to replace the long-established *Look West* approach previously adapted by the Government since the country's independence in 1957, is outlined. The Look East Policy marked the beginning of Malaysia's strategy of freeing herself from dependency on the United Kingdom, especially in terms of the procurement requirements (through the Crown Agent) for the Ministries of Defence, Health, Education and National

Development. However, the most important component of the Look East Policy was the development of a Malaysian type of '*Sogo Shosa*' to act as a lead conglomerate for the development of Small and Medium Feeder Industries in Malaysia. The SMIs will act as linkages to the conglomerate or the larger enterprises, in preparation for the year 2020, when Malaysia will become a New Industrialised Country.

Chapter Three describes the Rationale for Changes in SMIs and the reality currently faced by SMIs. The Chapter also tries to establish the reasons why improvements should be made to correct the problems and shortfalls faced by SMIs to date. The government strategies through the Malaysian Development Plans (from RM1 to RM7) to assist and develop SMIs are also elaborated in this chapter.

The subsequent Chapters in part 2, present specific challenges to the development of quality initiatives or TQM strategy suitable for Malaysian SMIs in line with the Government Vision 2020 planning strategies. Chapter Four reviews the literature on TQM and Quality Costing. The chapter begins with the discussion of the problem areas, the problem of quality and quality costing definitions and existing measures taken by the quality writers and experts to deal with the problems. Further specific measures are then proposed to deal with Quality Problems in Malaysian SMIs.

In Chapter Five, the researcher discusses a Theoretical Framework for the development of models for quality initiative programmes, '**the TQM Models for SMIs**'. It is hoped that these models will be complementary to the model introduced by SIRIM, called the

**SIRIMEX.** Reasons for using the models, and ways of using them for maximum benefit, will also be discussed.

In Chapter Six, the researcher describes the Research Methodology for a survey of the TQM-SMIs 1996 and elaborates on the development of the quality initiative models specifically for SMIs. Methods of sample selection and data collection are reported. The Methodology Chapter is a very important one, because it has to demonstrate that the findings of the research will be consistent and free from bias.

Chapters Seven, Eight, Nine and Ten which together constitute part 3, analyse and discuss the outline of the empirical work. In Chapter Seven the researcher reports on the present scenario of quality initiatives, the type of training undertaken, the institutions involved in training, the process of selection of the quality programmes, the degree of responsiveness of the government agencies and ministries that are responsible for the development of quality initiatives for SMIs and reasons of SMIs for not undertaking Quality Initiative Programmes.

Chapter Eight argues the purpose and the importance of business strategy and TQM organization structure in SMIs. This strategy and structure is then combined with the proper understanding of the *quality requirement* aims to establish and show how difficult it is to determine a better approach to improve / increase business return and to increase productivity. However, it is believed that proper business strategy and structure, improved quality with low Prevention, Appraisal and Failure costs plus the acceptance of the 'Just-In-Time' concept of inventory control, the 5Ss and the utilisation of Information

Technology, will help in reducing selling price as well as streamlining production processes, without reducing the expected or budgeted profits.

Chapter Nine recapitulates the important points from parts 1 and 2 and Chapter 7 and Chapter 8 of the research, and adds some additional ideas based on the TQM Models for SMIs which were presented in the previous Chapters. The Business Policy and Strategy Models are also discussed here. The validity of the TQM models and the Business Policy and Strategy are discussed in relation to the business strategy and structure of Malaysian SMIs and data gathered from TQM-SMIs survey 1996. Points made are illustrated and cross-checked with experiences gathered from both parts and the Chapters of the research as mentioned earlier. Hypothesis are developed and applied to the different groups of the SMIs in relation to their usefulness in the Malaysian environment.

Chapter Ten, the last chapter of the research, *presents the Conclusion and Recommendations* made by the researcher. It also recapitulates the most important points from parts 1, 2 and 3 of the research. Ideas for further research are also suggested in this chapter, in accordance with the principle of continued improvement as required and established by TQM, to overcome the lack of direction of management and systems sciences identified in the introductory Chapter One.

## **CHAPTER TWO**

### **Background Perspective**

#### **2.0 Introduction**

The Malaysian government's concern for SMIs has been clearly stated in all its development plans [RM1: (1966-1970), RM2: (1971-1975), RM3: (1976-1980), RM4: (1981-1985), RM5: (1986-1990) RM6: (1991-1995) and RM7: (1996-2000)]. It is generally agreed that the socio-economic objectives in developing SMIs in the country are:

1. to develop tomorrow's entrepreneurs;
2. to increase productive employment and raise income levels;
3. to foster regional dispersion of industries for optimal utilisation of natural resources, for example, rubber, timber, tin, palm oil etc. (see Chapter One, pp. 5-7 for details).

The main strategies for developing and promoting SMIs, as stated in the mid-term-review of the RM4, were:

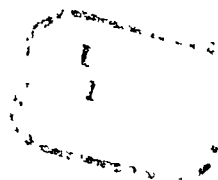
1. Activities of SMIs should not duplicate those already undertaken by larger industries and priority should to be given to SMIs which complement larger industries.
2. The choice of industries must be in line with the need to achieve the objective of the New Economic Policy (NEP). [Now, concentration is on the New Development Plan

(NDP) and the Second Outline Prospective Plan (OPP2) which cover the years of 1990-2000].

3. Promotion of SMIs was to be undertaken as an integral part of the overall strategy of promoting the manufacturing sector. Measures to be implemented were to be part of a comprehensive package encompassing improvement of production capabilities, and the provision of support services, such as marketing credit, consultancy, technological development and quality initiatives. The strategies of subcontracting and franchising were also to be adopted to gain access to a wider market.

With the Government's recognition of the importance of SMIs in creating inter-industry linkages, the strategy adopted in the RM5 was the expansion and modernisation of SMIs through the provision of financial assistance totalling about RM234 million from the World Bank, promotion and the establishment of links between SMIs and research agencies to ensure '*quality on product competitiveness*' and to obtain up-to-date information on existing and potential markets. The Industrial Master Plan (IMP) also stresses the need to modernise and rationalise SMIs.

The Seventh Malaysia Plan seeks to ensure Malaysia retains its international competitiveness through the acceleration of the country's R&D programmes, particularly in the fields of science and technology. Small and Medium Industries, with different technical needs from larger conglomerates, will be given further assistance in the form of special technology development programmes with an initial budget of RM100 million.



Continuing where the RM6 left off, especially in the enhancement of international competitiveness, high priority will be accorded to the promotion of science and technological innovation. Moving from *'borrowed to original design and complex development work'*, the emphasis of the RM7 will be to exploit and utilise the existing technologies, improve on imported technologies and generate Malaysia's own technologies.

Allocation for research and development will be increased to RM1 billion (compared with RM629 million for RM6) while RM2 billion will be provided for related infrastructure facilities and services. In allocating and utilising resources, a new evaluation process will be introduced whereby research agencies and universities are subject to a competitive bidding process. The aim is to develop competence in selected areas to allow industries fully to exploit the latest advances. To accelerate such development, concerted efforts will be taken to exploit commercially the large pool of untapped research findings in the public sector and universities. Research agencies and universities will, therefore, be encouraged to identify and market intellectual property with commercial potential. Thus, SMIs can take the opportunity to become incubator companies to undertake the initial development of these intellectual properties (The Star, 7th. May, 1996).

## **2.1 Problem of Inconsistent Definitions of SMIs**

As indicated in **Chapter One**, in general, the industrial enterprises in Malaysia are classified into four main categories, namely tiny, small, medium and large scale



industries. The definition of SMIs, however, is by no means unified among organizations. Different organizations have adopted different definitions according to the purposes for which the definitions have been used. The Coordinating Council for Development of Small Scale Industries (CCDSI) defines SMIs as those with fixed assets of less than RM250,000 or, in the case of firms, with shareholder funds not exceeding RM2.5 million. This definition is the most common definition adopted by most Malaysian organizations, such as MARA, Credit Guarantee Corporation (CGC) and Bank Pembangunan Malaysia Berhad (BPMB). However, BPMB uses different criteria for its loan schemes. For loans under the World Bank scheme, BPMB set the equity limit for firms to be eligible for a loan at RM750,000, while CGC has not sets any equity limit, through the loan limit for Bumiputra SMIs is RM200,000 and RM100,000 for Non Bumiputra entrepreneurs.

The Industrial Coordination Act (ICA) 1975, exempted a small enterprise from applying for a licence if it had less than RM250,000 in shareholders' funds or employed less than 25 full-time workers. This ceiling was revised upwards on December 12th, 1985, to less than RM1 million in shareholders' funds or 50 full-time workers. In 1987, the ceiling was again revised to less than RM2.5 million in shareholders' funds or 75 full-time workers. Bank Negara Malaysia (BNM) (*the Malaysian Central Bank*) also revised its definition of SMIs in 1988, from enterprises having net assets or shareholders' funds of less than RM250,000 to entrepreneurs with net assets or shareholders' funds not exceeding RM500,000 in 1988.

Finally, the Small and Medium-Scale Enterprise Division of the Ministry of Trade and Industry has classified SSIs as those with shareholders' funds or assets not exceeding RM500,000 and MSIs as those enterprises with funds or assets between RM0.5 million and RM2.5 million.

The adoption of different definitions of SMIs may be understandable in view of the different objectives and functions of various government agencies. A common definition is therefore desirable to avoid confusion.

In the Philippines, the Cottage, Small and Medium Enterprise (CSME) sectors are interchangeably referred to as the Small and Medium Enterprise sector or the Small Industry sector. For purposes of valuation, they are classified according to three basic criteria:

- By the type of economic activities being undertaken,
- By value of the firm's total assets, and
- By the number of workers the firm employs.

In Korea, the Small Business Fundamental Act uses the number of full-time employees to distinguish between small and medium-scale businesses in different sectors as shown below:

**Classification of Small and Medium-scale Business, Korea**

Sector	Small-scale business	Medium-scale business
Manufacturing, Mining, Transportation	Less than 20 employees	21 to 300 employees
Construction	Less than 20 employees	21 to 200 employees
Commerce and other services	Less than 5 employees	6 to 20 employees

There are exceptions to the above. Certain types of businesses are classified as small businesses even though the number of employees exceed the above numbers if they are labour-intensive industries. On the other hand, some capital-intensive industries are classified as small businesses if they have excessive capital assets.

Finally, in Japan the definition of SMI has undergone a change since 1948 as seen in Table 2.1. Currently, an SMI in manufacturing is one which employs less than 300 workers and has less than Y100 million.

**Table 2.1: Changes in the Definition of Small and Medium Enterprise in Japan, 1948 to 1988**

	Manufacturing		Commerce and Service		Remarks
	Employees	Capitalisation	Employees	Capitalisation	
	Ym		Ym		
	<u>Medium</u>	<u>Small</u>	<u>Medium</u>	<u>Small</u>	
1948	Less than 200	Less than 3	Less than 20	Less than 3	For financing from Bank of Japan
1949	Less than 200	Less than 3	Less than 20	Less than 3	For Co-operatives Act
1950	Less than 200	Less than 5	Less than 20	Less than 3	For Credit Insurance Act
1952	Less than 300	Less than 5	Less than 30	Less than 3	For Co-operatives Act Revision
1953	Less than 300	Less than 10	Less than 30	Less than 10	For Small and Medium Business Finance Corp
1963	Less than 300	Less than 50	Less than 50	Less than 10	For Small and Medium Business Basic Law
1973	Less Than 300	Less than 100	Less Than 100	Less than 3	The above Law has been partly revised
			<b>(Wholesalers)</b>		
			Less Than 50	Less than 10	
			<b>(Retailers)</b>		

**Note:** Japanese Yen exchange rate in 1988 was around Y130 for US\$1.

**Source:** Japan, White paper on Small and Medium Enterprises in Japan, SME Agency, Tokyo 1990.

## 2.2 Structure of Malaysian SMIs

**Table: 2.2**  
**Structure of Malaysian SMIs, 1981**

Item	Number	Employment	Value added	VA / Emp
Tiny 1-4	8,817 (43.1 %)	9,745 (1.75 %)	356.0 (1.0 %)	3,653.15
Small 5-49	9,469 (46.3 %)	131,884 (23.70 %)	5,120.5 (13.4 %)	38,830.00
Medium 50-199	1,680 (8.2 %)	159,390 (28.65 %)	13,783.5 (36.1 %)	86,470.00
Large > 200	464 (2.3 %)	255,395 (45.9 %)	18,876.4 (49.5 %)	73,910.00
Total	20,429 (100 %)	556,414 (100 %)	38,136.4 (100 %)	

*Source: Department of Statistics Malaysia.*

*Table 2.2* shows that SMIs, which comprise the first three industry classification categories, accounted for almost 98 percent of the manufacturing establishments in 1981. Despite their numerical preponderance, SMIs accounted for a relatively small proportion of total employment and value added, for all the manufacturing establishments. Nevertheless, in the current pursuit of a more rapid acceleration of the modern industrialised sector, a greater emphasis is being given to the development of Malaysian SMIs.

Within the three SMI sub-groups, there are distinct differences, in terms of their organization and management. TSIs are generally run by artisans and craftsmen, and on the average, each unit of these SMIs employs four or less workers, who are often unpaid members of the proprietor's family. SSIs are mainly many-men (less than 50 employees)

operations with little specialisation in management. Both TSIs and SSIs, in most cases, have limited access to the organised capital market, modern technology and marketing information. MSIs, on the other hand, can be considered to represent the indigenous modern manufacturing sector with more frequent use of modern technology, greater division of labour as well as greater access to market and institutional credit facilities (Kim, S. J. and S. J. Won, 1992).

The table also presents a comparison of the categories of SMIs in terms of their employment absorption, contribution to value added and labour productivity, defined as a ratio of value added per worker. The 1981 Census of Manufacturing Establishments by the Department of Statistics indicated that out of the total 20,429 manufacturing establishments, 8,816 or 43.1 percent were TSIs and 9,469 or 46.3 percent were SSIs. These two groups alone constituted 89.4 percent of the total manufacturing establishments. In addition, there were also 1,680 MSIs representing 8.2 percent of the total number of establishments. The remaining 464 establishments or 2.3 percent were LSIs.

### **2.3 Changes in the Relative Share of SMIs in Number of Establishments, Employment and Value Added**

*Table 2..3* shows the changes in the relative share of SMIs in terms of the number of establishments, employment and value added between 1963 and 1981. The table reveals that between those years, the total number of manufacturing establishments in Malaysia

more than doubled. However, the larger establishments (employing 500 or more workers) grew very much faster (almost 14.4 times) than the small establishments.

Such changes are not surprising in view of the rapid changes in the structure of the Malaysian economy. As in several industrialising countries, especially Japan, in the course of their industrial development, small manufacturing establishments, especially those employing less than 4 workers, have declined relatively, while those employing between 10-29 workers have increased tremendously [see Table 2.6 for the case of Japan. (Japan has been considered having the best and the most up-to-date SMIs' organization in Asia)].

**Table: 2.3**  
**Changes in Malaysian Manufacturing by Size of Establishment, in Number of Employment and Value Added, 1963 - 1981**

Year	1963			1968			1981		
	No. of Est	Emp per Est	VA per Est RMm	No. of Est	Emp per Est	VA per Est RMm	No. of Est	Emp per Est	VA per Est RMm
<50	8,535 (96.4)	4.6	0.08	8,508 (94.3)	5.2	0.1	18,258 (89.6)	7.7	0.3
50-99	184 (2.1)	69.9	1.4	275 (3.1)	68.0	1.4	1,065 (5.2)	70.1	4.8
100-199	97 (1.1)	135.0	3.2	133 (0.9)	138.7	5.5	615 (3.0)	137.8	14.1
200-499	29 (0.3)	278.1	9.8	77 (0.9)	292.9	7.6	306 (1.5)	299.5	28.6
500 and over	11 (0.1)	681.1	16.2	20 (0.2)	824.3	25.1	158 (0.8)	1036.0	63.9
Total	8856 (100)	9.1	0.2	9,013 (100)	13.4	0.3	20,429 (100)	27.2	1.9

*Note: Figures in brackets refer to percentages*

*Source: Department of Statistics Malaysia*

The relative decline of the TSIs in Malaysia will probably continue, as the country moves down the road to industrialisation. This should not be a cause for concern since many of the TSIs are of the traditional type, and will not be able to compete effectively in a modern economy. But with the shift from labour-intensive and investment-driven to productivity-driven strategy of the Seventh Malaysia Plan the scenario will change, especially when IT projects are taken into consideration, as the development of TSIs is in line with the ‘incubation’ strategy referred to earlier.

However, the future of SMIs in Malaysia still rests mainly with the MSIs, i.e. those employing 50-199 workers. Such medium industries have the best potential to adapt to modernisation and become competitive suppliers of parts and components for the larger industries. Therefore, the Government should nurture these groups of SMIs and develop them, and eventually bring them into the mainstream of the country’s industrial development. In this way, SMIs will be able to play a significant role in the economic development of Malaysia in general, and specifically towards achieving the status of a New Industrialised Country by the year 2020.

#### **2.4 Relative Importance of Malaysian SMIs Compared to SMIs in some Other Countries and the Look East Policy**

*Table 2.4* compares the relative importance of Malaysia SMIs to those of the Philippines, Republic of Korea and Japan. The reasons for choosing those countries is because Japan and the Republic of Korea acted as a role model country for the *Look East Policy*

launched by Dr. Mahathir bin Mohamad, in 1981. While the Philippines has a poor organised Cottage, Small and Medium Enterprise (CSME) in the Asean region (Chee, 1990). The *Look East policy* was introduced at a time when Malaysia was rather unhappy with Great Britain and this has created some doubts as to the aims of the policy. It was felt in some quarters that the policy was introduced as a result of a growing tension with Great Britain. The Prime Minister cleared the air when he clearly stated that the *Look East Policy* was not aimed at discrediting any particular nation but was merely aimed at emulating the ways of countries much closer to home. *Looking West* was common in the Association of South East Asia Nation (ASEAN) countries. However, Mahathir felt that *ethics and moral values* in the Western countries were eroding, and the values which Malaysians wanted were no longer to be found there. The cultural and ethical values of the West seemed to be going further and further away from the values common to Malaysia. It would be more appropriate, therefore, to follow the values of the countries in the East.

Mahathir (1981) emphasised that *we* should only try to follow what was good and not follow all habits blindly. The work ethic and the concern for worker's welfare seemed to be important and therefore should be followed closely. The aim is to create a workforce which emphasises the importance of *hard work and commitment*. Mahathir also stressed that *Looking East* does not mean that Malaysia should beg from the eastern countries or shift the responsibility of developing Malaysia onto them, or buy all goods and services from them, or award all contracts to them. Contracts must be offered in good faith, after thorough study. The effects of awarding contracts must also be observed, so that in the long run, the Government will be able to see local contractors and businessmen benefited



and able to learn the skills employed by their Japanese and Korean contractors, thus fulfilling the main aim of the Look East Policy. The transfer of technology and skills will become top priority and all contracts offered must utilise local materials and a majority of the workforce must be local.

The implementation of the Look East Policy was timely because Japan was already a major trading partner with Malaysia. The policy helped to spell out the long term cooperation between Japan and Malaysia, especially in technology transfer projects. To date, the most significant project to have resulted from the Look East Policy is the Proton Saga and the Pradua Project, in which the Japanese helped Malaysia to realise the dream of making her own car. Everyone who worked with the Japanese in the initial setting up stages of the Proton Saga project, was impressed with the input provided by the Japanese. They made sure that the Proton cars are able to withstand the Malaysian climate and roads. They repeatedly tested the various versions of the car models and made changes to these versions until they were absolutely certain they had made a perfect car.

Mahathir was also impressed by the success of Japanese business ventures across the globe. Looking East will not be complete, without knowing how these successful operations are being managed. The Japanese call these operations *sogo shosha*; if directly translated, the phrase means *a general merchant or trader*. The scope of a *sogo shosha* can better be understood by looking at the areas where they trade. The *sogo shosha* is seen as a leader through which Japanese products are exposed in overseas markets. The financial needs of newer companies are looked after by this corporation.

Generally, a *sogo shosha* is large, has huge and wide sources of revenue and is very powerful. It usually has 'political clout' in Japan. Sometimes, such corporations control prices and are able to manipulate consumer prices to their own advantage. The *sogo shosha* has the power to manipulate overseas governments and, in some cases, it can influence the decisions made by the leaders of those government. It must be acknowledged that those corporations do more than just trading in various goods. This is because they have the financial power, and are in a position to manipulate and create a situation to their own advantage. In Japan, these corporations control more than 50 percent of the nation's trading activities (M. Rajendran, 1993).

The idea of forming an equivalent type of corporation in Malaysia appeared so attractive, that the first Malaysian *sogo shosha*, the Sime Darby Pemas Trading Corporation (SDP) was formed in 1983. It is expected to have power equal to that of a Japanese *sogo shosha* in the long run. Malaysia needs such large corporations if the long term plan to become a new industrialised country is to be realised. The penetration of international markets could be achieved through these large trading corporations. Malaysia can only provide a very small domestic market for her products and therefore, there is a need for such organizations to facilitate export outlets of Malaysian products. Thus, looking east can only be complete if the formation of this large corporation succeeds in providing these services (M. Rajendran, 1993).

The Malaysian *sogo shosha* could also expand the country's trade to other newer markets. Since such corporations have the blessing of the Prime Minister and the Government, it would therefore be easier for them to engage in new overseas ventures.

They could also act as intermediaries or go-betweens for small businesses (SMIs) and provide them with new markets. Malaysian small businessmen are not very concerned about expanding their contracts to new or less popular nations. However, with palm oil facing stiff competition from American Soya bean producers and the bad experience of Malaysian rubber gloves in 1990 (also due to an American business activist), [(R. Raj, Rubber Industry task force, 1990) (unpublished)] they have no alternative except to change their attitude and support the government project. SDP has the capacity to service the existing business contacts and is usually able to maintain these contacts and provide them with new business or service contracts. The Malaysian *sogo shosha* can play a role in changing the outlook of businessmen, especially in the SMIs, and provide them with new ideas and markets

The Philippines beside having a poor organised CAME, currently happens to be the poorest country in the Asean Federation. Although SMIs in Japan, Korea, Philippines and Malaysia are large in terms of numerical size, they still account for a relatively small proportion of the total employment and value added for all manufacturing establishments. As indicated in Table 2.4, the proportion of employment accounted by SMIs ranges from 39.9 percent in Malaysia to a high of 72 percent in Japan. Among the four countries examined, SMIs in Malaysia have the lowest absorption of labour in the manufacturing sector. The contribution of Malaysian SMIs to value added is close to that of the SMIs in Korea, that is, about one third of the total value added, compared to about 52 percent contributed by the SMIs in Japan.

Table: 2.4

## Comparison of Relative Importance of Malaysian SMIs, with Those of the Philippines, Republic of Korea and Japan.

Country / Year	No. of Establishment		No. of workers employed		Value added / output	
	SMIs	Total	SMIs	Total	SMIs	Total
Malaysia 1981	19,350 (94.7)	20,429 (100.0)	226,013 (39.9)	556,159 (100.0)	RM11,189m (34.2)	RM32,689m (100.0)
Philippines 1986	72,195 (98.6)	73,233 (100.0)	115,469 (61.6)	187,344 (100.0)	P16,845m (17.2)	P97,747m (100.0)
Rep. of Korea 1985	42,950 (97.5)	44,037 (100.0)	1,367,693 (56.1)	2,437,997 (100.0)	US\$34,130m (35.4)	US\$96,291m (100.0)
Japan 1986	432,265 (99.1)	436,004 (100.0)	7,869,000 (72.8)	10,893,000 (100.0)	Y132,420* (52.1)	Y254,799* (100.0)

Note : Figures in brackets refer to percentages

\* = Value of shipment (gross output)

Sources : Malaysia, Census of Manufacturing Industries, 1981

Philippines, National Statistic Department, 1986

Republic of Korea, Economic Planning Board, 1985

Japan, White paper on Small and Medium enterprises in Japan, SME Agency, Tokyo, 1986

**2.5 Number of Workers and Value Added per SMI in Japan, Republic of Korea, Philippines and Malaysia**

**Table: 2.5**  
**Number of Workers and Value Added per SMI in Japan, Republic of Korea, Philippines and Malaysia.**

Country / Year	No. of Worker per		Value Added per	
	<i>SMI</i>	<i>Total</i>	<i>SMI</i>	<i>Total</i>
Malaysia 1981	11.6	27.7	RM0.6m	RM1.6m
Philippines 1986	1.6	2.6	P0.2m	P1.3m
Republic of Korea 1985	31.8	55.4	US\$0.8m	US\$2.2m
Japan 1986	18.2	25.0	Y0.3b	Y0.6b

*Sources :*            *Malaysia, Census of Manufacturing Industries, 1981*  
                          *Philippines, National Statistic Department, 1986*  
                          *Republic of Korea, Economic Planning Board, 1985*  
                          *Japan, White paper on Small and Medium Enterprises in Japan,*  
                          *SME Agency, Tokyo, 1986*

*Table 2.5* shows considerable variation in size of SMIs, with Philippines having the smallest enterprises, employing on the average only 1.6 workers per establishment, while at the other extreme, Korea absorbs the highest number of workers, 31.8 per establishment. Malaysian SMIs appear midway between these two extremes with 11.6 workers per establishment, being closer in size to Japanese SMIs than to those of their other neighbours.

The average value added by Japanese SMIs is half the total for all manufacturing establishments in Japan, while SMIs in Korea and Malaysia contributed 36.4 percent and 37.5 percent respectively of the value added for all manufacturing establishments. On the whole, *Table 2.6* shows that productivity of SMIs, was relatively low compared to other establishments, but the gap was narrowing in Japan and Korea. The difference in the importance and the productivity level of SMIs in these countries reflects not only different levels of economic development, but also differences in the economic environment of the respective countries, especially in terms of long government policies.

## **2.6 Changes in Japan's Manufacturing by Size of Establishment, in Number of Employment and Value Added**

*Table 2.3 and Table 2.7* provide comparison in terms of the changes in the number of employment and value added per establishment by employment size groups for Malaysia and Japan. As shown in both tables, the number of manufacturing establishments in both countries has increased significantly in the 20 year period, with Malaysia recording a more rapid increase (probably because of its small base). Average employment per establishment increased three-fold in Malaysia. However, a more rapid increase in average value added per establishment was recorded in Japan, where the increase was nearly 45-fold between 1955 and 1986.

Table: 2.6

Changes in Japan's Manufacturing by Size of Establishment, in Number of Employment and Value Added 1955-1986.

Year	1955			1965			1975			1986		
	No. of Est.	Emp/Est	VA/Est (Yb)	No. of Est.	Emp/Est	VA/Est (Yb)	No. of Est	Emp/Est	VA/Est (Yb)	No. of Est.	Emp/Est	VA/Est (Yb)
1-3	245,593	2.3	0.0008	404,971	3.95	0.004	523,028	4.12	0.017	247,460	6.01	0.05
4-9	85,608	6.4	0.0039									
10-19	74,344	16.0	0.013	100,628	16.8	0.031	88,763	14.4	0.10	86,727	13.8	0.18
20-29							69,738	40.8	0.38	86,514	38.5	0.67
30-99	21,086	48.7	0.049	39,304	50.7	0.12						
100-299	4,333	163.6	0.16	9,566	162.1	0.58	11,159	152.7	1.91	11,564	160.3	3.95
300-399	1,354	502.9	0.50	2,853	506.8	2.24	3,302	469.1	8.86	3,060	497.7	18.3
Over 400	376	2140.9	2.1	730	2253.4	52.6	805	2187.6	41.4	679	2210.6	97.9
1-299	430,964	9.3	0.0093	554,523	12.3	0.03	692,688	11.5	0.09	432,265	18.2	0.31
Over 300	1,730	859.0	0.86	3,583	862.4	4.12	4,107	805.9	0.06	3,739	808.8	37.2
Total	432,694	12.7	0.013	558,106	17.8	0.05	696,795	16.2	0.18	436,004	25.0	0.58

Source: White paper on Small and Medium Enterprise in Japan, SME Agency, Japan.

In terms of employment size group, large industries have generally shown a faster rate of growth than their smaller counterparts. In Malaysia, establishments employing less than 50 workers accounted for a smaller proportion of the total establishments in 1981 compared to 1963. The upgrading of establishments is also reflected in the number of workers per establishment.

Traditionally, (*Table 2.7* and *2.8*) SMIs have concentrated in product areas more amenable to small scale production, requiring less capital and catering for local market demands. Consequently, the SMIs have tended to concentrate on food processing, wood products, textiles and light engineering, the latter in support of mining and estate operations in Malaysia, and in support of sub contracting in Japan.



Table: 2.7

## Distribution of Malaysian Firms by Size of Employment and by Industry 1981

Product group	Employment <50		Employment 50-99		Employment 100-199		Employment >200		Total	
	No. of firms	V/A share	No. of firms	V/A share	No. of firms	V/A share	No. of firms	V/A share	No. of firms	V/A share
Food products	2,906(89.9)	15.2	119(3.2)	14.0	117(3.6)	23.8	56(1.8)	46.9	3,198(100)	100
Beverage & Tobacco	214(72.3)	3.0	37(19.2)	4.2	12(4.1)	2.7	13(4.4)	90.1	296(100)	100
Textile	2,315(43.0)	15.2	67(19.2)	5.9	38(1.5)	3.4	70(2.8)	75.5	2,490(100)	100
Wood products	2,481(87.4)	28.1	204(7.2)	23.1	99(3.5)	18.0	53(1.9)	30.8	2,837(100)	100
Paper & Pulp	-	-	-	-	-	-	-	-	-	-
Printing & publishing	841(87.0)	25.5	73(7.6)	16.4	25(2.6)	9.2	27(2.8)	48.9	966(100)	100
Chemical products	931(84.8)	21.2	84(7.6)	15.7	60(5.5)	21.9	23(2.1)	41.2	1,098(100)	100
Petroleum products	12(80.0)	1.1	1(6.7)	.0	1(6.7)	.0	1(6.7)	98.9	15(100)	100
Rubber products	401(73.3)	8.7	61(11.2)	18.1	48(8.8)	21.9	37(6.7)	51.3	547(100)	100
Non metallic	658(84.7)	16.6	67(8.6)	9.5	28(3.6)	13.4	24(3.1)	60.5	777(100)	100
Base metal	377(89.3)	20.1	18(4.3)	9.2	18(4.3)	3.6	9(2.1)	67.1	422(100)	100
Fabricated metal	2,263(94.4)	37.4	80(3.3)	16.3	41(1.7)	9.4	10(0.4)	36.7	2,394(100)	100
Machinery	1,383(95.7)	49.1	35(2.4)	9.6	17(1.2)	11.1	10(0.7)	30.2	1,445(100)	100
Electric/Electronic	130(57.7)	2.5	36(11.3)	3.3	28(9.0)	4.5	68(21.8)	89.5	312(100)	100
Transport Equipment	279(83.1)	9.8	25(7.4)	2.1	13(3.9)	8.1	19(5.6)	80.0	336(100)	100
Others	592(91.5)	16.1	25(3.9)	12.7	10(1.5)	.0	20(3.1)	71.2	647(100)	100

Source : Census of Manufacturing Industries, Department of Statistics, Malaysia, 1981.

(Note: Figures in brackets refer to percentages)

**Table: 2.8**  
**Distribution of Japanese SMIs by Industry**

<i>Product groups</i>	<i>No. of SMIs</i>	<i>%tage</i>	<i>No. of SMIs in Subcontracting</i>	<i>%tage of SMIs in Subcontracting</i>
Manufacturing	710,476	100.0	465,362	65.5
Food	76,856	10.8	13,451	17.5
Textiles	98,474	13.8	83,860	84.9
Apparel	47,237	5.5	40,460	86.5
Wood	39,274	5.5	18,852	48.0
Furniture	42,001	5.9	21,673	51.6
Pulp & Paper	16,130	2.27	8,297	51.6
Publishing & Printing	46,130	6.49	27,217	59.0
Oil & Oil products	443	0.06	172	38.0
Rubber	7,705	1.1	5,532	71.8
Leather	12,502	1.9	8,601	68.0
Ceramic & Stone products	29,287	4.1	10,719	36.0
Ferr. Metal	181	1.15	5,890	72.0
Metal products	5,537	0.78	4,075	73.0
General Machinery	85,916	12.09	67,530	78.6
Electronic machinery	62,304	8.7	52,460	84.2
Electric Machinery	31,939	4.5	27,261	84.2
Transport Machinery.	21,428	3.0	18,792	87.7
Prec. Machinery	12,073	1.7	9,767	80.9
Others	62,487	8.8	38,867	62.2

*Source: White Paper on Small and Medium Enterprise in Japan, SME Agency, 1986.*

## 2.7 Potential of Malaysian SMIs

SMIs form a large majority in the manufacturing sector, not only in Malaysia but also in Korea, Japan and Philippines. However, more important than their numerical preponderance is the significant role which the SMIs play in the overall economic development of these countries. Briefly, SMIs employ more workers per unit of capital; they help to increase total saving in the economy; they have a favourable impact on regional development; they serve as a training ground for developing skills of industrial

workers and entrepreneurs; and finally, they play an important complementary role to large firms in the economy

### **2.7.1 Employment Generation**

The first argument in favour of SMIs is that they create substantial employment opportunities. This is extremely important in several Asean countries, for example Indonesia, Thailand and the Philippines where the rate of unemployment is relatively high. While the creation of an additional job in a large-scale capital-intensive enterprise may require an additional investment of US\$50,000 or more, the corresponding investment in SMIs may be as low as US\$500. This is because SMIs present better opportunities for the use of relatively labour-intensive production techniques and may thus employ more labour than would otherwise be the case.

*Table 2.9.* supports this argument, as well as showing that fixed assets per worker in Malaysia rise significantly with employment size, especially for establishments employing 100 workers and above. Fixed assets per worker in establishments employing 100 workers and above are more than forty times higher than those in other SMIs. Thus, SMIs tend to use less capital per worker compared to their large scale counterparts.

Studies in a number of other countries also show that capital-labour ratio tends to be positively correlated with size. [For the Colombia, Kenya, India, Pakistan and other countries, see ILO, 1974; Berry, 1972; Shetty, 1963; Ranis, 1964; Di Tullio, 1972. For

evidence that small firms can also be relatively capital-intensive, see Lewis, 1969 and Wiston, November 1970 (mimeo) and Little, Mazumdar and Page, 1987(b)]. In short, available data indicate that SMIs tend to use less capital per worker compared to their large-scale counterparts.

There may be several reasons why SMIs tend to be labour-intensive and large-scale units tend to be capital-intensive. First, SMIs tend to be confronted with different factor prices than those facing the larger firms. Wages are lower while capital costs are higher. Possibly for this reason, SMIs are labour-intensive not because they operate on a small-scale but because they face more realistic relative factor prices. Secondly, the scope for using capital-intensive methods of production is rather limited in small units. Thirdly, the SMI is also a buyer. It is likely to get a less advantageous bargain than larger firms from the suppliers of machinery. As such there is an incentive for SMI to invest in a less capital-intensive technology because the relative cost difference may be lower than in a larger firm. Finally, the size of an SMI is limited mainly by its limited access to capital.

Two implications seem to follow. Firstly, since SMIs use less capital, a given amount of capital will create more employment if it is spread over a greater number of SMIs than if it is concentrated in a few large ones. Thus, from the point of view of a short-term employment creation, SMIs should be given special encouragement. However, as indicated by Morawatz (1974), several considerations suggest that, given the present state of knowledge, it is difficult to draw any definite conclusion. In the first instance, if SMIs tend to produce lower quality products, which are demanded mainly by poor local consumers, it may take a radical redistribution of income before there would be sufficient

demand for the output of many extra SMIs. Also, estimates of labour intensity in small and large industries generally confine themselves only to direct factor employment, ignoring indirect effects altogether. Morawatz gives the example of the small shoemaker who tends to be a producer, transporter as well as a sales distributor. On the other hand, large-scale firms have separate departments for each of these functions and they employ a large number of people. Furthermore, and perhaps most important of all, the appropriate policy prescription from the point of view of reducing factor distortion is not the encouragement of smallness as such but the promotion of the use of more labour-intensive techniques in firms of all sizes through readjustments of factor prices to reflect real scarcities. Finally, since the capital labour ratio gives a good indication of the level of mechanisation of production, it may be assumed that the smallest group-size of SMIs operate at the lowest level of mechanisation and vice versa. [For a more recent view, see Little, Mazumdar and Page, 1987(b)].

**Table: 2.9**  
**Fixed Assets per Worker by Employment Size Group in Malaysia 1981**

Employment size group (No. of workers)	Fixed Assets Per worker (RM)
10 - 19	0.126
20 - 29	0.295
30 - 39}	0.521
40 - 49}	
< 50	0.093
50 - 69}	1.309
70 - 99}	
< 100	0.160
> 100	6.680
100 - 149}	3.390
150 - 199}	
200 - 299}	21.600
> 300}	
Average for all groups	0.511

*Source: Census of Manufacturing Industries, Department of Statistics; Malaysia.*

### **2.7.2 Saving Mobilisation**

The second argument in favour of SMIs is that they help to increase total savings in the economy. The principal sources of finance for the SMIs sector are the owner's own family, friends and relatives as well as traders who extend credit facilities. Similarly, in the case of medium and long term capital, SMIs provide a larger proportion of their own capital than large firms. It is likely that the large proportion of capital mobilised for investment in SMIs would not have been available to large establishments or to the Government for investment. Most of it would probably be devoted to consumption expenditure if SMIs had not aggressively sought it. When spread throughout the economy, this propensity to save and invest induced by the process of the development of SMIs can increase the overall savings ratio of the population.

### **2.7.3 Income Distribution**

The third argument in favour of SMIs is their favourable impact on income distribution. It can be assumed that large scale industry tends to produce a small number of high wage income groups and a relatively small number of families with high capital incomes, thus raising the income of a relatively small number of high income people by a relatively large amount.

Correspondingly, it is possible to conclude that since SMIs produce a large number of relatively low wage payments and a relatively low capital income, their impact consists of

relatively small increases in income for a relatively large number of people. Under such circumstances one may conclude that the income distribution impact of SMIs is more favourable than that of a large scale industry.

#### **2.7.4 Regional Development**

Since SMIs are less heavily dependent on expensive infrastructural facilities or imported materials, they are more evenly distributed throughout the country compared to LSIs. For example, in Mead and Mayer (1981), an attempt was made to enumerate business establishments in municipal areas in 11 towns within 4 provinces in Thailand. It was found that the proportion of small manufacturing and service enterprises (not including commercial firms) with 50 workers or less was as high as 99 percent. Another survey made by the same study in 14 villages in the above 4 provinces found quite a large number of 'non-firm enterprises' producing a variety of manufactured products. These were mostly household enterprises with no, or only a few, hired employees. Although comparable figures for the Bangkok Metropolis are not available, it is possible that SMIs are more prevalent outside the metropolis area and its surrounding provinces. This is due to the characteristics of provincial industries which include more cottage or household undertakings (Tambunlertchai and Loohawenchit, 1985). In Indonesia, a study by Clapham (1985) shows that, although the largest number of SMIs are in Java, they are more evenly spread over the whole country (see also Liedholm and Mead, 1987).

### **2.7.5 Providing a Training Ground for Entrepreneurs**

The fifth argument in favour of SMI is that they serve as a training ground for developing skills of industrial workers and entrepreneurs. Although this argument is seldom put forth, it is probably the most important. The low cost of setting up a small manufacturing unit enables an enterprising worker not only to provide himself with livelihood but also to offer employment to others. Many SMI entrepreneurs do not have any upper secondary education. These people would have found it difficult to secure a well-paid job in the labour market. More important, the training and experience which they acquired in the operation of their enterprises have enabled a number of them to branch out into other fields. Empirical investigations into the occupational history of SMI entrepreneurs show that a high percentage of them first gathered specialised knowledge and experience in the same or a similar branch of the economy. In Korea, for example, 32 percent of all new entrepreneurs had previously been employees (Ho, 1980). This also corresponds to the information compiled in Malaysia where, of a total 821 Bumiputra entrepreneurs, 41.6 percent had acquired their knowledge from former work in the same branch of the economy (Ghani, et al., 1980). According to Clapham (1985), SMIs provide training opportunities for more individuals from social strata throughout the entire country. This initiates a process whereby human capital is developed on a broad basis. A study in Singapore by Chang (1978) confirms this observation. Clearly, training provided by SMI helps to upgrade the quality and skills of the labour force, in addition to contributing towards entrepreneurial development.



### **2.7.6 Complementary Role to Large Firms**

SMEs can also play a vital role in the economic development of the country by enhancing and deepening the industrial base. They supply a substantial part of the demand for simple and inexpensive consumer goods at prices within the range of the lower income group. Also, specialities that would be uneconomic for large firms to produce are supplied, and products for which the market is too small to justify mass production are made available. More importantly, SMEs supply many of the large firms with parts and components through sub-contracting.

Sub-contracting improves flexibility and reduces production costs for LSEs while SMEs benefit from increasing returns to scale by supplying the same product to a number of LSEs. In short, an efficient industrial sector requires SMEs to complement the function of LSEs in various areas. In fact, the presence of a well developed pool of SME sub-contractors can also serve to stimulate foreign investment, as experience in Singapore shows (Tan, 1977). A reliable pool of sub-contractors is as important as physical infrastructure and fiscal incentives in attracting foreign investment. According to a report in Singapore's Business Times (1982), a Japanese x-ray equipment manufacturer decided not to invest in Singapore because no local manufacturer could meet his welding requirements.

For other examples, the performance of SMEs during the 1973 to 1975 economic crisis in Singapore can be considered. According to Lau (1983/4), while 9 large firms closed down due to recession, 215 new small firms came into operation; while large firms retrenched

some 20,000 workers, small firms took in more than 5,000 new employees; while the value of output for large firms fell by S\$10 million, that for small firms increased by S\$74 million; and while the value added of large firms decreased by S\$216 million, that of small firms increased by S\$99 million. It can thus be argued that the SMI sector cushioned the recessionary pressures. This implies that the resilience of the Singapore economy against future economic crises may be strengthened if SMIs are able to play a greater role in the industrialisation process. (For examples of SMIs contributing to the resilience of the economies of developed countries, see Rothwell and Zegveld, 1981).

In recent years the Malaysian government has become aware of the significant role of SMIs. This awareness is reflected in the recent changes of the economic policy in the OPP2 to enhance the contribution of SMIs to the economy in line with the Government Vision 2020.

## **2.8 Conclusion**

Two major sources of data on Malaysian SMIs are DOS and MIDA. MIDA has published census data on output, number of employees and fixed assets of manufacturing establishments, classified by employment size, for the years 1963, 1968, 1973, 1978 and 1981. These data are available for all individual industries, which require them for reference. However, for all other years, the data published both by DOS and MIDA are not comparable because they are based on industrial surveys. In addition, the survey data for the reference years of 1979 and 1982 are based on the census for the reference year of

1981. Pending the intended census, to be conducted by MITI, these data are considered the most appropriate for the consumption of the public to date.

Official data for SMIs still remain unsatisfactory. This problem seems to be constant and unavoidable. *Thus, this factor should be borne in mind as we examine the status of Malaysian SMIs.*

Various criteria have been used as a basis to distinguish between enterprises of different sizes within an industry. These include employment, value of fixed assets, total investment and sales. Owing to the problem of lack of data on Malaysian SMIs, the level of employment, paid up capital is often used to differentiate the TSIs, SSIs, and the MSIs from their large counterparts. The cut-off point adopted varies from one country to another, usually reflecting differences in the level of economic development.

The Malaysian government's concern for SMIs has been clearly stated in all its development plans since its independence, in 1957. The NEP which covered the period of 1970 to 1990 witnessed the development of the nation's SMIs. The OPP2 and Vision 2020 lead the way for further development of SMIs. However, within the SMIs' sub-groups, there are distinct differences, in terms of their organization and management. Both TSIs and SSIs in most cases, have limited access to organised capital market, modern technology and marketing information. MSIs on the other hand, can be considered to represent the indigenous modern manufacturing sector with more frequent use of modern technology, greater division of labour as well as greater access to market and international credit facilities.

TSIs, though accounting for nearly half of the manufacturing establishments, play an insignificant role, both in their contribution to value added and in their capacity to absorb employment. In terms of growth, the other sub-groups of SMIs have changed faster than the TSIs, the latter remaining at the same level. Such slowness is not surprising, in view of the rapid changes in the structure of the Malaysian economy. As in several industrialising countries, especially Japan, in the course of their industrial development, small manufacturing establishments, especially those employing 4 workers, have declined relatively, while those employing 10-29 workers have increased tremendously. The relative decline of SSIs in Malaysia will probably continue, as the country moves along the road to industrialisation. But, with the shift from labour-intensive and investment driven to productivity driven strategy of the RM7, the scenario will change, especially when IT projects are taken into consideration.

The Look East policy aims to create a workforce with emphasis on the importance of hard work and commitment. The transfer of technology and skills will become top priority and all contracts offered must be in good faith, after thorough study and utilise local materials and majority local workforce. Looking East will not be complete, without knowing the operations of the Japanese *sogo shosha*. It could also act as an intermediary or go-between SMIs and provide them with new contacts and contracts, play a role in changing the outlook of Malaysian businessmen, especially in the SMIs, and provide them with new ideas and markets.

SMIs form a large majority in the manufacturing sectors not only in Malaysia but also in Korea, Japan and Philippines. However, more important than their numerical

preponderance is the significant role which the SMIs play in the overall economic development of these countries.

SMIs present substantial employment opportunities and better opportunities for the use of relatively labour-intensive production techniques and may thus employ more labour than would otherwise be the case. SMIs also help to increase total saving in the economy and have a favourable impact on income distribution, since they produce a large number of relatively small increases in income for a relatively large number of people. Under such circumstances one may conclude that the income distribution impact of SMIs is more favourable than that of large-scale industry. SMIs can play a vital role in the economic development of a nation by enhancing and deepening the industrial base. SMIs also provide a training ground for new entrepreneurs. In time of economic recession, SMIs cushioned the recessionary pressures. In recent years Malaysian government has become aware of the significant role SMIs can play . This awareness has been incorporated in the IMP, NDP, OPP2 and Vision 2020.

## **CHAPTER THREE**

### **Rationale for changes in SMIs**

#### **3.0 Introduction**

The year 1990 marked the official deadline of the NEP that had shaped Malaysian economics since 1970. The form of policy that replaced the NEP was reflected in the NDP embodied in the OPP2 that covers the years from 1991 to 2000, which signifies a new era in the nation's economic development planning. The NDP sets the pace towards a fully developed nation by the year 2020, not only from the economic perspective, but also in all other aspects; what is popularly referred to as Vision 2020. While the emphasis on economic growth is at the top of the agenda, the NDP retains the NEP's twin objectives of poverty eradication and the elimination of the economic imbalances among Malaysia's multi-ethnic population.

Both the NDP and OPP2 contain broad outlines of the nation's national policies, strategies, dimensions, and targets for the ten-year period; beginning with RM6 and ending with RM7. The NDP and OPP2 is the blueprint that sought to translate all these into visible accomplishments. Not only was RM6 the first national development plan in the post 1990 era, but more importantly, the fundamental issues discussed and the development programmes set in the plan represented the first phase in the implementation of the OPP2. The plan also provided guidelines on the new direction for this decade, and was the first in a series of five-year development plans which point the

path ahead in the construction of a fully developed economy by the year 2020. The question is, are we going to repeat the same process of SMIs progress as in the past 25 years?

The Government's concern for SMIs is clearly stated in all the seven Malaysia Plans. SMIs have an important role to play in generating employment opportunities, in strengthening industrial linkages, in penetrating markets and generating export earnings. They have a crucial role as a spawning ground for the birth of tomorrow's entrepreneurs.

The SMIs will be one of the primary foundations for Malaysian's future industrial thrust. The government is fully committed to their healthiest development. Just as it is necessary to nurture the development of SMIs as a spawning ground for tomorrow's entrepreneurs, it is also necessary to diversify the markets to which Malaysia exports.

However, Malaysia's progress towards a fully developed nation by the year 2020 must involve the participation of all communities. This means that in implementing the NDP, the policy must encourage the mobilisation of all the country's resources and the utilisation of the creative potential of its multi-racial society to build a strong economy and make the country more resilient against the instabilities and uncertainties of the world economy.

Judging from the achievement of the NEP, and the government efforts in all the seven Malaysia Plans, the Government still has to continue with its efforts to increase Bumiputra ownership and participation in the corporate sector in line with the original

objective of achieving at least a 30 percent stake. Agencies such as Permodalan Nasional Berhad (PNB) and the State Economic Development Corporations (SEDCs) created to enhance Bumiputra participation in the private sector will have to adopt new and more effective strategies to enlarge the pool of Bumiputra entrepreneurs and managers to effectively participate in companies where Bumiputra have substantial stakes. Ultimately, the Bumiputras must learn to participate in business in an environment of competition and efficiency so that they can integrate themselves into the mainstream of the economy and be recognised as genuine businessmen and entrepreneurs.

### **3.1 Problems Faced by SMIs**

The problems encountered by SMIs in Malaysia are not very different from those of other countries. Some of the major problems faced by SMIs are inherent in their small size. Broadly, the problems of SMIs can be classified into: lack of technology and technological know-how, inadequate financial support, poor credit facilities, poor access to technology, poor management, unskilled labour and insufficient training, marketing, lack of export penetration, and inadequate linkages to large industry.

#### **3.1.1 Lack of Technology and Technological Know-how**

A study undertaken by University Pertanian Malaysia (UPM), MARA Institute of Technology (MIT) and University of Saskatchewan Research Centre on SMIs in four



sub-sectors (food, wood, light engineering and construction materials) revealed that the majority of SMIs (72-80 percent) were still at the lower end of the technology spectrum. Only 14-19 percent utilised high-end technology and these tended to be MSIs (Mohayuddin, M. G. & S. A. Hamid, 1988).

In light engineering, while the majority of SMIs owned some form of machines, only 30 percent utilised milling machines, and none of them owned numerically controlled milling machines. Of the food processing factories' surveyed, 217 altogether, the most regular drying method used was sun drying. Solar, freeze or vacuum dryers were not widely used. Most SMIs were semi-mechanised, though the level of mechanisation was higher in food processing and construction materials than in light engineering and wood-based SMIs. It was also noted that in food processing the level of mechanisation increased with the size of the firm. The study concluded that Malaysian SMIs were not using the latest manufacturing processes and equipment in great numbers. The study, however, did not suggest that companies should be encouraged to use the latest technology, but rather that the technology used should depend on the economic and business condition of individual SMIs.

In terms of manufacturing management techniques, most SMIs observed did not use statistical quality control or Statistical Process Control (SPC). Inspection was carried out by sampling or when there was a problem. Most SMIs also applied their own standards, with only 18 percent applying international standards. 15 percent of SMIs undertook maintenance of machines only when breakdown occurred. In general, SMIs did not use the latest manufacturing management techniques. Decisions on quality control, product

design and development, plan maintenance and production planning and control were primarily made by the manufacturing manager / owner of the firm.

### **3.1.2 Inadequate Finance**

The most frequently cited problem confronting SMIs is the lack of finance. As revealed in the survey of SMIs undertaken by the Tokyo Institute of Developing Economics in collaboration with University of Malaya in 1986, 50 percent of entrepreneurs ranked inadequacy of financial resources as their most crucial business difficulty, while 28 percent ranked it as their second major difficulty.

This crucial inadequacy arises from the small size of their businesses which are traditionally *family-owned*, with capital mainly from personal saving or loans from friends and relatives. 80 percent of the firms surveyed listed their own funds as their own major resources of financing.

The inability of SMIs to provide *adequate collateral for loans* from the banking system has also restricted access to commercial bank credit in most cases, resulting in a shortage of working capital. Commercial banks, in general, have been reluctant to offer financial assistance to TSIs and SSIs, therefore, often turn to finance companies, pawnshops and money-lenders. However, these sources of finance charge a very high rate of interest and are sometimes engaged in malpractice. Hence, they cannot be regarded as providing any form of financial assistance (Chee, 1990).

### 3.1.3 Poor Credit Facilities

As indicated in 3.1.2 above, generally, SMIs have restricted access to institutional credit. Many small industries never approach banks when they are in short of funds because they do not think they can get bank loans. Their limited experience with the bank officials has done little to change their preconceptions of the difficulties in obtaining credit from financial institutions. In fact, many small industries which have tried to obtain commercial bank credit have been turned away.

This has probably prejudiced the feelings of others who have not tried, thinking that they too will meet with the same fate. The attitude of bank managers is often critical. In Malaysia, bank managers usually consider themselves *members of the elite* and tend to treat the often poorly educated small manufacturer with disdain. Conversely, small borrowers tend to react negatively to the typically luxurious and intimidating bank offices.

There are several reasons why commercial banks in Malaysia are reluctant to lend to small industries. Firstly, it is *less profitable* to lend to small industries than the large establishments because of the higher lending *costs and greater risks* involved. Lending costs tend to be high because small scale is uneconomic. The risk element also tends to be greater. Small industries are typically deficient in equity and acceptable collateral. The risk of business failure is also higher for small industries.

Secondly, the banks find it difficult to obtain credit information about the applicants and their business. Loan applications are often not accompanied by *balance sheets and income statements*, or, if they are, these are not properly prepared. In a number of cases, it becomes necessary for the bank officers to visit the small industry establishment. Unfortunately, few banks have the personnel, time or inclination to do so.

Commercial banks generally charge minimum lending rates to larger establishments since these are considered their most credit-worthy customers, and usually borrow in large amounts. Small industries, on the other hand, are generally considered less credit-worthy. Their earnings are relatively small and the rate of failure is higher. Besides, small industries borrow smaller amounts; thus, not only are the loans more risky, but the cost of servicing them is also higher. For these reasons, as Lee (1970) has pointed out, small industries normally have to pay one or two percent more interest above the minimum rate. In addition, some banks also charge *unofficial commissions* on small industry loans. All these make the cost of borrowing much higher for small industries than may appear to be the case (IDCJ 1977/78a, p.63).

#### **3.1.4 Poor Access to Technology**

Another problem facing Malaysian small industries is their poor access to technology. Generally, this is *manifested in their productivity*, and more especially, in the *low quality* of their products, which are often *defective or have a high rejection rate*. Productivity is relatively low in many small industries because they *still employ traditional methods* of

production. Production methods have failed to keep up with new techniques or modern technology. *Factory layout is often poor*, and simple or outdated machinery is used. In addition, many small industries employ *untrained workers* and operate in congested or unsuitable buildings. They have *no testing facilities*, and *quality control* is minimal. Consequently, a large proportion of small industry products are often defective. For example, a study of small metal working industries in Malaysia and Indonesia found that continuous use of obsolete and less than efficient machinery and equipment was the most important production related technical problem of the small industries in the industry (Technonet - JICA, 1981).

### **3.1.5 Poor Management**

Management problems in small industries arise partly because most small industry entrepreneurs have neither a high level of education nor professional training. Yet, they have to be familiar with many aspects of management, such as finance, personnel, sales and production. Not surprisingly, small industry entrepreneurs *perform poorly* in many areas of management, particularly *book-keeping, costing, procurement, warehousing, inventory, production-scheduling and quality control*.

The entrepreneur often does not understand financial statements and is unable to interpret or use them in planning. In Malaysia, there are many small entrepreneurs who keep no written records of expenditure and receipts at all, do not differentiate between personal or business expenditure, and have no accurate conception of their production costs (e.g. unit

costs). In many cases, the value of physical assets (machinery, plant and tools) is unknown because no inventory has ever been made. Similarly, *stock has not been recorded, either by type and quantity or by value.*

In addition to the lack of basic management know-how, small industry entrepreneurs tend to adopt an autocratic approach in managing their enterprise. In many cases, they manage their enterprises along family lines, and tend to appoint relatives and friends to management positions, with little regard for the competence or qualification of those appointed.

As a result, many small industries are poorly managed, and this, in turn, may be the root cause of many small industries' problems. For example, the financial problems of small industries may be due more to the inability of small industry entrepreneurs to manage their funds effectively, rather than a shortage of bank credit. Similarly, lack of business know-how may cause banks (and also business suppliers) to refuse small industries credit, even when a guarantor is available (Mohayuddin, M. G. & S. A. Hamid, 1988).

### **3.1.6 Unskilled Labour and Inefficient Training**

Generally, small industries are not only run by entrepreneurs who have little education or training, but are also staffed by workers who suffer from similar deficiencies. Most small industry workers have little or no formal education and qualification, and little previous practical training. They are trained at the workplace by the entrepreneur or by one of the

more experienced or qualified workers. Small industries generally do not have the resources to conduct any formal training programmes or send their workers for out-of-plant training. More seriously, small industries have *problems recruiting workers* or even keeping good ones.

Workers are generally *reluctant to work in small industries*, which offer relatively lower pay and inferior terms and working conditions compared to large enterprises. For the same reasons, workers tend to leave small industries after they have acquired certain skills or experience. This problem has become acute because there is shortage of skilled labour, especially skilled metal tradesmen (Technonet - JICA, 1981).

With improved access to bank credit and the advance of technology, some small industries cope with this problem by resorting to greater mechanisation. In the meantime, they rely mainly on part-time, contract or home workers or family members. Malaysian data show that in 1984, working proprietors and unpaid family workers formed a large percentage of the workforce employed in small industries, especially those employing less than 20 workers. Data on part-time workers show a similar trend. This is because of the recession years, when the average growth of 7.8 percent in the 1980s dropped to an annual average of 5.9 percent (Malaysia: The Way Forward, p.408).

### **3.1.7 Poor Marketing Linkages**

Marketing problems include seasonal demand, customer problems, delivery difficulties and keen competition. A number of small industries have problems marketing their products due to a number of factors, such as *poor designs*, which are either inefficient and / or unaccepted; the *poor quality of finished products*, due to the use of poor quality raw materials and lack of quality control; *lack of after-sales service* and lack of precision, due to inadequate equipment and lack of skilled personnel (James and Akrasanee, 1988).

### **3.1.8 Lack of Export Penetration**

Small industries face numerous problems in exporting their products, the major one being the *difficulty of finding an export market*. Other external problems are the increasing *competition from other exporting countries*, the increased prices of raw materials and *unfavourable movement of international currencies*. Small industries are more vulnerable to these external factors than their large counterparts. As a result of these problems SMIs in Malaysia do not contribute significantly to export earnings. Indirectly, SMIs may play an important role in the manufacture of parts and components which are incorporated into the finished products exported by large industries (M. S. Ismail, 1990).



### **3.1.9 Inadequate Linkages with Large Industries**

Linkages with bigger industries are marginal among Malaysian SMIs. Unlike Japan, where 60 percent of the SMIs are involved in subcontracting, only a small number of them produce intermediate products for bigger industries. Most produce final products for the customer. In the case of Japan and Korea, large downstream firms provide financing, quality control and technical assistance to upstream small and medium firms. Domestic SMIs suffer from the absence of linkages with large downstream firms. The survey conducted in collaboration with the University of Malaya indicated that only 13.8 percent of the firms surveyed had fostered some linkages with other large and foreign joint-venture firms in terms of subcontracting and business transactions.

Based on the data from subcontracting exchanges established by the Government in 1986, about 2,289 firms were registered for subcontracting work. Because of the Government emphasis on engineering support in subcontracting, most of these firms are in the engineering field.

Six areas have been emphasized: automotive, electric, electronic, light engineering, rubber and plastic. Light engineering is the most subscribed at 65 percent; plastic, 4 percent; rubber, 8 percent; electric, 6 percent; electronic, 4 percent; and others, 3 percent.

To date however, the actual linkage established through subcontracting has been negligible. Only 18 firms have made inquiries on subcontracting. In general, Malaysian SMIs are less competitive compared to SMIs in the newly industrialised countries.

Establishment of linkage is an important factor to consider in the development of SMIs but together with it is the need for modernisation (M. S. Ismail, 1990).

### **3.2 Discriminatory Government Policies and Practices**

Industrial policies and government regulations in Malaysia, effectively discriminate against small industries, though they usually claim otherwise. The implementation of such policies and regulations tends to penalise enterprises which operate on a small scale. Consider, for example, industrial policies. Industrialisation in Malaysia is promoted mainly by regulating trade, providing fiscal incentives, implementing regulations and prescribing standards.

Many of these policies and regulations discriminate against small industries. Large firms, with their greater resources find it easier to *obtain import permits* from capital equipment, components and raw materials, and are also better able to request tariff protection or *obtain tariff rebates* intended to overcome some of the more harmful effects of high protection. The fiscal incentive system in Malaysia generally *links the value* of such incentives to the level of investment, implying that larger enterprises (in terms of investment) receive greater benefits. In any case, small industries are sometimes *ignorant of the incentives available*, or are *unable to handle the paperwork* needed to obtain the concessions.

The *tax structure* in Malaysia also penalises small industry operations. For example, the sales tax favours vertical integration in the production process, and hence, larger enterprises. The sales tax has a *cascade effect*; caused by the levy falling on both raw materials and the semi-finished goods produced from them, which favours integrated production. In the textile industry, for example, a large factory integrating spinning, dyeing, weaving and sewing stages, can avoid sales taxes.

Other forms of government discrimination against small industries are less subtle, but no less effective. Consider, for example, government *zoning regulations*. These regulations have a severe impact on small industries because of their limited capital and the geographical nature of their markets. Due to inadequate capital, many small industries often set up shop in residential areas. Initially, local authorities may tolerate their existence, but subsequently regulations are often tightened up and more strictly enforced. At the same time, the local authorities fail to appreciate the location problems of small industries and do not provide suitable alternative sites before evicting these industries. As a result a number of SMIs, particularly in the larger towns in Malaysia, have experienced business disruption, and in some cases, have been forced to close shop.

Another regulation which has an adverse effect on small industries is related to product quality standards. Such standards may be necessary for an export-oriented economy, but when applied indiscriminately to goods meant for local consumption, they impose a heavy burden on small industries. For example, those introduced in the Malaysian pineapple canning industry have discouraged the entry of small, less capital-intensive enterprises.

It is important to point out that taxes and regulations are likely to weigh more heavily on MSIs than either the TSIs or the LSIs. The TSIs are often able to escape the law or tax collector because, in many cases, *they are operating illegally*. The large enterprises, on the other hand, have the legal resources to *exploit loop holes* in the regulations or tax laws. This is rather unfortunate since *the medium-large small industries* have greater potential for development than the tiny scale industries (M. S. Ismail, 1990).

### **3.2.1 Subcontracting**

Subcontracting provides a useful mechanism for developing linkages between SMIs and large enterprises. Unfortunately, the level of subcontracting within the manufacturing industry in Malaysia is relatively low. For example, a study of subcontracting in the transport equipment and machinery industries in Malaysia concluded that most assembly firms imported their components, rather than purchasing them from local suppliers (Chee and Fong, 1983).

The reasons commonly given are their relatively high price and low quality of locally produced components. Although the complaints may be valid in some cases, the apparent reluctance of assembly firms to purchase locally produced components makes it difficult for ancillary firms to achieve economies of scale, possible cost reductions and improved quality. Thus, small industries engaged in subcontracting are caught in a vicious circle, as in other Asean countries (Odaka, 1983).

Fortunately, the Malaysian government is aware of this problem and has instituted a local content policy, whereby primary firms in selected industries are required to achieve a certain proportion of local content by a given target date. For example, in the agricultural machinery industry in Malaysia, manufacturers are generally required to remove electrical motors from imported machinery assembled locally. In the case of power tillers, manufacturers / assemblers have been required to adopt a progressive time-table for removal of simple components from their imported completely knocked down (CKD) kits (Chee et al, 1979).

The problem with the local content policy is that it has not been effectively implemented. For example, the Malaysian Industrial Development Authority (MIDA), which is responsible for its formulation and implementation, does not have the manpower to monitor implementation. Consequently, very little progress has been achieved in those industries covered by the local content programme.

In addition, various other factors discourage the promotion of closer linkages between SMIs and large enterprises including:

1. the imposition of sales tax on the sale of components by local firms;
2. the lack of any incentives for primary firms to purchase components from or provide training to ancillary firms;
3. the absence of mechanisms to identify potential ancillary firms or to bring potential primary and ancillary firms together;
4. the lack of resources within the primary firms to ensure that locally produced components are of a specific standard or quality.

As a result of the above factors, linkages between SMIs and large enterprises are minimal. Thus, not surprisingly, the kind of technical and financial support that large firms often give the small firms, as in Japan, has yet to develop in Malaysia. At the same time, SMIs have not been able to contribute to a more efficient industrial sector in the country (Chee, 1990).

### **3.2.2 Sites and Premises**

SMIs have a *narrower choice of sites and premises* for their operations compared to large enterprises because of their shortage of capital. Very often, the small entrepreneur begins production in a small building or even a part of a building, which in many cases may also serve as his residence. Initially, his presence may be tolerated, but as the town expands and develops, zoning regulations may force him to move out. In any case, most small industries are located in places which are not suitable for industrial purposes.

In Malaysia, it is estimated that about 70 to 80 percent of all small industrial firms operating in urban areas are illegal because they are operating without a licence from the state or local authority. This situation raises problems relating to infrastructure and socio-economic considerations, both for the enterprise itself and for the environment (FMM, 1982).

The *illegal location of small industries* creates environmental problems for residential areas in the form of noise, dirt, refuse and fire risks, not to mention other problems, such

as *traffic congestion*, because the industries are normally located along the road sides. For example, 40 percent of 499 enterprises surveyed in Penang had no waste containers, 64 percent out of 191 enterprises burnt their waste, and a further 8 percent dumped their waste (Goh, 1976).

Reallocation is not easy because the Government often fail to make provisions for small industries when planning industrial estates. For example, so far the various State Economic Development Corporations (SEDCs) have completely excluded from planning (plot delineation and rentals) the possibility of allocating industrial premises to small industries on a rental basis or for purchase by installment. Even if industrial land is available, the cost might deter most small industries (FMM, 1995). A small industry with about RM1 to RM1.5 million working capital cannot afford to acquire land costing more than RM10 per square foot and needs to be able to make at least 20 percent profit on its capital before it can buy land costing that much per square foot. It is therefore clear that SMIs face a real constraint with regard to land and building for their business operation.

### **3.3 Government Policy**

Malaysia has specific policies, objectives and strategies for the development of SMIs. The Government realises that small industries can play a useful role in economics development and small industry policies are part of the Government's plans.

Generally, small industries were neglected during the British colonial rule as was the manufacturing sector in general. When Malaya gained her independence in 1957, industrialisation became a prime objective of the Government, and that often meant the establishment of large enterprises. Prior to 1960, the Rural Industrial Development Authority (RIDA) was the only government agency involved with small industries. Thus, not surprisingly, there was no mention of small industries in the country's First and Second Malaya Plan. Small industry problems were finally given some recognition in the First Malaysia Plan (RM1, 1966, p.134).

The Government's involvement in small industries developed mainly after the adoption of the New Economic Policy in 1971. NEP implementation saw a proliferation of numerous government agencies connected in one way or another with the development of small industries.

### **3.4 The Malaysia Plan**

The Government's concern for SMIs is clearly stated in all the seven Malaysian Plans, [RM1: (1966-70), RM2: (1971-75), RM3: (1876-80), RM4: (1981-85), RM5: (1986-90), RM6: (1991-95). and RM7: (1996-2000)].

#### **3.4.1 First Malaysia Plan**

The First Malaysia Plan came after the successful results experienced by the First and Second Malaya Plan. The leadership of the country (at that time) was so engrossed and



happy with the economic achievement brought about by the Malaya Plans which covered the period of Malaya's Independence (from the British) in 1957 to 1965. The Second Malaya Plan also covered the early period of the formation of Federation of Malaysia from 1963 to 1965. Unfortunately, neither Malaya plan made any mention of the development of small industries.

The formation of Malaysia took place in 1963 (The Federation originally consisted of the Federal states of Malaya, and the British colonies of Sabah, Sarawak and Singapore). From 1963 to 1965, Malaysia *did not have any development plan*. However, for the state of Malaya, the development plan ran as usual, covered by the Second Malaya Plan. This was also the reason why the First Malaysia Plan did not *take off* immediately after the formation of the Federation.

There were many problems in the early period of the formation of Malaysia. Firstly, the state of Brunei Darussalam backed out of the formation, at the eleventh hour. Secondly, there was opposition, led by the Partai Komunis Indonesia (PKI) (*Communist Party of Indonesia*). Thirdly, a claim was made on the state of Sabah by the 'so called' descendants of the *Sulu Sultanate*, and the *Corregador affairs* and finally, there was racial imbalance in term of *ownership* and *power* between Bumiputra and Non-Bumiputra especially between the Malays and the Chinese, in both economic and political terms. As a result of this, Singapore was expelled from the federation and became an independent state on 17th September, 1965. This fourth problem however, did not end after the independence of Singapore, and dragged on until the riot of *May 13, 1969*.

The trauma of the incident led to a critical re-evaluation of past policies and approaches, after which the NEP was formulated. The NEP, as stated earlier, committed the nation to reduce and eventually eradicate poverty by raising income levels and increasing employment opportunities for all Malaysian, irrespective of race, and to accelerate the process of restructuring society so as to reduce and eventually eliminate the identification of race with economic function.

The strategy of accelerating economic growth by promoting large enterprises may have helped to strengthen the national economy, but did not overcome the main social and economic imbalances of Malaysian society. The May 1969 tragedy, when racial riots broke out in Kuala Lumpur after the ruling *Alliance Parties* lost badly in the general election, showed clearly that economic policies and programmes geared mainly to increasing economic growth were not necessarily in the best interests of the nation. It demonstrated that development efforts that did not address the needs of the poor and imbalances among racial groups would lead to growth without equity and result in a nation divided between those who benefited from growth and those who felt they did not; in short, a divided nation.

*'In recognition of the particular difficulties confronting Bumiputra small industries in securing adequate financial resources, special attention will continue to be given to their needs by the Government. Majlis Amanah Rakyat (MARA) and Bank Bumiputra will deal with the problems of indigenous entrepreneurs. In addition, there is the rural cooperation movement, which will continue to assist its members both financially and technically in the establishment and operation of industries for all the processing of agricultural*

*products. MIDF also will increase its activities for small entrepreneurs. It will continue to accept requests for loans as small as RM50,000; provide hire purchase finance for the acquisition of industrial machinery and equipment and factory mortgage finance for factory development projects; and initiate and participate in tripartite credit and guarantee arrangements with local agencies. In addition, Malaysia Industrial Estate Limited (MIEL), a subsidiary of MIDF which was established solely for small industries, will intensify its activities in building factories for sale on credit terms to industrialists. Factory buildings of different sizes will be constructed, in advance of demand if need be, so that a potential manufacturer will have a choice among several alternative buildings' (RMI, 1966, p. 134).*

### **3.4.2 Second Malaysia Plan**

In pursuit of the NEP objective, the Government recognised the potential of small industry (RM2: 1971, p. 154). Thus, the Second Malaysia Plan for 1971-1975, stated that:

*'An important area of attention in the manufacturing sector during the plan period will be the promoting of small-scale industries. Such industries can play a particularly useful role in Malaysia's industrial development at the present time. Besides contributing to output growth in the sector, they can support and complement the activities of larger industries, particularly in supplying intermediate input requirements. They also facilitate the greater utilisation of domestic raw materials and contribute significantly to employment growth. New*

*entrepreneurs, with limited finance and technical skill, can more easily gain entry into the industrial sector through such small-scale operations. Because of the relatively small demand they make on infrastructure facilities, such small-scale enterprises can be established in rural areas and thus help in the modernisation of the rural environment. They can also be a vehicle for the development of the traditional crafts and skills in the country. During the plan period, a wide range of management, technical and financial assistance will be provided to encourage the development of small-scale industries and to integrate them into the modern industrial sector'* (RM2: 1971, p. 154).

In view of the above, a number of institutions were established during the Second Malaysia Plan period to assist in the development of small industries. These institutions included the CGC and MIDF Industrial Consultants Limited. The establishment of these agencies was subsequently noted in the mid-term review of the Second Malaysia Plan, which resulted in the establishment of an Advisory Council on Consultancy and Advisory Services for small-scale industries established in 1973 to ensure coordination of the services provided by the different agencies (RM2: mid-term Review, 1973, p. 144).

### **3.4.3 Third Malaysia Plan**

The significant role of small industries was confirmed in the Third Malaysia Plan for 1976-80, in which committed the Government to develop small industries as an integral part of Malaysia's industrial development (RM3: 1976, p. 315). The plan also noted that

the Advisory Council on Consultancy and Advisory Services for small-scale industries and business would be strengthened to become the Coordinating Council for Development of Small-Scale Industries. The council would be responsible for coordinating and harmonising programmes and policies of existing institutions providing a whole range of services to small industries.

During the Third Malaysia Plan period, the focus of government policy was on the training of small entrepreneurs. In line with this policy, the mid term review of the Third Malaysia Plan noted that the NPC, MARA and Ministry of Culture, Youth and Sports - in association with other relevant agencies, such as the Malaysian Entrepreneur Development Centre (MEDEC) in the MARA Institute of Technology and the National Entrepreneur Research Development Association (NERDA), a private organization, conducted a number of entrepreneurial development programmes. The objective was to provide training for 17,500 participants. In addition, a research programme on entrepreneurs was undertaken to assist the Government in formulating effective entrepreneurial development programmes.

#### **3.4.4 Fourth Malaysia Plan**

The Fourth Malaysia Plan for 1981-85 emphasised the important role which small industries play in the development of entrepreneurship, creation of employment, mobilisation of individual savings for investment, broadening the industrial base of Bumiputra and providing inputs and support services for larger scale industries (RM4:

1981, p.247). The plan reaffirmed the Government's policy of providing assistance to small industries and noted that RM318 million was allocated to MARA, Bank Pembangunan Malaysia Berhad (BPMB) and Bank Pertanian Malaysia (BPM) for the development of small industries. It also noted the establishment of the Division of Small Enterprise in Ministry of Trade and Industry.

In the mid-term review of the Fourth Malaysia plan, it was noted that the majority of small enterprises were concentrated in the three sectors, namely manufacturing, wholesale and retail trade, and construction. About 74 percent of the value added of all small enterprises was in these three sectors (RM4: mid-term review, 1984, p. 27). The mid-term review also noted that small enterprises were responsible for almost a third of all non-agricultural jobs and, therefore, played an important role in the generation of employment and output, as well as the redressal of poverty and the restructuring of society. It acknowledged that existing tax incentives tended to favour large-scale enterprises because they were mainly linked to the size of investment and employment, while the industrial estates did not adequately cater to the needs of small industries. The mid-term Review also spelt out the Government's policy towards small industries as follows:

*'The principal guideline in the strategy to develop small enterprises is that their activities must not duplicate those that have already been undertaken by the bigger-scale enterprises. Priority is given to those small enterprises that complement the activities of the bigger-scale enterprises. The choice of industries must also conform with the need to achieve the NEP objectives, particularly in*

*metal-based industries such as welding and foundry. There is potential for small enterprises to develop selected capital goods based on simple technology which were being imported constantly. These include a variety of simple tools, machines and equipment.*

*Efforts to promote small enterprises will be reviewed as an integral part of the strategies to develop the manufacturing sector. Among the measures to be undertaken include improvements to the productivity capacity of small enterprises and the provision of support services incorporating marketing, credit, consultancy and technology development.*

*Other measures include efforts to provide access to market and income through sub-contracts and franchises. The move towards integration of small enterprises with medium and large-scale industries will be undertaken in the context of overall industrial estate planning. This is to be implemented through the development of self-contained mini-industry within the existing industrial estates to facilitate common sharing of industrial support facilities'.*

#### **3.4.5 Fifth Malaysia Plan**

In the light of the uncertainties associated with external demand and rising protectionism, the strategy recommended by the Industrial Master Plan and adopted in the Fifth Malaysia Plan, 1986-90 was one of reorienting the manufacturing sector from being an

essentially inward-looking, domestic-oriented sector to greater export-orientation. Hence, the emphasis shifted to the expansion, improvement and modernisation of small industries through improving the incentive system, R&D activities and strengthening institutions for manufacturing sector development. A special programme for the development of small industries, involving total financial assistance of RM234 million, was undertaken with the corporation of the World Bank from 1985. Government agencies, including BPMB, Forest Research Institute of Malaysia (FRIM), the Malaysian Agricultural Research and Development Institute (MARDI), NPC, the Standards and Industrial Research Institute of Malaysia (SIRIM) and MIDF, were identified for active participation, with the small-scale industrial division of the Ministry of Trade and Industry as coordinator. This programme was expected to benefit 1,100 small entrepreneurs from all sectors except agriculture, and Bumiputra entrepreneurs would be given credit facilities and technical assistance through Bank Bumiputra Malaysia Berhad (BBMB).

#### **3.4.6 IMP and the Sixth Malaysia Plan**

In order to assist small industries in the export promotion the Fifth Malaysia Plan had emphasised establishing links between small industries and research agencies (SIRIM, MARDI, FRIM, PORIM and MEXPO) to enable the industries to obtain technical and consultancy services and up-to-date market information as well as to ensure quality and product competitiveness. The Industrial Master Plan for 1986-95 formulated various new development strategies to speed up the industrialisation process, including the



modernisation of small industries, which would create a network of firms capable of supplying high quality components and parts at competitive prices.

The Government gave added recognition to the significance of small industries by providing various fiscal incentives for small industries, resident and incorporated in Malaysia under the Companies Act 1965, which were granted pioneer status, while the reinvestment allowance was increased from 40 to 50 percent. The Finance Minister also introduced *new tax incentives* for small industries, including full exemption from import duties on raw materials, components, machinery and equipment. Also, abatement of adjusted income was introduced for large industries which purchase components from small-scale companies, under a government programme. The abatement was set at 5 percent of adjusted income or the total value of components purchased, whichever was lower.

#### **3.4.7 Seventh Malaysia Plan**

The focus of the development strategy for SMIs has been strongly to emphasise the development of domestic market-oriented, small-scale industries and, in particular, for the Bumiputra Commercial and Industrial Community (BCIC). During the Seventh Malaysia Plan period, efforts will be made to support the development of medium-scale industries which exhibit strong growth potential, in line with the industrial policy to promote exports, to ensure a balanced and efficient industrial structure in the country. In this context, the SMIs' development strategy will be readjusted by adopting a two-

pronged approach. The first approach is to promote production efficiency while the other is to consolidate, strengthen and extend the promotion of SMIs as competitive industries, which supply parts and components for both the domestic and global market.

Existing institutional arrangements for SMIs' development will be improved during the Plan period. In this regard, a Small and Medium Scale Industries Development Corporation (SMIDEC) will be established to provide effective leadership as well as formulate more focused development programmes. This Corporation will have authority for operational planning and overall implementation and coordination.

Export-oriented industries such as the electrical and electronic products, machinery and engineering as well as parts and components offer future growth potential for SMIs. The transition from domestic to export markets is a major step for SMIs and they will require expert assistance initially, to market their products overseas. In this context, an export market development scheme will be introduced to assist new SMI exporters develop expertise in marketing, promotion, distribution, pricing, packaging and transportation. SMIDEC, together with MATRADE, will be given the task of undertaking this scheme.

The supporting programmes implemented by government agencies will be further expanded to enable more SMIs to be upgraded and integrated into the mainstream of the manufacturing sector. To complement these efforts, two new programmes, namely, the Technology Development and Technology Acquisition Programmes, will be introduced.

Entrepreneurial development programmes will focus on nurturing entrepreneurs and enterprises through training, providing business opportunities, as well as financing and supporting infrastructure, for Bumiputra entrepreneurs requiring such services. These services will be made available in an integrated package and will be promoted alongside existing support programmes to address specific gaps in finance, training and marketing.

### **3.5 Training Incentives Scheme for Malaysian SMIs**

The Government has introduced double deductions for small industries, for training costs with NPC, SIRIM, MIT and MARDI. In 1989 the Finance Minister said that these incentives should be given in light of the bigger role small industries were expected to play in providing linkages to larger industries and in manufacturing goods which would be more competitive for both domestic and export markets.

These incentives were in addition to those provided under the Promotion of Investment Act 1986. A scheme was set up, with funds from the Asean Japan Development Fund (AJDF), enabling Small-Scale Industries to obtain credit on concessional terms through MIDF, Bank Pembangunan Malaysia Berhad, Bank Industri Malaysia Berhad and Bank Pertanian Malaysia. The first to be implemented in Asean, the scheme hopes to stimulate small industry growth, which has been constrained in the past by financing problems. Under the scheme, each project is allowed a maximum loan of RM201 million, with priority given to loans not exceeding RM5 million.

In 1988 it was reported that the CGC was reviewing its guaranteed schemes with the objective of consolidating them into a single scheme. The new scheme was aimed at assisting small industries with inadequate or no security to have ready access to credit facilities. The revamped arrangement was expected to have new features that would not only be more attractive to borrowers, but would also encourage banks to lend more to small industries.

### **3.6 Ministries and Agencies Involved in the Development of Malaysian SMIs**

There is not only a great variety, but also a large number of government agencies involved with small industry development in Malaysia. It has been estimated that a total of 13 ministries and more than 30 government and other agencies are involved, in one way or another, with small industry promotion. Reference has already been made to some of these ministries and agencies. In contrast to the public sector, there are few private sector organizations concerned with small industry.

The Federation of Malaysian Manufacturers has established a committee to look after small industry matters, and occasionally makes some representations to the Government on small industry issues. There is a Medium and Small Enterprise Association of Malaysia (MESEAM), which has a small membership of small industries. FMM and MESEAM appear to be the only two major non-governmental organizations concerned with small industry development. Thus, in contrast to the Government's extensive

institutional network, the private sector has not been actively involved in promoting small industries.

### **3.6.1 Problems of Coordination between the Ministry and the Government Agencies**

The number and variety of government small industry promotion agencies and activities are not necessarily a good indication of government effectiveness in promoting small industries. What is certain is that problems of coordination may arise when there is a large number of agencies involved. This has been a problem in Malaysia, which the Government initially tried to solve by establishing the Coordinating Council for Development of Small-Scale Industries.(CCDSSI) As was quoted by Chee, 1986, p. 91, *'the Coordinating Council's efforts failed even after its name was changed to the Committee to Coordinate the Development of Small Industry'*.

The situation reached a difficult position, with two similar agencies concerned with small industry development until 1988. One was the Division of Small Enterprise (DSE) in the Ministry of Trade and Industry, while the other was the Division of Small-Scale Industry (DSI) in the Ministry of National and Rural Development. The DSE was merged with the DSI in 1988, but the problem of coordination remains since the DSI is only a small division within a big ministry and has little effective power.

The formulation of policies and strategies for small industry development is now carried out by the National and Rural Development Ministry together with the Economic

Planning Unit and the Implementation and Coordination Unit of the Prime Minister's Department. Financial facilities are provided by Bank Pembangunan Malaysia Berhad, MIDF, MARA, and commercial banks. Training and apprenticeship are provided by the NPC, SIRIM, the Ministry of Education (through vocational education), the Labour and Manpower Ministry and the Ministry of Youth and Sports. The coordination problem will hopefully be resolved in the Seventh Malaysia Plan strategy, with SMIDEC established to and provide the overall management and coordination of SMIs activities.

Consultancy and advisory services are available at MIDA, NPC, SIRIM, MIDF, Food Industry of Malaysia (FIMA) and MARA. Marketing services are available through FIMA and the various agencies under the National and Rural Development Ministry.

In addition to the assistance given by the Government to small industries, the World Bank has also co-financed a special small industry loan scheme to accelerate the growth of the commercial and industrial sector. Initially, the scheme was reserved for Bumiputra entrepreneurs and companies with equity up to RM300,000. In February 1988, the limit was increased to RM1.5 million, while the facility was extended to Non-Bumiputra entrepreneurs and companies with effect from July, 1988.

Various agencies have formulated a large number and variety of programmes to assist small industries. Generally, the main focus of these programmes is the *Bumiputra entrepreneurs*. Given the large number and variety of small industry programmes, it is neither possible nor desirable to describe all, except for the major ones. First, finance and credit facilities / institutions will be discussed.

### **3.7 Financial Assistance and Credit Facilities / Institutions**

Most of the capital required for the establishment and operation of small enterprises comes from the entrepreneurs themselves, with short-falls being met by indirect finance from relatives, friends or other non-institutional sources. This fact has been documented in a number of studies, both overseas and Malaysian [(Chee, 1975, 1979, 1990); (M. S. Ismail, 1990)]. For example, in Chee's survey of small industry in Malaysia, 92 percent of the firms reported their initial capital was obtained from their own savings or that of family, relatives or friends. Not only do small establishments receive a smaller proportion of bank loans, but the value of such loans is also much smaller. This is not because small enterprises do not require external capital from institutional sources but because access to such sources is generally inadequate (Chee, 1979).

Continuing from 3.1.2 and 3.1.3, commercial banks find it difficult to obtain credit information about the applicants and their business. The loan applications are often not accompanied by financial documentation, or if they are, this is not properly prepared. In a number of cases it is also necessary to visit the small enterprises but few banks have the personnel or time to do this. Finally, the main source of bank funds is deposition. Small entrepreneurs are not a major source of deposits so their borrowing needs yield in priority to those of large depositors.

Given the above reasons it is not surprising to find that in a free market TSIs and SSIs have restricted access to institutional finance. For this reason, improved access to credit and capital is the key requirement in any entrepreneurial development aimed at

promoting small enterprises. The Government understands this problem and has set up the ITAF and a number of institutions to deal with Quality Improvement as well as programmes to overcome SMIs' financial constraints.

Under the Seventh Malaysia Plan period, RM 546.9 million has been provided for SMIs' development, compared with RM118.6 million in the Sixth Malaysian Plan period. SMIs with different technical needs from larger conglomerates, will be given further assistance in the form of special technology development programmes, with an initial budget of RM100 million.

### **3.8 Industrial Technical Assistance Fund (ITAF) for SMIs**

The ITAF was set up by the Government in early 1993 with an initial allocation of RM50 million. As noted earlier SMIs represent an important sector in Malaysia although their overall contribution to the manufacturing sector and national economy is still small. The introduction of this assistance is intended to enhance the development of the SMIs into a progressive, high quality and modern industry capable of supporting the large industries in Malaysia. Details of the ITAF objectives, eligibility for application, form of assistance, maximum grant, priorities, its method of evaluation and management, condition of approval and mode of disbursement are at length discussed and shown as **Note 1**, pp. 1-4, attached at the end of this thesis.



### **3.9 Conclusion**

The year 1990 marked the end of the NEP. The NDP and OPP2 took over the development programmes of the country. To overcome challenges and to survive in a competitive world SMIs must be prepared to adjust and to change. Changes in the value system and in attitude are important prerequisites for progress. Managers of SMIs must be prepared to change their attitude, work hard and be disciplined and less dependent on government subsidies and welfare. Societies which fail to react quickly to changing circumstances will be left behind, stagnate and eventually fall into insignificance.

Malaysia has formulated a large number of policies and programmes to ensure enough facilities and funds for the development of SMIs, ever since it first became independent. This is clearly shown by all the seven Malaysia Plans. Many ministries and government agencies are involved in the development process of SMIs, but lack of technology, inadequate finance, poor credit facilities, poor access to technology, poor management, lack of skilled labour and insufficient training, poor marketing linkages and generating export earnings, have hampered the active development of the SMIs. Their achievement is far below the expected target. Unexpected problems such as discriminatory government policies and practices, low level of sub-contracting linkages, narrow choice of sites and premises for business operations and the government policy on SMIs, have caused concern to the SMIs. Even during the British colonial rule, small industries had been neglected.

It is necessary to diversify the markets to which Malaysia exports. Though it will be uncomfortable, it would be a mistake to consider that it is not worth the discomfort of dealing with these markets. The new markets like Asia, Africa and Latin American countries collectively will be big and worth considering.

The researcher believes that each race has its own character and strength that can complement the others. There should be more Bumiputra and Non-Bumiputra partnerships. There will always be competition in business ventures and such competition will not always be conducted according to the rules.

Judging from the achievements of the NEP and the Government efforts in all the seven Malaysia plans, the Government still has to continue its efforts to increase Bumiputra ownership and participation in the corporate sector in line with the original objective of achieving at least a 30 percent stake of the nation's economy. Malaysian SMIs should therefore, make more effective efforts to develop their management and entrepreneurial skills as well as their value system so that the 'Quality' of their participation in the economy can be significantly improved and made more prominent. The ITAF have further provided funds to enhance the development of the SMIs to create a progressive, high quality and modern industry capable of supporting the large industries in Malaysia.

There is a total of 13 ministries and more than 30 government and other agencies involved, in one way or another with the small industry promotion. This is not necessarily a good indication of government effectiveness in promoting small industries. What is certain is the problems of its coordination. The Government initially tried to solve this

problem by establishing CCDSSI but the coordinating council's efforts failed even after its name was changed. Under RM7, more funds have been allocated to cater for the SMIs, through financial as well as the Quality development programmes.

SMIs, however, face even greater obstacles in meeting their customers' ever increasing demands in quality standards of the products and services at a competitive prices. The question is 'can Malaysian SMIs compete with foreign SMIs which have already taken such a Quality initiative?'

## **CHAPTER FOUR**

### **Literature Review**

#### **4.0 Introduction**

There is hardly a country in the world where the Government is not actively engaged in some form of economic activity through public enterprise. This is particularly so in the developing countries where government agencies are increasingly being used, not only to provide public utilities such as water, electricity and communication, but also to develop the economy through direct participation in industrial and commercial ventures. In some countries 'public enterprise' has been called upon to play even more challenging and ambitious roles. A striking feature of Malaysian development plans since the 1970s, for example, has been the unique place of public enterprise in the Government's bold attempt to 'restructure' the economic and social patterns of the society to achieve a more equitable racial balance in the employment patterns and the ownership of the nation's wealth.

Unfortunately, this increasingly dominant role of the Government and administrative structure in economic development and social change has brought many problems, for example redundancy and duplication of activities among the government agencies' programmes. Government agencies, particularly in Non-Western societies, often tend to be more interested in developing and maintaining their autonomy and independent power positions than in the implementation of policy. Moreover, accusations of corruption,

nepotism, lack of initiative, and arrogance in dealing with clientele have been depressingly frequent.

Despite the supposed independence of the government agencies, it is by now well established that political factors have had a major bearing on the way such organizations behave. Sherwood (1970) suggests that one of the greatest misconceptions about the increasing popularity of the public enterprise structure is that it represents a curtailment of Government influence. Evidence of the influence of politics on government agencies in Malaysia can be seen clearly in all the seven Malaysia Development Plans, as discussed in Chapter Three, pp. 74-85. And it becomes more serious when the involvement of the Government is geared toward acquiring tremendous corporate wealth, ostensibly on behalf of a particular community. This will not only create diversity but will also create feeling of insecurity among the other communities.

Although the Government may be blamed for some of the failures in SMIs' programmes, part of the reason must also be attributed to SMIs themselves. SMIs have not been able to organise themselves effectively and have done very little to help themselves. (See Chapter Seven for details). Whatever may be the reasons for the short-comings of the SMIs programmes, the impact is clearly seen in the relatively low productivity and export potential of the SMIs sector.

The Government can take several measures to improve the situation. First, there is a need to rationalise the institutional framework for SMIs promotion. As stated earlier, the problem is lack of co-ordination among SMIs' agencies and the failure to provide an

integrated package of assistance to selected SMIs. Attempts to set up a co-ordinating multi-agency committee or commission to perform the co-ordinating function were not successful. Secondly, policy-makers should always consider the impact of SMIs when formulating or implementing any administrative regulation. Unlike large enterprises, SMIs generally do not have any effective association to represent their interests, so these often tend to be overlooked by government officials who sometimes have the tendency to regard SMIs as a nuisance. Thirdly, the Government should involve the private sector more closely with its SMIs programmes. SMIs development should be a joint effort between the Government and the private sector, especially large firms and the Non-Government Organizations (NGOs). The large firms have the practical business expertise which many SMIs' agencies lack and can also provide useful assistance to SMIs through subcontracting. Fourthly, following the example of Korea and Japan, the Government should encourage SMIs to be self-reliant and do more to help themselves. The Government could implement a training programmes for SMIs to encourage self-help. Finally, it is imperative for SMIs to improve their database, their management practices, their productivity and their business strategies by initiating quality programmes and proper business policy in their organizations in order to survive independently.

It is difficult to plan or implement appropriate and effective policies and programmes for SMIs unless the Government has a reasonable belief that SMIs are ready to accept change and to help themselves. Thus it is important for the Government to make systematic attempts to survey SMIs, regularly and frequently. At the very least, there should be an attempt to monitor key parameters of performance in SMIs on annual basis and limit a more comprehensive coverage to every, say, three years.

Lately the Government has been trying hard to encourage quality initiative implementation in the SMIs. ITAF 3 introduced in 1993 is the first attempt by the Government through SIRIM to elaborate the use of quality programme in SMIs. In this Chapter the researcher attempt to discuss the quality management and quality costing process for the SMIs. The objective is to provide a summary of the quality writers' philosophies and practices and the quality costing concepts which would allow the non-quality audience (especially the SMIs' managers) to follow the researcher arguments without being hindered by the jargon, or the very least to provide a starting point for further study.

As indicated in Chapter Three, p. 86, in total, 13 ministries and more than 30 government agencies are involved, in one way or another, with the development of SMIs. But to date, there has been no attempt by any of the agencies to establish specific quality standards and practices for use by Malaysian SMIs. In the absence of such specific quality standards and practices, SMIs are free to implement their own standards based on their own daily requirements. The researcher believes that it is time to look at the possibility of designing proper quality standards and business practices that are specifically useful for the Malaysian SMIs.

#### **4.1 The Importance of Quality Management in SMIs**

Quality is no longer an option for the organization. It is the gateway to survival in today's competitive market. Emphasis on quality and managing the total quality transformation is

part of corporate culture. Quality must be managed and controlled to be an effective system for integrating quality development. Quality maintenance and quality improvement requires the efforts of the various groups in an organization so as to enable marketing, engineering, production and service at the most economical levels for full customer satisfaction.

According to Feigenbaum (1986), product and service quality can be defined as '*The total composite product and service characteristics of marketing, engineering, manufacture, and maintenance through which the product and service in use will meet the expectation of the customer*'.

TQM is a way of improving the effectiveness, flexibility and competitiveness of a business as a whole. It is also a method of removing waste, by involving everyone in improving the way things are done. The techniques of TQM can be applied throughout a company so that people from different departments, with different priorities and abilities, communicate with and help each other. In short, as defined by BS 7850, '*TQM is a management philosophy and set of company practices that aim to harness the human and material resources of an organization in the most effective way to achieve the objectives of the organization*'.

A small group of quality experts or writers have been advising industries throughout the world as to how they should manage quality. Hence, it may be useful to consider their approaches, their similarities and differences. The most notable are: Edward Deming, Joseph M. Juran, Philip B. Crosby, W. Feigenbaum, J. M. Grocock , G. Taguchi, K.



Ishikawa and S. Shingo. The details philosophies and approaches of these quality writers, the strengths and weaknesses of their philosophies and approaches are at length discussed and shown as **Note 2**, pp. 5-16, at the end of this thesis.

The *discovery* of quality and its application to management thinking and practices, particularly in manufacturing operations, is usually traced back to the visits of Deming and Juran to Japan in 1950 to assist in the process of industrial reconstruction after World War II. The ready response to the messages of Deming and Juran from Japanese industries, in marked contrast to the lack of attention at that time in the United States (US), has passed into business management folklore. Garvin (1984), has described how the discovery of total quality since 1950 spread from Japan to the US, then to the Pacific basin and Europe, followed closely by developing countries in the 1980s.

This process of diffusion of quality concepts and ideas is significant in illustrating how and why management adopts a quality approach to its organization, and thus the reasons why it may succeed or fail in doing so. It has been suggested that quality is being over emphasised now, and that quality concepts and the practices associated with them are being adopted as panaceas and recipes for success, without regard to the context and circumstances involved in developing and implementing them. Thus, Christopher Lornez, (1993) incorporates excellence and quality circles in his lists of business fads and fashions adopted wholesale by organizations as a short-cut to increase competitiveness and success.

These dangers were readily recognised by Deming and the other quality writers. Recently, Crosby and others identified this danger, deploring the adoption of quality systems as a fad during the 1980s, and condemning the over-simplified approach which he called, looking for *instant pudding*. The other negative aspect identified is that commitment by management is sometimes superficial *cheer leading* rather than implementation (Karabatos, 1989).

The main ideas and contributions of the writers are, therefore, analysed through their philosophies, principles and methods. A critique of each one is offered. Their strongest ideas are organised in a simple complementary framework that will be developed further as this research unfolds.

## 4.2 The Quality Confusion

There are a number of ways or senses in which quality may be defined, some being broader than others. The definition can be divided into two distinctive parts:

### (1) Qualitative

When used in this way, it is usually in a non-technical situation; ISO 8402 refers to it as comparative sense or degree of excellence. For example:

- in advertising slogans to assist in building an image: Esso - *Quality at work*; Hayfield Textiles - *Committed to quality*; Kenco - *Superior quality*; and many others.
- by television commentators (*a quality player, try a quality goal*);

- by directors and managers (*quality performance, quality of communications*) and by people in general (*top quality, high quality, original quality, loss of quality, foreign quality, and jeopardise quality*).

It is frequently found in such cases that the context in which the word is used is highly subjective and, in its strictest sense, it is often misused. For example, there is a shop called *Quality Seconds*. What is a *quality second*?

## (2) Quantitative

ISO 8402 defines this as ‘used in manufacturing, product-release and for technical evaluations, sometimes referred to as quantity level’.

The traditional quantitative term which is still used in some business environments is Acceptable Quality Level (AQL), whereby product and / or production quality is, paradoxically, defined in terms of non-conforming parts per hundred (i.e., some defined *degree of imperfection*).

AQLs are used by some companies in the mistaken belief that trying to eliminate all defects is too costly. However, setting AQLs works against a *right first time* mentality in the workforce. It appears to condone the production of non-conforming parts and delivery of imperfect services; suggesting that errors are acceptable to the organization. *It is tantamount to planning for failure*. Take for example, a final product made up of 3,000 parts: if the standard set is a 1 percent AQL, the product is planned to contain thirty non-conforming parts. In reality, there are likely to be many more due to the vagaries of the

sampling used in the plan or scheme whereby acceptance or rejection of the batch of product is decided. This is clearly an unacceptable situation in today's business environment and represents a non-survival performance.

World class companies assess their quality performance and that of their suppliers not in parts per hundred (PPH) but in parts per million (PPM) and sometimes in parts per billion (PPB). It is not practical to measure performance at this sort of level at the producing company. The usual method is to enter into an agreement with the customer to feed back on line rejects and then, using the consumption and delivery rates, to work out the PPB performance.

In sections 4.2 above and **Note 2**, various approaches of the quality writers and quality confusion are presented which give different definitions of quality, and an attempt is made to provide some logical progression in their presentation.

### **4.3 Quality Approaches**

The quality literature contains almost an '*incomprehensible*' number of approaches to, and definitions of quality. The best way of providing a clear overview of the literature is to tabulate the various approaches and definitions and to show which are effectively the same in definition or approach, but under different names. However, it is admitted that this approach is *necessarily reductionist* and may imply too much conformity between particular writer. A taxonomy of quality approaches is presented in Table 4.1 below.

**Table 4.1: A Taxonomy of Approaches on Quality**

<b>Type of approaches</b>	<b>Definitions/Concentrations</b>		
Traditional Approach	Superior	Exclusive	Transient
Output-based Approach	reliability	features	product
Process-based Approach	production	manufacturing	managerial
User-based Approach	individual	consumerist	
Value-based Approach	democratic	social	
Professional Approach	absolution	expert	scientific

Those approaches are described in turn in the following sub-sections:

#### **4.3.1 The Traditional Approach**

This is the most familiar and frequently used approach. It is often described in terms such as exclusive or superior. It implies exclusivity, whereas public services may seek inclusively. The techniques of mass production began the shift from traditional definitions based on prestige and exclusivity towards more technical definitions that were concerned with controlling product variation (Garvin, 1987).

#### **4.3.2 The Output-based Approach**

This approach encompasses both the reliability-based and features-based approaches (Holbrook and Cortman, 1985) and the product-based approach (Garvin, 1987). It assumes that quality is a precise and measurable variable in which differences in quality are actually differences in features specific to the product such as durability and

reliability. Although AQL appears to condone the production of non-conforming parts and delivery of imperfect services, the focus is on the finished product and how well it performs its function(s). As mentioned earlier, where in it is accepted that errors or faults will inevitably occur but can be minimised by quality control. However, quality control in manufacturing is about *reducing* variations in production whilst quality in the service sector may require *increased* variations to take account of the differing needs of individuals. Techniques for monitoring also have to be adopted since the time scale and process of production are radically different from those of service provision.

The limitations of the AQL approach become apparent as consumers become more discerning, especially when national and international markets become more competitive. If market shares are to be maintained and increased then responding positively to the demands of consumers is a crucial factor. Much of the economic success of countries such as Japan is attributed to their ability to provide consumers with quality products at affordable prices. For example, reports by the UK Consumer's Association during the early 1980s found lower failure rates for Japanese television sets than for British made. It has become clear that the prevention of product failure is better than cure and that the achievement of quality is more likely if certain characteristics are designed into the production process.

### **4.3.3 The Process-based Approach**

This approach encompasses the production-based (Holbrook and Cortman, 1985), manufacturing-based (Garvin, 1987) and managerial excellence (Pfeffer and Coote,

1991) approaches. It assumes that it is possible to design systems which ensure quality in the transformation of inputs into outputs, without necessarily having to define precisely and measure the quality of output itself. These are described in terms of reducing variations, meeting standards and designing specifications. Although the end result (the output) is obviously important, the emphasis is on the *process*, rather than on the *product*. Quality in this context is defined as giving the customers what they want, when they want it and within their budget. Implementation requires a closer relationship between provider and customer. This can be achieved by transforming vertically-integrated, bureaucratically-controlled organizations into small-scale units which have a clear contractual relationship with their customers. Thus, the underlying principle is effectively that of *control by contract*, where there are clear specifications and defined standards. This approach is being followed in the United Kingdom's (UK) public sector under the compulsory competitive tendering regime.

The so called quality writers such as Deming, (1986), Ishikawa, (1986), Crosby, (1979) and Juran, (1988) have all become essential reading for managers. They all emphasise the importance of monitoring the process rather than the product. Their view was that *quality had to be the most important issue for everyone in the organization*. This led to quality control being superseded by quality assurance and total quality. Subsequently, as it became clear that relationships between (as well as within) departments were vital, multi-disciplinary groups (*quality circles*) acting on quality issues were created. This evolved into the total quality management philosophy which argues for a complete change in the culture and structure of organizations. These developments were paralleled by both an increase in the service content of manufactured products (after sales service, delivery etc.)

and by a rapid rise in the size of the service sector. The service sector accounted for two thirds of both UK gross domestic product and UK employment throughout the late 1980s and early 1990s.

#### **4.3.4 The User-based Approach**

The user-based approach (Garvin, 1987) is similar to the individualist (Donabedian, 1980) and consumerist (Pfeffer and Coote, 1991) approaches. It is based on the premise that *quality lies in the eye of the beholder* and that high quality products are those that best meet the needs of the majority of end-users. The term *user* is employed in preference to that of *consumer* in order to suggest a context that extends beyond that of a market transaction based on effective demand. Instead it is intended to convey a meaning of someone receiving (or having access to) a quality good or service regardless of their ability to pay. The consumerist approach underpins the citizen's charter.

Consumers have an active rather than a passive role because this approach places the emphasis on their desire to receive a satisfactory service and their ability to influence the behaviour of providers by rejecting or complaining about poor quality. Market forces and the right to compensation are two mechanisms which are considered to empower consumers and both, to some extent, now exist in the public sector. However, the right to compensation should not be viewed as an adequate strategy for improvement. The criticism of the quality control methodology is that for some public services (such as



social work or health care), the fact that the service was of poor quality could cause real distress to the user, making useless detection and reparation after the fact.

#### **4.3.5 The Value-based Approach**

This approach includes the social (Donabedian, 1980) and the democratic (Pfeffer and Coote, 1991) approaches. It defines a quality product as one which provides the expected performance at an acceptable price. This approach is the one most appropriate to the public sector because it seeks to achieve a balance between different interests, in the interest of the community as a whole. It is concerned with planning and delivery as well as outputs. It draws upon other approaches to define quality as fitness for purpose, responsiveness and empowerment. *Fitness for purpose* draws on the strengths of the engineering approach but also incorporates equality of opportunity and access. *Responsiveness* is derived from the managerial excellence approach and stresses the importance of identifying users and meeting their needs within a flexible system. *Empowerment* is about the active involvement of both users and citizens in the planning and delivery services. Thus, although this has elements of the consumerist approach, it is about individual and collective power. It must include access to relevant information, transparent and conspicuous decision-making and public accountability as rights vested in the public rather than privileges conferred by professionals and politicians.

#### **4.3.6 The Professional Approach**

This encompasses the *absolute* (Donabedian, 1980) and *scientific expert* (Pfeffer and Coote, 1991) approaches. Quality writers such as Shingo, Ishikawa and Taguchi were inclined to these approaches. As with the user-based approach it is about meeting needs but the emphasis is on how the supplier, or the acknowledged expert, defines that need and how it can best be met. This should not simply be considered as a supply-side approach since it allows for the existence of genuine desire to act in the best interests of the user. However, the *intention* to satisfy user needs does not always result in satisfied users.

#### **4.4 Approaches of the Quality Writers**

The quality writers have their own knowledge base and interests. This naturally has profoundly influenced the way their ideas have developed. When contrasting their works, it is not surprising that there is a great diversity in their philosophies, principles and methods. Unfortunately this diversity has led to friction. Arguments about which approach is right and which other ones are wrong seem to have emerged. Such argumentation is really not necessary. It is possible to organise the *good* during the *process stages*. However, this process has already begun in the analysis above. The main strengths and weaknesses of each writer's contribution have been established.

In the Quality literature, there are two main areas of focus; firstly, on the technical needs of quality control and secondly, on the human dimension of quality management. Technical needs of production and control are catered for largely by statistical and quantitative methods. i.e. the professional approaches. Some writers place emphasis *on inspection at the end of the process*, some, *on the process itself*, while some others, *on the design stage*. Putting them together, we will find that they will cover all the technical needs from the design stage right through to the inspection of the final product. Thus, when the need arises we can decide which approaches, if not all, are relevant to those needs.

The writers have also provided us with *technical mechanistic needs*. In one area they say little in respect to technical interests; however, the traditional hierarchical tree is implicitly assumed in most circumstances. Some writers have made reference to the systematic nature of the organization. However, they do not go far enough to explain in detail how this will translate into organizational design. This gap needs to be filled.

The management of the human dimension of the organization is not clearly provided for. The writers commonly declare their interest in managing people in their philosophies, but in their analysis, they offer very few tangible principles and virtually no practical methods. Quality control circles (QCCs), perhaps, provide the clearest exposition in the quality literature on how to encourage participation in order to generate motivation, autonomy, as well as creativity through a given approach. In this case *people* are the target of QCCs.

Employee suggestion programmes and a great variety of other job enrichment programmes can be drawn from the management literature that complement what the experts preached. However, one dimension which was not dealt with by the quality writers is the *political and coercive character of organizational decision making*; either formal or informal. Ultimately, we could question, *whose interests are being served?*

Any executive will know that the hardest part of his / her job is to cope with *internal politics*; struggling to pursue his / her own interests, to make an influence, to have a say, or even to survive. Workers may be very suspicious of quality management, wondering who ultimately will be the beneficiaries or the victims. So why is it so *difficult* to provide the quality enthusiast with issues raised by the question, *Whose interests are being served?*

Since there is no magic word, nor *'wizardry'* to simply *'magic away'* the grip that the powerful hands have over organizations, it is not surprising to find quality protagonists joining forces with management. This may happen in the form of methods and techniques supporting the technical interest in achieving management's goals more efficiently through available technology. It may be more manipulative, however; proposing how the workers can be influenced to work in particular ways, and effectively to achieve management goals, is highly questionable (Flood, 1995).

#### 4.5 Points in Common Among the Writers

While each of the writers on quality has his own distinctive approach, there is a common ground in their approaches and proposal. Some of these similarities are, as discussed below:

1. Importance is attached to controlling the process, rather than the product.
2. The importance of not forgetting the human process is underlined. This is as vital, if not more so, than the control of the technical process.
3. The top management, not the workforce, is responsible for the quality of the organization / firm. It is management's responsibility to provide commitment, leadership, and the appropriate support to technical and human processes. Thus, it is the management that should have a clear understanding of the process.
4. Management determines the climate and framework of operations within the organization. Therefore it is imperative that management should foster the participation of the workforce (and perhaps others such as vendors and buyers) in quality improvement, and develop a *quality culture* by changing perception of, and attitudes towards, quality.
5. The importance of education and training is emphasised in changing employees' beliefs and attitudes and enhancing their competencies in carrying out their duties.
6. The emphasis is on prevention of product defects, not inspection after the event, and on reduction of the cost of quality, to improve competitiveness.

7. Quality improvement is emphasised, producing benefits over time, whether developed continuously or project by project. Quality is not a programme but a process, and also not an instant cure.
8. There is a broad agreement that all aspects of activities should be looked at for quality improvement, as these all contribute towards quality. Functional integration is considered an important ingredient of TQM.
9. Quality is a company-wide activity.

The above discussion suggests that there is no such thing as a single generic exposition of quality. Each definition is underpinned by the institutional frameworks within which it operates (i.e. market or non-market). These objectives can only be determined after the needs of all stakeholders have been ascertained and a set of priorities negotiated within the existing level of resources. Those priorities will reflect both the distribution of power amongst stakeholders and the institutional framework within which they are represented. This process is necessarily dynamic because the objectives and the distribution of stakeholder power change over time (Doyle, 1994).

Therefore, to ensure quality at the delivery stage, the definition has to be broken down into operationally relevant dimensions. These must address issues concerning the objective of the institution and the quality of inputs, of processes, of needs assessment and of monitoring and redress. All of the definitions stress the need for the provider to be clear about their objective(s) and emphasise the importance of formulating *a coherent strategy of generally accepted standards* that have been developed to meet specific

requirements. Without this approach, quality is simply *a vague aspiration or political rhetoric*, neither of which are helpful in defining and in operating quality.

It is also apparent that quality is not an end in itself since it cannot be regarded as independent of use. Donabedian (1980) argues that quality and quantity are related (as is the monetary cost of provision) because he assumes the presence of quality also presupposes a sufficient quantity. A service may be considered poor in quality from the general public and / or provider's perspective because of quantitative inadequacy, not least because this may restrict access for some individuals.

It is clear from the review that quality cannot be precisely defined, whether in technical terms or by a single word such as *goodness* or *excellence* or *reliability* (Parasuraman, 1985). Quality is an abstract concept which has many attributes or dimensions and it is these relative dimensions which must be defined and measured. *'What is by no means clear is whether quality is a single attribute, a class of functionally-related attributes, or a heterogeneous assortment gathered into a bundle by established usage, administrative fad or personal preference. And the identity of the attribute or attributes that constitute quality is not clear at all'*. (Donabedian, 1980 p.3).

The attributes may apply to people or places rather than to the service itself with the result that the attributes of these and the attributes of the service will be used, alternatively or simultaneously, both to define and to judge quality. Moreover, *'while definitions of quality are helpful, they do not answer the manager's question **'What do I need to do to improve the quality of my service?'** So, whatever definition or concept of*

*quality is used, the vital point is how it is put into practice.* (Audit Commission, 1993, p.3).

This comment highlights the need to develop an operational definition, one that can be implemented in practice.

**Table 4.2 Comparing the Writers - Summary of Approaches**

<b>Writer</b>	<b>Definition</b>	<b>Emphasis</b>	<b>Dominant factor</b>
Deming	Customer-led	process	Control of variation
Juran	Customer-led	people	Fitness for purpose
Crosby	Supply-led	performance	Conformance requirement- / zero defect
Feigenbaum	Customer-led	process	Total quality control
Groocock	Value-led	process	Chain of conformance
Ishikawa	Value-led	people	Company-wide Quality Control Circles
Taguchi	Supply-led Value to society	process / design	Quality loss function
Shingo	Value-led	process	Poka yoke = Zero defect

The above table shows a comparison between the writers approaches using three key factors.

It can be noted that all the above quality writers emphasise the importance of massive education and training programmes in the managing of quality.



## 4.6 Principles of TQM

After the discussion of quality literature as above, we are ready to introduce the notion of TQM. The main principles of TQM can now be drawn out from the philosophy in place as follows:

1. There must be agreed requirements for both internal and external customers.
2. Customers' requirements must be the main focus and met first time, every time.
3. Quality improvement will reduce waste and total costs.
4. There must be a focus on the prevention of problems, rather than an acceptance to cope in a fire-fighting manner.
5. Quality improvement can only result from planned management action.
6. Every job must add value
7. Everybody must be involved, from all levels and across all functions.
8. There must be an emphasis on measurement to help to assess and to meet requirements and objectives.
9. A culture of continuous improvement must be established (continuous includes the desirability of dramatic leaps forward as well as steady improvement).
10. An emphasis should be placed on promoting creativity.

These ten main principles provide a concise understanding of TQM as it currently stands.

#### 4.6.1 The UK Government Definition of Quality

The UK Government provided its own practical definition of quality in its 1993 Guide to Market Testing (Office of Public Service and Science 1993, pp. 17-18)

*'Quality of output could be defined by maximum permitted tolerances for:*

- *deviation from agreed service delivery levels and schedules;*
- *failures identified from departmental agency inspection check system;*
- *late inaccurate returns of costs performance data;*
- *failure rates in equipment material provided or repaired maintained by the supplier as part of the contract service level agreement; and*
- *rectification of mistakes or poor work.*

*Quality of service will cover attitude and images:*

- *courtesy and helpfulness of, and fair statement by, suppliers staff as measured or perceived by the users;*
- *quality of staff management;*
- *customer views of the suppliers' responsiveness to urgent requests and complaints; and*
- *quality of material components used by the supplier.'*

The guide emphasised that quality standards must be defined accurately. The most effective way, it suggested, was to require the bidder (both internal and external) for a

contract to prepare a quality plan which, together with other criteria, could be used to assess each bid. The quality plan would identify all the dimensions of the work which affect quality, for example, staff qualifications, training and experience and quality assurance procedures approval of the quality plan could be made a condition of award of contract.

#### 4.7 The Quality Costs

Quality initiatives alone will not give the required results of the quality implementation but quality initiatives followed by proper quality costing elements will further help to improve the expected results. Following from Chapter One p. 9 and Two p. 49 the well worn equation:

$$\text{Profits} = \text{Total Revenue (TR)} - \text{Total Costs (TC)}.$$

now takes on a new dimension. The pressure to reduce selling price is relentless and this results in even greater pressure to reduce production costs. At this point the focus is on what might be termed the *Quality Productivity Equation*, which implies that businesses need to find some way of reducing costs by improving both quality control and productivity. The question is, *can SMEs take up this challenge?*

The researcher believes that to improve quality and measure performance through the equation: *Profit – TR - TC*. The definition of PAF costs must be properly determined and classifications of them must be made before efficient and proper measurement of revenue can be established.

#### 4.7.1 Definition of Quality Cost Categories

The prevention, appraisal and failure cost elements are defined in BS6143: Part 2 (3) as:

**Prevention costs.** The cost of any action taken to investigate, prevent or reduce the risk of non-conformity or defect.

**Appraisal costs.** The cost of evaluating the achievement of quality requirements including, for example, cost of verification and control performed at any stage of the quality loop.

**Internal failure costs.** The costs arising within an organization due to non-conformities or defects at any stage of the quality loop, such as costs of scrap, rework, retest, reinspection and redesign.

The **external failure costs** are more serious, in that they are experienced by customers with all the potential damaging implications. They are the most costly to detect and correct. The cost of finding a faulty part once it is installed in a system is likely to outweigh by far the cost of the part itself. Details of these costs and its components are at length discussed and shown as **Note 3**, pp. 17-19, at the end of this thesis.

#### 4.7.2 Early Quality Costing

Quality costs featured in a 1957 British Productivity Council film, '*Right First Time*'. In the discussion notes accompanying the film, the costs of quality were broken into: costs of failure, costs of appraisal and cost of prevention. The notes present a scenario where

- Failure cost = 70 percent;
- Appraisal cost = 25 percent;
- Prevention cost = 5 percent;
- and the total may well amount to between 4 and 14 percent of the turnover of the company.

The notes go on to say:

*'The company then starts to put its own house in order, first by determining its quality costs. The shock of realising that these amount to between 15 and 20 percent of factory costs inspires immediate action'.*

In 1967 the American Society of Quality Control (ASQC, 1974) published *Quality Costs - What and How*, in which quality costs were defined only by category and by reference to Feigenbaum (1956). This booklet, which was revised in 1970 and 1974, has now been withdrawn. It is now entitled *Principles of Quality Costs* (Campanella, 1990). It is a definitive short work on the subject, even though it did not include all the cost elements which might be identified as being quality-related in a TQM approach.

In more recent times, the ASQC's Quality costs committee have produced three books. Grimm (1987) and Campanella (1989) are the editors of two books of papers from ASQC's Annual Technical Conference / Quality Congress. It is claimed that these source books '*contain the best of today's thinking about quality costs*'. The first volume covers information from the period 1970-82 and the second volume from 1983-87. Campanella (1990) is the editor of a book which is a product of the Quality Costs Committee of ASQC's Quality Management Division. It includes material from other committee publications such as *Guide for Reducing Quality Costs* and *Guide for Managing Supplier Quality Costs*. As mentioned earlier, *Quality Costs - What and How*, which covered the quality costs in service industries, is a much more rounded book than its predecessor, which has been taken out from public consumption.

The British Standards Institution's publication BS 6143 Guide to the Determination and Use of Quality Related Costs, which was published in 1981, is, in many respects an abridged version of *Quality Costs - What and How*. but it is *a poor imitation*. The standards however, have now been revised. The flaws in the standard are discussed in some detail by Dale and Plunkett, 1995; which include the following:

- 'Some cost elements in BS 6143 are inappropriate to manufacturing industry and are more suited to the heavy fabrication industry.'
- 'It is difficult to find generic terms to describe specific tasks or activities having the same broad objective in different industries or types of manufacture. This makes collection and comparisons of data from different sources very difficult.'
- 'The standard permits reporting net costs by deduction of income from sales of scrap from quality costs. This is not good practice because it subsidises poor quality. Also,

the type and quantity of scrap sold at a particular time may bear no relation to current output’.

- ‘The cost element checklists in the standard can be useful thought starters when collecting quality costs, but they can also act as blinkers’.
- ‘The standard should make specific recommendations on the quality-relatedness of testing and running-in operations, and on the accounting of overhead of scrap’.

Whilst there is little doubt that many of these faults of the standard derive from the abridging process and editing down, it also bears one of the hallmarks of committee work. How else would prevention activities which account for, say, 2 percent of quality cost (BS 6143 ‘typical data’) be broken down into eight minutely detailed elements whilst internal failure cost (63 percent of quality costs - same data source), though having seven elements, is not analysed in nearly so much detail. In another instance, an example cites fourteen prevention, six appraisal, seven internal failure, and five external failure elements. All in all, users would be better served if the committee had adopted ASQC’s Quality Costs- What and How and incorporated material from the other two publications, though it has to be admitted that the style and content of such a document would be unusual for a British Standard.

The Philip Crosby method of categorising costs - price (cost) of conformance (POC) and price (cost) of non-conformance (PONC) - has been used in the model (BS 6143 Guide to the Determination and Use Quality Related Costs) to simplify cost classification. Part 2 of the guide *‘prevention appraisal and failure model’* is a revised version of the classical model of quality costing used in manufacturing industry. Rather previously, Part 2 of *the*

*standard* appeared in print in 1990 and Part 1 in 1992. Part 2 contains more general information on quality costing and it would have been better if this had been classed as Part 1.

#### **4.7.3 Why are Quality Costs Important?**

Quality costs are important:

1. Because they are large; very large. The UK Government in 1978 estimated £10,000 million, equal to 10 percent of its' Gross National Product for that year. The findings of the National Economic Development Council (NEDC) task force on *Quality and Standards* published in 1985, claim that some 10 and 20 percent of an organization's total sales value is accounted for by quality-related costs. Various studies carried out by University of Manchester Institute of Science and Technology (UMIST) and information volunteered by a variety of organizations have shown that quality-related costs commonly range from 5 and 25 percent of company annual turnover.
2. A percentage of the quality cost is usually expended on appraisal and failure. These expenditures add little to the value of the product or service, and the failure costs, at least, may be regarded as avoidable. Reducing failure costs by eliminating causes of non-conformance can also lead to substantial reductions in appraisal costs.
3. Unnecessary and avoidable costs make goods and services more expensive. This in turn affects competitiveness and, ultimately, wages, salaries and standards of living.
4. Despite the fact that the costs are large, and that a substantial proportion of them are avoidable, it is apparent that the costs and economics of many quality-related



activities, including investment in presentation and appraisal activities, are not known by many companies. Such a state of affairs is surely indefensible in any well-run business (Dale and Plunkett, 1995).

#### **4.7.4 Published Quality Cost Data**

There is not very much published on Quality Cost Data for Malaysian companies, particularly for the SMIs. In the absence of this sort of data, the researcher has chosen to quote the Western and the Japanese experience to expound on the importance of Quality Cost Data. The literature which contains numerical quality cost data falls conveniently into three categories:

1. Figure of costs for quality relating to nations and multi-national corporations;
2. Comparisons between industries and industry groups;
3. Individual company experience.

#### **4.8 Costs of Quality relating to National and Multi-National Corporations**

From the first category, Mac Gregor (1983) put the ubiquitous UK quality cost of £10,000 million per year (1978 prices) into perspective when he equated it to the income from value added tax (VAT) plus the income from tourism and North Sea oil. He also quoted an unnamed major international industrial company achieving annual savings of US\$22 million rising to US\$42 million over five years by eliminating quality problems.

Wheelwright and Hayes (1985) revealed that IBM's quality costs in the early 1980's were 30 percent of their manufacturing costs. Rohan (1987), from the aircraft industry, disclosed that despite an annual expenditure of US\$30 million on quality assurance, defects and other quality problems were costing the Fairchild Republic Co. a further US\$20 million each year. After getting to grips with the problems they reduced quality-related losses by more than 80 percent. Mayben (Brewer, 1978), in military aircraft manufacture, was less forthcoming about expenditure and losses, but returns on investments ranging from 2:1 to 20:1, and on one project an estimated saving of US\$11 million over ten years makes impressive reading. For sheer scale of quality costs and saving, ITT was said to be well to the front and even Jones' US\$30 million of quality cost improvement planned for 1977 seems small when compared to Grocock's reported US\$460 million and US\$550 million quality costs in 1978 and 1979, respectively, for the European operation alone (Rohan, 1987).

#### **4.8.1 Costs of Quality Comparison between Industries and Industry Category**

Information showing quality costs levels and distributions of expenditure is useful if only to reinforce the warnings about comparisons of data. The periodical, *Quality* (1984), reporting data across 11 industry groups, at two levels of sophistication of cost collection and expressed against two bases (net sales billed and direct labour), showed clearly the folly of attempting to make comparison across industry boundaries. The only cross-industry research known to date is by Gilmore (1974, 1983 and 1984) in which he investigated 10 industry groups, different company sizes, and *production to quality*

*personnel* ratios, looking for differences in total quality costs and in *prevention appraisal failure* distribution.

Robertson (1971) drew on data from the National Council for Quality and Reliability (NCQR) saying that for the average UK organization quality-related costs are divided in the proportions: 5 percent prevention costs, 30 percent appraisal cost and 65 percent failure costs. He went on to say that they may be 4-20 percent of sales turnover.

Abed and Dale (1987), from an analysis of the quantitative data contained in the quality costing literature, found that the quality cost categories expressed as a percentage of total quality costs are: 5 percent prevention costs, 28 percent appraisal costs and 67 percent failure costs. Total quality costs as a percentage of annual sales turnover averaged 9.2 percent with a range of 2 to 25 percent.

#### **4.8.2 Cost of Quality from Individual Companies**

Contributions from individual companies are valuable because many reveal how they measured quality costs and how they achieved their cost reductions. Revealing actual data gives their contributions an authenticity lacking in papers without data.

Richardson's (1983) paper from the engineering industry is an excellent example. Starting with one in six of the total complement of personnel on the quality budget and a reject rate of 6 percent giving quality costs of 13.2 percent of sales turnover, the company reduced the personnel in the quality assurance function from 135 to 35 whilst defect rates

fell from 6 percent to 4 percent through a series of quality improvement activities, giving around 10 percent of annual sales turnover (worth £1M) as a real savings. If enhancement of the company's price competitiveness owing to the savings, and its improved ability to respond to order requirements because of the obvious reduction in lead time, are also taken into account, one is left with a story which spells success by any standards. Paradoxically, this success was achieved by applying the quality assurance manager's joke, '*We can reduce our quality costs tomorrow - just sack the inspectors and checkers*'. Gavin (1983), using the example of air-conditioning equipment, reported that Japanese manufacturers' warranty costs were about 0.6 percent of sales. At the best US companies it was 1.8 percent and at the worst 5.2 percent. Further, the total costs of quality incurred by Japanese producers were less than one-half of the failure costs incurred in the best US companies.

From the survey and study in the machine-tool industry, Burn (1976) reported quality costs as 5 percent of estimated sales turnover, of which approximately 60 percent were failure costs. The proportions of measured quality costs falling into the main categories of quality costs were: prevention 3.3 percent, appraisal 40.3 percent and failure 56.3 percent. This level of prevention investment was compared to a level of 13 percent claimed from a similar survey carried out in West Germany. From the company in which Burns carried out a detailed case study, he reported a reduction in quality costs of 1.6 percent of sales turnover between the year of measurement (1970) and a post-study audit of 1973 costs.

Webb (1972) compared meat processing industry costs with general industry costs. In general industry, he reported failures 65 percent, appraisal 25 percent and prevention 10

percent., while in the meat industry, he claimed failures 79 percent, appraisal 8 percent and prevention 13 percent. The industry's total quality costs compared to percentage of sales were 10 percent and 6 percent respectively. This example serves to reiterate '*the dangers of generating expectations from comparisons*'. The inclusion of machinery maintenance as a prominent quality cost also illustrates how major quality parameters differ from one industry to another.

Moyer and Gilmore (1979) in a study of steel foundry jobbing-shop making castings for the value industry included '*quality image loss*' of 5 percent of sales turnover, thereby boosting external quality costs alone to 15.5 percent of sales. Debiting return castings at sales value, despite noting that it should be at manufacturing cost plus profit margin, also helped to keep the costs well inflated. By the time all other quality-related costs were gathered in they arrived at a staggering 38 percent of sales, apportioned as 6 percent prevention, 14 percent appraisal and 80 percent failure.

#### **4.9 Limitations of the Prevention, Appraisal and Failure (PAF) Approach**

Dale and Plunkett (1995) described that with the development of TQM, the need to identify and measure quality costs across a wide spectrum of company activities and functions has arisen and the traditional prevention, appraisal and failure approach is in some respects unsuited to this new requirement. Among its limitations are:

- ‘The quality activity elements as defined do not match well with the cost information most commonly available from accounting systems’.
- ‘To the unwary, because of the distribution of cost elements, it can lead to more focus on the prevention and appraisal components than on failure costs’.
- ‘It is not broad enough to account for many of the activities of non-manufacturing areas’.
- ‘There are many quality-related activities in grey areas where it is unclear to which category they belong’.
- ‘In practice, the categorization is often a post-collection exercise done in deference to the received wisdom on the topic’.
- ‘The categorization seems to be of interest only to quality assurance personnel. The cost categories do not always align with the business activities of the organization, which makes the link between quality improvement and quality costs difficult to identify’.
- ‘It is not an appropriate categorization for the most common uses of quality related cost information’.

There are alternatives to the PAF approach which are different but do not necessarily conflict with it because they use the same costs collected under different headings. Chief among these alternative (or supplementary) categorizations is division of costs into direct and indirect, theoretical and actual, controllable and uncontrollable, discretionary and consequential costs, value adding and non-value adding and price of conformance (POC) and price of non-conformance (PONC).

The principal argument for Crosby's (1979) broader categorization which measures only POC and the PONC is that it can be applied company-wide and that it focuses attention on the cost of doing things right as well as the costs of getting them wrong. This is considered to be a more positive all-round approach which will yield improvements in efficiency as well as in quality. **In theory**, *all costs to the company should be accounted for* under such a system. **In practice**, *departments identify key result processes against which to measure their performance and costs.*

#### 4.9.1 Loss of Opportunity, as an Opportunity Cost

The Chartered Institute of Management Accountants (CIMA) (1991), defined opportunity cost as *'The value of a benefit sacrificed in favour of an alternative course of action'*.

A cost element which many contributors to the literature list without comment is *'lost opportunity costs'*. These are market related costs which have a direct impact on business performance. They are considered by some to be *special category of external failure costs*. Indeed, some of the failure costs given in BS6143: Part 2 (3) can be identified as lost opportunity. The following are some typical examples of lost opportunity costs which have been encountered:

- *'Losses caused by substandard product'*. The revenue difference between downgraded and top grade product.

- *'Unplanned substitution of material'*. Substitution of higher cost material, component or product because of problems with the original. This also includes sourcing from a higher cost supplier because the lower cost supplier is experiencing problems.
- *'Lost capacity'*. The capacity taken up by the production of defective material, components and products.
- *'Loss of custom, goodwill, sales opportunities, revenue and profit'*.
- *'Cost effective maintenance of processing equipment'*. The difference between the cost of effective equipment maintenance and that of repeated repairs, in breakdown mode, of processing equipment, with subsequent product contamination and lost sales opportunity.
- *'Utilisation of sales personnel'*. Sales personnel delivering product to the customer when they should be out selling.

#### **4.10 Conclusion**

Quality is no longer an option for the organization. It is a way of improving the effectiveness, flexibility and competitiveness of a business as a whole. It is also a method of removing waste, by involving everyone in improving the way things are done. Quality techniques can be applied throughout an organization so that people from different departments, with different priorities and abilities communicate with and help each other. In short, it is a management philosophy and set of company practices that aim to harness



the human and material resources of an organization in the most effective way to achieve objectives of the organization.

The process of diffusion of quality concepts and ideas is significant in illustrating how and why management adopts a quality approach to its organization, and thus the reasons why it may succeed or fail in doing so. It has been suggested that quality is being over emphasised now, and quality concepts and the practices associated with them are being adopted as panaceas and recipes for success, without regard to the context and circumstances involved in developing and implementing them. Thus, Christopher Lomez, incorporates excellence and quality circles in his lists of business fads and fashions adopted wholesale by organizations as a short-cut to increase competitiveness and success. The dangers of 'looking for instant pudding' were readily recognised by the experts or writers. The other negative aspect identified is that commitment by management is sometimes superficial, cheer leading rather than implementation.

There are a number of ways or senses in which quality may be defined, some being broader than others. AQLs are used by some companies in the mistaken belief that trying to eliminate all defects is too costly. It appears to condone the production of non-conforming parts and delivery of imperfect services, suggesting that errors are acceptable to the organization. It is tantamount to planning for failure. AQLs have no part to play in TQM and a process of continuous quality improvement. However, it is not practical to measure performance at PPM or PPB level at the producing company. The usual method is to enter into an agreement with the customer to feed back on line rejects and then, using the consumption and delivery rates, to work out the PPB performance.

A small group of experts or writers have been advising industries throughout the world as to how they should manage quality. The approaches propagated by them have shortcomings. Garvin, (1987) and Chase and Aquilano, (1989) have commented on various gaps in the approach to quality. These include the lack of a conceptual framework with a sound instructional methodology to help organizations (of different types) to examine quality, particularly to identify which aspects of quality matter, how much is needed, and how to establish customers' needs satisfactorily, including detailed techniques. They offer very little guidance of any immediate and direct value, which is relevant to organizations. It is difficult to relate the general quality concepts and ideas to the specific circumstances of the organization - such as, its markets, management practices or workforce. All the various approaches to quality of the writers are appropriate, but only depending on the circumstances. It is important that organizations do not apply the methods suggested rigidly and in a formulaic fashion. They need to examine all the methods and match them to the specific requirements of their organizations.

Since quality is not a quick-fix solution, it cannot be taken simply at face value, and implemented wholesale as an off the shelf, quick-fix solution to the company's problems. Yet this was the problem apparent during the 1980s - what Crosby for example called the 'I've got a hammer, where are the nails?' or the 'silver bullet' approach to quality.

The question of definitions is central to the subject of quality costs. Without clear definitions there will be considerable confusion and misunderstanding of what is

considered to be a quality cost and what is normal business practice. Many writers on the subject of quality costing state or imply their definitions of quality costs. In other cases it is evident that the writer's view of what constitutes a quality cost is at odds with commonly accepted views. However, despite obvious differences in interpretation, definitions of what constitutes quality costs are not fully discussed, and accountants are similarly not very forthcoming with definitions of costs which make clear how, for example, overheads should be dealt with or how scrap should be costed.

A most striking feature of quality costing is the preoccupation with the prevention, appraisal and failure categorisation, even though arrangement into these categories tends to be a post-collection exercise carried out to accord with convention. Categorisation of costs in this way seems to be of greater interest to quality managers than to anyone else. There is a need for organizations to consider other forms of categorisation which may better suit their business practices.

## CHAPTER FIVE

### Theoretical Framework

#### 5.0 Introduction

Can TQM concepts work in SMIs? The answer is yes. SMIs are no different from any other business organizations. In this chapter, the application of industry-developed principles of TQM to the SMI setting is discussed. In some aspects, SMIs are already in an advantageous situation for the application of TQM while in some others as portrayed in the TQM survey 1996, most SMIs in Malaysia have a very long way to go (see **Chapter Seven**), especially in understanding the basic requirements of quality and its applications. Some positive factors include culture, management, policy decentralisation, empowerment, quality leadership, quality policy, the Japanese quality experience and experiences of Malaysian SMIs. However, bureaucracy and self-sufficiency are negative factors which currently surround most of the SMIs. Looking at the application forms for the **Prime Minister's Quality Award**, the researcher felt that it would be possible to come up with Quality Models for SMIs, making use of each of the criteria and sub-criteria of the requirements of the Prime Minister's Quality Award's application forms which fit the '*quality requirements*' of Malaysian SMIs. As a result, the TQM for SMIs Models have been drawn-up. Numerous examples for each element of the Self-Evaluation Models are presented, demonstrating the possibilities for application of TQM principles to Malaysian SMIs.

## 5.1 Do We Need to Change?

Clearly, the process of change is not an easy one to manage. It is not only the commitment and the technical change (new methods and techniques for quality improvement) that need to materialise; more importantly, there is also the social change.

One should be concerned with the social effect that any deviance from the norm usually has. Abandoning old habits and attitudes in favour of new ones can be a daunting task requiring, among other things, a large amount of faith, and commitment. It is, indeed, difficult to change a corporate culture, which, by nature, usually evolves over a very long period of time. The basic values, the assumptions, the goals and beliefs which guide the way an industry operates, and which probably still reflect the values of the industry's founders, are what determine the face the industry presents to the outside world. *Old attitudes die hard* and can be an obstacle to change. The greatest resistance usually comes from those who see the change as a threat to their status in the industry. There are also those whose actions are always governed by a fear of failure, or even those who worry about the extra responsibility any new knowledge might bring.

A manager who tries to change others will also have to be a *behavioural scientist*, an expert in human motivation, and proficient in the concepts of the existing culture, such as prevailing attitudes, beliefs, habits and practices. It is important, of course, that one should be careful *not to create a culture vacuum* by demolishing the old culture. For somebody genuinely to accept change, a viable alternative should be offered. The TQM culture provides such an alternative.

TQM provides an environment where fear is eliminated, where all the employees take pride in their work, where they feel respected and accepted, where they feel part of the same team, and where they strive not only for their own interests, but also for the interests of the whole organization. For this reason, the researcher felt that it is timely to organise a survey in the Klang valley (Selangor and Federal Territory) to see and recognise the real problems faced by SMIs in their *quest for change* to implement TQM, and other quality initiatives in their organizations.

### **5.1.1 The Salient Characteristic of the Quality Writers' Approaches**

It was shown in **Chapter Four**, that in their quest for change, the SMIs need to compare the approaches of the writers, in order to determine the selection of methods, for the formation of a suitable model and understanding of quality approaches. A matrix of key features of the writers' approaches was developed. Initially, six key factors were selected. These factors were: (a) general approach; (b) external interface; (c) organizational context; (d) organizational requirement; (e) means and techniques; and (f) pace and nature of change. Each key factor was then divided into a number of important determinants. They were as follows:

- General: (a) definition; (b) main emphasis; (c) dominant factor; (d) scope of application; and (e) sector applicability.
- External interface: (a) customer focus; (b) market focus; (c) vendor/buyer relationship.

- Organizational context: (a) primary change agent; (b) top management role; (c) employee involvement; (d) education and training; and (e) investment in non-human resources.
- Means and techniques: (a) costs of quality; (b) training programmes; (c) means of participation and feedback; (d) statistical methods; (e) recognition and reward system; and (f) inspection procedures.
- Change: (a) pace; and (b) nature.

The proposed framework has two major advantages: first, it facilitates a systematic comparison between various approaches; second, it provides a means for identifying the key attributes of each approach. These two major advantages are as shown in Table 5.1(a) and Table 5.1(b) below:

**Table 5.1(a): Salient Characteristics of the Quality Writers' Approaches**

	Deming's	Juran's	Crosby's	Feigenbaum's
General	Customer-led Process Control of variation Holistic Manufacturing emphasis Surprise, delight customers, anticipate customer needs Quality needed to stay in business Considered integral, quality requirement of vendors Top management To promote quality, to work on the system Participative Quality as an organizational culture Integrated-need to break down barriers Essential starting point Essential Essential-a vigorous programme Essential-to reduce total costs	Customer-led People Fitness for purpose Comprehensive programme for product life span Manufacturing and services Integral to quality definition Not specific Multiple suppliers-not stressed Management Educative, supportive, avoiding exhortation Participative, enabling Integrated Essential Essential Essential As part of improvement programmes	Supply-led Conformance to requirement/performance Zero defect Implicitly functional Manufacturing emphasis Imp list in customer requirements Not addressed Not specified Top management To understand cost of quality, to promote zero defect Instructional, promotional Quality as an organizational culture Essential Essential Essential Not specified	Customer-led Process Principle of total qy control m'logy Holistic and integrative M'facturing/service emphasis Customer ultimately defines quality Quality as competitive advantage Close.r'ship for quality assurance Top management To promote TQC. as designer of quality programme Participative Spirit of <i>quality mindedness</i> Essential Essential to promote company- <i>quality mindedness</i> An integral component of total quality control Integral to business strategy Customized to fit circumstances, quality problem centered Essential e.g. via QCC and quality of working life programmes As appropriate, useful, but only part of TQC pattern Recognition via participation of employees for commitment to qy. Recog. of employees comm. to qy. Imp. by total quality programmes Gradual Step by step, start with selected area
External	Applicability-sector Customer focus Market focus (environment) Vendor/buyer relationship			
Organizational context	Primary change agent Top management role Management style Organization culture			
Organizational requirements	Top management commitment Employee involvement/participation Education and training Investment in non-human resources			
Means/techniques, etc.	Costs of quality (appreciated) Training programmes Participation/feedback (e.g. communication, quality circle) Statistical methods Recognition/rewards systems Inspection procedures	Objective is to obtain optimal quality Teamwork approach on breakthrough projects; annual programmes Emphasis on participation and teamwork Some reference to, not integral to approach Emphasis on recognition Eliminate inspection departments	Important, to motivate management Training and motivational programme, including zero-defects days Teamwork on zero defects; consultation on problems Not specific, but measuring results is stressed Recognize and reward those who achieve quality (zero-defect) goals Not stressed	
Change	Pace of change Nature of change	Gradual Step by step, e.g. breakthrough projects	Gradual Sequential (through steps may vary)	

Source: Simplified from Abby G. & S. Speller, Gurus of quality: framework for comparison, *Total Quality Management*, 1994. Vol. 5, no. 3, pp. 53-69.



**Table 5.1(b): Salient Characteristics of the Quality Writers' Approaches**

	Definition of quality Main emphasis	Groocock's	Taguchi's	Ishikawa's	Shingo's
General	Value-led Process Chain of conformance All processes Manufacturing Focus on customers needs Qty to achieve superiority/competitiveness Multiple vendors- need to be quality assurance	Supply-led value to society Reducing variation of product process around target values Control qty to minimize total costs to society Off-line in design and on-line production Manufacturing emphasis Implicit in customer requirements and society as a whole Reduce society's loss	Value-led Individual quality (perceived consumer value Holistic Manufacturing and services emphasis, Integral to quality definition and management Quality-an important source of competitive advantage	Customer-led Process Principal of <i>poka yoke</i> or <i>defect=0</i> Holistic (rigorously and thoroughly) Manufacturing Customer ultimately defines quality Quality as competitive advantage Not specified	
External	Primary change agent Top management role Management style Organization culture Top management commitment Employee involvement/ participation Education and training Investment in non-human resources	Management Creating a continuous improvement ethics Participative Continuous improvement Essential Essential Essential Essential	Top management To promote quality on a company-wide basis and across all functions Participative-open communications Continuous improvement-learning organization Essential Essential Essential for all employees As a part of overall quality drive	Top management To promote SQC, as designer of quality programme Participative Quality as integrated process Essential Essential Essential-to promote company-quality processes An integral component of quality control circles	
Organizational context	Costs of quality (appreciated) Training programmes Participation/feedback (e.g. communication, quality circle) Statistical methods Recognition/rewards systems Inspection procedures	Imp't to define and minimize explicitly identified Enhance knowledge and understanding of employee. Train in statistical methods Quality circles, teamwork Taguchi methods of process control The need for recognition recognized Continuous measurement of operatives' responsibility	Improvement in quality reduces other costs Essential. All employees should be competent in SPC and problem solving Advocate of quality circles as a means for participation and problem-solving Statistical process control (SPC) Quality behaviour and performance to be rewarded Inspection part of operatives role, essential in manufacturing	Integral to business strategy Customized to fit circumstances, quality problem centered Essential e.g. via QCC and quality of working life programmes As appropriate, useful, but only part of TQC pattern Recognition of quality commitment by employees	
Means/ techniques, etc.	Pace of change Nature of change	Gradual Cont. imp't in acceptable levels of variation	Gradual Continuous improvement	Gradual Step by step start with selected area	

Source: Simplified from Abby G. & S. Speller, Gurus of quality: framework for comparison, *Total Quality Management*, 1994. Vol. 5, no. 3, pp. 53-69.

### **5.1.2 Shortcomings and Limitations of the Quality Writers Approaches**

As also mentioned in **Chapter Four**, the approaches propagated by the writers have shortcomings. Garvin (1987), Chase and Aquilano (1989) and others have commented on various gaps in these approaches to quality. These include the lack of a *conceptual framework* and of a *sound instructional methodology* to help organizations of different types examine quality, in particular to identify which aspects of quality matter, how much is needed, and how to establish customers' needs satisfactorily. While Deming, Juran, Crosby and others have been strong on what is broadly needed, including detailed techniques, they offer little guidance of immediate and direct value or relevance to organizations. It is difficult to connect the general quality concepts and ideas to the specific circumstances of an organization - to its markets, management practices and workforce. All the various approaches to quality of the quality writers or others, are appropriate, depending on the circumstances. It is important that organizations do not apply the methods suggested by the writers rigidly and in a formulaic fashion. They need to examine the methods and match them to the specific requirements of their organization.

## **5.2 Quality Initiatives for SMIs - The Malaysian Way**

The industrial revolution took place in the nineteenth century. Perhaps the computer revolution happened in the early 1980s. Now, without doubt, in Malaysia we are in the midst of the quality revolution - a period of change affecting every type of business,

enterprise, organization and person, including SMIs. In general, companies compete on three issues: *quality, price and delivery*. Moreover, as quality improves, *costs fall* through reductions in failure and detection costs. The absence of quality problems also removes the need of *hidden operations* devoted to dealing with failure and waste, and delivery performance benefits from increase of output and higher productivity. Details of Quality Costing methods and applications are also shown in **Chapter Four**.

TQM is a way of improving the effectiveness, flexibility and competitiveness of business as a whole. It is also a method of removing waste, by involving everyone in improving the way things are done. The techniques of TQM can be applied throughout a SMI so that people from different sections or departments, with different priorities and abilities, communicate with each other. In short, as defined by BS 7850, 'TQM is a management philosophy and set of company practices that aim to harness the human and material resources of an organization in the most effective way to achieve the objectives of the organization'.

Because TQM is universal and proven in many successful firms, it should be used to formulate the mission statement for products and services provided by SMI. Such a mission statement could be: to provide goods and services to satisfy customer needs and to achieve excellence through TQM.

The Government of Malaysia has decided to develop a comprehensive programme to enhance and promote standardisation of quality management among small industries, and has requested technical assistance from the Japanese government for study in February

1990. In response to this request the Japan International Cooperation Agency (JICA) dispatched a preliminary study mission in January 1991, reached agreement on implementation of the study and signed a scope of work agreement with the Economic Planning Unit of the Prime Minister's Department for implementation of the study.

### **5.2.1 The Objective of the Study**

The objective of the study was to prepare a comprehensive quality plan for small industries. Among other things the plan concentrated on:

- developing more effective programmes for industrial standardisation , certification and quality control;
- promoting activities of industrial standardisation, certification and quality control;
- upgrading capabilities for testing and inspection.

This was done with the aim of improving the quality of Malaysian industrial products, thereby contributing to SMI industrial development and export promotion.

### **5.2.2 The Findings on the Approaches to Quality Management**

#### *Present situation*

The survey identified the following main categories of companies in terms of approaches to quality management:

- Japanese affiliates, joint ventures with Japanese companies or those companies supplying the above with their products, which apply Japanese systems of quality management.
- Multinational companies from Europe or the United States which apply total quality control (TQC) in accordance with their own standard manuals.
- Those companies aiming to realise quality systems in line with ISO 9000 series to meet the demands of export markets.
- Those companies recognising the importance of quality management and trying to realise this on an in-house level but whose efforts are not more than in-line inspections.
- Those companies recognising the importance of quality management but unable to realise objective results because of inefficient facilities.

Since there are no common quality standards applied by the companies, there is an urgent need for common quality standards which can be used by all companies in the country, especially SMIs.

#### *Awareness of the importance and role of quality management*

Many SMIs are aware of the necessity of quality management. This is particularly so among sub-contracting firms whose main markets are in exports or firms which produce parts and materials to be supplied to the manufacturers of products for export. However, it is still extremely rare among local SMIs to find firms which actually apply TQM, including quality circle activities and other necessary practices as an important element for upgrading in-house technical levels. The majority of local SMIs regard quality

management as a response to buyers' requirements, and so they rarely undertake anything beyond the scope of product inspection.

#### *Education and training for quality management*

Only a limited number of SMIs make active use of the service of promotion bodies like NPC, and SIRIM. Another problem is the fact that there are very few textbooks or reference works on quality management written in local languages, so the local staff in charge must translate for trainees. This slows down and obstructs the promotion of quality management. There are also cases of inability to comprehend the directions given by quality management staff, owing to educational limitations.

#### *Approaches to ISO 9000 series quality systems*

Many firms have an interest in complying with demands from export markets for the application of quality management systems based on the ISO 9000 series. To meet this requirement, industrial associations are examining the possibility of instituting technical assistance to be provided to member firms which intend to seek certification of quality systems based on the ISO 9000 series. This assistance would include the holding of seminars organised with the help of SIRIM or the employment of qualified quality consultants by the associations. However, in general, because of the large amount of paperwork required by ISO 9000 series, it is difficult for the SMIs to tackle such tasks.

### Quality improvement practice by SIRIM

Malaysia has introduced and undertaken the Umbrella Project with the aim of upgrading technical levels and product quality among SMIs through SIRIM, PROTON, BESTA, Guthrie Manufacturing, HICOM and SAPURA since 1990. This project seeks to promote the gradual introduction of quality systems based on ISO 9000 series among SMIs with the technical assistance of foreign affiliates and other advanced manufacturing companies. It is intended to encourage the undertaking of quality management by SMIs by means of promoting the application of quality management systems under the quality improvement practice (QIP) scheme and tapping those companies accredited under the QIP as suppliers to the mainstay manufacturing companies, cooperating in the Umbrella Project.

### Malaysian Standards

Generally, the standards are classified into three categories as follows:

- Product standards: which specify shapes, dimensions, qualities and functions of products.
- Method Standards: which specify methods of tests, analysis and inspection (the procedure for establishment as well as codes of practice).
- Basic Standards: which specify such basic elements as glossaries of terms, marks, units and progressions.

The Malaysian standards are used as a basis for product certification, since they cover all industries, including products related to electrical safety, automobiles and fire fighting,

which are subject to mandatory certification, as well as such principal export products as rubber and palm oil.

### **5.3 Education and Training in Quality Management for SMIs**

As mentioned earlier, only a limited number of SMIs make active use of the service of promotion bodies like the NPC and SIRIM. Another problem is the fact that there are very few textbooks or reference works on quality management written in local languages, To help local staff in charge to teach quality management concepts and practices freely without having to translate the subject for trainees. An inability to comprehend the directions given by quality management staff owing to educational limitation also occurs (Ho S. K., 1994). There are also no concrete TQM Models specifically drawn for the SMIs to date.

However, the 'Umbrella Projects' have been implemented with the aim of upgrading technical levels and product quality among SMIs through SIRIM, working hand in hand with EON, PROTON, Besta and Guthrie Manufacturing, since 1990. These projects are able to promote the *gradual introduction* of quality systems based on ISO 9000 series among SMIs with the technical assistance of foreign affiliates and other advanced manufacturing companies. As it was mentioned earlier, these organizations intended to encourage the undertaking of quality management by SMIs by means of promoting the application of quality management systems under the quality improvement practice (QIP) scheme and tapping those companies accredited under the QIP as suppliers to the



mainstay manufacturing companies cooperating in the Umbrella Project. The first NGO Umbrella Project (offered by the private sector) was the Sanyo Umbrella Project started in 1995.

#### **5.4 Steps Towards Applying TQM Strategies for SMIs**

It has been established that TQM is the theme for excellence that allows companies to survive and grow. At this point, the researcher attempts to explore the key components of TQM and investigate the best practices for achieving success in each of the key components. Although most of the quality methods have been discussed in the early chapter, it is necessary to mention them again in this chapter, in order to provide some insight and the understanding of these excellence components of quality practices in Malaysia. Some of these components of excellence are as below:

##### **The five Ss (5S's)**

The five Ss (5S's) are *seiri* (organization), *seiton* (neatness), *seiso* (cleanliness), *seiketsu* (standardisation) and *shitsuke* (discipline). The 5S's have been around for a long time, so there is nothing new about them, but many people have not been aware of them until now.

The 5S's are needed at work because there are many things that people do without thinking. The 5S's can help them in *housekeeping*. (A classic Japanese management term

used to describe the act of managing the daily operation of a factory or a business). They are like a mirror reflecting our attitudes and behavioural patterns. Even so, we all too often avert our eyes and prefer not to look at what we see in the mirror. Before management and supervisors tell other people that they have to implement the 5S's, they need to take a good look at things to see if they really understand the purpose themselves. The 5S's are essential activities in Total Productive Management (TPM) and they also promote visible management.

### **Total productive management**

In 1971, the Japanese Institute of Plant Maintenance (JIPM) defined TPM as a system of maintenance covering the entire lifetime of the equipment in every division, including planning, manufacturing, maintenance and all other divisions, involving everyone from top management to shopfloor worker, and promoting productive maintenance through morale-building management and small-group activities in an effort to maximise equipment efficiency (Senju, 1992). Because of its targeted achievement, TPM is sometimes known as total productivity maintenance.

The JIPM runs an annual plant maintenance excellence award, and provides a checklist for companies applying for the award. There are ten main items:

- (1) policy and objectives;
- (2) organization and operation;
- (3) small-group activities and autonomous maintenance;
- (4) training;

- (5) equipment and management;
- (6) planning and management;
- (7) equipment investment plans and maintenance prevention
- (8) production volumes, scheduling, quality and costs;
- (9) safety, sanitation and environmental conservation;
- (10) results and assessments

### **Visible Management Systems**

Visible Management Systems place considerable emphasis on ensuring that the organization's operating data are visible on the factory shopfloor. Organizations believe that everyone in the company benefits from an open information system. A complete range of information, in a variety of formats, is displayed, usually in simple, locally developed formats. The data assist managers, technical specialists, engineers and operators to manage their processes more effectively, facilitate the process of continuous incremental improvement, and identify and publicise improvements. It is a common communication mechanism to keep employees in touch with what is happening, provide a focus to help concentrate efforts, indicate to people when events are not going to plan and provide warning signals of all kinds of different events. Display devices are often created by operators and first-line supervision. In some cases, the display is related to a specific manufacturing section (e.g. who is responsible for specific activities, TPM achievements, Quality Circle (QC) members and projects and a skill matrix, including the photograph of operators), and in others it is related to a particular topic (e.g. policy deployment, mistake proofing, QC's education and safety).

### *Quality control in production and purchasing*

Production stages are all the preparations that precede actual mass production, production itself and the storage and shipment of finished products. Quality control in the production stages is as much the common concern of all divisions as it is the individual responsibility of the technology, production technology, purchasing, manufacturing, inspection, distribution, customer service and other divisions. The discussion here focuses on the process analysis, process design, process control, quality assurance, process improvement and quality control in purchasing, all of which are essential to maintaining and improving quality (Mizuno, 1988).

### *Quality control circles*

A QCC is a small group which voluntarily performs quality control activities within a single workshop (Ishikawa, 1986). This small group is a continuing organization, within company-wide quality control activities, for mutual self-development and process control and improvement within the workshop, using quality control techniques with the full participation of all the members. The basic concepts behind QCC activities within the company-wide quality control effort are:

- to contribute to the improvement and development of the enterprise;
- to respect humanity and to build worthwhile lives and cheerful workshops;
- to give the fullest rein to human capabilities and to draw out each individual's potential.

It has been the Japanese experience that 95 percent of the problems in the workshop can be solved using simple quality control methods, such as the seven tools of quality control:

- (1) Pareto diagram;
- (2) cause-and-effect diagrams;
- (3) stratification;
- (4) check sheets;
- (5) histograms;
- (6) scatter diagrams;
- (7) graphs and charts.

#### **5.4.1 Quality Improvement Practice (QIP)**

Many firms in Malaysia have an interest in complying with demands from export markets for the application of quality management systems based on the ISO 9000 series. So much so, indeed, that SIRIM has introduced Quality Improvement Practice (QIP). **Table 5.2** compares the QIP requirements with the ISO 9000 series requirements. It can be seen that the QIP is basically a modification of the ISO 9000 series standards.

**Table 5.2: QIP Requirements  
Compared with ISO 9000 Series Requirements**

	Requirements	ISO 9000 Series			QIP
		9001	9002	9003	
1	Management Responsibility	•	•	o	•
2	Quality System	•	•	o	•
3	Contract Review	•	•	•	•
4	Design Control	•	N/A	N/A	N/A
5	Document and Data Control	•	•	•	•
6	Purchasing	•	•	N/A	•
7	Control of Customer-Supplied Product	•	•	•	N/A
8	Product Identification and Traceability	•	•	o	•
9	Process Control	•	•	N/A	•
10	Inspection and Testing	•	•	•	•
11	Control of Inspection, Measuring and Test Equipment	•	•	•	•
12	Inspection and Test Status	•	•	•	•
13	Control of Non-conforming Product	•	•	o	•
14	Corrective and Preventive Action	•	•	o	•
15	Handling, Storage, Packaging, Preservation and Delivery	•	•	•	•
16	Control of Quality Record	•	•	o	•
17	Internal Quality Audits	•	•	o	•
18	Training	•	•	o	•
19	Servicing	•	•	N/A	N/A
20	Statistical Techniques	•	•	o	N/A

Source: SIRIM Quality Improvement Practice (QIP), 1995.

**Keys:**

- Comprehensive requirement    o Less comprehensive requirements    N/A Not Applicable

It is noticeable that the requirements of the QIP are not much different from the requirements of the ISO 9000 series, except that the requirements of the QIP puts less emphasis on *design control, control of customer-supplied product, servicing and statistical techniques*. This is understandable because for SMI beginners, these requirements are less important for the time being. They can concentrate on these requirements when they decide to acquire ISO 9000 series certification at a later date. In other words, QIP acts as a stepping stone for the SMIs to get familiar with the system before they are ready to go for the ISO 9000 series certification requirements.

To meet these requirements, industrial associations are examining the possibility of instituting technical assistance to be provided to member firms which intend to seek certification of quality systems based on the ISO 9000 series. This assistance would include the holding of seminars organised with the help of SIRIM or the employment of qualified quality consultants by the associations. However, in general, because of the large amount of paperwork required by the ISO 9000 series, it is difficult for SMIs to tackle such tasks.

The ISO 9000 is an internationally agreed set of Quality System Standards. ISO 9000 series is a series of five related international standards for quality assurance. ISO 9000 provides general guidance on the choice of the appropriate quality system. ISO 9001 is to be used where a company is involved in design, development and production and, when appropriate, also covers installation and servicing activities. ISO 9002 is to be used where there is no design activity, or where the activity of the company may involve design but is limited to simple engineering of standard parts, or the manufacturing requirements are fully specified by others. ISO 9003 is for companies manufacturing relatively simple products where conformance to specification can be verified by final inspection or test, where there is no need for any special quality control during manufacture. There are few companies where this level of standard is considered adequate. ISO 9004 provides general guidance on the interpretation of the requirements contained in ISO 9001, 9002 and 9003. The various quality assurance standards relate not only to manufacturing but also to service industries. Every company, regardless of the industry in which it operates, would require quality programmes, audits, quality programme documents, planning, documentation control of non-conformance, corrective action and training.

Clause 0 of ISO 9000 (guideline for selection and use), states:

*'Most organizations - industrial, commercial or government - produce a product or service intending to satisfy a user's needs or requirements. Such requirements are often incorporated in 'specifications' However, technical specifications may not in themselves guarantee that a customer's requirements will be consistently met. For example, there may be deficiencies in the specifications or in the organizational system to design and produce the product or service. Consequently, this has led to the development of quality system standards and guidelines that complement relevant product requirements given in the technical specification'.*

At this point in the chapter, it is useful to quote the guidelines, with some development by Dale, B. G. (1990), advanced by Long et al. (1991) based on their research into the application and use of ISO 9000 quality system series in small and medium-size enterprises (SME) in the UK environment. Details of this development is at length discussed and shown as **Note 4**, pp. 20-22, at the end of this thesis.

## **5.5 TQM Philosophy**

The philosophy provides managers with an overall concept that fosters continuous improvement in an organization. This philosophy stresses a systematic, integrated, consistent, organization-wide perspective involving everyone and everything. It focuses primarily on total satisfaction for both internal and external customers within a



management environment that seeks continuous improvement of all systems and processes. The TQM philosophy emphasises the use of all people, usually in multi-functional terms, to bring about improvement from within the organization. It stresses optimal life cycle cost and uses measurement within a disciplined methodology to target improvements. The key elements of the philosophy are prevention of defects and an emphasis on quality design.

Important aims include the elimination of losses and reduction of variability. Further, TQM advocates the development of relationships - among employee, supplier and customer. Finally, the philosophy is based on an intense desire to achieve victory.

### **5.5.1 Definition of TQM in the Malaysian Context**

As mentioned in **Chapter Four**, there are many definitions of TQM. The definitions that are to be discussed here are those which were recommended by SIRIM to the Government of Malaysia on the introduction of the SIRIM excellent (SIRIMEX) model for SMIs in 1995. The first is Tobin's (1990) definition of TQM as the total integrated effort to gain competitive advantage by continuous improvement of every facet of organizational culture. Witcher (1990) define TQM as: total (every person in the firm is involved, and where possible its customers and suppliers), quality (customer requirements are met exactly) management (senior executives are fully committed). Feigenbaum (1991) defines TQM as the total quality control's organization-wide impact. (See further details in Chapter Four).

Another definition, from the US Department of Defense (Saylor, 1992), is that TQM is both a philosophy and a set of guiding principles that are the foundation of a continuously improving organization. TQM is the application of quantitative methods and human resources to improve the material services supplied to an organization, all the processes within the organization and the degree in which the needs of customers are met, now and in the future. TQM integrates fundamental management techniques, existing improvement efforts and technical tools in a disciplined approach focused on continuous improvement.

### **5.5.2 Basic TQM Principles**

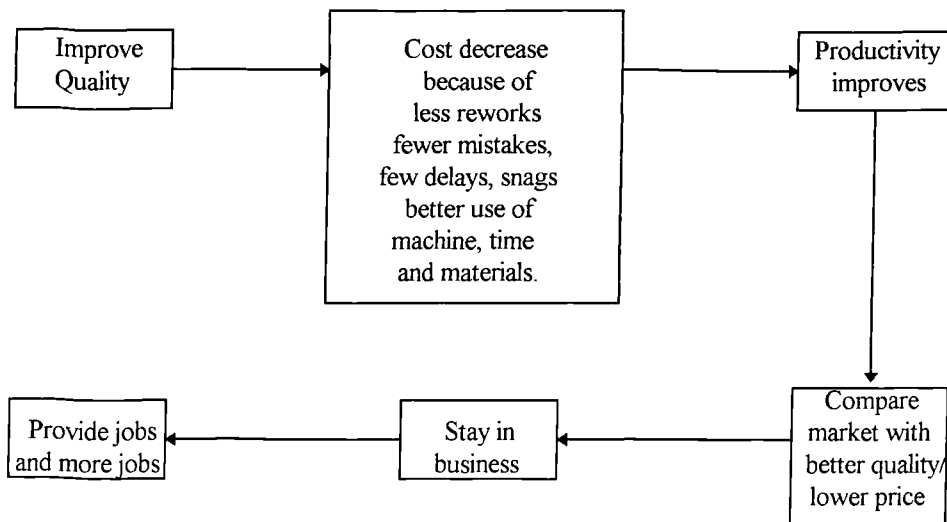
The right TQM principles are the main factors that can guarantee the success of TQM implementation to the SMIs in Malaysia. These principles are used by the researcher as guidelines to test the implementation of quality initiatives and to test hypotheses in later chapters. Broadly speaking, they can be classified into ten categories:

1. leadership;
2. commitment;
3. total customer satisfaction;
4. continuous improvement;
5. total involvement;
6. training and education;
7. ownership;

8. reward and recognition;
9. error prevention; and
10. cooperation and teamwork.

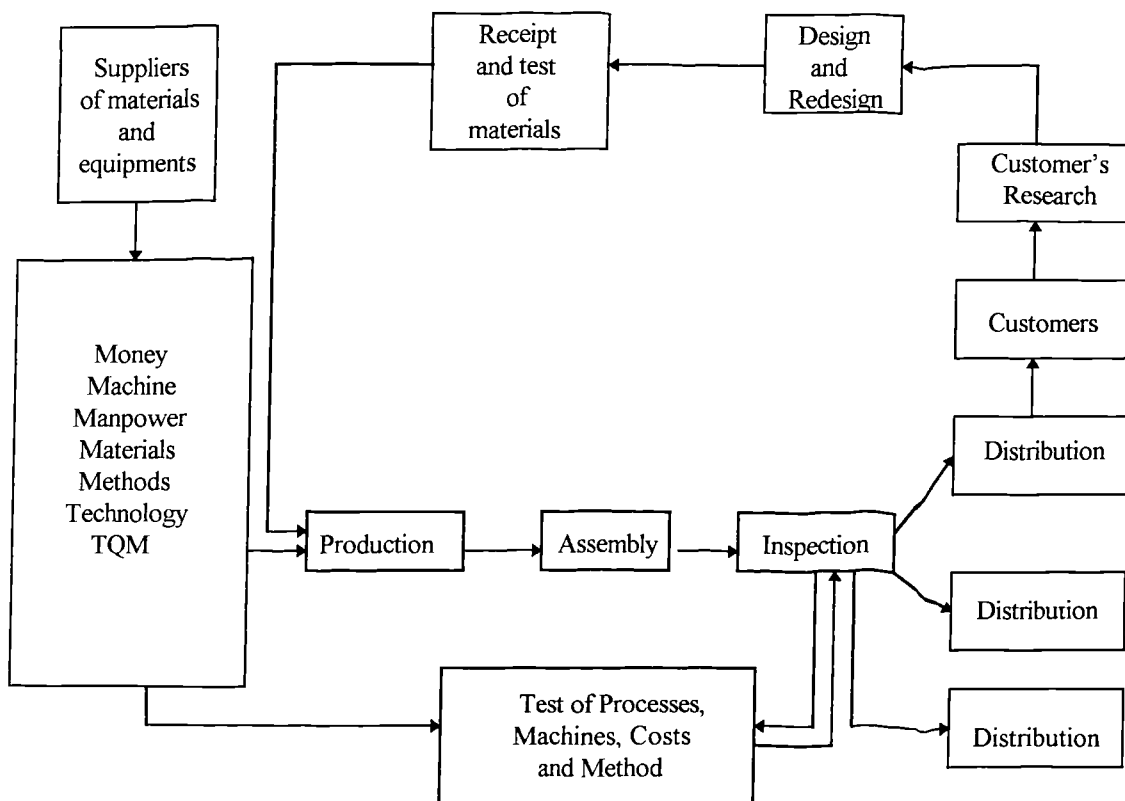
### 5.5.3 Why Introduce TQM to SMIs in Malaysia?

It is ironic to note that Malaysia likes to introduce something that others think not viable. e.g. the QIP quality initiative which is a modification of the ISO 9000 series quality standards. The SIRIMEX is another example of the of the initiative. The reason is, because it is believed that a new approach will not emerge by itself unless we are willing to try. Therefore, the researcher is very keen to introduce other, new models for SMIs which are slightly different from the SIRIMEX introduced in 1995.



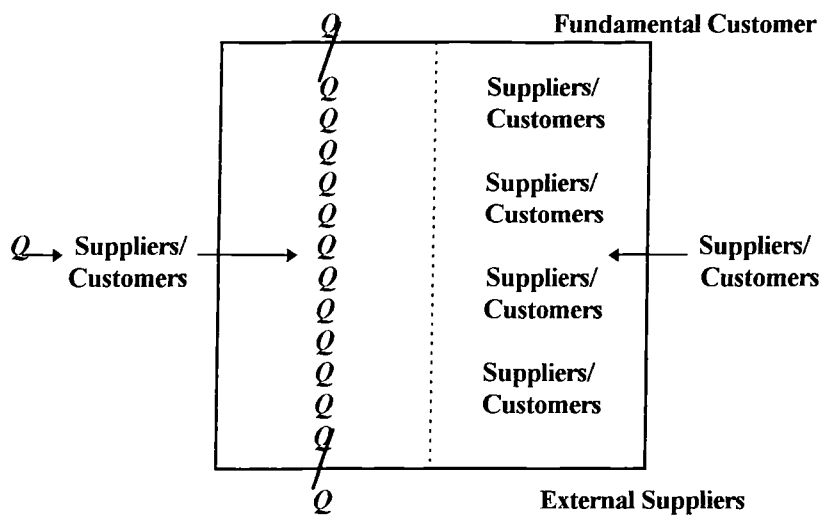
**Figure 5.1: Deming's Chain Reaction**

According to Deming (1986), the chain reaction in **Figure 5.1** resulting from the application of TQM to manufacturing and service organizations is not new to the Japanese. Since the 1950s the management in many Japanese firms has adopted this chain reaction. Management and workers have the same aim, namely quality. This chain reaction offers one benefit after another for quality improvement. It is difficult to accept initially that improving quality can improve productivity. However, the chain reaction speaks for itself and Japan's marvelous economic achievement is the undeniable evidence. So TQM is necessary to activate Deming's chain reaction.



**Figure 5.2: A Typical Production Circle**

The flow diagram in **Figure 5.2** is a typical production circle used by many small enterprises in Japan. The customers are the most important part of a production line. Meeting customers' requirements is the key task to be accomplished. Since TQM aims at customer satisfaction, it ought to be implemented and practiced.



**Figure 5.3: A Quality Chain**

From **Figure 5.3**, it can be seen that suppliers and customers do not exist only outside an organization, but inside it, too. There is a series of supplier-customer relationships. These relationships serve as important interfaces in the quality chain. A failure to meet the requirements in any part of the quality chain will affect other parts (Oakland, 1989). To avoid this, TQM needs to be practiced.

Finally, TQM is necessary because it is already being proved that it works in SMIs in Malaysia. It also works in the firms that have pioneered TQM including American Express, IBM, 3M, Toyota, Ricoh, Canon, Hewlett-Packard and Nissan (Smith, 1988).

#### **5.5.4 BS 7850: 1992 TQM**

The publication of *BS 7850 : 1992 TQM* has provoked some questions. Where does the standard fit relative to ISO 9000? Where does it relate to the writings of Deming, Feigenbaum, Oakland and others? According to the Chief Executive of the BSI, Dr. M. Sanderson (1992), Part 1 of the standard, 'guide to management principles', is a guidance document aimed at senior management. It has long been recognised that without total dedication from the top to the principles of TQM, the chances of effective promulgation of the concepts throughout the organization are slim, and the necessary change to management and work attitudes will be difficult to achieve.

The main principles recognise that customer satisfaction, health and safety, the environment and business objectives are mutually dependent and that all businesses can be broken down into a series of process steps. Above all, TQM involves investment in both time and people. The rewards can be substantial, but the commitment must be total.

Part 2 of BS 7850, 'guide to quality improvement methods', deals with the implementation of a continuous quality improvement process, as applied to every aspect of the organization. It concludes with an informative list of the most common tools and techniques used.

## 5.6 Employee Involvement

Employee involvement in the SMIs, is very important if the success of the implementation of TQM is to be measured. Employee involvement can be seen as consisting of four essential dimensions or pillars: *information, knowledge, rewards and empowerment* (Shapiro, G., Levy, P. and Milter, S., 1993). Employees at all levels need to be given *information* about how the organization is performing so that they can understand their role in contributing to the business. In addition, they need to be provided with the necessary *knowledge* of *how* they can contribute. This implies a high commitment to training to ensure that employees have the skills, tool and techniques to be able to participate in improvement activities. An important component of such training should be interpersonal and group working skills, due to the key role of team-based improvement. This is especially so, when the SMIs employ different sets of employees, such as family-related employees, Bumiputra and Non-Bumiputra and foreigners. Even if employees have the ability to contribute, they are unlikely to do so unless they have the motivation. In part, this implies some kind of *reward*, although not necessarily a financial one. It could, for example, simply be the formal recognition of an employee's efforts.

Information, knowledge and reward will be wasted unless employees are given freedom to take action. Thus, employees need to be *empowered* by giving them both the authority and the motivation to make decisions to improve performance. The redefinition of relationships between managers (of SMIs) and their employees is important in creating an environment in which empowerment can flourish (Ripley, R. and Ripley, M., 1992). The task of management is no longer to control employees, but to encourage and support

them in handling the process under their direct control, and to implement change effectively.

This will involve a greater emphasis on human resource and interpersonal skills, such as communicating, coaching, counseling and facilitating. Through these skills, managers need to build relationships based on openness and trust.

### **5.6.1 Application of Equality Principles**

Even where all the four pillars are present, SMIs still face involvement problems, many of which can be related to equality issues. This supports the argument for a linked approach since it suggests that, not only does equality benefit from mainstreaming with employee involvement, but that involvement can also benefit from the application of equality principles, where family-related employees, Bumiputra Non-Bumiputra and foreign employees are treated equally in the organization.

Developing effective and harmonious working relationships, making employees feel valued members of the organization, and ensuring all employees are given opportunities to develop their potential so that they can contribute towards the improvement of the organization; each have strong equality implications, yet these aspects are often ignored.



## 5.7 Human Psychology and Quality

Quality is essentially a function of human psychology. Ignoring the psychological aspects of human beings in pursuit of quality leaves us with a mechanistic understanding. Financial success may be gained, but personal or corporate meaning and fulfilment will be seriously limited, if not denied altogether.

The dynamic definition of quality, based on the five dimensions of quality, which is outlined in **Table 5.3** below, provides insights as to the psychological dynamics which underline quality. 'Quality is an on-going process of building and sustaining relationships by assessing, anticipating and fulfilling stated and / or implied needs' (Winder, 1994a). This definition is based on moving from lower dimensions of quality (experience and measurement) to the higher dimensions of relationships / systems thinking, interconnectivity / paradigm logic and value sharing. From this perspective, organizations and individuals are invited to 'move from a state of limitation to a state of liberation, from a state of victimization to a state of actualization' (Winder, 1994b).

**Table 5.3: The five dimensions of quality**

Five dimensions of quality	Maslow's hierarchy of needs	Dimension of psychology	Motive	Deming's
Value sharing	Actualisation	Integrative	Internal desire	Aim
Interconnectivity, paradigm	Esteem	Conative (intuitive)	Intrinsic rewards	Plan
Relationships/systems	Social	Affective (emotion)	Extrinsic	Act
Measurement	Safety	Cognitive (mental)	Incentive	Study
Experience	Physiological	Behavioral (physical)	Fear, power greed	Do

**Source:** Simplified from 'The Psychology of Quality' by Daniel K. Judd & Richard E. Winder; in *Total Quality Management*, Vol. 6, No 3, pp. 287-291, 1993.

Looking at these five dimensions of quality and their fulfilment from a theoretical perspective, we find that they are consistent with Maslow's hierarchy of needs; physiological, safety, social, esteem and self-actualisation. **Table 5.3** shows these relationships.

Experience, the first dimension of quality, is a behavioural dimension which relates to physical needs. The second dimension of quality, measurement, can be seen as a function of cognitive psychology as it relates to the acquisition of knowledge through intellectual capacity, which provides the basis for security, which satisfies the safety needs of the individual or group. Relationships, quality's third dimension, is an affective dimension of psychology which relates to the social or emotional needs of people.

The desire for meaning or esteem brings our focus to the interconnectivity and paradigm logic dimension of quality, which relates to the conative or intuitive dimension of psychology. Quality reaches its highest domain through the value sharing dimension, which enables actualisation and is related to integrative psychology, which is an integration of the previous four domains.

### **5.7.1 Customer and Employee Needs as a Common Vision**

A broadening of the psychological focus permits the customer and employee needs to be viewed from a common psychological perspective, permitting the moulding of customer and employee needs into a common vision. The broadened focus is accomplished

through attention to the highest needs, ensuring that lower level needs are also satisfied in the process. For example, a focus on helping employees and customers become partners and participants in the process of meeting their needs moves us from a behavioural to social level. In place of employees merely being compensated for their work and customers simply being given a standard product in exchange for their money, their human needs for meaningful social interaction can be addressed. As employees and customers become partners, their esteem needs are also addressed. As they become full participants, they engage in actualisation through contributing their own core competence to the common good that becomes their common vision (within the value sharing paradigm, vision is defined as ‘the common good among participants’: see Winder, 1994b).

It is this participation level which brings quality’s highest fulfilment. Quality becomes more than simply satisfying a physical, mental or emotional need. In its most meaningful expression, quality involves not only exercising the responsibility to provide customers or employees with what is expected or required, but also being responsive to their full range of needs and assisting in the fulfilment of those needs. This ‘respond-ability’, or ability to respond to the needs of employees and customers, creates an entirely new dimension in quality thinking and takes us beyond the traditional organization’s preoccupation with the ‘control’ of behaviour (Covey, 1990, p. 71). Thus, the employees’/workers’ thinking is geared toward value for money and customers’ delight, that is to ‘give the customers more than they are paying for’.

### 5.7.2 Value for Money and Customer's Delight

Extending beyond physical, mental and emotional needs also provides insight into a powerful dynamic that is an integral part of the quality process. This is the relational dynamic. The relational dynamic helps us to see quality as a *quid pro quo* process in which (SMIs) give something in value in exchange for something of equal value. Quid pro quo, while the standard for many years, as expressed in such phrases as '*meet specifications*' and '*bang for the buck*', is inadequate to explain the '*delight the customer*' dynamic, which goes beyond the equal exchange to '*give the customers more than they are paying for*'.

However, even the '*delight the customer*' dynamic is misunderstood if it is not understood in its relational context. The power of delighting of customers is not that they get more than they paid for or that the organization will eventually receive a greater return; rather, it is building relationships with customers such that they become '*sustaining members*' of the organization. They begin to reciprocate by giving more than is required by making repeat purchases or becoming dedicated, long-term employees.

This reciprocation is also experienced as employees and customers share the vision of the organization with others through word-of-mouth advertising and by sharing '*moments of truth*' which live on in the minds of customers long after the transaction is complete (Winder, 1993). It is only at this level, the value sharing level, that the highest needs of esteem and actualisation reach their fulfilment. It is at this level that both the responsibility and the '*respond-ability*' dynamics are fully operative.

### 5.7.3 Accountability and Dignity

It is the conative dimension that helps us to understand paradigm logic and helps us to go beyond cognitive logic in responding to the needs of today's ever-changing market. For example, in Malaysia, in a pottery factory where workers work in shifts, and it is normal that workers are given time to break every four working hours, it may have appeared illogical to eliminate the buzzer signaling the end of the break period when there was confusion as to whether the buzzer meant that the break was over and the employees should leave the break room, or that the employees should be back at work when the buzzer sounded. Movement from an *'irresponsibility'* paradigm to one based on *'responsibility'*, where the workers held themselves accountable for returning to work, would in the end prove more effective because it would contribute to an overall philosophy. Had SMIs attempted a behavioural approach and penalised or rewarded the employees for their resistance or compliance, behaviour would change temporarily, but, as was stated earlier, attitudes of integrity, unity, creativity and independence would (for the most part) be stifled.

An organization which exists in a *'competition'* paradigm will experience resistance from its customers and suppliers over price, while an organization operating under a value sharing paradigm could very well adjust the price to meet the needs of all concerned. 'One organization reported that upon implementation of quality training based upon a conative perspective, there was a significant increase in job satisfaction, errors were reduced and sales increased. This transformation was apparent from outside the company

as well, as three salespersons from a competitor approached the company about possible employment' (Winder, 1993).

## **5.8 The Prime Minister's Quality Award**

The Prime Minister's Quality Award was first introduced on 9 November, 1990. It is intended to be the highest national award to recognise agencies in private, public and social sectors for quality performance in Malaysia. Winning the award is a prestigious accomplishment, as the Prime Minister's Quality Award is a symbol of the highest achievement of quality, productivity and excellence. Companies which receive the award may publicise and advertise receipt of the award for a period of three years, on condition that the year of the award is mentioned

### **5.8.1 Objectives of the Award**

The Prime Minister's Quality Award is given to:

- promote Quality Awareness among various industrial sectors-public, private and social;
- promote the adoption of Quality values in different sectors of industry.
- publicise successful quality strategies;
- encourage healthy competition among the sectors towards continuous improvement of quality.

### **5.8.2 Who Can Apply?**

Any organization registered under the Company Act in Malaysia is eligible to be considered for the Award. The organization, however, should have significantly contributed to the Malaysian economy activity, earning of foreign exchange, creation of employment, generating linkages or multiplier effects, involvement in community development projects, etc.

### **5.8.3 Selection Criteria**

The following criteria are the main measures for the Award:

1. Understanding and adoption of a quality culture in the organization which can be identified through top management involvement in developing quality excellence.
2. Management of quality and efforts towards improving skills, productivity and use of quality data information.
3. Human Resource Development and Management through the organization's human resource plan, employee involvement towards quality management, training programme, research and development programme, work place and environment, employees' amenities and facilities, etc.
4. Production of quality products or services which can be measured through meeting certain prescribed standards, consumers' acceptance (both domestic and international) and counter services through customers' commendation on feedback.
5. Quality assurance of support services and vendor.
6. Corporate responsibility.

## **5.9 TQM Models for Small and Medium Industries**

In detail, the TQM Models for SMIs consist of two parts, The TQM Model for TSIs and for SSIs. For easy reference, both industries (TSIs and SSIs) are grouped into the TQM Model for SSIs as the first part and the TQM Model for SMIs as the second part.

### **5.9.1 TQM Model for SSIs**

The first part of the model which is meant for use by the SSIs is as shown in **Figure 5.4**. This model basically acts as an introductory model for those SSIs which are just beginning to do business or for those SSIs which have been in operation, but have not previously experienced the application of TQM in the operation of their companies. The main intention of the introduction of the model is to improve productivity.

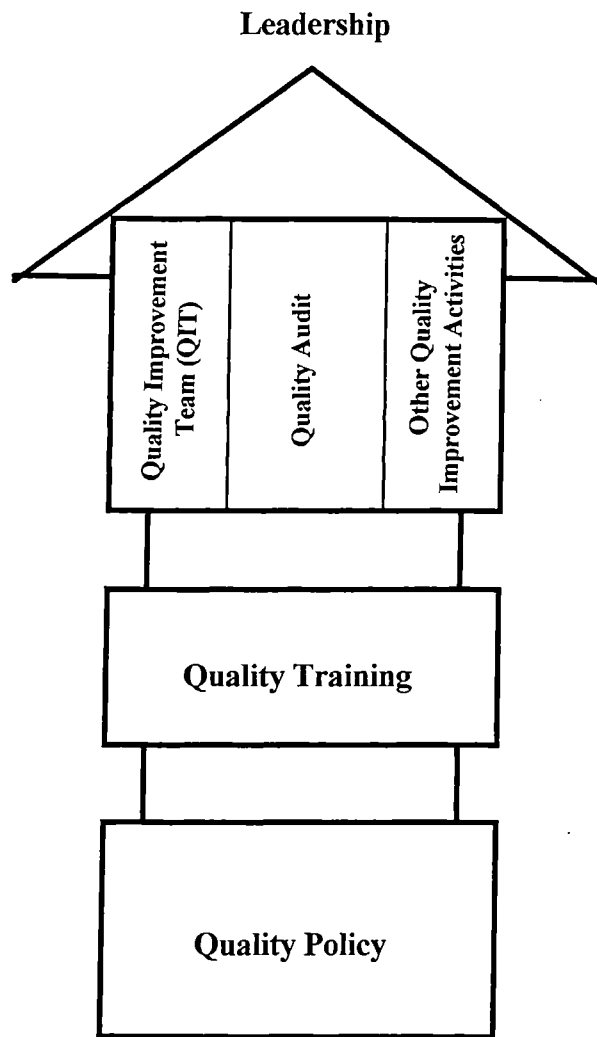
In order to achieve this objective, this group of SMIs need to have a Quality policy incorporated in the company's mission statement. The training programme must be carefully planned and a budget for the training programmes has to be made available, expressed as a percentage of the payroll. For this purpose, an amount of 5 percent of the payroll is usual in most companies in Japan. A list of training programmes must be carefully compiled and followed meticulously. There is no point in having a good training programme on paper, if it is not followed strictly.



The quality improvement team, is a team specifically formed to look after the improvement of quality in the organization. This team is normally called a QCC or QC team. Like most management teams, the quality improvement team offers an operational process of the section in the company. It does not extend to involvement over wider issues of the corporate strategy. As Winder R. E. note: 'it is a form of involvement said to be dictated by customer requirements.....employees are immersed in the logic of the market and are thus more likely to be convinced of the legitimacy of company decisions'. However, for the purpose of team work this QCC or QC team is good enough for the start of a quality initiative in a company. Other quality improvement initiatives include the ISO 9000 series quality standards, in-house Laboratory Accreditation, Certification of Product, Suggestion Scheme, Just-In-Time, Zero Defect and others.

The Quality Audit is conducted in all areas of the organization. This is to make sure that all plans are carried out in strict accordance the applicable law. Any faults must be reported and correction made immediately. **Table 5.4** gives a detailed description of the TQM for SSIs model.

The Model in **Figure 5.4**, and **Table 5.4** would therefore, act as an introductory model. Once the SSIs or SMIs are familiar with the quality initiative concepts and principles, and they have grown bigger, the TQM Model for SMIs as shown in **Figure 5.5**, can take over.



**Figure 5.4: TQM Model for SSIs**

**Table 5.4: Description of The TQM Model for SSIs**

No	Criterion	Specifications	Maximum points
1	Quality Policy	Does organization have quality policy?	100
2	Quality improvement Teams (QIT)	Are the QIT practised in your company? How many such teams were there in the review period? How many different personnel were involved in these teams during the review period How many projects were completed by the teams during the review period? How many of these projects are now implemented as a standard practice in your organization? How much was spent on the teams, activities during the review period? (excluding the training expenses) Please provide list of projects.(including its functional areas)	200
3	Training	Does your organization have a training budget? What is the percentage of your organization training budget as compared to your payroll? Please provide list of training given (type of training, hours, number of staff attended, level of training and where)	200
4	Quality Audit	Does your organization conduct a management quality audit? If yes, specify the areas and frequency of the audit being conducted	100
5	Other quality improvement activities	Please list other quality improvement activities that may have been carried out in your organization during the review period e.g.: conformance to local and international standards ISO 9000 series In-house laboratory accreditation Certificate of product Suggestion scheme Just-in-Time (JIT) Zero Defect Others	100
6	Productivity	Labour Productivity Capital Intensity	100
7	Top Management Leadership and Management of quality	Describe how the Senior Management personnel are personally and visibly involved in developing and maintaining an environment for quality excellence. Area to address: <ul style="list-style-type: none"> <li>Involvement in quality related activities such as goal setting, planning, top management diagnosis, review of quality plans and progress teams, giving and receiving training, recognition of employees, learning about the quality of competitors and meeting with customers and suppliers.</li> </ul> Describe how the company interprets its values into day-to-day management of all units/departments/sections. Areas to address: <ul style="list-style-type: none"> <li>How all levels of management and supervision are involved in quality.</li> <li>How and how often is the status of quality plans reviewed and the type of follow-up action that taken.</li> </ul>	300
<b>Total Points</b>			<b>1100</b>

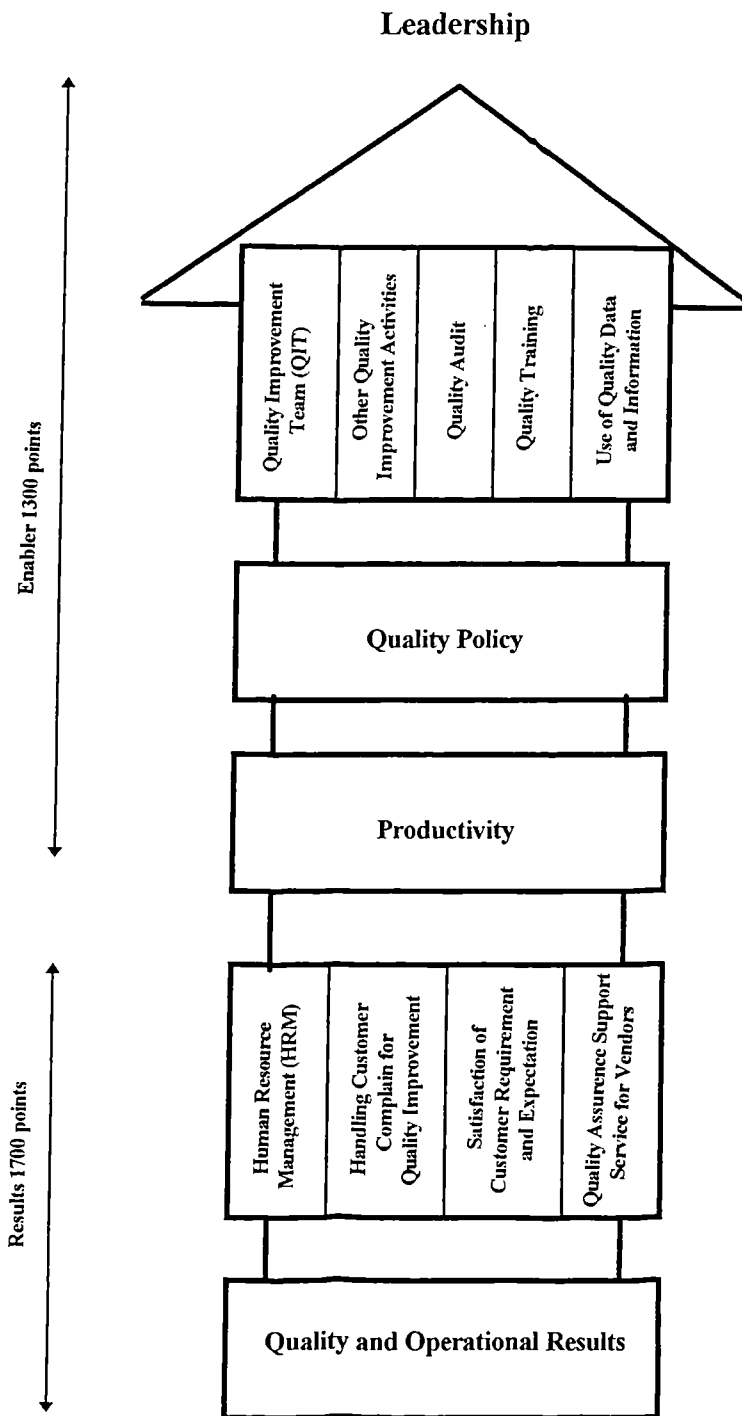
### 5.9.2 TQM Model for SMIs

The second part is, The TQM Model for SMIs. The model consists of 13 main criteria, structured in two groups: the ‘enabler’ and the ‘results’ group as shown in **Figure 5.5**.

The first 7 criteria have been explained in 5.9.1 above, except that they have been fixed in different places in **Figure 5.5**.

Table 5.5 spells out these criteria , their specification and the score available for each criterion. The interrelation between these criteria can be described as follows: *customer and people satisfactions as well as impacts on society can be achieved through consequent leadership, driving policy and strategy, people management and resources through suitable processes, leading ultimately to excellent business results.*

The aim of the Model for self-appraisal is to simplify the self-appraisal process by clarifying the criteria of the Model with examples and aspects that could be addressed in the relevant context, though the need for self-appraisal may arise not just in the context of TQM application, because the process allows an organization to discern its strengths and weaknesses clearly. In this sense, the self-appraisal represents the ‘C’ (check) in Deming’s well-known PDCA cycle and should be part of SMIs’ everyday business. These Models (TQM Model for SSIs and SMIs) can also be used as a guide for interested companies or organizations aiming to win the nation’s prestigious quality award, the Prime Minister’s Quality Award.



**Figure 5.5: TQM Model for SMIs**

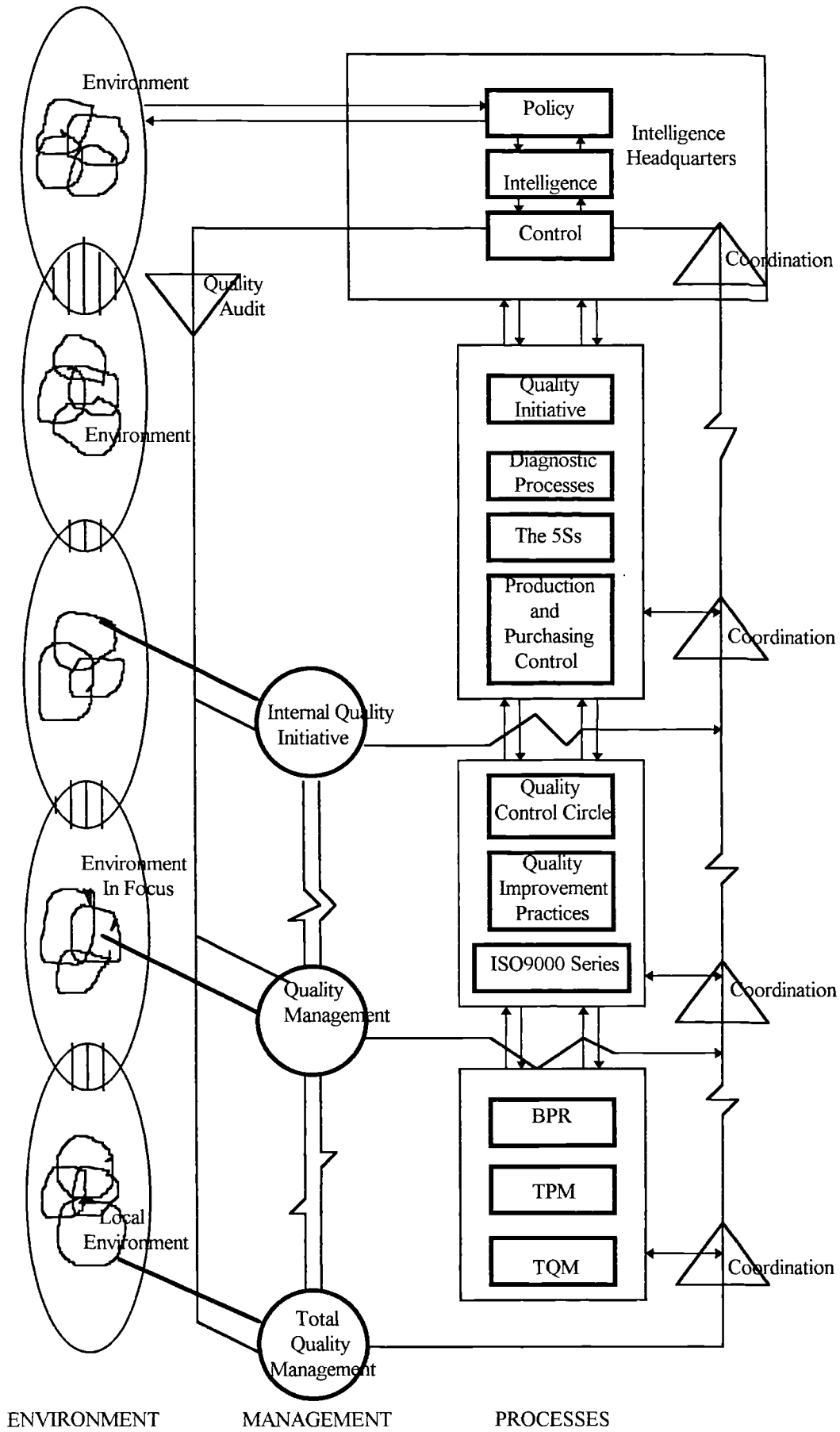
**Table 5.5: Description of TQM Model for SMIs**

No	Criterion	Specifications	Max. Points
1	Quality Policy	Does organization have quality policy?	100
2	Quality improvement Teams (QIT)	<p>Are the QIT practised in your company?</p> <p>How many such teams were there in the review period?</p> <p>How many different personnel were involved in these teams during the review period?</p> <p>How many projects were completed by the teams during the review period?</p> <p>How many of these projects are now implemented as a standard practice in your organization?</p> <p>How much were spent on the teams activities during the review period? (excluding the training expenses)</p> <p>Please provide list of projects.(including its functional areas)</p>	200
3	Training	<p>Does your organization have a training budget?</p> <p>What is the percentage of your organization training budget as compared to your payroll?</p> <p>Please provide list of training given (type of training, hours, number of staff attended, level of training and where)</p>	200
4	Quality Audit	<p>Does your organization conduct a management quality audit?</p> <p>If yes, specify the areas and frequency of the audit being conducted</p>	100
5	Other quality improvement activities	<p>Please list other quality improvement activities that may have been carried out in your organization during the review period e.g.:</p> <p>conformance to local and international standards</p> <p>ISO 9000 series</p> <p>In-house laboratory accreditation</p> <p>Certificate of product</p> <p>Suggestion scheme</p> <p>Just-in-Time (JIT)</p> <p>Zero Defect</p> <p>Others</p>	100
6	Productivity	<p>Labour Productivity</p> <p>Capital Intensity</p>	100
7	Top Management Leadership and Management of quality	<p>Describe how the Senior Management personnel are personally and visibly involved in developing and maintaining an environment for quality excellence.</p> <p>Area to address:</p> <ul style="list-style-type: none"> <li>• Involvement in quality related activities such as goal setting, planning, top management diagnosis, review of quality plans and progress teams, giving and receiving training, recognition of employees, learning about the quality of competitors and meeting with customers and suppliers.</li> </ul> <p>Describe how the company interprets its values into day-to-day management of all units/departments/sections.</p> <p>Areas to address:</p> <ul style="list-style-type: none"> <li>• How all levels of management and supervision are involved in quality.</li> <li>• How and how often is the status of quality plans reviewed and the type of follow-up action that taken.</li> </ul>	300
8	Use of Quality data and Information	<p>Describe the kind of data and information that the company uses for planning, management and evaluation of quality and how data and information reliability, timeliness and availability are assured.</p> <p>Areas to address:</p> <ul style="list-style-type: none"> <li>• Criteria for selecting items to be included in the quality-related data and information base</li> <li>• Example of data: customers, safety, competition and benchmark data.</li> </ul> <p>Analysis of Quality Data and Information. Describe how data and information are analysed to support the company's quality objective.</p> <p>Areas to address:</p> <ul style="list-style-type: none"> <li>• Type of analysis performed, e.g. determination of trends, performance of key areas of control</li> <li>• How the analysis is used in planning policy development activities, training and development of human resources.</li> </ul>	300
9	Human Resource Management	<p>Quality Education and training. Describe the type of quality education and training received by employees</p> <p>Areas to address:</p> <ul style="list-style-type: none"> <li>• Type of training and education e.g. problem solving skills, quality awareness, etc.</li> <li>• Categories of employees who are involved.</li> <li>• What indicators are used by the company to assess these activities.</li> </ul> <p>Employee Involvement. Describe the means available for all employees to contribute effectively to the company's objectives</p> <p>Areas to address:</p> <ul style="list-style-type: none"> <li>• Opportunities and avenues for employees to participate in teams within and across function units.</li> </ul>	400

		<ul style="list-style-type: none"> <li>• Suggestion schemes, QCC, work improvement team, etc.</li> <li>• Giving employees the authority to make decisions when quality standards are threatened.</li> <li>• How the company evaluates the extent and effectiveness of employee involvement.</li> </ul> <p>Employee well-being and morale. Describe the company's provisions with regard to health, safety, morale and spiritual needs of employees.</p> <p>Areas to address:</p> <ul style="list-style-type: none"> <li>• Physical and recreational facilities and activities provided.</li> <li>• Services such as counselling, self-improvement programmes, etc.</li> <li>• What indicators of employees morale are used e.g. absenteeism, turnover, grievance?</li> </ul> <p>How are these indicators used?</p>	
10	Satisfaction of Customer requirements and Expectations	<p>Describe how the company determines current and future customer requirements and expectations.</p> <p>Areas to address:</p> <ul style="list-style-type: none"> <li>• Survey, interviews and other methods of obtaining customer information.</li> <li>• How the company ensures that customer service requirements are understood by all employees and translated into action.</li> <li>• Follow-up activities with customers on products and/or services to determine satisfaction.</li> </ul>	300
11	Handling Customer complaints for Quality Improvement	<p>Describe how the company handles internal and external complaints, receives them and uses such information for quality improvement.</p> <p>Areas to address:</p> <ul style="list-style-type: none"> <li>• Process for ensuring that complaints are resolved promptly and effectively.</li> <li>• Process for ensuring that complaints and comments made to different company units are compiled and analysed for overall evaluation and use wherever appropriate</li> </ul>	300
12	Quality Assurance of support services and Vendors	<p>Describe how the quality of support services (e.g. finance, purchasing, personnel and engineering) within the company are geared towards meeting the quality requirements of the company.</p> <p>Areas to address:</p> <ul style="list-style-type: none"> <li>• How the quality of support services is assessed and continuously improved.</li> <li>• Ways and means to increase and improve the participation of support services in quality services in quality activities.</li> </ul> <p>Describe how the quality of material and services supplied from external sources is assured and improved.</p> <p>Areas to address:</p> <ul style="list-style-type: none"> <li>• Process used to ensure that the company's quality requirements are being met by suppliers.</li> <li>• Efforts to improve the quality and responsiveness of suppliers, e.g. through partnerships, training, incentives, improved suppliers selection.</li> </ul>	300
13	Quality and Operational results	<p>Describe the company's actual and operational results for key products and services.</p> <p>Areas to address:</p> <ul style="list-style-type: none"> <li>• Measures used by the company to evaluate results</li> <li>• Company's quality level as compared with those competitors and/or appropriate benchmarks</li> <li>• Trends indicating improvements in products, services quality levels.</li> <li>• Automation.</li> <li>• Productivity Performance</li> </ul>	300
<b>Total Points</b>			<b>3000</b>

### 5.9.3 The Control Mechanism of the TQM Models for SMIs

The control mechanism of the TQM Models for SMIs is shown in **Figure 5.6**. Basically the control system works like an intelligent mechanism controlled by the Intelligence's headquarters. At this point the researcher would like to adopt and modify the idea consolidated by Beer's Viable System Model (VSM, or brain of the firm). Viability is the



**Figure 5.6: The TQM Model for SMIs Control Mechanism**



result of two unique ideas in management. It results from a '*well crafted*' approach which organises the five main traditional management functions as viable systems in focus. It also results from the employment of a special form of hierarchy called '*recursion*'. Recursion explains that a viable system-in-focus is a systemic part of a less focused viable system and contains, in itself, '*viable systems*'. The framework that harnesses the worth and contribution of these two ideas is the **VSM**. The two features together with VSM will be integrated with the TQM principles.

The five traditional management functions are: *implementation, coordination, control, intelligence and policy*. **Implementation** is what the system is doing. It can either be manufacturing or providing a service. Quality techniques found their first home in implementation, manufacturing and production. Manufacturing, for example, requires inspections and checks on the quality of the products, and the act of minimising waste using statistical techniques and algorithms. Quality Assurance and SPC were initially absent in most of the traditional management. However, more recently, quality ideas have spread to the other four remaining functions of traditional management.

**Coordination** manages to ensure that, in short term, no part of the organization is allowed to fail. It aims to overcome difficulties in implementation through cooperation between the parts for the benefit of the organization. A company's quality image, that emerges from the whole organization, is only as strong as its weakest part. Coordination in the short term can help to counter against any weakness and strengthen the parts of the whole organization. If difficulties cannot be resolved through coordination, then more effective control will be required.

**Control** is about achieving a guarantee of internal organization stability. The aim is to promote the exchange of relevant information that can be used to assess and find out how well things are going. Information is received from coordination when it is not able to manage, and also from audit, intelligence and policy. Control, therefore, has to interpret the policy decisions and carry out their implementation using all available information and resources. Control allocates resources to implementation and a part of the control is the quality control. Audit is integral to this quality control function through its role is, however, quite general. Inspections and checks are made of all sorts of the quality features organization.

When difficulty arises in achieving control, implementation and selection of quality initiative or programme is not going according to plan, e.g. agreed quality standards are not met, information from **intelligence** is sought. Intelligence information details '*opportunities and constraints*' in the external environment. It represents a learning function in the organization. If information is uncovered which is of significant or long term importance, it is then sent to the **corporate policy group**, along with control and coordination information that could not be handled locally. On the basis of this key information, internal and external opportunities are sought and creative strategic decisions about viability and standards of quality are made. Policy is also responsible for setting the organization's identity. When dealing with quality initiatives and programmes, policy has to develop a quality mission in which the organization's identity will be found.

Each of the five functions described above is precisely what it should be, as the organization functions. **Functions** are not jobs to be filled. Each one represents the total

effort of all jobs which deal with that function. Control, for example, will comprise the work activities that deal with finance, personnel, management information, quality and others. Policy will involve people from many work activities, including people with special expertise who may not reside in the organization.

The viable system organization allows for *participation*. Channels for resource bargaining exist between implementation and control. The means for achieving participation in quality management can be extrapolated directly from the quality literature. Quality councils and QCCs are mistakenly advocated by some for TQM. Other methods and techniques can be set up within the process advocated by the viable system organization.

Referring to **Figure 5.6**, the TQM Models for SMIs control mechanism works when the intelligence headquarters identifies all problems sent by the implementation stages and processes them accordingly. The default quality initiative processes are also sent by the audit department. All the problems will then be matched with the quality policy of the organization. At the same time, the intelligence headquarters will compare the problems and the results of the findings with other companies, benchmarking, as well as consulting and looking through the requirements of the environment and the customers. A new set of instructions for corrections will only be made after these consultations. Manpower and resources are then instructed to correct and modify the operations. This is a continuous process until customers' satisfaction is met and exceeded, thereby at the same time meeting one of the important principles of TQM.

## 5.10 Conclusion

The movement from management to leadership, from fear to participation and from focusing on the self to focusing on the other are all elementary parts of the underlying paradigms that inspire the work of the organization.

Understanding the psychological needs of individuals and the function of the quality movement in fulfilling the highest of these needs provides a basis for fulfilling quality in its highest dimension. This fulfilment comes through the responsible use of resources (responsibility), but also through responding to the individual needs of others (responsibility). The responsibility and responsiveness dynamics provide a foundation for empowerment in an organization, and permit the building of an organization in which trust, responsibility and value sharing paradigms inspire the behaviour of the employers, employees and customers of an organization.

Empowerment, which is so essential for leadership and quality development, is a product of the value sharing process. Only the responsible use of resources provides the level of trust necessary to permit letting go of control to encourage empowerment.

Movement from an 'irresponsibility' paradigm to one based on responsibility, would in the end prove more effective because it would contribute to an overall philosophy. If SMIs attempted a behavioural approach and penalised or rewarded workers for their resistance or compliance, behaviour would change temporarily, but, attitudes of integrity, unity, creativity and independence would (for the most part) be stifled.

An organization which exists in a '*competition*' paradigm will experience resistance from its customers and suppliers over price, while an organization operating under a value sharing paradigm could very well adjust the price to meet the needs of all concerned. One organization reported that upon implementation of quality training based upon a conative perspective, there was a significant increase in job satisfaction, errors were reduced and sales increased. This transformation was apparent from outside the company as well, as three salespersons from a competitor approached the company about possible employment.

The question whether TQM concepts can work in the SMIs' setting has been answered. The answer is yes. When looking at self-appraisal in the TQM for SMIs Models, the researcher has shown that each of the criteria and sub-criteria may fit the SMIs very well. Numerous examples for each of the appraisal subjects, have been presented demonstrating ways that TQM can be fulfilled.

## CHAPTER SIX

### Research Methodology

#### 6.0 Introduction

No one research method is superior to another. Both quantitative and qualitative research strategies have their own particular strengths and weakness. It is the appropriateness of the method of investigation that is the main concern in a particular research problem (Trow, 1957). The methodological approach is dictated by the nature of the research questions (Bell, 1987). Morton-Williams (1985), asserts that *'the subject matter and the sort of people to be studied all have bearing on the choice of method'*.

In this research, a range of methods was considered within a critical system approach in exploring the problems of TQM strategies and models for Malaysian SMIs, focusing on a selected area. Qualitative methodology was thought to be an appropriate approach because the study aimed to obtain insights and deeper understanding of the problems faced by SMIs managers of different category business undertakings in implementing quality initiatives in their organizations. The qualitative approach allows the researcher to come in face-to-face contact with the subject, and it was hoped that this would help in giving a *holistic* description and explanation of SMIs' real experiences with the implementation of the strategies.

In addition, quantitative methodology is also employed to give strength to the study. With data that can be used for generalisation purpose, the findings might be more useful as a basis for decision making.

## 6.1 Methodological Issues

The term qualitative research is used as the generic name for a number of investigative methodologies which include ethnography, participant observation, naturalistic and field research. Qualitative research strategies are especially suited for small-scale analysis in which the researcher uses methods that allow him or her to get first hand information about the problem being studied (Finch, 1986, Nixon, 1981, and Kincheloe, 1991). In this approach, the researcher is required to '*enter into the lives*' of the subjects being studied. This requires a long-term study in order to make the researcher's presence as neutral as possible.

In Teosh's (1990) review of Wertz (1987) he argues that Sigmund Freud and Jean Piaget made important assertions about human beings without testing hypotheses or using large and representative enough samples of people for their findings to be statistically significant. Teosh mentions the primary use of observation methods in Freud's and Piaget's studies. Both tried to make sense of what they saw and also find out what it meant.

Phenomenology is one of the philosophical roots of qualitative research. It stresses the subjective aspects of human behaviour which include people's motives and the beliefs

behind their actions. Phenomenologists view a problem from the eyes of the participants: how they interpret their world (Taylor and Bogdon, 1984). To the phenomenologist, reality is what is perceived by the individual. Therefore, it is important for the researcher to understand the participants' viewpoints, because their perceptions may influence their behaviour. This, however, does not mean that the phenomenologists ignore reality, no matter how the particular society perceives it (Blumer, 1980).

Symbolic interaction is another perspective which underlines qualitative research methodology. According to Stainback and Stainback (1988), '*Meaning comes not from the thing itself but rather from the interpretation given to it by person.*' In quoting Bagdan and Bikled's (1982) work, Stainback and Stainback (1988) highlight the importance of understanding the meaning given to an object, people, events and situations in relation to human behaviour in order to understand the behaviour of a person.

Until recently the positivist traditions of social science dominated educational research:

*.....positivists maintain that science should be concerned with the explanation and prediction of observable events. The ability to predict is founded upon the fact that observable phenomena are micro-expressions of universal laws that are appropriate in all contexts.*

*(Kincheloe, 1991, p. 50)*

The more conventional research methods such as survey and experiments have been the preferred method of doing research. These traditions have an epistemological view of



knowledge, taking it as something '*hard, objective and tangible*' (Cohen and Manion, 1980).

The critiques of positivism '*argue that there is a fundamental difference between the study of natural objects and human beings, in that the latter themselves interpret situations and meanings to them*' (Vulliamy, 1990). They also reject '*regularities, the belief that human behaviour is governed by general laws and characterised by underlying regularities*, (Cohen and Manion, 1980). Kincheloe presents a lengthy critique of positivism. According to him (1991), '*When positivist researchers examine the social and educational world using the methods of the physical sciences, they adopt the dehumanising structure.*' He points out the importance of action research in order to improve teaching practice.

The literature on qualitative research methodology suggests that no single attribute is present in all qualitative studies. However, several attributes are found to a greater or lesser degree in the use of a qualitative research strategy. Vulliamy (1990), reviews some of this literature, stating that, '*there are several common features to be found in the use of qualitative research strategy*'. See, for example, (Burgess, 1985; Bryman 1988 and Patton, 1988). These common features include the following:

1. The focus on meanings and the attempt to understand the culture of those being studied predisposes researchers to work as far as possible in natural settings (Denzin, 1971). This suggests, for example, a preference for participant observation rather than

experiments under artificial conditions, and a preference for informal and less standardised interviews rather than for more standardised and formal ones.

2. Rather than testing preconceived hypotheses, such research aims to generate hypotheses and theories from the data that emerge, in an attempt to avoid the imposition of a previous, and possibly inappropriate, frame of reference on the subjects of the research (Glaser and Strauss, 1967; Glaser, 1978). There are two important implications of this. First, it implies a greater degree of flexibility concerning research design and data collection over the duration of a research project; and secondly, it implies that the process of analysis occurs simultaneously with the process of data collection.
3. In focusing on the process of social interaction, qualitative research involves the ongoing collection of data (so that, for example, attitudes will be monitored continuously during a research study, rather than at discrete points, as with ticks on a questionnaire or interview schedule). A consequence of this is that research into effects of an innovation is likely to be more concerned with the processes of implementation than with outcomes.
4. Qualitative research is holistic, in the sense that it attempts to provide a contextual understanding of the complex interrelationships of causes and consequences that affect human behaviour (Goetz and Le Compte, 1984). In doing so, it seeks to avoid either the deliberate manipulation of variables (characteristic of the tradition of educational research) or the study of attitudes or indicators as variables isolated from the wider totality (characteristic of the survey tradition). A further consequence of this holistic emphasis is that qualitative research tends to incorporate a wide variety of specific research techniques, even within one research project.

Vulliamy (1990), however, realises that the difference are not clear cut. He quotes Patton (1988) as saying that such differences are tendencies and not absolutes.

### 6.1.1 Summary of Research Methodologies

Stainback and Stainback (1988), discuss the difference between qualitative and quantitative research from a number of different perspectives. These include the purpose of research, reality, viewpoint, values, focus orientation, data, instrumentation, conditions and results of the study. The differences are summarised below:

**Table: 6.1(a)**  
**Summary of Different Characteristics in Qualitative and Quantitative Research**

<b>Dimensions</b>	<b>Qualitative paradigms</b>	<b>Quantitative paradigms</b>
Purpose	<i>Understanding</i> - Seek to understand people's interpretations and perceptions.	<i>Prediction and control</i> - Seek causes and effects of human behaviour.
Reality	<i>Dynamic</i> - Reality changes with changes in people's perceptions.	<i>Stable</i> - Reality is made up of facts that do not change.
Viewpoint	<i>Insider</i> - Reality is what people perceive it to be.	<i>Outsider</i> - Reality is what quantifiable data indicate it to be.
Values	<i>Value bond</i> - Values will have an impact and should be understood and taken into account when conducting and reporting research.	<i>Value face</i> - Values can be controlled with appropriate methodological procedure.
Focus	<i>Holistic</i> - A total or complete picture is sought.	<i>Particularistic</i> - Selected, predefined variable are studied
Orientation	<i>Discovery</i> - Theories and hypotheses are evolved from data as collected.	<i>Verification</i> - Predetermined hypotheses are investigated.
Data	<i>Subjective</i> - Data are perceptions of the people in the environment.	<i>Verification</i> - Data are independent of people's perceptions.
Instrumentation	<i>Human</i> - The human person is the primary data collection instrument	<i>Non-human</i> - preconstructed tests, observational records, questionnaires, and rating scales are employed.
Conditions	<i>Naturalistic</i> - Investigations are conducted under natural conditions	<i>Controlled</i> - Investigations are conducted under controlled conditions
Results	<i>Valid</i> - The focus is on design and procedures to gain 'real', and 'rich' and 'deep' data.	<i>Reliable</i> - The focus is on design and procedures to gain 'hard' and replaceable data.

(Stainback and Stainback, 1988, p. 8)

Merriam (1988), also makes a summary of the characteristics of the two orientations to research. Different points of comparison are given here:

**Table: 6.1(b)**

**Characteristics of Qualitative and Quantitative Research**

<b>Point of comparison</b>	<b>Qualitative research</b>	<b>Quantitative research</b>
Focus of Research	Quality (nature, essence)	Quantity (how much, how many)
Philosophical roots	Phenomenology, symbolic interaction	Positivism, logical empiricism
Associated phrases	Fieldwork, ethnographic, naturalistic, grounded, subjective	Experimental, empirical, statistical
Goal of investigation	Understanding, description, discovery, hypothesis generating	Prediction, control, description, confirmation, hypothesis testing
Design characteristics	Flexible, evolving, emergent	Predetermined, structured
Setting	Natural, familiar	Unfamiliar, artificial
Sample	Small, non-random, theoretical	Large, random, representative
Data collection	Researcher as primary instrument, interviews, observations	Inanimate instrument (scales, tests, surveys, computers, questionnaires)
Mode of analysis	Inductive (by researcher)	Deductive (by statistical methods)
Finding	Comprehensive, holistic, expansive	Precise, narrow, reductionist

(Merriam 1988, p. 10)

**6.1.2 The Preferred Method**

One of the problems of qualitative research is that it cannot be used for generalization purposes (Finch, 1986). It also does not reflect the society as a whole. This might make it useless to policy makers who usually prefer statistical figures. Data that can be generalised might be more worthwhile to them. On the other hand, one of the problems with quantitative methodology is that it emphasises the product more than the process (Finch). Pollard (1984) states that since both have their advantageous aspects, the use of both methods would help in producing a more authoritative research.

## 6.2 Triangulation

The process of triangulation is important in ensuring the validity of a piece of research work. Cohen and Manion (1980), define triangulation as, *'the use of two or more methods of data collection in the study of some aspects of human behaviour'* According to Croll (1986). *'This is a data confirmation technique in which data are strengthened where the same results are produced by different procedures. However, it can also serve to give greater depth to the data and give the researcher a greater understanding of it'*. The use of both the quantitative and qualitative data might help to explain more fully the situation studied. In his review of Denzin (1970) and Hargreaves (1985), says that the use of triangulation or cross-referencing helps to:

- Check out the contaminating influence of the, *'researchers' practical preference by actively seeking out disconfirming cases in the data that would challenge their initial prejudices and hunches....'*
- Compare different methods *'in order to check consistency of what a particular teacher or pupil (executive and worker) says between settings'*.
- Triangulate *'the interpretations different observers make...'*

## 6.3 Reliability and Validity

Kirk and Miller (1986), define reliability as *'the extent to which a measurement procedure yields the same answer however and whenever it is carried out...'* In other words, if another observer uses the same method on the same group the same result will

be obtained. In the qualitative approach, a replication to check the finding is difficult to achieve because the procedure is quite flexible. The relationship of the researcher with the participants cannot easily be duplicated. What the researcher chooses to record and the way he or she interprets the result might vary from one researcher to other. Hence, reliability of research can be relative in this case.

In most research which involved a large scale survey, a reliability test is normally carried out by the researcher to check the internal consistency of the data. According to Hull and Nie (1981), the goal of the test is, *'to assess how reliable a sum or weighted sum across variables is as an estimate of a case's true sum'*.

To look at the internal consistency of items the Cronbach reliability estimate was used. The coefficient alpha is suitable for items that are not scored as right or wrong. The response simply indicates where one stands on the continuum of the given scale. Kaplan (1987), asserts that, *'All of the measures of internal consistency evaluate the extent of which the different items on a test measure the same ability or trait. They all will give low estimates of reliability if the test is designed to measure several traits.'* If all the variation observed in scores is due to errors of measurement, the reliability coefficient will be zero. If there is no error of measurement, the reliability coefficient will be one.

### **6.3.1 Reliability of the Questionnaire Measurement**

A reliability test on the questionnaire of this study was undertaken using a Statistical Package for Social Science (SPSS) computer package and almost all the *'Alpha* values

for almost all questions was well above 0.70. Indeed, in some cases the alpha values were well above 0.90. According to Bagozzi, for exploratory research, one generally desires values for Cronbach alpha greater than about 0.60, although values greater than 0.70 are preferred. (Two sets of the survey questionnaires are attached as **appendices 1 and 2**)

### 6.3.2 Validity

The validity of a measurement is the extent to which it gives the correct answer (Kirk and Miller, 1986). In order to assess the validity of a research study, careful attention has to be given to the conceptualization and the way in which the data are collected, analysed, and interpreted. In qualitative research the use of methods that *'provide first hand knowledge of the phenomenon under inquiry as it exists in the world.'* (Taylor and Bagdan), strengthens the validity of such work.

In an experiment, the internal validity is concerned with whether the experimental treatment makes a difference to the study or not. If the findings made can be generalised, the study is extremely valid Cohen and Manion, 1980). Cohen and Manion (1980), claim that, *'Without internal validity an experiment cannot possibly be externally valid. An internally valid experiment may or may not have external validity.'*

However, in Vulliamy's (1990), review of Bracht and Glass (1968), he mentions *ecological validity* as a threat to the external validity of experiments. *'This concerns the extent to which behaviour in one context can be generalised to another.'* Since the focus

is on deeper understanding of the problems at the institutions concerned, there are details that might not be applicable to other situations.

Reliability and validity issues can be inter-related to each other. Kirk and Miller (1986), assert that, '*It is easy to obtain perfect reliability with no validity at all.....Perfect validity, on the other hand, would assure perfect reliability, for every observation would yield the complete and exact truth.*' The use of both quantitative and qualitative methods may help towards developing a more reliable and valid generalisation.

## **6.4 Approach Used in the Study**

For the purpose of this study, as well as based on the argument which has been discussed earlier, a non-experimental research design is most appropriate as the project falls in the field of social science. Therefore the researcher chose to use the triangulation method because it helps to explain more fully the situation studied.

### **6.4.1 Data Collection Strategy**

The researcher decided to employ the triangulation method recommended by Nachrmias. The findings from structured questionnaires were supplemented by selected interviews where possible and by selected observation of operations.



A quantitative methodology for questionnaire analysis was employed to give strength to the study.

#### 6.4.2 Questionnaire Design

The development of the survey instrument was carried out in phases:

- **Phase 1:** A thorough review of the literature was undertaken to determine the appropriate concepts to be included in the design of the research framework, which served to guide the desired information and specify the relationships to be investigated.
- **Phase 2:** Initial construction of the two sets of questionnaires under appropriate headings was carried out. The first questionnaire is divided into two sections, section one and section two. Section one covers: (A) Company profile which consists of 13 questions, while section two covers (A): Origin of quality programme, (B) Approach to the quality challenge, (C) Nature of the quality programme and (D) Evaluation. The latter is further sub-divided into two categories: (a) *On quality programme undertaken* and (b) *On SMIs' development strategies*. Section two contains, in all, 36 questions, covering all the quality initiatives currently undertaken by Malaysian SMIs as well as the initiatives undertaken by the agencies supervising the development of SMIs in the country.

The second questionnaire is divided into 8 separate headings which cover the following: (A) Agencies, (B) Organizational, (C) Internal Promotional Activities, (D)

Financial Support Activities, (E) Training Activities, (F) Technical & Infrastructural Support Activities, (G) Supply & Marketing Support Activities and (H) Management Consultancy & Extension Activities.

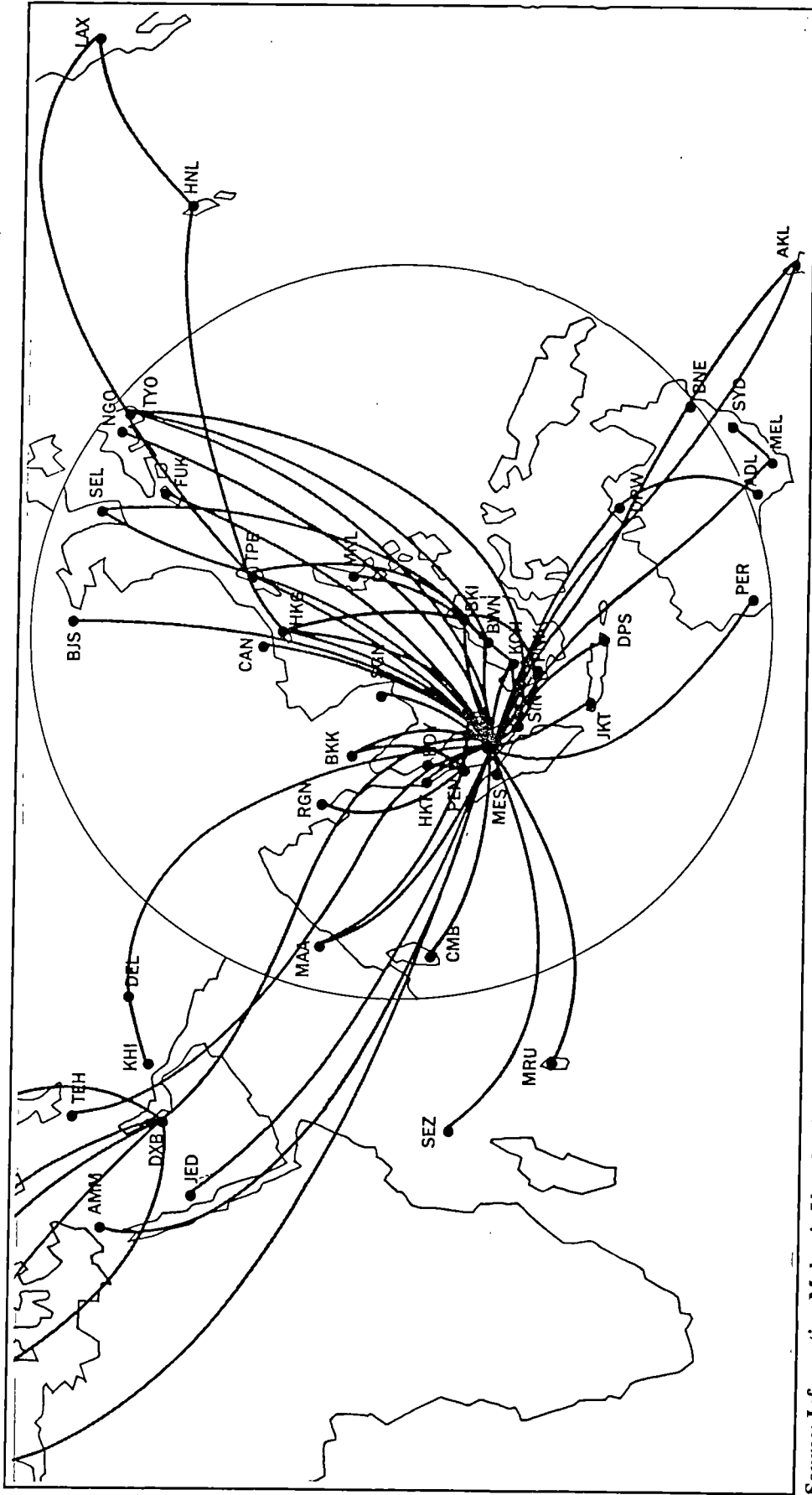
- **Phase 3:** Discussions were held with the research supervisor, to check on clarity of the questions, and the appropriateness of the proposed scale. Discussions were also held with fellow Malaysian students, to test their comprehension of the questionnaire and to be on the lookout for cultural bias.
- **Phase 4:** Pre-test or pilot test of both questionnaires was conducted on 18 managers from Malaysia and further study of the questionnaires was conducted with the help of managers who are currently undergoing the MBA (Finance) programme at the HELP Institute, as well as those managers attending the MBA (Human Resource Development) programme at the Malaysian Institute of Management (MIM). Both institutions are in Kuala Lumpur, Malaysia.
- **Phase 5:** The TQM Models for SMIs were designed, using the Prime Minister's Quality Award 1995 application forms as a guide for the quality design requirements.
- **Phase 6:** The validity of the TQM Models Organization was tested with the data collected in the survey 1996, before they could be recommended for use in Malaysian SMIs.

In the pilot study, several additional points were noted and incorporated in the first questionnaire. Additional questions were also included under the title of evaluation, which was divided into two parts (a) Quality programmes undertaken and (b) Strategies, for SMIs development, aiming to evaluate whether the present initiatives to enhance

quality programmes by those agencies responsible are really effective and hence, to resolve the problems which hindered the post-course activities of SMIs, if any.

## **6.5 Research Area**

The target population of this study was the SMIs in the Klang valley. The Klang valley consists of two states, Selangor and a portion of the Federal Territory, Kuala Lumpur. Other states of Peninsular Malaya, as well as Sabah and Sarawak were excluded because of the time and expense that would be involved in attempting to cover such distances. Moreover, it was felt that Selangor and a portion of Federal Territory, Kuala Lumpur, should provide representative samples of the population as a whole; the population of those regions are of the same ethnic background as those in other parts of Malaysia where most of major industrial developments happened long before the country's independence in 1957. Greater number of Government Agencies and Umbrella Companies which were set-up to look after the well being of SMIs are also situated in this area.



Source: Information Malaysia Year book 1995.

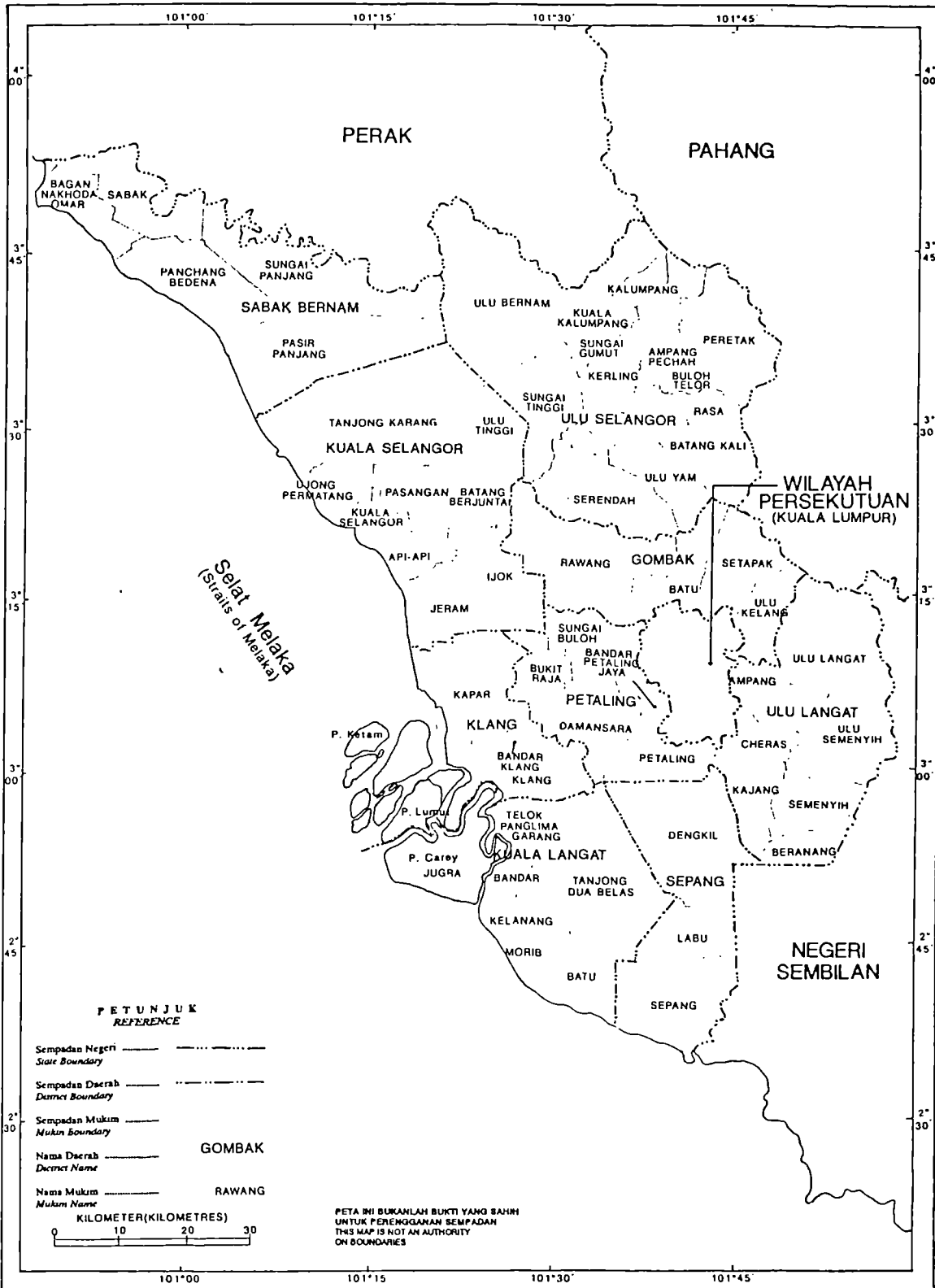
Figure 6.1: The Major Air-Route to Kuala Lumpur, Malaysia

### 6.5.1 Selangor

*Background:* The State is bounded from Perak in the north by the line of the Bernam River, and to the south by the Sungai Sepang from Negeri Sembilan; the line of watershed of the Main Range (Banjaran Titiwangsa) forms the boundary between Selangor and Pahang. The natural harbour formed by the islands screening Pelabuhan Kelang makes this the nation's second largest port.

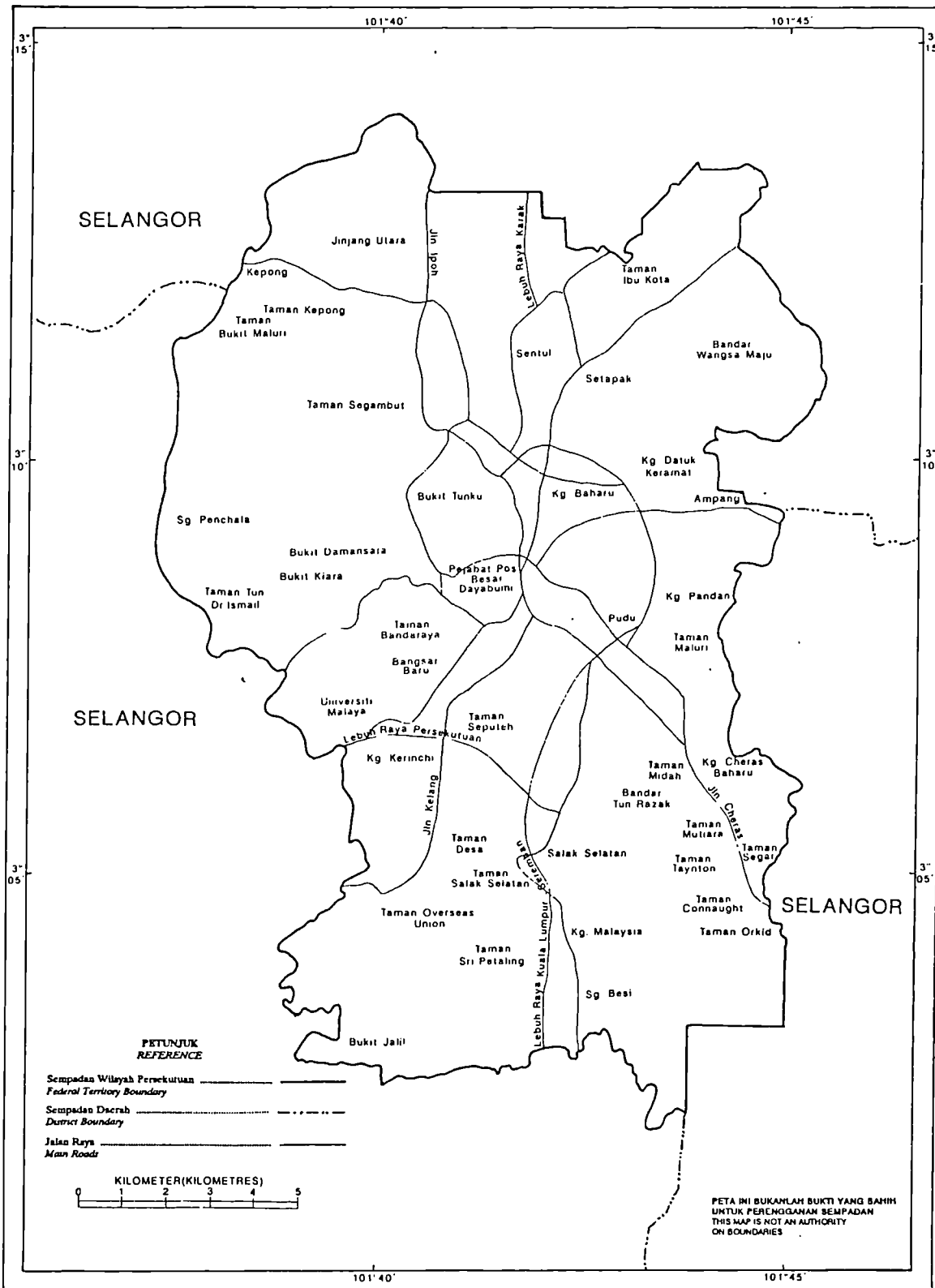
*History:* The heartland of Selangor has been the Klang Valley rather than the Selangor River to the north, from which the State takes its name today. In the Klang River Valley, important Neolithic remains have been found. In the days of the Melaka sultanate (fifteenth century), Klang was the appendage of Tun Perak, the great Bendahara (Chancellor of the Exchequer) of the sultanate. The state's rich tin deposits ensured that it became a much contested ground after the fall of Melaka to the Portuguese. The original population of Minangkabau settlers had to make way for Bugis intruders, while the Dutch made by and large ineffectual attempts to control the tin trade by building forts at Kuala Linggi and Kuala Selangor. By the middle of the eighteenth century, the Bugis had succeeded in establishing the present sultanate, its original base being at Kuala Selangor, and they were fairly successful in resisting Dutch attempts to control them. The increased demand for tin in the nineteenth century gave rise to an influx of Chinese tin miners and promoted the rise of powerful tin chiefs such as Raja Lumut of Lukut (now Negeri Sembilan) which upset the traditional balance of power within the State. As a result, a prolonged civil war broke out in the 1860s involving Bugis and Malay noblemen and Chinese tin miners, and this in turn provided the British with a pretext for intervention in

1874 when the sultan was forced to accept a British Resident. The State was placed under the Residential System, and in 1896 formed one of four Federated Malay States established that year. After the Japanese occupation and the Second World War, the State became part of the Federation of Malaya. In 1974, the sultan of Selangor ceded the territory of Kuala Lumpur so as to enable the nation's capital to be on Federal land. (Information Malaysia Year Book, 1995)



Source: Information Malaysia Year Book 1995.

Figure 6.2: Map of Selangor



Source: Information Malaysia Year Book 1995.

Figure 6.3: Map of Wilayah Persekutuan (Federal Territory)



## 6.5.2 Federal Territory

Background and History: The Federal Territory at present consists of the Federal Capital of Kuala Lumpur and the island of Labuan. Kuala Lumpur was ceded to the Federal Government of Malaysia by the State of Selangor on 1 February 1974. Labuan was ceded to the Federal Government by the State of Sabah on 16 April 1984.

From an obscure settlement at the junction of the Klang and Gombak rivers, Kuala Lumpur quickly emerged after the 1850s to become a thriving community of tin mines. The continuing boom in tin in the second half of the nineteenth century made Kuala Lumpur the busiest and most populated centre in Selangor, while its strategic and economic importance made it the scene of some of the fiercest fighting during the Selangor Civil War (1867-73). The war was effectively ended by the British takeover of the State in 1874, and the British, realising that Kuala Lumpur would make an ideal centre for the new administration, moved there from Klang in 1880. This overshadowed the authority of Yap Ah Loi, the Chinese *Kapitan* who had been the virtual ruler of Kuala Lumpur during the previous decade and led to the rapid modernisation of the town. While Selangor's Bugis rulers still resided downstream (at Kuala Langat or Klang), Kuala Lumpur continued to grow as the State's administrative capital and was the natural choice as capital of the newly-formed Federated Malay States (FMS) in 1886. This enhanced its growth still further. It became the capital of the new Federation of Malaya established in 1948 (after the episodes of the Japanese occupation and Malayan Union) and naturally the capital of the new nation on the achievement of independence in 1957. It was to correct the anomaly of the situation where the Federal Capital was sited on the

territory of a member state of that Federation that the cession of Kuala Lumpur from Selangor was negotiated in 1974 (Information Malaysia Year Book, 1995).

The Selangor and Kuala Lumpur (Klang valley) region is the most densely populated as well as most developed area in Malaysia, where almost all the Ministries and government agencies responsible for the development of SMIs and their quality initiatives are located. Furthermore, most SMIs in these areas are considered to be the most up-to-date and ready to accept any move to provide them with new culture and change.

## **6.6 Sample Selection**

This section discusses the approach taken to identify the enterprises to be included in the survey.

### **6.6.1 Survey Population**

Identification of the relevant population is essential, since data collection can be a costly exercise and contacting large numbers of respondents who could have nothing to do with the survey will only waste these valuable resources. A similar problem can arise if the group identified as the relevant population does not include *'everyone'* for whom the survey is relevant, since a range of information, views or data will be totally missed. The term *'population'* can also be used to describe all the items or organizations of interest.

An audit, for example, is concerned with the correctness of financial statements. The population of interest to the auditor could be the accounting records, invoice or wage sets.

In the case of SMIs in Selangor and Federal territory, the population was determined to comprise all the local SMIs in the Klang valley, which employ not more than 200 workers, and have paid up capital of not more than RM2.5 million. Any firms not within the above specifications, were excluded from the population's sampling frame.

#### **6.6.2 Numbers and Selection**

One type of data collection does not require a selection procedure, and this is a census, or complete enumeration of the identified population. The best example of this type of survey is the *Population Census* which has been carried out in the United Kingdom once every 10 years since 1801 (with the exception of 1941). While this type of exercise should give highly detailed information and reflect data from all parts of the relevant population, it does take a long time to analyse the data and is very costly. A census is of limited use to the majority of business, social or economic applications, unless the identified population is small. For example, a census of all homes would be an expensive way of estimating the population with golf sets. In contrast, if one was representing a manufacturer who sold only to a small number of wholesalers and wanted their views on a new credit ordering system, then a census would be a suitable method to use. However, for the purpose of investigating TQM strategies for SMIs in Malaysia, a census was not considered an appropriate approach to the survey.

### 6.6.3 Selection: Random and Non-Random

Where the relevant identified population is too large for a cost-effective census to be conducted a '*sample*' of the population must be selected, and individual responses generalized to represent the facts about, or the views of, the entire population. However, the method of selection will have implications for the validity of this generalization procedure: if a researcher were to ask the first five people he saw, how they would vote at the next general election, it is very unlikely that the answers given would be a guide to the general election result. Sampling procedures can be divided into broad categories; those where individuals are selected by some random method prior to the collection stage, and those where the individuals are non-randomly selected at the collection stage.

### 6.6.4 Random Sampling

Random does not mean haphazard selection, but means that each member of the population has some calculated chance of being selected. There is no one in the identified population who could not be selected when the sample is set up. A simple random sample gives every individual an equal chance of selection. To select a random sample a list or sampling *frame* is required, where each member is given a number and a series of random numbers (usually generated on a computer) is used to select the individuals to take part in the survey. Thus, there is no human interference in the selection of the

samples selected in this way, and in the long run they will be representative of the population. This is the simplest form of random sampling.

### **6.6.5 Non-Random Sampling**

Non-Random is a catch-all term for other methods of selecting the sample, where there is some judgment made in the selection procedure, and this may lead to some sections of the population being excluded from the sample, for good or bad reasons. For example, if the researcher is asked to select who will take part in the survey and he or she has a particular aversion to managers of SMIs with beards, then this group of SMIs may be excluded. If, then, managers with beards have different views on the subject of the survey from everyone else, this view will not be represented in the results of the survey. However, a well-conducted non-random survey will produce results more quickly, and at a lower cost, than a random sample; for this reason it is often preferred for market research surveys and political opinion polls.

The most usual form of non-random sampling is the selection of a quota sample. In this case various characteristics of the population are noted, for example the divisions of states, Bumiputra , Non-Bumiputra and *Payong* (umbrella) SMIs; and the sample aims to include similar proportions of SMIs with these characteristics. This suggests that if SMIs are representative in terms of known identifiable characteristics they will also be representative in terms of the information being sought by the survey.

Having identified the proportions of each type to be included in the sample, it remained to make the final selection of individual SMIs to be surveyed.

#### **6.6.6 Survey**

For this research, a survey has been the prime source of data. Selection of respondents was made using the random and non-random methods, as necessary and appropriate to the situation. As already discussed in (6.2) above, the researcher designed two sets of structured questionnaires; one for the SMIs and the other one for the agencies and ministries which are responsible for the development as well as the welfare of the SMIs (copies of the questionnaires are in appendices 1 and 2).

#### **6.6.7 Distribution**

The technique used for distributing the customers' (SMIs) questionnaire was through mail sent to them, based on addresses selected at random from the addresses provided by the Asia Media Line (SMIs directory 1995), the list of addresses provided by the Selangor Malay Chamber of Commerce and the Wilayah Malay Chamber of Commerce, and non-random lists provided by BESTA, Guthrie Manufacturing and Edaran Otomobile Nasional. A total of 1209 questionnaires was sent out, 500 questionnaires to the Bumiputra SMIs, another 500 to the Non-Bumiputra SMIs and 209 to the umbrella or payong SMIs. Customer respondents were selected from a list of 3709 customers.

### **6.6.8 Selection**

For the Bumiputra customers, the 500 respondents were selected from the list of 1500 addresses, provided by SMIs directory 1995, the list provided by the Selangor Malay Chamber of Commerce and the list provided by Wilayah Malay Chamber of Commerce. Selection was at random, taking every third customer.

For the Non-Bumiputra customers, the 500 respondents were selected from the list of 2000 addresses provided and selected from the SMIs' directory 1995 provided by the Asia Media Line. Selection was at random, taking every fourth customer.

The 209 Payong or Umbrella SMIs were selected from lists provided by BESTA Distribution Sdn. Bhd. (BESTA) (31 addresses), Guthrie Manufacturing (131 addresses) and Edaran Otomobile Nasional (EON) (47 addresses). Although originally, it has been planned during discussion with the research supervisor, to have 500 customers from the payong or umbrella SMIs, it was found that this had to be modified in the light of the limited number of payong or umbrella SMIs currently available.

### **6.6.9 Non-Response in the Mail Survey**

Designing a sample is a matter of technical knowledge and ingenuity, and the expert can usually design as precise a sample as the client or research worker can afford. Non-

Response in mail survey is a problem no investigator of human populations can escape. Fortunately, a good deal of knowledge has been accumulated on how to deal with the problem, and it would be quite wrong to imply that non-response vitiates the scientific nature of sampling. With a well-designed survey it is usually possible to keep non-response down to a reasonable level and to estimate roughly what biasing effects it may have upon the results. In the Malaysian environment, a response of 10 percent of the number of questionnaires sent out is considered good especially where a survey on SMIs is concerned. Anything below the 10 percent level is considered weak. Therefore, action has to be taken to improve the situation (Moser, C. A. and Kalton, G. (1971).

A total of 169 (14 percent) completed questionnaires was collected on the closing date of the questionnaire. The breakdown of the collected responses was as follows:

Bumiputra respondents	82
Non-bumiputra respondents	40
Payong or umbrella respondents	<u>47</u>
	<b>Total <u>169</u></b>

For the 13 Ministries, 64 Government Agencies and 5 International Organizations exist to date, which are responsible for / and have an interest in the development as well as the welfare of the SMIs , their addresses were obtained from the telephone directory 1996, provided by the Telecom Department of Malaysian. On the closing date, only 6 responses (7.79 percent) was received. This poor response to a mail questionnaire is typical among



officials of the ministries and agencies responsible for the development of SMIs in Malaysia. The breakdown of the collected responses was as follows:

Ministries	2
Government Agencies	3
International Organization	<u>1</u>
<b>Total</b>	<b><u>6</u></b>

Because of the poor response to this second set of questionnaires (appendix 2), the researcher decided to obtain further information, as stated in **6.6.10** below.

#### **6.6.10 In-depth Interviews**

A semi-structured interview was used in this research to interview the chief executive officers of the agencies as well as the officers in-charge in the ministries and agencies responsible for the development of SMIs and their quality initiative programmes. The interview was used to gather information about the general structure and operations of the organizations with some reference to the state of their customer services as well as their accountability to execute the government instructions as stipulated in government strategies.

Some senior managers of the agencies and ministerial officials were reluctant to sanction an in-depth formal interview programme. Accordingly, the researcher had to make

informal personal contact with 9 chief executive officers / representatives personally known to him. These organizations are MARA, Besta Distribution Sdn. Bhd., Guthrie Furniture Manufacturing Sdn. Bhd., SIRIM, PROTON, MARDI, MEDEC and SMI section of the Ministry of Internal Trade and Industry (MITI). Care was taken not to lead replies from this somewhat limited sample, by allowing respondents free-ranging discussion of the general issues surrounding customer service. However, the information gathered from the interviews was only to be used as a balance up exercise to SMIs' accusations against the failure of the government agencies or ministries that are responsible for the development of the SMIs to uphold their mandatory responsibilities.

#### **6.6.11 Direct Observation of Operations**

The researcher's main objective in using observation was to have an insight into the practice of total quality management at selected SMIs with the focus on the aspect of counter service, order processing, work group interaction, working environment, group dynamics and the 5Ss application on office and factory keeping. The researcher visited 15 SMIs in Kajang, Bangi, Serdang, Shah Alam and Taman Maluri in Kuala Lumpur for the above purposes.

Features noted in these observations were:

- facilities for the convenience of the public / customer while waiting for the service to be rendered;
- the time taken for queuing;

- waiting time for the service;
- knowledge and interpersonal skills of the staff;
- general behaviour of the employees while executing their jobs and responsibilities;
- leadership quality;
- group interaction;
- observation of working space cleanliness and
- caring society attitude.

Most SMIs visited did show most of the features mentioned above. It could therefore be concluded that TQM has its place in Malaysian SMIs. These findings were used for the development of the TQM Model for SMIs discussed in Chapter Five and Chapter Eight.

#### **6.6.12 Secondary Data**

Relevant data were collected from two main sources:

1. Published working papers, annual reports and in-house magazines and other publications available at the SMIs' libraries in the main offices or factories.
2. Government publications such as the annual economic reports, mid-term review of the Malaysia plans and all the seven Malaysia plans (from 1970 to the year of 2000), as well as the reports issued / published by the Department of Statistics.

## **6.7 Data Analysis Process**

Norusis suggests the use of the Shapiro-Wilks and Liliefors tests as two tests commonly used to check the normality assumption. In this thesis, the Liliefors test was carried out.

According to Norusis: *‘ It is almost impossible to find data that are exactly normally distributed. For most statistical tests, it is sufficient that the data are approximately normally distributed. ’*

The plots showed that for the most part, the distribution was normal. It was therefore decided that parametric tests could be carried out with validity on the commonly accepted quality hypotheses.

### **6.7.1 Statistical Analysis**

Data were analysed mainly by computer in order to minimise errors and to ensure that complex data could be handled easily. As the questions in the questionnaire consisted of different formats, i.e., single response and multiple-response questions, different methods of data analysis were applied. Of the numerous computer software packages available, the SPSS was chosen because it enabled data from the survey to be analysed fully and flexibly. It has facilities for the extensive manipulation and transformation of data, and includes a wide range of procedures for both simple and highly complex statistical

analysis. It also provides the opportunity for the researcher to produce fully-labelled tables and graphs (Frude, 1990).

Furthermore, one of the principal objectives of the analysis using SPSS was to identify the links between different sections of the questionnaire, for example, whether SMIs which provided a larger budget for Quality Programmes were more successful in meeting the stake-holders' needs / objectives or meeting the targeted profit / goal. SPSS gives the matched/unmatched conditions. The SPSS cross-referral system helps in analysing and comparing responses on the data derived from the questionnaire and reports any relationship so desired.

Advice was sought on statistical analysis from the Department of Statistics, The University of Hull. The main statistical tests used were: (a) a paired and a group t-test; (b) analysis of variance (ANOVA).

A group t-test was also used to test the hypotheses that involve two groups of respondents and one variable to be measured; a paired t-test was done on the hypotheses with one group of respondent and a 2-level independent variables. The one-way ANOVA was done on hypotheses that involved measuring the effect of an independent variable with more than two levels.

The technique of multiple regression considers the prediction of a variable 'y' from the linear combination of two or more variables. It is considered to be an appropriate technique to investigate the effects on 'y' of several variables simultaneously. Thus, in

this thesis, multiple regression was only used to explain customers' perception of quality initiatives of the SMIs.

## **6.8 Conclusion**

Effective decision-making in business cannot be based on speculation alone and must be guided by relevant information collected by a business itself or by some other agency. Some information may be available from published sources such as the Monthly Digest or Report, the Annual Abstract of Statistics, Social Trends and Regional Statistics, but, in general additional data will often be sought that are more pertinent to the subject of interest.

In this chapter, different research methodologies and sampling methods that provide a cost-effective way of providing data on business, social or economic issues were discussed at length. The design and implementation of a survey are critical if representative and meaningful results are to be derived. Data of the wrong sort can lead to the same mistakes and misjudgment as no data at all.

The different methodologies and methods used in data collection help to reflect the macro and micro perspectives of the data collected. The qualitative study gave insight into the problem. The longitudinal nature of the study means that the researcher could follow the development of quality initiatives in the SMIs in Malaysia, and at the same time evaluate the reaction of respondents to the training aspects of quality improvement

in SMIs. With the quantitative study, the significance of certain issues could be statistically checked.

## **CHAPTER SEVEN**

### **Data Analysis**

#### **7.0 Introduction**

By and large, business, social and economic questions can be assessed and evaluated more closely if data are available upon which to base the discussions and decisions. These discussions and decisions are, however, basically pointless if the data used are biased or misleading. Researchers are often faced with other people's data. In order to assess these data in order to find out whether they are likely to be biased or not, or whether they really will be useful for their decision-making process, they have to make their own judgment. This is not an easy task and is often a case of knowing which questions to ask. Even if they can ask the right question and get the right answer, they still, sometimes, need to listen to the answers or ideas given by the 'so called' expert.

Every possible measure has been taken to ensure that the data in this chapter are free from bias and perfectly useful as a basis for discussions and decisions.

#### **7.1 Profile of Small and Medium Industries**

This section presents a profile of the SMIs surveyed, based on the responses to the questionnaire.



Section one of the questionnaire, consisting of 13 questions, asked about the organization profile, whether private or public sector, whether it was a local, Federal or State Government company such as SEDC, MARA or RISDA, MARDI and whether it was a subsidiary of EON or HICOM. Ownership information was sought. The nature and main trade of the organization, number of employees and their paid up capital were asked in order to determine whether they were TSIs, SSIs or MSIs. The questionnaire went on to ask how long the organization had been established or in business, whether or not it was situated in a greenfield site and whether it practiced, or was undertaking, any quality programme. Last but not least, companies were asked for their reasons for not taking or implementing quality programmes in their organization. All information gathered from these questions is discussed, summarised and shown in Tables 7.1 to Table 7.13, below:

**Table 7.1: Response from Bumiputra, Non Bumiputra and Payong Industries**

<b>Industries</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Cum. Percentage</b>
Totally Bumiputra	71	42.0	42.0
Totally Non Bumiputra	30	17.8	59.8
JV with Bumi Majority	11	6.5	66.3
JV with Non Bumi Majority	10	5.9	72.2
Payong SMIs	47	27.8	<b>100.0</b>
<b>Total</b>	<b>169</b>	<b>100.0</b>	

Valid cases : 169

Missing cases : 0

Out of the 169 respondents, 71 industries or 42.0 percent were from totally Bumiputra SMIs, 30 industries or 17.8 percent were from totally Non Bumiputra SMIs, 11 industries or 6.5 percent were from joint ventures with Bumiputra majority, 10 industries or 5.9 percent were from a joint venture with Non Bumiputra majority and 47 industries or 27.8 percent were from Payong SMIs. (See Table 7.1 for details).

**Table 7.2: Type of SMIs**

Type of SMIs	Frequency	Percentage	Cum. Percentage
Tiny	20	11.8	11.8
Small	95	56.2	68.0
Medium	54	32.0	100.0
<b>Total</b>	<b>169</b>	<b>100.0</b>	<b>100.0</b>

For the purpose of this thesis and following the convention used by the World Bank as well as the Industrial Master Plan (IMP), as noted in previous chapters the following definitions of SMIs are adopted. Small scale industries (SSIs) are firms employing *less than 50 employees* while medium scale industries (MSIs) are those firms employing *between 50 and 199 employees*. Those industries employing *more than 200 employees* and with paid up capital over than RM 2.5 million are considered large scale industries (LSIs). However, at the moment, the researcher is not concerned with the LSIs and the TSIs because they are not within the scope of the study. Nevertheless, the TSIs are grouped together with the SSIs, since they are part of SSIs.

Out of the 169 respondents, 115 industries or 68.0 percent were from small scale industries (TSIs and SSIs) while 54 industries or 32.0 percent were from medium scale industries (MSIs). (See Table 7.2).

**Table 7.3: Type of Sector where the SMIs belong**

Particular	Frequency	Percentage	Cum. Percentage
Private sector-Limited company, Sdn. Bhd. Partnership or sole proprietor	168	99.4	99.4
Public sector-Non Trading Public corporation or Agency	0	0	99.4
Public sector other organization (local government, SEDC, MARA, RISDA, MARDI, EON, HICOM etc.	1	0.6	100.0
<b>Total</b>	<b>169</b>	<b>100.0</b>	

Valid cases : 169

Missing Cases : 0

**Table 7.4: Ownership of the Organization**

<b>Particulars</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Cum. percentage</b>
A wholly Malaysian based company	159	94.1	94.1
A headquarters establishment of a foreign company	1	0.6	94.7
An autonomous division of a foreign company	1	0.6	95.3
A joint venture with a foreign company	7	4.1	99.4
A managed division of a larger establishment	1	0.6	100.0
Others	0	0	<b>100.0</b>
<b>Total</b>	<b>169</b>	<b>100.0</b>	

Valid Cases : 169

Missing Cases : 0

Tables 7.3 and Table 7.4 show that out of the 169 respondents, 168 were from private sector organizations. None was from a public sector non-trading public corporation or agency and only one from any other public sector organization. Most of the organizations were wholly Malaysian based companies (159 or 94.1 percent). 7 or 4.1 percent were joint ventures with a foreign company. There was (0.6 percent), headquarters establishment of a foreign company, one autonomous division of a foreign company and one managed division of a larger establishment.

**Table 7.5: Organization paid up Capital**

<b>Paid up Capital</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Cum. Percentage</b>
500,000 and below	105	62.1	62.1
Above 500,000 to 2,500,000	64	37.9	<b>100.0</b>
<b>Total</b>	<b>169</b>	<b>100.0</b>	

Valid Cases :169

Missing Cases : 0

Table 7.5 above shows that 105 or 62.1 percent of the respondent organizations had paid up capital of RM 500,000 or less and 64 or 37.9 percent of the organizations had paid up capital of more than RM 500,000 but less than RM 2.5 million. This categorization is

very important, especially when we want to determine and design the appropriate TQM approach for the SMIs.

**Table 7.6(a): Nature of Business and Service Rendered**

<b>Nature of Business</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Cum. Percentage</b>
Manufacturing enterprise	115	68.0	68.0
Commerce (retailer, wholesaler, agents)	14	8.3	76.3
Service (technical, professional)	13	7.7	84.0
Contracts (constructions, supplies, services)	20	11.8	95.9
Agriculture (fisheries, animal husbandry, floriculture, horticulture and vegetable farming)	1	0.6	96.4
Transport	0	0	96.4
Others	6	3.6	<b>100.0</b>
<b>Total</b>	<b>169</b>	<b>100.0</b>	

Valid cases : 169

Missing cases : 0

Table 7.6(a) shows the responses of the SMIs by their types of businesses or services rendered. Of the 169 companies which responded to the quality programme survey, the researcher found that most of the companies, 115 companies or 68 percent, were from manufacturing enterprises, while 20 companies or 11.8 percent were in contract work such as construction, supplies, services, etc. This was followed by 14 companies or 8.8 percent dealing with commerce such as retailers, wholesalers agents etc. Services (e.g. technical and professional) were represented by 13 companies or 7.7 percent, and there was no response from a transport company. One agricultural company responded while 6 companies or 3.6 percent responded under the category of other companies.

Manufacturing includes the manufacturing of woods and metals based furniture for schools, offices and households; manufacturing of leather goods; fabrication of tools and

metal components for electric and electronic industries; manufacturing of rubber compounding and retreating materials, rubber goods, medical glove, condoms especially for overseas market; manufacturing of car batteries and car parts for Proton and Pradua; manufacturing of fibre cement and building products; manufacturing of knitted fabric and T-shirts; manufacturing of pewter-ware and decorative-ware from tin; manufacturing of foods products and drinks; manufacturing of safety glasses, sunglasses and goggles, reading and demo lenses and manufacturing of boxes and plastic bags.

Contract includes construction, supply and services. Examples of construction work include property development for class 'F' and 'D'; civil and structural constructions, office renovation work and assembly and supply of window covering products, such as venetian blinds, vertical blinds, and plaited blinds. Supply include suppliers of medical and scientific equipment and consumable and supply of industrial gases (oxygen, nitrogen, etc.). Services includes printing and supply of computer forms, computer software and hardware, photo printing and Photostatting services and supply of general services.

Commerce includes retailers, wholesalers and agents. Examples include trading and retailing of rubber goods and products, trading and general construction and sales of automotive and electrical components and parts to public and private sectors, mini-market, ice cream corner, and local fruit stalls. In this survey no respondents were wholesalers; probably most wholesalers are LSIs and their paid up capital is normally more than RM2.5 million. Agents include agents for overseas and local manufacturers, property development agents and general insurance services.

Service includes technical and professional. The former include project management consultants, IT system integrators; investment in properties and general property development, laying of underground power cables, water and gas piping for Tenaga Nasional Berhad, Water Works Department and Petroleum Nasional (Petronas) and electrical contractor (installations). Professional services include accounting, auditing and secretarial practices, legal and convincing and loan, architect, quantity surveyor, personal finance advisor and tax and insurance consultants for business and personal tax.

Agriculture includes fisheries, animal husbandry, floriculture, horticulture and vegetable farming. Only one hydroponic SMI participated in the survey, while one SMI dealt with gravure ink business, which comes under the category of others.

**Table 7.6(b): Nature of Business and Service Rendered**

<b>Nature of Business</b>	<b>Bumi</b>	<b>N-Bumi</b>	<b>JV-BM</b>	<b>JV-NBM</b>	<b>Payong</b>
Manufacturing enterprise	39 (54.9)	22 (73.3)	7 (63.6)	10 (100.0)	37 (78.7)
Commerce (retailer, wholesaler, agents)	9 (12.7)	2 (6.7)	1 (9.1)	0 (0.0)	2 (4.3)
Service (technical, professional)	6 (8.5)	3 (10.0)	2 (18.2)	0 (0.0)	2 (4.3)
Contracts (construction, supplies, services)	13 (18.3)	2 (6.7)	0 (0.0)	0 (0.0)	5 (10.6)
Agriculture (fisheries, animal husbandry, floriculture, horticulture and vegetable farming)	0 (0.0)	1 (3.3)	0 (0.0)	0 (0.0)	0 (0.0)
Transport	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Others	4 (5.6)	0 (0.0)	1 (9.1)	0 (0.0)	1 (2.1)

**Keys: Bumi = Bumiputra SMIs Non-Bumi = Non-Bumiputra SMIs JV-BM = Joint Venture with Bumiputra Majority JV-NBM = Joint Venture with Non-Bumiputra Majority Payong = Payong or Umbrella SMIs**

Table 7.6(b) and Table 7.6(c) show that for Joint Venture with Non-Bumiputra Majority, all the 10 SMIs were MSIs dealing with manufacturing. The majority of them were in the

rubber base and wood base manufacturing industries, while the other four types of SMIs dealt with all kinds of activities.

**Table 7.6(c): Nature of Business and Service Rendered**

Nature of Business	Bumi		N-Bumi		JV-BM		JV-NBM		Payong	
	S	M	S	M	S	M	S	M	S	M
Manufacturing enterprise	23	16	14	8	1	6	0	10	21	16
Commerce (retailer, wholesaler, agents)	8	1	2	0	1	0	0	0	2	0
Service (technical, professional)	5	1	2	1	2	0	0	0	2	0
Contracts (construction, supplies, services)	10	3	2	0	0	0	0	0	4	1
Agriculture (fisheries, animal husbandry, floriculture, horticulture and vegetable farming)	0	0	0	1	0	0	0	0	0	0
Transport	0	0	0	0		0	0	0	0	0
Others	3	1	0	0	1	0	0	0	1	0

Keys: S = Small Scale Industry M = Medium Scale Industry

**Table 7.7(a): Number of Years in Operation**

Years of operation	Frequency	Percentage	Cum. Percentage
5 years and less (Newly established SMIs)	77	45.6	45.6
6 to 10 years (Growing SMIs)	57	33.7	79.3
11 to 15 years (Experienced SMIs)	17	10.0	89.3
16 to 20 years (Adult SMIs)	13	7.7	97.0
21 to 25 years (Matured SMIs)	4	2.4	99.4
26 and above (Fully Grown SMIs)	1	0.6	100.0
<b>Total</b>	<b>169</b>	<b>100.0</b>	

Valid cases : 169

Missing cases : 0

**Table 7.7(b): Number of Years in Operation**

Year of operation	Bumi	N-Bumi	JV-BM	JV-NBM	Payong
5 years and less (Newly established SMIs)	32 (45.1)	15 (50.0)	3 (27.3)	3 (30.0)	24 (51.1)
6 to 10 years (Growing SMIs)	24 (33.8)	11 (36.7)	3 (27.3)	2 (20.0)	17 (36.2)
11 to 15 years (Experienced SMIs)	9 (12.7)	2 (6.7)	1 (9.1)	2 (20.0)	3 (6.4)
16 to 20 years (Adult SMIs)	5 (7.0)	0 (0.0)	2 (18.2)	3 (30.0)	3 (6.4)
21 to 25 years (Matured SMIs)	0 (0.0)	2 (6.7)	2 (18.0)	0 (0.0)	0 (0.0)
26 to 30 years (Fully Grown SMIs)	1 (1.4)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)

Keys: Bumi = Bumiputra SMIs Non-Bumi = Non-Bumiputra SMIs JV-BM = Joint Venture with Bumiputra Majority JV-NBM = Joint Venture with Non-Bumiputra Majority Payong = Payong or Umbrella SMIs

**Table 7.8: Number of Years on the Present Site**

Number of years	Frequency	Percentage	Cum. Percentage
1	9	5.3	5.3
2	15	8.9	14.2
3	20	11.8	26.0
4	12	7.1	33.1
5	21	12.4	45.5
6	16	9.5	55.0
7	6	3.6	58.6
8	7	4.1	62.7
9	3	1.8	64.5
10	25	14.8	79.3
11	1	0.6	79.9
12	5	3.0	82.8
13	2	1.2	84.0
14	3	1.8	85.8
15	6	3.6	89.3
16	1	0.6	89.9
17	1	0.6	90.5
18	2	1.2	91.7
19	3	1.8	93.5
20	6	3.6	97.0
21	1	0.6	97.6
22	1	0.6	98.2
23	1	0.6	98.8
24	1	0.6	99.4
30	1	0.6	100.0
<b>Total</b>	<b>169</b>	<b>100.0</b>	

Valid cases : 169

Missing cases : 0

From the survey, as shown in Table 7.7(a), Table 7.7(b) and Table 7.8 above, 77 industries or 45.6 percent were newly established SMIs with five years or less experience in operation. 57 industries or 33.7 percent were growing SMIs with six to ten years operational experience. 17 industries or 10.1 percent were experienced SMIs with eleven to fifteen years operation. 13 industries or 7.7 percent were adult SMIs which had sixteen to twenty years operational experience. 4 industries or 2.4 percent were mature SMIs with twenty-one to twenty-five years of experience and one industry or 0.6 percent was a fully



grown SMI. All SMIs shown above (100 percent), by chance, had been on the same site for the whole life of their operation.

It looks as if most of the SMIs have existed currently for about 20 years; there were only five, (one each) having existed more than 21, 22, 23, 24 and 30 years. This raise the question that length of existence does not necessarily means whether the SMIs are mature but either they are slow learners in the business or they are still dependent and receiving government subsidies. This is especially true among the Bumiputra SMIs.

When a further question was asked whether their industries were established on a greenfield site (a gazetted industrial zone), about 60 industries or 35.0 percent out of the 169 respondents' SMIs, answered 'yes', 72 industries or 42.6 percent answered 'no', 35 industries or 20.7 percent answered 'don't know' and 2 industries or 1.2 percent did not answer at all. (See Table 7.9)

**Table 7.9: Was the Organization established on a Greenfield Site?**

Type of Answer	Frequency	Percentage	Cum. Percentage
Not answering at all	2	1.2	1.2
Yes	60	35.5	36.7
No	72	42.6	79.3
Don't know	35	20.7	100.0
<b>Total</b>	<b>169</b>	<b>100.0</b>	

Valid cases : 169

Missing cases : 0

This suggests that SMIs have a narrower choice of sites and premises for their operations compared to large enterprises because of their shortage of capital. Very often, the small

entrepreneur begins production in a small building or even a part of a building, which in many cases may also serve as their residence. Initially, their presence may be tolerated, but as the town expands and develops, zoning regulations may force them to move out. In any case, most small industries are located in places which are not suitable for industrial purposes.

In Malaysia, as mentioned in **Chapter Three**, it is estimated that about 70 to 80 percent of all small industrial firms operating in urban areas are illegal because they are operating without a licence from the state or local authority. This situation raises problems relating to infrastructure and socio-economic considerations, both for the enterprise itself and for the environment.

When asked a specific question as to whether the organization had any experience of quality programmes, 3 industries or 1.8 percent did not answer at all, 76 industries or 45.0 percent answered ‘yes’, 84 industries or 49.7 percent answered ‘no’, while 6 industries or 3.6 percent were undecided or answered ‘don’t know’ (See Table 7.10).

**Table 7.10: Has the Organization had any Experience of Quality Programmes?**

Type of Answer	Frequency	Percentage	Cum. Percentage
Not answering at all	3	1.8	1.8
Yes	76	45.0	46.7
No	84	49.7	96.4
Don't Know	6	3.6	100.0
<b>Total</b>	<b>169</b>	<b>100.0</b>	

Valid cases : 169

Missing cases : 0

Obviously, one would agree that the concern on implementing quality initiatives on Malaysian SMIs was quite new, especially when one considered the '*real*' initiative initiated by the Government which was first heard in 1992 (Chapter One, p. 2). This was followed by the setting up of the ITAF by the Government in July 1993, which aimed to develop the corporate image as well as initiate quality initiative programmes for the SMIs (Chapter One, p. 8). However, this offer was not fully taken up by the SMIs owing to poor communications and poor initiative to advertise the availability of the funds on the part of the agencies responsible. Further more, there were too many agencies responsible to manage the funds, thus creating unnecessary red tape on its implementation. The rigidity on the conditions required to apply for the funds make it less popular among the SMIs. (See Chapter Three, p. 90 for further details). The problems which were long faced by SMIs listed in Chapter Three, pp. 58-73 too, in many ways contributed to the lack of interest on the part of the SMIs, in implementing quality in their organization. These were probably the reasons why most of the SMIs in Table 7.10 above, have no experience on quality programmes in their organization.

When asked whether the organization have any plans to embark on a quality programme in the future, 96 industries or 56.8 percent did not answer at all. Out of these 96 industries 90 of them are currently not taking any form of quality programmes. (As indicated in Table 7.10 above, about 84 or 49.7 percent of the SMIs have no experience of quality programmes while another 6 or 3.6 percent don't know whether their organization did undertaken quality programs. Therefore, majority of the respondents' SMIs currently are not practicing Quality in their organization).

Only 51 industries or 30.2 percent answered ‘yes’, 12 industries or 7.1 percent answered ‘no’ and 3 industries or 5.9 percent were undecided or answered ‘don’t know’ (See Table 7.11).

**Table 7.11: Does the Organization have any Plans to Embark on a Quality Programme in the Future?**

Type of Answer	Frequency	Percentage	Cum. Percentage
Not answering at all	96	56.8	56.8
Yes	51	30.2	87.0
No	12	7.1	94.1
Don’t know	3	5.9	100.0
<b>Total</b>	<b>169</b>	<b>100.0</b>	

Valid cases : 169

Missing cases : 0

For the Bumiputra and Joint Venture with Bumiputra Majority SMIs, the decisions to embark on quality programmes in the future were motivated by the desire to achieve the ISO 9000 series certification, to upgrade the quality of products and services rendered to their clients / customers, to upgrade construction licence from class ‘F’ to class ‘D’, to establish their factory in the greenfield/free trade zone area and to have the QIP certification from SIRIM.

For the Non-Bumiputra and the Joint Venture with Non-Bumiputra Majority SMIs, the reasons for planning to embark on the quality programmes in the future were the desire to achieve the ISO 9000 series especially the ISO 9002; a perceived need, as the company expanded, for TQM for the smooth flow of the organization functions, especially in human resource development and management, and also to see that they get the best

professional staffing for their organization. Therefore, the Non-Bumiputra SMIs are now beginning to recognise the importance of theories and management practices as the company grows. It has been asserted by Mah, (1993 and 1994), that 'most SMIs do not favour long term planning. This tendency towards *short termism* stems from their belief that planning would not affect long term performance, that it is pointless to plan for an uncertain future and that they cannot spare their *limited resources* for the exercise'. This belief is now less valid in the current business situation. They (especially Chinese SMIs) can no longer take sudden changes as challenges. Today's businesses are no longer or will remain successful, or will not remain so, unless strategic planning is taken. It seems that for the survival of the organization, management must take stringent action to improve their daily or routine operation.

For the Payong or Umbrella SMIs, reasons for embarking on quality programmes in the future were the desire to have the QIP certificate from SIRIM with a view to later meeting the requirements of the ISO 9000 series; to provide good quality products to the customers; to improve performance and increase profit in order to facilitate the upgrading of the company's capital through ploughing profit back to the business and to participate fully in the quality programmes organised by the umbrella or the parent company.

When asked whether any pressure for a quality programme is currently felt within the organization, 119 industries out of 169 respondents or 70.4 percent did not answer at all, 37 industries or 21.9 percent indicated that they felt that there was pressure for quality

programme within the organization, 10 industries or 5.9 percent answered ‘no’, and 3 industries or 1.8 percent of responding SMIs were undecided. (See Table 7.12).

**Table 7.12: Is any Pressure for Quality Programme felt within the Organization?**

Type of Answer	Frequency	Percentage	Cum. Percentage
Not answering at all	119	70.4	70.4
Yes	37	21.9	92.3
No	10	5.9	98.2
Don't know	3	1.8	100.0
<b>Total</b>	<b>169</b>	<b>100.0</b>	

Valid cases : 169

Missing cases : 0

The concern to implement quality initiatives is not a mandatory requirement on the part of Malaysian SMIs right now. But, if they need to apply the government subsidy, in term of their financial requirement, this requirement become part of the conditions of the subsidy. The Government, through its development agencies would normally make sure that the subsidy given is worth spending.

The same tight condition would also be imposed by the banks on those SMIs that required loan assistance provided by them since the current law did not required the SMIs to have a collateral especially for small loan below MR5000.00 from these banks. However, because of higher risk, most banks were reluctance to provide loans to SMIs. The poor treatment which normally received by most SMIs' management in the past especially from bank officers who considered themselves as members of the elite group of the society stated earlier (see Chapter Three, pp. 61-62), there were a greater tendency that most SMIs would be reluctant to have anything to do with these banks. They would

rather approached their immediate family and close friends for their business capital need. Thus, the pressure for quality implementation is not immediate for these SMIs.

For the Bumiputra and Joint Venture with Bumiputra Majority SMIs who felt the pressure of the need of quality programmes in their organization, the reason given was that their organizations were currently facing discipline problems, failure to supply goods and services on time, high rates of staff turnover, workers demanding high wages and inability to cope with demand, especially toward the end of year for supply of furniture for schools (seasonal demand).

For the Non-Bumiputra and Joint Venture with Non-Bumiputra Majority SMIs who felt the pressure of the need of quality programmes in their organization, the reasons for the pressure were: to enhance customers' trust in quality of their products; to minimise customers' complaints; the shortage of skilled labour and the need of the organization to improve productivity without increasing head count. The need to combat competition among competitors who are in the same business and from competitors who have ISO 9000 certification and a high quality products, and a problem of customer returns due to poor product quality, were also mentioned.

For the Payong or the Umbrella SMIs, they felt the pressure of the need for quality programmes in their organization because of consistent requirements for high quality imposed by the parent companies and the burden of paperwork requires by the QIP programme. This same complaint of the excessive requirement of process recording, was also made by most of the practitioners of the ISO 9000 series.

From all the data above, it is safe to conclude that the majority of the Malaysian SMIs did not practice quality programmes. The common reasons highlighted are shown in Table 7.13(a) below:

**Table 7.13(a): Reason for not Undertaking Quality Programmes**

<b>Reason for not taking quality programmes</b>	<b>Frequency</b>	<b>Percentage</b>
Not aware of quality programmes	23	13.6
At the moment management feels that it is not important	21	12.4
No budget allocated for quality initiatives	59	34.9
Company newly established	22	13.0
Company too small	55	32.5
Propose to carry out programmes later	62	36.7
Other reason	1	0.6

For the SMIs, the main reasons given for not implementing quality programmes were: that the company was too small, (55 industries or 32.5 percent) or that no budget was allocated for that purpose (59 industries or 34.9 percent). However, 62 SMIs or 36.7 percent indicated that they would carry out quality programmes later. Other reasons for not undertaking quality programmes were that the company was newly established (22 respondents or 13 percent), and lack of importance attached by management to quality programmes (12 industries or 12.4 percent). One response (0.6 percent) stated ‘**other reasons**’. This suggests a need for SMIs to be given priority for exposure to the importance of quality programmes in order to ensure that they can survive and grow in the highly competitive market. However, a great number of them have already shown a positive attitude, judging by their intentions to carry out the programmes later. This is a very encouraging state of affairs and effort should be made to ensure that this interest is maintained.



Table 7.13(b) shows the breakdown of reasons for not undertaking the quality programmes among the 5 groups of the SMIs. Surprisingly 3 SMIs from the Payong or Umbrella SMIs stated that they were not aware of the programmes, in spite of the scheme that they were involved with and the fact that they were currently under the supervision of the Umbrella companies. The majority of the Bumiputra and the Non-Bumiputra SMIs who were not aware of quality programmes were from the SSIs, as shown by Table 7.13(c). This is understandable because most SSIs provide no budget, or an insufficient budget for quality programmes or initiatives in their organizations. They also stated that their organizations are still too small to consider quality initiative programmes.

**Table 7.13(b): Reason for not Undertaking Quality Programmes**

Reason for not taking quality programmes	Bumi	N-Bumi	JV-BM	JV-NBM	Payong
Not aware of quality programmes.	11 (15.5)	7 (23.3)	2 (18.2)	0 (0.0)	3 (6.4)
At the moment management feels that it is not important.	14 (19.7)	4 (13.3)	3 (27.3)	0 (0.0)	0 (0.0)
No budget allocated for quality initiatives.	37 (52.1)	7 (23.3)	5 (45.5)	1 (10.0)	9 (19.1)
Company newly established.	11 (15.5)	4 (13.3)	0 (0.0)	0 (0.0)	7 (14.9)
Company too small	27 (38.0)	15 (50.0)	3 (27.3)	1 (10.0)	9 (19.1)
Propose to carry out programmes later	34 (47.9)	10 (33.3)	6 (54.5)	3 (30.0)	9 (19.1)
Other reason	1 (1.4)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)

Keys: Bumi = Bumiputra SMIs Non-Bumi = Non-Bumiputra SMIs JV-BM = Joint Venture with Bumiputra Majority JV-NBM = Joint Venture with Non-Bumiputra Majority Payong = Payong or Umbrella SMIs

**Table 7.13(c): Reason for not Undertaking Quality Programmes**

Reason for not taking quality programmes	Bumi		N-Bumi		JV-BM		JV-NBM		Payong	
	S	M	S	M	S	M	S	M	S	M
Not aware of quality programmes	11	0	6	1	1	1	0	0	3	0
At the moment management feels that it is not important	8	6	1	3	2	1	0	0	0	0
No budget allocated for quality initiatives	29	8	6	1	4	1	0	1	7	2
Company newly established	11	0	4	0	0	0	0	0	6	1
Company too small	22	5	13	2	2	1	0	1	8	1
Propose to carry out programmes later	24	10	5	5	4	2	0	3	7	2
Other reason	1	0	0	0	0	0	0	0	0	0

Keys: S = Small Scale Industry M = Medium Scale Industry

## **7.2 Origin of Quality Initiatives or Programmes**

Section two of the survey TQM-SMIs 1996 questionnaire started with questions in part A on the origin of quality initiatives and programmes. There were five questions altogether in this section; In which year did your organization first begin to implement a programme to improve quality? In which areas are changes considered necessary for the quality programme to be judged to have significant result? What time scale was originally perceived for significant results to accrue from the quality programme? Where, in the organization was the decision made to embark on quality programme? and Where does responsibility lie for initiating, steering and facilitating the quality programme? The responses to these questions are shown in Table 7.14 to Table 7.19 below.

If we look at Table 7.14(a) below, we can conclude that the majority of quality initiatives in Malaysian SMIs started in the early 1990s. This is because of the lack of earlier concentration given by the Government and government agencies to quality development, especially for SMIs. The earlier focus was on eradication of poverty and restructuring of Malaysian society. This two pronged objective of the New Economic Policy (NEP) was clearly stated in the First Outline Prospective Plan (OPP 1) which covered the period from 1970 to 1990. Not until 1991, there was much emphasis given to the development of quality in SMIs.

**Table 7.14(a): Year when the Organization first began to implement Quality Programme**

Year of implementing quality	Frequency	Percentage	Cum. Percentage
No quality initiative	92	54.2	54.2
1990 or earlier	8	5.1	59.3
1991	4	2.4	61.9
1992	4	2.4	64.3
1993	11	6.5	70.8
1994	21	12.4	83.2
1995	20	11.8	94.7
1996	9	5.3	100.0
<b>Total</b>	<b>169</b>	<b>100.0</b>	

Valid cases : 169

Missing Cases : 0

Table 7.14(a) above also shows that in response to the question as to the year in which the organization first began to implement a programme to improve quality, the majority of SMIs with such programmes said they started them after 1990 but especially in the period of 1993 to 1995 (52 out of 77 companies). 9 SMIs had begun quality initiatives or programmes in the first three months of 1996. This is an encouraging development, especially looking at the number of SMIs which took such initiatives from 1993 to 1995.

**Table 7.14(b): Year when the Organization first began to implement Quality Programme**

Year of implementing quality	Bumi		N-Bumi		JV-BM		JV-NBM		Payong	
	S	M	S	M	S	M	S	M	S	M
No quality initiative	35	11	14	7	5	2	0	3	13	2
1990 or earlier	1	2	0	0	0	1	0	0	2	3
1991	0	1	0	0	0	0	0	0	1	2
1992	0	1	0	1	0	0	0	2	0	0
1993	1	1	0	0	0	2	0	1	2	4
1994	7	1	2	0	0	0	0	2	6	3
1995	1	5	4	2	0	1	0	1	5	1
1996	3	1	1	0	0	1	0	3	0	0

Keys: S = Small Scale Industry    M = Medium Scale Industry

Table 7.14(b) above shows the detailed breakdown of the year when the organization first began to implement the quality initiative. Note that for the Payong SMIs, no further SMIs were involved in quality initiatives in the first three months of 1996. In fact, the record shows that the number of SMIs participating in the Umbrella project has declined tremendously since 1995. For example, BESTA recorded a decline of about 50 percent in its SMIs in 1996, compared with the 1995 figure. According to the Managing director of BESTA, the reasons for this decline are twofold: firstly, once an SMI is awarded the QIP certificate by SIRIM, it is no longer willing to have anything to do with the parent company and secondly, there have been a number of drop-outs from the programme itself, either due to disciplinary action or because of failure to get the QIP certification. His argument was supported by the General Manager of Guthrie Furniture Manufacturing Sdn. Bhd.

When asked in which areas changes are considered necessary for the quality programmes to be judged to have significant results, the majority of the SMIs responded that organization structure and organization control had improved tremendously. Technological improvement had also been felt, and the culture, attitude and perception of the employees had changed positively after implementing quality programmes. These changes are shown in Table 7.15(a) and Table 7.15(b).

**Table 7.15(a): Areas of Significant Results after implementing Quality Programme**

<b>Areas improved</b>	<b>frequency</b>	<b>Percentage</b>
Financial (budget, costs)	30	17.0
Organizational (structure, control)	58	34.3
Technological (process, operation)	55	32.5
Philosophical (culture, attitude, perception)	47	27.8
Others	4	2.4

**Table 7.15(b): Areas of Significant Results after implementing Quality Programme**

<b>Areas improved</b>	<b>Bumi</b>	<b>N-Bumi</b>	<b>JV-BM</b>	<b>JV-NBM</b>	<b>Payong</b>
Financial (budget, costs)	11 (15.5)	2 (6.7)	1 (9.1)	2 (20.0)	14 (29.8)
Organizational (structure, control)	19 (26.8)	9 (30.0)	2 (18.2)	6 (60.0)	22 (46.8)
Technological (process, operation)	21 (29.6)	9 (30.0)	0 (0.0)	3 (30.0)	22 (46.8)
Philosophical (culture, attitude, perception)	14 (19.7)	4 (13.3)	3 (27.3)	5 (50.0)	21 (27.8)
Others	2 (2.8)	0 (0.0)	0 (0.0)	0 (0.0)	2 (4.3)

Table 7.15(b) shows that area of significant results after implementing quality programme were well distributed among all the groups of the SMIs. However one significant observation reveals that technological (process and operation) results played no significant part in the Joint Venture with Bumiputra Majority SMIs.

Regarding the time scale within which it was originally perceived significant results would accrue from the quality programme was introduced, 24 companies or 14.2 percent said they had given themselves two years to see the results of their initiatives. 18 SMIs or 10.7 percent of the responded companies had given themselves one year to see the results of their undertaking while 17 companies or 10.1 percent predicted it would take three years to see the results of their initiatives. 16 companies or 9.5 percent gave themselves the normal period of learning or growing of five years to see the outcome of their efforts. Table 7.16(a) shows the details of these outcomes.

**Table 7.16(a): Time Scale for Significant Results**

No. of year	Frequency	Percentage	Cum. Percentage
Not answering at all	93	55.0	55.0
One year	18	10.7	65.7
Two years	24	14.2	79.9
Three years	17	10.7	90.5
Four years	0	0.0	90.5
Five year	16	9.5	100.0
<b>Total</b>	<b>169</b>	<b>100.0</b>	

Valid cases : 169

Missing Cases : 0

**Table 7.16(b): Time Scale for Significant Results**

No. of year	Bumi	N-Bumi	JV-BM	JV-NBM	Payong
Not answering at all	46 (64.8)	21 (70.0)	7 (63.6)	3 (30.0)	16 (34.0)
One year	7 (9.9)	2 (6.7)	0 (0.0)	1 (10.0)	8 (17.0)
Two years	8 (11.3)	1 (3.3)	0 (0.0)	3 (30.0)	12 (25.5)
Three years	4 (5.6)	6 (20.0)	1 (9.1)	1 (10.0)	5 (10.6)
Four years	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (2.1)
Five years	6 (8.5)	0 (0.0)	3 (27.3)	2 (20.0)	5 (10.6)

Keys: Bumi = Bumiputra SMIs Non-Bumi = Non-Bumiputra SMIs JV-BM = Joint Venture with Bumiputra Majority JV-NBM = Joint Venture with Non-Bumiputra Majority Payong = Payong or Umbrella SMIs

Table 7.16(b) shows that the respondents from all the groups of SMIs believed they needed at least two years for significant result to emerge. However, for the Non-Bumiputra SMIs, a period of not more than three years was required as sufficient to see a significant result of the quality initiative. None of the groups selected a four year period as the target within which to see significant results appear. The differences in time scale to see the outcomes of the quality initiatives was based on the following reasons:

For the Bumiputra and the Joint Venture with Bumiputra Majority SMIs, the determination of time scale for significant results was based on the newness of the

programme and the feeling that the SMIs need more time to get familiar with the programme; a target of achieving ISO 9000 series accreditation four years after starting; that productivity and quality had began and was on going but the impact was not very significant yet and no time frame had been set. In fact, their belief was that a quality programme is a continuous process which stops once the company stops functioning.

For the Non-Bumiputra and the Joint Venture with Non-Bumiputra Majority SMIs, the determination of time scale for significant results was based on the newness of the company in taking up the quality initiative; change of environment from slowdown in economy to a sudden growth in economic activities felt in the early 1990s, human resource, and changes in workers' attitude towards readily accepting quality initiative programmes, felt especially by the Chinese business community. This significant observation is in line with Table 7.11 above.

For the Payong / Umbrella SMIs, the determination of time scale for significant results was based on the newness of the organization; the layout of the premises where the business was operated; and the level of education of the owner of the SMIs (some owners of the Umbrella SMIs are graduates from Universities and Colleges). This was especially true for those SMIs under the young graduates scheme sponsored by MARA in the late 1980s and early 1990s, to counter the high level of graduate unemployment during that period.

Very few organizations which had carried out quality programmes agreed that they had met the time scale originally perceived for significant results to accrue from the quality programmes undertaken. Table 7.17 supports this claim.

**Table 7.17: Has Implementation Matched the Projected Time Scale?**

Type of Answer	Frequency	Percentage	Cum. Percentage
Not answering at all	128	75.3	75.3
Yes	31	18.8	94.1
No	3	1.8	95.9
Don't know	7	4.1	<b>100.0</b>
<b>Total</b>	<b>169</b>	<b>100.0</b>	

Valid cases : 169

Missing Cases : 0

The survey also revealed that in most cases, the decision to embark on a quality programme came from the Chief Executive or the Board. This is in line with the hypothesis that leadership plays an important role in the introduction and the development of quality initiatives.

From Table 7.18(a), 51 respondents or 30.2 percent of SMIs said the CEO / Board led the quality initiatives in their organization, while 42 companies or 24.9 percent said the Executive management, 40 companies or 23.7 percent said the decision was a Management initiative from the Production function, 11 SMIs or 6.5 percent from Sales function, 13 SMIs or 7.7 from Financial function and 11 SMIs or 6.5 percent from the Personnel (HRD) function.



**Table 7.18(a): Where in the Organization  
was the Decision Taken to Embark on a Quality Programme?**

Where decision taken	frequency	Percentage
Chief Executive/Board	51	30.2
Executive management	42	24.9
Management initiative: Production function	40	23.7
:Sales function	11	6.5
:Financial function	13	7.7
:Personnel (HRD) function	11	6.5
Others	0	0

**Table 7.18(b): Where in the Organization  
was the Decision Taken to Embark on a Quality Programme**

Where decision taken	Bumi	N-Bumi	JV-BM	JV-NBM	Payong
Chief Executive/Board	18 (25.4)	8 (26.7)	2 (18.2)	5 (50.0)	18 (38.3)
Executive Management	20 (28.2)	5 (16.7)	2 (18.2)	5 (50.0)	10 (21.3)
Management initiative: Production function	16 (22.5)	4 (13.3)	2 (18.2)	3 (30.0)	15 (31.9)
: Sales function	5 (7.0)	1 (3.3)	0 (0.0)	0 (0.0)	8 (17.0)
: Financial function	5 (7.0)	0 (0.0)	0 (0.0)	0 (0.0)	8 (17.0)
: Personnel Function	5 (7.0)	0 (0.0)	0 (0.0)	0 (0.0)	6 (12.8)
Others	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)

**Keys: Bumi = Bumiputra SMIs Non-Bumi = Non-Bumiputra SMIs JV-BM = Joint Venture with Bumiputra Majority JV-NBM = Joint Venture with Non-Bumiputra Majority Payong = Payong or Umbrella SMIs**

As shown in Table 7.18(b), the origin of the decision to embark on a quality programme was similar for both Joint Venture with Bumiputra and Non-Bumiputra Majority SMIs. The decision came from the Chief Executive or Board, the Executive Management and the Production and Sales function. This is typical of the management style of American companies in Malaysia, where the Finance and Personnel Department has less involvement in the business strategy and operation of the business organization.

**Table 7.18(c): Where in the Organization  
was the Decision Taken to Embark on a Quality Programme**

Training Institutions	Bumi		N-Bumi		JV-BM		JV-NBM		Payong	
	S	M	S	M	S	M	S	M	S	M
Chief Executive/Board	12	6	6	2	0	2	0	5	10	8
Executive Management	12	8	5	0	0	2	0	5	5	5
Management initiative: Production function	11	5	3	1	0	2	0	3	9	6
: Sales function	3	2	0	1	0	0	0	0	4	4
: Financial function	2	3	0	0	0	0	0	0	4	4
: Personnel Function	2	3	0	0	0	0	0	0	2	4
Others	0	0	0	0	0	0	0	0	0	0

Keys: S = Small Scale Industry    M = Medium Scale Industry

Table 7.18(c) further reveals that there is a similarity between JV with Bumiputra and Non-Bumiputra Majority and the SSIs of the Non Bumiputra SMIs. All decisions to embark on quality came from the top. We can therefore conclude that in the case of SMIs the majority stakeholders of the organization are usually the CEO / Board of the company and therefore they take a major share in deciding the ethos of the company. This type of management style is also common among the Chinese businesses in the Asean region (Limlingan, 1986).

**Table 7.19: Where does Responsibility lie  
for Initiating, Steering and Facilitating a Quality Programme?**

Responsibility lie on:	Initiating (%age)	Steering (%age)	Facilitating (%age)
Chief Executive/Board	61 (36.1%)	26 (15.4%)	32 (18.9%)
Executive Management	38 (22.5%)	61 (36.1%)	40 (23.7%)
Production	20 (11.8%)	36 (21.3%)	40 (23.7%)
Quality Management Dept.	20 (11.8%)	41 (24.3%)	43 (25.4%)
Training Dept.	18 (10.7%)	30 (17.8%)	49 (29.0%)
Personnel Dept.	14 (8.3%)	25 (14.8%)	50 (29.6%)
Others	2 (1.2%)	4 (2.4%)	4 (2.4%)

Responding to the question of where the responsibility lies for initiating, steering and facilitating the quality programme, most SMIs (61 or 36.1 percent) responded that the CEO takes the leading role, followed by the Executive management (38 or 22.5 percent). Production and Quality Management were each cited by 20 respondents or 11.8 percent, followed by the Training department with 18 or 10.7 percent. The Personnel department had responsibility in 14 or 8.3 percent, of the companies, while 2 companies (1.2 percent) reported 'other' services.

For steering, Executive Management took the lead with 61 responses or 36.1 percent, followed by the Quality Management department with 41 or 24.3 percent and Production with 36 or 21.3 percent. Then came the Training department with 30 or 17.8 percent of respondents, followed by the Personnel department with 25 or 14.5 percent and Others with 2 or 1.2 percent of responses.

On facilitating, the Personnel and Training department took the leading role with 50 or 29.6 percent and 49 or 29.0 percent respectively. This was followed by the Quality Management department with 43 cases or 25.4 percent. Executive Management and Production were each cited by 40 respondents or 23.7 percent. Then came the CEO and Others with 32 or 18.9 percent and 4 or 2.4 percent of responses respectively.

From the survey results shown in Table 7.19, it seems that for initiating the quality programme, the CEO takes the leading role while for steering it, the Executive Management takes the leading role. Personnel and Training departments take the leading role in facilitating implementation of the quality programme. There is, therefore,

evidence of division of responsibilities among employees in SMIs in implementing quality programmes. This situation is favourable to the success of the Quality initiative.

### 7.3 Approach to the Quality Challenge

The approach to the quality challenge was the subject of part B in section two of the questionnaire. It consisted of nine questions including the type of quality programmes undertaken by the SMIs, the training institutions that provide the training and the number of employees which had attended the training since 1993. Whether the training was organized in house or externally and reasons for the choice of internal / external training were also asked. The impact of the quality programme to the organization, the language preferred in the training and the planning for future quality training programmes were also investigated. A summary of the results is presented in Table 7.20 to Table 7.27 below:

**Table 7.20: Type of Training Programmes by location (In-house and Externally)**

Training Programmes	Frequency and Percentages	
	In-house	External
ISO 9000 series	25 (14.8%)	26 (15.4%)
5Ss (Seri, Seiton, Seiso, Seiktsu and Shitsuke)	48 (28.4%)	35 (20.7%)
Quality Control Circles (QCC)	19 (11.2%)	13 (7.7%)
Total Quality Control (TQC)	8 (4.7%)	6 (3.6%)
Total Quality Management (TQM)	9 (5.3%)	23 (13.6%)
Just-In-Time (JIT)	7 (4.1%)	7 (4.1%)
Total Productive Maintenance (TPM)	2 (1.2%)	13 (7.7%)
Productive Measurement	18 (10.7%)	12 (7.1%)
Programme/Philosophy from quality gurus	5 (3.0%)	12 (7.1%)
Others	13 (7.7%)	15 (8.9%)

From Table 7.20, the most popular programme with the respondents was the 5Ss quality programme. 48 or 28.4 percent preferred the training to be conducted in house and 35 or 20.7 percent preferred it to be conducted externally. The next most popular programme was the ISO 9000 series quality standards. 25 or 14.8 percent preferred the training to be in house while 26 or 15.4 percent preferred it to be done externally. If we look closely at Table 7.20 , we can find that the 3 most popular in house programmes were the 5Ss, ISO 9000 series and QCC. Next came Productivity Maintenance. For the external training programmes, the 3 most popular programmes were the 5Ss, the ISO 9000 series and the TQM. Next came the TPM and QCC. There are many reasons for the differences in the choice, but the principal reasons are:

- **In-house:** The lecturers normally use local or in-house examples in explaining the problems, therefore the ideas are easy to understand. The participants are normally from the same organization, therefore there will be no hiding of personal feeling and belief. The discussion will be open and frank. That is why programmes like QCC, the 5Ss, ISO 9000 series, productivity measurement and TPM are popular in-house. In house training also costs less to run; thus, more employees can benefit from it.
- While the **External** training costs more, the participants are exposed to the most recent ideas or development of the quality programmes. They can also exchange ideas, common problems and experiences while attending the training. At the same time, the participants get some feedback on the experience of other organizations in implementing a new quality programme in their organization. This will short-cut the process of quality implementation.

**Table 7.21: Where does most Employees think the Training is most Effective?**

<b>Training</b>	<b>Frequency</b>	<b>Percentage</b>
In-house	47	27.8
External	31	18.3

Table 7.21 shows the number and percentage of respondents who preferred the quality programmes to be held in-house and externally. 47 or 27.8 percent of the respondents preferred the training to be held in-house while 31 or 18.3 percent preferred it to be held externally. Looking at the above table, the majority of the SMIs, did not respond (at all) to the question asked. This could be due to their attitude problem towards quality, as well as there was no urgent need of quality practices in their current business operation. As shown in Table 7.13(a) p. 234, quite a number of SMIs currently do not allocate any budget or sufficient budget for quality initiatives. Many proposed to carry out the quality programmes at the later date.

In Chapter Three pp. 72-73, problem of allocating the SMIs with proper sites for their factories and business operation was not easy especially in an area where the cost of land is expensive. For all the time SMIs operate either in their own houses or on an illegal land, (normally on government's reserved land), which would be subjected to the government authority's harassment for illegal business occupation and operation. This could also be the reason why SMIs have the tendency towards short termism. Thus, taking quality initiatives would not only be of no interest to them but would also be against the normal basic continuous and long term requirement of their quality initiative

programmes. Being simple in their thinking, these SMIs' managers normally do not like to commit themselves to a question where they themselves do not play their part.

From Table 7.22, again, the three most popular Quality programmes were the 5Ss with 113 weighted average points, the ISO 9000 series with 107 weighted average points and Total Quality Management (TQM) with 59 weighted points. Next came Quality Control Circles (QCC) with 44 weighted average points.

**Table 7.22: The most preferred Quality Training Programme**

Quality Training Programme preferred	Frequency	W/Av.	Percentage
ISO 9000 series	43	113	25.5
5Ss	47	107	27.8
Quality Control Circles	25	44	14.8
Total Quality Control	23	35	13.6
Total Quality Management	34	59	20.1
Just-In-Time	9	15	5.4
Total Productive Maintenance	22	38	13.1
Productivity Management	13	23	7.8
Programme/Philosophy of quality gurus	7	16	3.2
Others	5	13	3.0

**Table 7.23(a): The Training Institutions where Companies Normally Send their Employees for Training**

Training Institutions	Frequency (%age)
Standards and Industrial Research Institute of Malaysia (SIRIM)	67 (39.6%)
MARA Entrepreneurs Development Division	38 (22.5%)
National Productivity Corporation (NPC)	57 (33.7%)
Centre for Instruction and Advanced Skill Training (CIAST)	16 (9.5%)
Malaysian Entrepreneurial Development Centre (MEDEX)	10 (5.9%)
Industrial Training Institute (ITI)	2 (1.2%)
Malaysian Agriculture Research and Development Institute (MARDI)	1 (0.6%)
Forest Research Institute of Malaysia (FRIM)	8 (4.7%)
Penang Skill Development Centre (PSDC)	1 (0.6%)
MARA Institute of Technology (MIT)	7 (4.1%)
Institute Kemahiran MARA (IKM)	8 (4.7%)
Others	22 (13.0%)

As shown in Table 7.23(a) above, the 3 most popular training institutions were the Standards and Industrial Research Institute of Malaysia (SIRIM) with 67 or 39.6 percent of responses, the National Productivity Corporation (NPC) with 57 or 33.7 percent responses and MARA Entrepreneurs Development Division with 38 or 22.5 percent responses

**Table 7.23(b) The Training Institution where Companies Normally Send their Employees for Training**

<b>Training Institution</b>	<b>Bumi</b>	<b>N-Bumi</b>	<b>JV-BM</b>	<b>JV-NBM</b>	<b>Payong</b>
SIRIM	24 (33.8)	8 (26.70)	4 (36.4)	5 (50.0)	26 (55.3)
MARA Entrepreneurs Dev. Division	21 (29.6)	0 (0.0)	3 (27.3)	0 (0.0)	14 (29.8)
NPC	22 (31.0)	5 (16.7)	3 (27.3)	5 (50.0)	22 (46.8)
CIAST	4 (5.6)	3 (10.0)	1 (9.1)	3 (30.0)	5 (10.6)
MEDEC	5 (7.0)	0 (0.0)	0 (0.0)	0 (0.0)	5 (10.6)
ITI	1 (1.4)	0 (0.0)	0 (0.0)	0 (0.0)	1 (2.1)
MARDI	1 (1.4)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
FRIM	3 (4.2)	1 (3.3)	0 (0.0)	1 (10.0)	3 (6.4)
PSDC	0 (0.0)	1 (3.3)	0 (0.0)	0 (0.0)	0 (0.0)
MIT	3 (4.2)	0 (0.0)	0 (0.0)	1 (10.0)	3 (6.4)
IKM	3 (4.2)	0 (0.0)	0 (0.0)	1 (10.0)	4 (8.5)
Others	7 (9.9)	3 (10.0)	0 (0.0)	3 (30.0)	9 (19.1)

**Keys:** Bumi = Bumiputra SMIs Non-Bumi = Non-Bumiputra SMIs JV-BM = Joint Venture with Bumiputra Majority JV-NBM = Joint Venture with Non-Bumiputra Majority Payong = Payong or Umbrella SMIs

Table 7.23 (b) reveals that the Joint Venture with Bumiputra Majority SMIs sent their staff and workers to four training centres, namely the SIRIM, NPC, MARA Entrepreneurs' Division and CIAST. It is revealed by Table 7.23(c) that none of the SSIs from this group sent their staff and workers for training, although their presence in the survey was obvious and noted in Table 7.6(c) above.



**Table 7.23(c): The Training Institutions where  
Companies Normally Send their Employees for Training**

Training Institutions	Bumi		N-Bumi		JV-BM		JV-NBM		Payong	
	S	M	S	M	S	M	S	M	S	M
SIRIM	14	10	7	1	0	4	0	5	14	12
MARA Entrepreneurs Development Division	14	7	0	0	0	3	0	0	8	6
NPC	12	10	5	0	0	3	0	5	11	11
CIAST	2	2	3	0	0	1	0	3	1	4
MEDEC	2	3	0	0	0	0	0	0	5	0
ITI	0	1	0	0	0	0	0	0	0	1
MARDI	1	0	0	0	0	0	0	0	0	0
FRIM	2	1	1	0	0	0	0	1	3	0
PSDC	0	0	1	0	0	0	0	0	0	0
MIT	2	1	0	0	0	0	0	1	1	2
IKM	3	0	0	0	0	0	0	1	4	0
Others	2	5	1	2	0	0	0	3	3	6

**Keys: S = Small Scale Industry M = Medium Scale Industry**

As indicated by Chapter One p. 3, the formulation of policies and strategies for development of SMIs is carried out by the Ministry of National and Rural Development in conjunction with EPU and ICU of the Prime Minister's Department. This is to ensure that all policies and strategies are implemented accordingly, to their utmost possibilities. All the seven Malaysia Plans discussed in Chapter Three, pp. 74-85 have also shown that a special emphasis was given to the development of Bumiputra SMIs. In the Third Malaysia Plan, the focus of the government policy was on the training of small entrepreneurs. In line with this policy, MARA, NPC and MEDEC was specifically mentioned to conduct a number of entrepreneurial development programmes. The objective was to provide training as well as helping the Government in formulating effective entrepreneurial development programmes.

In 1995 SIRIM had came up with SIRIMEX, a specifically design quality initiative programmes for small entrepreneurs. One of its most popular quality programme was the

QIP (see details in Chapter Five, pp. 151-153). Owing to this development and the special instruction made in the Third Malaysia Plan, it was not a surprised that MARA NPC and SIRIM became the most popular training organizations chosen by the SMIs in the survey. Tables 7.23(a), (b) and (c) show that most of Bumiputra, JV with Bumiputra Majority and the Payong SMIs (which the majority of the Payong are Bumiputra SMIs) have fully utilized these institutions' training facilities.

**Table 7.24: Number of Employees Attending Quality Training Programmes in 1993, 1994 and 1995**

Programmes undertaken	Number of employees on training programmes					
	<u>In-house</u>			<u>External</u>		
	1993	1994	1995	1993	1994	1995
ISO 9000 series	224	365	586	171	130	131
5Ss	267	338	474	54	65	113
Quality Control Circle	107	223	130	22	13	20
Total Quality Control	40	175	90	8	16	17
Total Quality Management	3	5	21	79	89	128
Just In Time	36	13	30	0	4	9
Total Productive Maintenance	16	23	47	3	6	9
Productivity Measurement	20	30	44	25	40	38
Programme/Philosophy from gurus	20	15	15	14	31	34
Others	11	36	90	11	18	39

Table 7.24 shows the number of employees who attended the quality programmes in 1993, 1994 and 1995. As mentioned earlier, the three most popular Quality Programmes were the 5Ss, the ISO 9000 series and the QCC. The number of employees going for Quality Training has increased from year to year since 1993. This implied that many executives from these organizations have committed themselves to quality initiative programmes, and organizational cultural changes are currently taking place in the

Malaysian SMIs. There is a considerable wisdom, experience and success of the Japanese companies over the last 30 years from which to draw.

Most of the employees who had attended the training for quality programmes had put into practice what they had learned in the training sessions. Table 7.25(a) shows the consequences of undertaking the quality training programme. 49 SMIs or 29.0 percent had implemented quality activities in their organization after undertaking the training. This included: working towards company certification as quality practices such as the QIP, housekeeping using the 5Ss quality programme, working towards total quality or total quality participation, thinking of new ideas and improving production and production maintenance. They also formally discussed the feasibility of implementing the techniques learned in the training programmes with consultants, with the aim of introducing the techniques in their organization.

**Table 7.25(a): Consequences after Undertaking the Quality Training Programme**

<b>Consequences</b>	<b>Frequency</b>	<b>Percentage</b>
Formally discuss the feasibility of implementing the techniques	41	24.3
Engage a consultant to institute changes	26	15.4
Implement the quality activities	49	29.0
(1) working towards company certification	40	23.7
(2) doing the house cleaning	33	19.5
(3) towards total quality or total participation	27	16.0
(4) thinking of new ideas	13	7.7
(5) improves production process /maintenance	3	1.8
No consequence	3	1.8

**Table 7.25(b): Consequences after  
Undertaking the Quality Training Programme**

Consequences	Bumi	N-Bumi	JV-BM	JV-NBM	Payong
Formally discuss the feasibility of implementing the techniques	15 (21.1)	5 (16.7)	2 (18.2)	2 (20.0)	17 (36.2)
Engage a consultant to institute changes	8 (11.4)	4 (13.3)	0 (0.0)	3 (30.0)	9 (19.6)
Implement the quality activities	17 (23.9)	7 (23.3)	1 (9.1)	5 (50.0)	19 (40.4)
(1) working towards company certification	14 (19.7)	5 (16.7)	1 (9.1)	4 (40.0)	16 (34.0)
(2) doing the house cleaning	10 (14.1)	3 (10.0)	0 (0.0)	4 (40.0)	16 (34.0)
(3) towards total quality or total participation	9 (12.7)	5 (16.7)	0 (0.0)	2 (20.0)	11 (23.4)
(4) thinking of new ideas	6 (8.5)	3 (10.0)	1 (9.1)	1 (10.0)	2 (4.3)
(5) improves production process/maintenance	1 (1.4)	1 (3.3)	0 (0.0)	0 (0.0)	1 (2.1)
No consequence	1 (1.4)	0 (0.0)	0 (0.0)	0 (0.0)	2 (4.3)

**Keys:** Bumi = Bumiputra SMIs Non-Bumi = Non-Bumiputra SMIs JV-BM = Joint Venture with Bumiputra Majority JV-NBM = Joint Venture with Non-Bumiputra Majority Payong = Payong or Umbrella SMIs

**Table 7.25(c): Consequences after  
Undertaking the Quality Training Programme**

Consequences	Bumi		N-Bumi		JV-BM		JV-NBM		Payong	
	S	M	S	M	S	M	S	M	S	M
Formally discuss the feasibility of implementing the techniques	10	5	4	1	0	2	0	2	11	6
Engage a consultant to institute changes	4	4	3	1	0	0	0	3	4	5
Implement the quality activities	10	7	6	1	0	1	0	5	9	10
(1) working towards company certification	9	5	4	1	0	1	0	4	8	8
(2) doing the house cleaning	7	3	3	0	0	0	0	4	8	8
(3) towards total quality or total participation	5	4	4	1	0	0	0	2	5	6
(4) thinking of new ideas	4	2	3	0	0	1	0	1	1	1
(5) improves production process /maintenance	1	0	1	0	0	0	0	0	0	1
No consequence	1	0	0	0	0	0	0	0	0	2

**Keys:** S = Small Scale Industry M = Medium Scale Industry

Table 7.25(b) and Table 7.25(c) reveals the detailed breakdown of consequences after undertaking the quality training programme. There was an indication that SMIs in the different groups made full use of the knowledge and experiences received in the training, in their respective organizations.

SIMs agreed that the Quality Programmes had satisfied their internal and external customers' satisfaction, improved their companies' productivity and reduced errors and inefficiency. Table 7.26 below gives the details of the consequences of implementing Quality programmes.

**Table 7.26: The Consequences of the Quality Programme**

<b>Aims of Quality Programme</b>	<b>Frequency</b>	<b>W/Av.</b>	<b>Percentage</b>
Improve productivity	55	128	32.6
Reduction in cost of poor quality	32	59	18.9
Increase consistency in working practices	26	51	15.3
Improve competitive advantage of service image	29	46	17.2
Reduce errors and inefficiency	33	64	19.5
Improve management and facilitate organization culture change	54	47	14.2
Satisfy the external and internal customer	57	132	33.2
Others	5	10	3.0

**Table 7.27: Where Pressure for Change Originates?**

<b>Where change originates</b>	<b>Frequency</b>	<b>W/Av.</b>	<b>Percentage</b>
Economic consideration	52	95	30.8
Operating environmental consideration	54	96	31.9
From the people of the organization	51	93	29.1
From top management	59	142	34.9
Others	14	40	8.4

Table 7.27 shows that the pressure for change in the SIMs organization not necessarily comes from Top Management. The other factors which could strongly influence pressure for change may come from Operating environmental consideration, Economic consideration and from the workers themselves. But the Top Management must play important part as agent of change in the SIMs scenario. This is especially true because most of the Top Management officers of SIMs in Malaysia, are also the owners of the

SMTs. The leadership's full involvement is also the main requirement of total quality implementation or improvement in any organization.

**Table 7.28: Language Preferred in Courses Conducted**

Participants	Bahasa Malaysia		English	
	Frequency	Percentage	Frequency	Percentage
Top management	36	21.3	72	42.6
Middle management	45	26.6	58	34.3
Supervisory level	71	42.0	13	7.7
Operational level	73	43.2	2	1.2

As seen in 7.28, in most Quality Training programmes, the language preferred by Top Management and Middle Management was English, while at the Supervisory and Operational levels, the Bahasa Malaysia was the preferred language. This is due to the educational background and nature of the job at each level. Management level positions are normally occupied by '*highly educated*' persons who are fluent in English language since their jobs also require them to possess good English proficiency. In this business, one must make sure that one has the capability to communicate well with one's business partners. English is the language of the business world, as well as the *computer language*. Therefore, command of the language is desirable. Moreover, most of the Quality books and materials are written in English.

#### 7.4 Nature of the Quality Programmes

The nature of quality programmes was investigated in part C in section two of the questionnaire. This consisted of six questions asking the following: Is the introduction

and design of the Quality Programme comprehensive, that is, are all aspects of organizational activities examined? What tools are used in the diagnostic process? Which functional areas are examined in the diagnostic process prior to the introduction of Quality Programme? Is your Quality Programme perceived as an added dimension to existing systems and processes? and Are the existing business systems regarded as having already incorporated a Quality Philosophy? Table 7.29 to Table 7.35 show the detailed information on the answers to these six questions.

**Table 7.29: Is the Introduction and Design of Quality Programme Comprehensive, are all Aspects of Organization Activities Examined?**

Type of Answer	Frequency	Percentage	Cum. Percentage
Not answering at all	92	54.4	54.4
Yes	33	19.5	74.0
No	10	5.9	79.9
Not sure or too early to say	34	20.1	<b>100.0</b>
<b>Total</b>	<b>169</b>	<b>100.0</b>	

Valid Cases : 169

Missing Cases : 0

On the question whether the introduction and design of the Quality Programme is comprehensive, that is, are all aspects of organizational activities examined, as shown in Table 7.29, 33 or 19.5 percent of the respondents said 'yes'. 10 or 5.9 percent answered 'no'. 34 or 20.1 percent remained not sure, while 92 or 54.4 did not answer at all. This could indicate that the diagnostic process is new to SMIs since most SMIs do not favour long term planning. Again in this table it showed that there was a great number of the SMIs who did not answer at all. The reason was the same as indicated by Tables 7.10 and 7.11 on pp. 230-231, which was discussed earlier.

**Table 7.30(a): Some of the Tools Used in the Diagnostic Process before Introducing a Quality Programme**

Tools used	Frequency	Percentage
Attitude survey	33	19.5
Organizational systems and process analysis	43	25.4
Analysis of Organizational structure or Organizational effectiveness	40	23.7
Customer survey	41	24.3
Evaluation of production process	39	23.1
Quality Circles	25	14.8
Employees participation/consultation	31	18.3
Others	6	3.6

As indicated by Table 7.30(a) above, those SMIs which undertake the quality programmes did use the diagnostic process to determine the exact problem of the organization before introducing quality programme. The table also indicated some of the common tools used in the diagnostic process. Organizational system and process analysis top the list with 43 responses or 25.4 percent. Next comes the customer survey with 41 responses or 24.3 percent. Analysis of organizational structure or effectiveness comes third with 40 responses or 23.7 percent, while evaluation of the production process comes fourth with 39 responses or 23.1 percent.

**Table 7.30(b): Some of the Tools Used in the Diagnostic Process before Introducing a Quality Programme**

Tools used	Bumi	N-Bumi	JV-BM	JV-NBM	Payong
Attitude survey	15 (21.1)	5 (16.7)	2 (18.2)	0 (0.0)	11 (23.4)
Organizational systems and process analysis	15 (21.1)	4 (13.3)	2 (18.2)	5 (50.0)	17 (36.2)
Analysis of organizational structure and organizational effectiveness	13 (18.3)	5 (16.7)	2 (18.2)	4 (40.0)	16 (34.0)
Customer survey	20 (28.2)	5 (16.7)	1 (9.1)	2 (20.0)	13 (27.7)
Evaluation of production process	13 (18.3)	2 (6.7)	2 (18.2)	5 (50.0)	17 (36.2)
Quality Circles	12 (16.9)	2 (6.7)	0 (0.0)	2 (20.0)	9 (19.1)
Employees participation/consultation	12 (16.9)	2 (6.7)	1 (9.1)	2 (20.0)	14 (29.8)
Others	3 (4.2)	0 (0.0)	0 (0.0)	1 (10.0)	2 (4.3)

**Keys:** Bumi = Bumiputra SMIs Non-Bumi = Non-Bumiputra SMIs JV-BM = Joint Venture with Bumiputra Majority JV-NBM = Joint Venture with Non-Bumiputra Majority Payong = Payong or Umbrella SMIs



**Table 7.30(c) Some of the Tools Used in the Diagnostic Process before Introducing a Quality Programme**

Tools used	Bumi		N-Bumi		JV-BM		JV-NBM		Payong	
	S	M	S	M	S	M	S	M	S	M
Attitude survey	10	5	5	0	0	2	0	0	7	4
Organizational systems and process analysis	6	9	2	2	0	2	0	5	8	9
Analysis of organizational structure and organizational effectiveness	6	7	3	2	0	2	0	4	9	7
Customer survey	11	9	3	2	0	1	0	2	6	7
Evaluation of production process	7	6	1	1	0	2	0	5	11	6
Quality Circles	8	4	2	0	0	0	0	2	6	3
Employee participation/consultation	7	5	1	1	1	0	0	2	6	8
Others	2	1	0	0	0	0	0	1	2	0

**Keys:** S = Small Scale Industry M = Medium Scale Industry

Table 7.30(b) and Table 7.30(c) reveals the details of some of the tools used by the different groups of the SMIs in the diagnostic process before introducing quality programme. Use of the various diagnostic tools was evenly spread among the different groups of SMIs.

**Table 7.31(a): The Functional Areas Examined in Diagnostic Process prior the Introduction of the Quality Programme**

Functional Areas	Frequency	Percentage
Sales and marketing	45	26.6
Production	69	40.8
Customer service	46	27.2
Finance	28	16.6
Personnel/Human Resources	40	23.7
Quality control	57	33.7
Others	3	1.8

The functional areas which were examined in the diagnostic process were production with 69 respondents, or 40.8 percent, quality control (57 respondents, or 33.7 percent),

customer service (46 respondents, or 27.2 percent), sales and marketing (45 respondents, or 26.1 percent), personnel/human resource (40 respondents or 23.7 percent) and finance (28 respondents or 16.6 percent). For details see Table 7.31(a).

**Table 7.31(b): The Functional Area Examined in Diagnostic Process prior the Introduction of the Quality Programme**

Functional Areas	Bumi	N-Bumi	JV-BM	JV-NBM	Payong
Sales and marketing	13 (18.3)	6 (20.0)	3 (27.3)	5 (50.0)	18 (38.3)
Production	23 (32.4)	8 (26.7)	3 (27.3)	7 (70.0)	28 (59.6)
Customer service	16 (22.5)	3 (10.0)	3 (27.3)	6 (60.0)	18 (38.3)
Finance	11 (15.5)	3 (10.0)	0 (0.0)	2 (20.0)	12 (25.5)
Personnel/Human Resource	14 (19.7)	4 (13.3)	1 (9.1)	4 (40.0)	17 (36.2)
Quality Control	21 (29.6)	4 (13.3)	3 (27.3)	6 (60.0)	23 (48.9)
Others	1 (1.4)	0 (0.0)	0 (0.0)	1 (10.0)	1 (2.1)

**Keys:** Bumi= Bumiputra SMIs Non-Bumi = Non-Bumiputra SMIs JV-BM = Joint Venture with Bumiputra Majority JV-NBM = Joint Venture with Non-Bumiputra Majority Payong = Payong or Umbrella SMIs

**Table 7.31(c): The Functional Areas Examined in Diagnostic Process prior the Introduction of the Quality Programme**

Functional Areas	Bumi		N-Bumi		JV-BM		JV-NBM		Payong	
	S	M	S	M	S	M	S	M	S	M
Sales and marketing	5	8	4	2	0	3	0	5	9	9
Production	14	9	6	2	0	3	0	7	14	14
Customer service	6	10	2	1	0	3	0	6	6	12
Finance	5	6	3	0	0	0	0	2	6	6
Personnel/Human Resources	7	7	3	1	0	1	0	4	8	9
Quality control	12	9	3	1	0	3	0	6	10	13
Others	0	1	0	0	0	0	0	1	0	1

**Keys:** S = Small Scale Industry M = Medium Scale Industry

Table 7.31(b) and Table 7.31(c) show that production, sales and marketing and customer service function lead the way in examining the diagnostic process prior to the introduction of quality programme. The same observation may be made as for Table

7.6(c), Table 7.23(b) and Table 7.23(c) above, that most of the decision making of the organization is in the hands of the few, i.e. the CEO / Board, and the Executive Management who are the major stakeholders of the business.

**Table 7.32(a): Is the New Quality Programme Perceived as An Added Dimension to Existing Systems and Processes?**

Type of Answer	Frequency	Percentage	Cum. Percentage
Not answering at all	92	54.4	54.4
Yes	74	43.8	98.2
No	0	0	98.2
Don't know	3	1.8	100.0
<b>Total</b>	<b>169</b>	<b>100.0</b>	

Valid Cases : 169

Missing Cases : 0

When asked whether the Quality Programme was perceived as an added dimension to existing systems and processes, Table 7.32(a) shows that almost one-half of the respondents agreed that the Quality Programme was so perceived. Only 3 or 1.8 percent of the respondents were not sure. Table 7.32(b) shows the details of whether the new quality programme perceived as an added dimension to existing systems and processes. The observation also reveals that there was not much difference between the different groups of the SMIs.

**Table 7.32(b): Is the New Quality Programme Perceived as An Added Dimension to Existing Systems and Processes?**

Type of answer	Bumi	N-Bumi	JV-BM	JV-NBM	Payong	Raw Total
Not answering at all	46 (64.4)	20 (66.7)	7 (63.6)	3 (30.0)	16 (34.0)	92 (54.4)
Yes	25 (35.2)	10 (33.3)	3 (27.3)	7 (70.0)	29 (61.7)	74 (43.8)
Don't know	0 (0.0)	0 (0.0)	1 (9.1)	0 (0.0)	2 (4.3)	3 (1.8)
<b>Column Total</b>	<b>71 (42.0)</b>	<b>30 (17.8)</b>	<b>11 (6.5)</b>	<b>10 (5.9)</b>	<b>47 (7.8)</b>	<b>169 (100.0)</b>

Keys: Bumi = Bumiputra SMIs Non-Bumi = Non-Bumiputra SMIs JV-BM = Joint Venture with Bumiputra Majority JV-NBM = Joint Venture with Non-Bumiputra Majority Payong = Payong or Umbrella SMIs

**Table 7.33(a): Are the Existing Business Systems regarded as having already incorporated a Quality Philosophy?**

Type of Answer	Frequency	Percentage	Cum. Percentage
Not answering at all	94	55.6	55.6
Yes	54	32.0	82.6
No	9	5.3	92.9
Don't know	12	7.1	100.0
<b>Total</b>	<b>169</b>	<b>100.0</b>	

Valid Cases : 169

Missing Cases :

On the question whether the existing business systems were regarded as having already incorporated a Quality Philosophy, 54 respondents or 32.0 percent agreed that the existing business had already incorporated a Quality Philosophy. 9 or 5.3 percent said 'no' while 12 or 7.1 percent were not sure. 94 or 55.1 percent abstained from answering at all. See Table 7.33(a). Again we noticed that, the majority of the 94 SMIs who did not answer at all came from the 90 SMIs which were not practicing quality, as discussed in Tables 7.10 and 7.11 on pp. 230-231 earlier.

**Table 7.33(b): Are the Existing Business Systems regarded as having already incorporated a Quality Philosophy?**

Type of answer	Bumi	N-Bumi	JV-BM	JV-NBM	Payong	Raw Total
Not answering at all	47 (66.2)	20 (66.7)	7 (63.6)	4 (40.0)	16 (34.0)	94 (55.6)
Yes	17 (23.9)	6 (20.0)	4 (36.4)	5 (50.0)	22 (46.8)	54 (32.0)
No	3 (4.2)	2 (6.7)	0 (0.0)	0 (0.0)	0 (0.0)	9 (5.3)
Don't know	4 (5.6)	2 (6.7)	0 (0.0)	1 (10.0)	5 (10.6)	12 (7.1)
<b>Column Total</b>	<b>71 (42.0)</b>	<b>30 (17.8)</b>	<b>11 (6.5)</b>	<b>10 (5.9)</b>	<b>47 (27.8)</b>	<b>169 (100.0)</b>

**Keys:** Bumi = Bumiputra SMIs Non-Bumi = Non-Bumiputra SMIs JV-BM = Joint Venture with Bumiputra Majority JV-NBM = Joint Venture with Non-Bumiputra Majority Payong = Payong or Umbrella SMIs

Table 7.33(b) reveals that the existing business systems were regarded as having already incorporated a quality philosophy. Majority of the SMIs did not answer at all. This shows that even with the quality initiative programmes being practice in their organization, the management of these SMIs was not totally sure as to whether their business system regarded as having incorporated to the quality philosophy. This is understandable because the subject of quality philosophy is very subjective, therefore, not many managers can easily understand them fully, especially when one discusses them within the context of SMIs.

**Table 7.34: Any Changes in SMIs' Organization Structure resulted from the Quality Programme to date?**

Type of Answer	Frequency	Percentage	Cum. Percentage
Not answering at all	92	54.4	54.6
Yes	76	45.0	99.6
No	0	0	99.6
Don't know	1	0.4	100.0
<b>Total</b>	<b>169</b>	<b>100.0</b>	

Valid Cases : 169

Missing Cases : 0

Table 7.34 shows that 76 or 45.0 percent of the respondents agreed that there had been some changes in their organizational structure as a result of the Quality Programme to date while only one respondent or 0.6 percent was not sure.

Table 7.35(a) below shows the type of structure changes and where the changes occurred, while Table 7.35(b) and Table 7.35(c) reveals the detailed breakdown of the changes in

SMEs' organizational structure resulting from the quality programme to date, between the different groups of the SMEs.

**Table 7.35(a): The nature of Organization Structure Changes after the Introduction of a Quality Programme**

Structure Changes	Frequency	Percentages
Improved communication	71	42.0
Flatter hierarchy	17	10.1
Devolution of responsibility	22	13.0
Less control in the systems	24	14.2
Improved reporting systems	66	39.1
More emphasis on team work	70	41.4
Improved management system	67	39.6

**Table 7.35(b): The nature of Organization Structure Changes after the Introduction of a Quality Programme**

Structure changes	Bumi	N-Bumi	JV-BM	JV-NBM	Payong
Improved communication	23 (32.4)	9 (30.0)	4 (36.4)	6 (60.0)	29 (61.7)
Flatter hierarchy	6 (8.5)	1 (3.3)	0 (0.0)	4 (40.0)	6 (12.8)
Devolution of responsibility	8 (11.3)	3 (10.0)	1 (9.1)	1 (10.0)	9 (19.1)
Less control in the systems	9 (12.7)	3 (10.0)	2 (18.2)	3 (30.0)	7 (14.9)
Improved reporting systems	21 (29.6)	7 (23.3)	4 (36.4)	6 (60.0)	28 (59.6)
More emphasis on team work	23 (32.4)	10 (33.3)	3 (27.3)	5 (50.0)	29 (61.7)
Improved management systems	21 (29.6)	8 (26.7)	4 (36.0)	6 (60.0)	28 (29.6)

**Keys:** Bumi = Bumiputra SMEs Non-Bumi = Non-Bumiputra SMEs JV-BM = Joint Venture with Bumiputra Majority JV-NBM = Joint Venture with Non-Bumiputra Majority Payong = Payong or Umbrella SMEs

**Table 7.35(c): The nature of Organization Structure Changes after the Introduction of a Quality Programme**

Structure changes	Bumi		N-Bumi		JV-BM		JV-NBM		Payong	
	S	M	S	M	S	M	S	M	S	M
Improved communication	13	10	7	2	0	4	0	6	15	14
Flatter hierarchy	4	2	1	0	0	0	0	4	2	4
Devolution of responsibility	6	2	3	0	0	1	0	1	5	4
Less control in the systems	7	2	3	0	0	2	0	3	3	4
Improve reporting system	11	10	4	3	0	4	0	6	13	15
More emphasis on team work	13	10	7	3	0	3	0	5	15	14
Improved management system	12	9	5	3	0	4	0	6	14	14

**Keys:** S = Small Scale Industry M = Medium Scale Industry

## **7.5 Evaluation**

Part D of section two contained the evaluation part of the questionnaire. This part was divided into two sub-headings: (a) evaluation of Quality Programme undertaken by the SMIs and (b) evaluation of SMIs development strategies. There were six questions in (a) and ten questions in (b). Detailed information and analysis are as below:

### **7.5.1 Evaluation of Quality Programme undertaken**

The six questions in this sub-section were as follows: What criteria are used to measure the success of the Quality Programme? At what level is the measurement of objectives carried out? What problems are being / have been experienced in the implementation process? and What is being done to overcome the above problems? The respondents were also asked what was allocated for the Quality enhancement programme, expressed as a percentage of payroll, and whether they would consider allocating a bigger budget for the Quality enhancement programme in the future and asked to indicate the general / overall strategy of the Quality Programme in their organization over the next five years. The relevant information is shown in Table 7.36 to Table 7.44 below.

In general, people will not do things which do not benefit them. At the end of the day, one must know how much or what benefit one really gets from the work one does. There must be some way to measure that benefit. In a business context, there are many criteria used to measure the outcome of the venture of the business. In a quality initiative

exercise, too, there are many criteria used to measure the benefit of the initiative. Table 7.36 shows the criteria and the outcome of the survey TQM-SMIs 1996. The normal criteria are : profitability, market share, whether the quality of service / product improves or not, whether the unit cost of service / product improves, external and internal customer satisfaction and whether employees are satisfied with the cultural change, participate in and fully support in the initiative.

**Table 7.36: Criteria Used to Measure the Success of the Quality Programme**

<b>Criteria</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Weighted Av.</b>
Profitability	45	26.7	94
Market share	16	9.5	21
Quality of service and Quality of product	59	35.0	126
Unit cost	14	8.3	20
External customer satisfaction	54	32.0	138
Internal customer satisfaction	38	22.5	61
Employee satisfaction	8	4.8	14
Employee participation	11	6.5	19
Others	3	1.8	9

The result of the survey shows that external customer satisfaction with 54 or 138 weighted average was the first choice, while quality of service and quality of product with 59 or 126 weighted average came second. Profitability came third with 45 or 94 weighted average score, then came internal customer satisfaction with 38 or 61 weighted average score. This clearly shows that the aims of the quality initiative have been fulfilled and the hypotheses of most of the quality writers are true.



But how far can we safely say that the choice of the criteria is correct and successful? Table 7.37, on success of implementation, shows that the quality of service and quality of product scores the highest with 63.75 weighted average, while external customer satisfaction scores second highest, with a weighted average of 60.50 points. Profitability scores the third highest with 59.75 weighted average points. Unit cost comes fourth with 57.25 points, while internal customer satisfaction, employee satisfaction and employee participation come joint fifth with 54.25 points each. Market share comes last. Therefore, the Acceptable Quality Level (AQL) tends to be accepted in business, even though it violates the Quality Principle.

**Table 7.37: The Rate of Success of the Implementation of the Quality Programmes**

Criteria	Rate of Success				Weighted Av.
	VS	RS	US	D/K	
Profitability	17	53	2	8	59.75
Market share	7	53	9	8	53.25
Quality of service and Quality of product	22	52	5	1	63.75
Unit cost	10	57	8	2	57.25
External customer satisfaction	20	49	6	3	60.50
Internal customer satisfaction	17	38	14	7	54.25
Employee satisfaction	9	53	7	8	54.25
Employee participation	10	50	13	1	54.25
Other	1	3	3	5	4.25

Key : VS = Very successful RS = Reasonably successful US = Unsuccessful D/K = Don't know  
 To calculate the weighted average:  $(VS*4+RS*3+US*2+D/K*1)$  the answer is divided by 4

**Table 7.38: Where Level of Measurement of Objectives is Carried Out?**

Where level of measurement carried out	Frequency	Percentage
Departmental	37	21.9
Divisional	7	4.1
Corporate	34	20.1
Others	0	0

The other area of concern to the researcher is the area where the measurement of objectives is carried out. In this respect, the researcher felt that the measurement was likely be made at three different levels, i.e. at the departmental level, at divisional level and at corporate level. Table 7.38 shows what the respondents to the survey thought. The respondents felt that there were two important areas where the measurement takes place. The department level comes first with 37 or 21.9 percent of responses, while the corporate level comes second with 34 or 20.1 percent. However, in this case, the researcher felt that the divisional level is, in fact, covered by the department level and the corporate level.

**Table 7.39(a): Problems Experienced in the Implementation Process**

Type of Problems	Frequency	Percentage
Resistance to change in the Organizational culture	52	30.8
People resistant to change:- Top Management	39	23.1
- Middle Management	27	16.0
- Supervisor	25	14.7
-Employee	46	27.2
Operating environment	28	16.6
Economic pressure	25	14.8
Training/Education	33	24.9
Monitoring	42	24.9
Others	0	0

Table 7.39(a) shows the problems experienced in the implementation process. Clearly, the process of change is not an easy one to manage. It is not only the commitment and the technical change (new methods and techniques for quality improvement) that need to materialise; more importantly, there is also the social change. One should be concerned with the social effect that any deviance from the norm usually has. Abandoning old habits

and attitudes in favour of new ones can be a daunting task requiring, among other things, a large amount of faith, and commitment. It is, indeed, difficult to change a corporate culture, which, by nature, usually evolves over a very long period of time. The basic values, the assumptions, the goals and beliefs which guide the way an industry operates, and which probably still reflect the values of the industry's founders, are what determine the face the industry presents to the outside world. *Old attitudes die hard* and can be an obstacle to change. The greatest resistance usually comes from those who see the change as a threat to their status in the industry. There are also those whose actions are always governed by a fear of failure, or even those who worry about the extra responsibility any new knowledge might bring.

TQM provides an environment where fear is eliminated, where all the employees take pride in their work, where they feel respected and accepted, where they feel part of the same team, and where they strive not only for their own interests, but also for the interests of the whole organization.

From the table, the first problem is resistance to change in the Organizational culture (52 or 30.8 percent). Second comes people resistance to change (employee) with 46 or 27.2 responses. Monitoring the process of change was the third problem mentioned. Top management sometimes resist change. In this survey Top Management resistance came fourth with 39 or 23.1 percent of responses. Therefore, the researcher feels that if we want to see the success of the process of change, we must ensure that leadership quality plays the most important part in that process of change.

**Table 7.39(b): Problems Experienced in the Implementation Process**

Type of problems	Bumi	N-Bumi	JV-BM	JV-NBM	Payong
Resistance to change in the organizational culture	17 (23.9)	7 (23.3)	3 (27.3)	5 (50.0)	20 (42.6)
People resistance to change: Top Mgt.	14 (19.7)	4 (13.3)	1 (9.1)	2 (20.0)	18 (38.3)
Middle Mgt.	10 (14.1)	3 (10.0)	0 (0.0)	3 (30.0)	11 (23.4)
Supervisor	11 (15.5)	3 (10.0)	1 (9.1)	4 (40.0)	6 (12.8)
Employee	16 (22.5)	5 (16.7)	3 (27.3)	4 (40.0)	18 (38.3)
Operating environment	8 (11.3)	3 (10.0)	2 (18.2)	5 (50.0)	10 (21.3)
Economic pressure	7 (9.9)	3 (10.0)	1 (9.1)	2 (20.0)	12 (25.5)
Training/Education	11 (15.5)	5 (16.7)	1 (9.1)	2 (20.0)	14 (29.8)
Monitoring	16 (22.5)	5 (16.7)	1 (9.1)	4 (40.0)	16 (34.0)
Others	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)

**Keys: Bumi = Bumiputra SMIs Non-Bumi = Non-Bumiputra SMIs JV-BM = Joint Venture with Bumiputra Majority JV-NBM = Joint Venture with Non-Bumiputra Majority Payong = Payong or Umbrella SMIs**

Table 7.39(b) reveals that there was not much difference between the different groups of the SMIs on the problems experienced in the process of implementing the quality initiative programme.

**Table 7.40(a): Action Taken to Overcome the above Problems**

Type of action taken	Frequency	Percentage
Improve motivational aspects	44	26.0
Provide more training/educational facilities	12	7.1
Have more discussions /meetings	26	15.4
Encourage teams work	10	5.9
Business process reengineering (BPR)	18	10.7

There are many ways to overcome problems. Some of the ways are listed in Table 7.40(a), above. Most respondents felt that improving motivational aspects comes first. The second choice was to have more discussion and meetings between management and employees. This can be done through the QCC, where management and employees can overcome their differences and thus improve communication. Third came Business

Process Reengineering (BPR) with 18 or 10.7 percent of responses. BPR can help organizations to correct problem areas while leaving unaffected areas of the organization undisturbed. This action will save costs, time and energy.

**Table 7.40(b): Action Taken to Overcome the above Problems**

Type of action taken	Bumi	N-Bumi	JV-BM	JV-NBM	Payong
Improve motivational aspects	19 (26.8)	5 (16.7)	2 (18.2)	2 (20.0)	16 (34.0)
Provide more training/educational facilities	6 (8.5)	3 (10.0)	0 (0.0)	2 (20.0)	1 (2.1)
Have more discussions/meeting	6 (8.5)	3 (10.0)	0 (0.0)	4 (40.0)	13 (27.7)
Encourage team work	5 (7.0)	0 (0.0)	1 (9.1)	0 (0.0)	4 (8.5)
Business process reengineering (BPR)	7 (9.9)	0 (0.0)	2 (18.2)	1 (10.0)	8 (17.0)

**Keys:** Bumi = Bumiputra SMIs Non-Bumi = Non-Bumiputra SMIs JV-BM = Joint Venture with Bumiputra Majority JV-NBM = Joint Venture with Non-Bumiputra Majority Payong = Payong or Umbrella SMIs

Table 7.40(b) reveals that Non-Bumiputra SMIs and Joint Ventures with Bumiputra Majority took different actions to overcome the problems of the implementation of quality programme. Non-Bumiputra SMIs concentrated on improving motivational aspects, providing more training and educational facilities, and having more discussions and meetings, while the Joint Venture with Bumiputra Majority SMIs chose to undertake BPR and encourage more team work in the organization, as well as to improve staff motivation.

**Table 7.41(a): The Percentage of Payroll Allocated for Quality Enhancement**

Allocation	Frequency	Percentage
Less than 1.0 percent	16	9.5
1.1 to 2.0 percent	13	7.7
2.1 to 3.0 percent	16	9.5
3.1 to 4.0 percent	18	10.7
4.1 to 5.0 percent	0	0
5.1 percent and above	0	0

**Table 7.41(b): The Percentage of Payroll Allocated for Quality Enhancement**

Allocation	Bumi	N-Bumi	JV-BM	JV-NBM	Payong
Less than 1.0 percent	4 (5.6)	3 (10.0)	0 (0.0)	2 (20.0)	7 (14.9)
1.1 to 2.0 percent	3 (4.2)	1 (3.3)	1 (9.1)	2 (20.0)	6 (12.8)
2.1 to 3.0 percent	8 (11.3)	0 (0.0)	2 (18.2)	1 (10.0)	5 (10.6)
3.1 to 4.0 percent	6 (8.5)	5 (16.8)	0 (0.0)	0 (0.0)	7 (14.9)
4.1 to 5.0 percent	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
5.1 percent and above	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)

**Keys:** Bumi = Bumiputra SMIs Non-Bumi = Non-Bumiputra SMIs JV-BM = Joint Venture with Bumiputra Majority JV-NBM = Joint Venture with Non-Bumiputra Majority Payong = Payong or Umbrella SMIs

**Table 7.41(c): The Percentage of Payroll Allocated for Quality Enhancement**

Allocation	Bumi		N-Bumi		JV-BM		JV-NBM		Payong	
	S	M	S	M	S	M	S	M	S	M
Less than 1.0 percent	3	1	3	0	0	0	0	2	4	3
1.1 to 2.0 percent	2	1	1	0	0	1	0	2	4	2
2.1 to 3.0 percent	4	4	0	0	0	2	0	2	0	5
3.1 to 4.0 percent	3	3	2	3	0	0	0	0	4	3
4.1 to 5.0 percent	0	0	0	0	0	0	0	0	0	0
5.1 percent and above	0	0	0	0	0	0	0	0	0	0

**Keys:** S = Small Scale Industry M = Medium Scale Industry

‘Quality is free’, according to Philip Crosby (1979). However, to begin the Quality initiative process, budget plays an important part. This is especially true in the SMIs’ environment. Table 7.41(a) shows that how small a budget was allocated for the Quality Programme, expressed as a percentage of payroll. The highest allocation was between 3.1 to 4.0 percent.

Table 7.41(b) reveals that both Joint Ventures with Bumiputra and Non-Bumiputra Majority SMIs were only willing to budget up to 3 percent of their annual payroll for

quality initiative in their organizations, while the Bumiputra , the Non-Bumiputra and the Payong SMIs were willing to budget up to 4 percent. The difference in willingness to contribute to quality initiative among the Joint Venture SMIs is understandable because the share capital of their organization was contributed by two different parties, normally with different preferential priorities.

Table 7.42(c) again shows that there are some similarities with Table 7.6(c), Table 7.23(b) and (c) and Table 7.31(b) and (c) which was discussed earlier, that the decision making of the organization was in the hands of the few, i.e. CEO/Board, and the Executive Management. who were the major stakeholders of the business. For the SSIs in the Joint Venture with Bumiputra Majority SMIs, the willingness to participate in quality programme was very poor, hence the failure to allocate any form of budget for quality initiative in their organizations.

**Table 7.42(a): Would SMIs Consider Allocating A Bigger Budget for a Quality Enhancement Programmes?**

<b>Type of Answer</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Cum. Percentage</b>
Not answering at all	103	79.9	79.9
Yes	66	39.1	100.0
No	0	0	<b>100.0</b>
<b>Total</b>	<b>169</b>	<b>100.0</b>	

Valid Cases 169

Missing Cases : 0

However, almost all respondents are willing to consider allocating a bigger budget for their Quality enhancement programme in the future [See full details in Table 7.42(a) above].

**Table 7.42(b): Would SMIs Consider Allocating A Bigger Budget for a Quality Enhancement Programme?**

Type of answer	Bumi		N-Bumi		JV-BM		JV-NBM		Payong	
	S	M	S	M	S	M	S	M	S	M
Not answering at all	35	12	17	9	5	4	0	7	12	2
Yes	14	10	3	1	0	2	0	3	18	15
No	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>49</b>	<b>22</b>	<b>20</b>	<b>10</b>	<b>5</b>	<b>6</b>	<b>0</b>	<b>10</b>	<b>30</b>	<b>17</b>

**Keys:** S = Small Scale Industry M = Medium Scale Industry

Table 7. 42(b) shows a detailed breakdown of all the different groups of SMIs, in terms of their willingness to consider allocating a bigger budget for quality enhancement programme if circumstances permits. Both the Bumiputra and the Payong SMIs were to allocate bigger budget, while the remaining groups were not very willing to contribute more than necessary.

If given a bigger budget in the future, Table 7.43(a) shows that 48 or 28.8 percent of the respondents planned to send more participants on Quality initiative courses. 40 or 23.7 percent would engage a consultant to advise / implement a quality programme in their organization while 34 or 20.1 percent planned to set up their own Training Department for Quality initiative in their organization.



**Table 7.43(a): How SMIs Propose to Invest when Given A Bigger Budget**

How to invest	Frequency	Percentage
Set up own training department	34	20.1
Send more participants on courses	48	28.4
Engage a consultant to advise/implement quality programme	40	23.7
Others	2	1.2

**Table 7.43(b): How SMIs Propose to Invest when Given A Bigger Budget**

How to invest	Bumi	N-Bumi	JV-BM	JV-NBM	Payong
Set up own training department	10 (14.1)	1 (3.3)	3 (27.3)	3 (30.0)	17 (36.2)
Send more participants on courses	17 (23.9)	7 (23.3)	2 (18.2)	2 (20.0)	20 (42.6)
Engage a consultant to advise/implement quality programme	17 (23.9)	3 (10.0)	1 (9.1)	0 (0.0)	19 (40.4)
Others	2 (2.8)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)

**Keys:** Bumi = Bumiputra SMIs Non-Bumi = Non-Bumiputra SMIs JV-BM = Joint Venture with Bumiputra Majority JV-NBM = Joint Venture with Non-Bumiputra Majority Payong = Payong or Umbrella SMIs

**Table 7.43(c): How SMIs Propose to Invest when Given A Bigger Budget**

How to invest	Bumi		N-Bumi		JV-BM		JV-NBM		Payong	
	S	M	S	M	S	M	S	M	S	M
Set up own training department	5	5	1	0	0	3	0	3	10	7
Send more participants on courses	11	6	4	3	0	2	1	1	12	8
Engage a consultant to advise/implement quality programme	9	8	3	0	0	1	0	0	11	8
Others	0	2	0	0	0	0	0	0	0	0

**Keys:** S = Small Scale Industry M = Medium Scale Industry

Table 7.43(b) and Table 7.43(c) present a detailed breakdown as to how the SMIs proposed to invest when given a bigger budget for quality initiative programme.

**Table 7.44(a): General and Overall Strategy of Quality Programme in Respondents' Organization Over the Next 5 years**

Type of Strategy	Frequency	Percentage
To continue the current Quality Programme Implementation	17	10.6
To introduce an up to date Quality Programme	8	4.7
To implement full TQM programme/ISO 9000 series	48	28.4
To implement QIP /(ISO 9000 modification programme)	8	4.7
Set up new factory/ produce new products	9	5.5

In response to the question as to the general / overall strategy of the Quality Programme in that organizations over the next five years, 48 or 28.4 percent of the SMIs planned to implement a full TQM programme / ISO 9000 series quality standards in their organization. 17 or 10.1 said they expected to continue the current quality programme implementation in their organization [see Table 7.44(a)].

**Table 7.44(b): General and Overall Strategy of Quality Programme in Respondents' Organization Over the Next 5 years**

Type of Strategy	Bumi	N-Bumi	JV-BM	JV-NBM	Payong
To continue the current Quality Programme Implementation	7 (9.9)	3 (10.0)	1 (9.1)	0 (0.0)	6 (12.8)
To introduce an up to date Quality Programme	2 (2.8)	3 (10.0)	0 (0.0)	0 (0.0)	3 (6.4)
To implement full TQM programme/ISO 9000	17 (23.9)	5 (16.7)	2 (18.2)	5 (50.0)	19 (40.4)
To implement QIP (ISO 9000 modification)	4 (5.6)	1 (3.3)	2 (18.2)	0 (0.0)	1 (2.1)
Set up new factory/produce new product	6 (8.5)	1 (3.3)	0 (0.0)	0 (0.0)	2 (4.3)

**Keys:** Bumi = Bumiputra SMIs Non-Bumi = Non-Bumiputra SMIs JV-BM = Joint Venture with Bumiputra Majority JV-NBM = Joint Venture with Non-Bumiputra Majority Payong = Payong or Umbrella SMIs

Table 7.44(b) reveals a very interesting observation. The Joint Venture with Non-Bumiputra Majority SMIs were only interested on TQM and ISO 9000 series certification as their general and overall strategy of quality programme in respondents' organization over the next five years. The reason could be as indicated in Chapter Five, section 5.2.2, pp. 142-143 and these Joint Venture SMIs have their own quality system practices imposed by their parent companies. Therefore, their decision to only concentrate on TQM and ISO 9000 series certification could be in-line with their parent companies' policy.

### **7.5.2 Evaluation of SMIs' Development Strategies**

The ten statements in this sub-section concerned whether the training institutions are currently doing a 'good job', whether SMIs face any shortage in manpower to manage their operation, especially in the field of modern and advanced technology, whether they could cope with technical and professional standards, the spread of computer literacy, Government (State and Federal) support to SMIs in getting suitable factory sites and affordable office space, whether terms imposed on SMIs by financial institutions are realistic, and whether SMIs answer frankly the questions in loan / grant application forms. The socio-economic role of SMIs, the adequacy of SMIs Quality Standards for penetration of internal and export markets and the extent of satisfaction with the roles of the Government agencies and the umbrella companies in helping SMIs to enhance their quality programme, as well as subcontracting works, were also explored.

For the purpose of easy calculation, the researcher has decided to assign point system to the available choices as portrayed below. For examples strongly disagree: 3 points, disagree: 2 points, slightly disagree: 1 point, N/A (neutral): 0 point, slightly agree: 1 point, agree: 2 points and strongly agree: 3 points. The score points will have to be multiplied with the assign points in order to determine the total score where the decision is to be based. The side with the highest cumulative score will guide the decision to be made.

#### The allocated point system

Strongly disagree	Disagree	Slightly disagree	N/A (Neutral)	Slightly agree	Agree	Strongly agree
3 points	2 points	1 point	0 point	1 points	2 points	3 points

**Table 7.45: The Training Institutions Currently doing A Good Job in Disbursing Their Responsibilities in giving Technological Enhancement and Training to SMIs Workforce**

Strongly disagree	Disagree	Slightly disagree	N/A (Neutral)	Slightly agree	Agree	Strongly agree
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
1	2	2	0	30	41	4

The majority of the respondents agreed that the training institutions are currently doing a good job in disbursing their responsibilities in giving technological enhancement and training to SMIs workforce (See Table 7.45).

**Table 7.46: Currently SMIs do not Face any Shortage in Manpower to Manage their Operation, especially in the Field of Modern and Advanced Technology, they Can Cope with Technical and Professional Standards**

Strongly disagree	Disagree	Slightly disagree	N/A (Neutral)	Slightly agree	Agree	Strongly agree
1	2	3	4	5	6	7
9	13	37	18	32	1	0

Most respondents thought that currently SMIs face shortages in manpower to manage their operation, especially in the field of modern and advanced technology. They cannot comply with technical and professional standards, with the existing modern and advanced technology (See Table 7.46).

**Table 7.47: Computer Literacy is Widespread in SMIs**

Strongly disagree	Disagree	Slightly disagree	N/A (Neutral)	Slightly agree	Agree	Strongly agree
1	2	3	4	5	6	7
0	18	37	15	6	4	0

Most respondents agreed that there is widespread computer illiteracy within the SMIs in Malaysia (See Table 7.47).

**Table 7.48: The Government (State and Federal) Currently Gives Full Support to SMIs in getting Suitable Factory Sites and affordable Office Spaces for their Business**

Strongly disagree	Disagree	Slightly disagree	N/A (Neutral)	Slightly agree	Agree	Strongly agree
1	2	3	4	5	6	7
0	6	15	33	21	2	2

It was widely believed that the Government (State and Federal) somehow currently succeeded in giving full support to SMIs in getting suitable factory sites and affordable office spaces for their business daily operation (See Table 7.48).

**Table 7.49: The Financial Institutions Currently are Very Realistic, Especially in Charging Reasonable Interest Rates, as well as Imposing Easy Loan Terms on SMIs**

Strongly disagree	Disagree	Slightly disagree	N/A (Neutral)	Slightly agree	Agree	Strongly agree
1	2	3	4	5	6	7
0	26	18	22	8	6	0

The Majority of the respondents did not agree that the financial institutions are currently very realistic, especially in charging reasonable interest rates, as well as imposing easy loan terms on SMIs (See Table 7.49).

**Table 7.50: SMIs are Very Sincere and Frank when Answering all Questions in the Loan Application Forms and When Applying for Government Subsidy or Grant**

Strongly disagree	Disagree	Slightly disagree	N/A (Neutral)	Slightly agree	Agree	Strongly agree
1	2	3	4	5	6	7
0	0	8	20	26	21	5

There was broad agreement that SMIs are very sincere and frank when answering all questions in the loan application forms and when applying for a government subsidy or grant (See Table 7.50).

**Table 7.51: With the Current Leadership Commitment and Sincerity, SMIs Will Become the Core Organization to Enhance the Development of Socio-Economic Activity of the Country**

Strongly disagree	Disagree	Slightly disagree	N/A (Neutral)	Slightly agree	Agree	Strongly agree
1	2	3	4	5	6	7
0	0	0	1	19	38	22

The majority of the respondents agreed that the current leadership commitment and sincerity, has proved to be a helping force to make the SMIs the core organization to enhance development on the socio-economic activity of the country (See Table 7.51).

**Table 7.52: The Quality Standard of Products and Services of SMIs is High and therefore they Could Easily Penetrate the Internal and Export Markets**

Strongly disagree	Disagree	Slightly disagree	N/A (Neutral)	Slightly agree	Agree	Strongly agree
1	2	3	4	5	6	7
3	0	15	16	24	22	0

The majority of the respondents agreed that the Quality Standard of the products and services of SMIs is high and therefore they could easily penetrate the internal and export markets (See Table 7.52).

**Table 7.53(a): The Following Government Agencies which were set-up to Look after the well-being of SMIs, have so far done their Job Well**

Government Agencies	Strongly disagree	Disagree	Slightly disagree	N/A (Neutral)	Slightly agree	Agree	Strongly agree
	1	2	3	4	5	6	7
Bank Industry Malaysia Bhd. (BIMB)	2	2	5	25	12	26	4
Bank Pembangunan Malaysia Bhd. (BPMB)	2	2	0	25	13	27	7
Malaysia Export Credit Insurance Bhd. (MECIB)	3	1	1	26	18	19	7
Credit Guarantee Corporation Malaysia Bhd. (CGC)	1	0	2	26	15	25	5
Malaysia Industrial Development Finance Bhd. (MIDF)	2	1	4	21	10	33	5
MARA (Loan)	1	4	3	22	14	26	5
SIRIM (ITAF)	1	4	4	9	11	32	18
Customs Department (Tax incentive)	1	1	5	16	12	30	9
Income Tax Department (Tax incentive)	2	3	3	12	18	33	5
MITI (Pioneer status)	2	0	0	8	15	36	13

The results are: The majority of the respondents agreed that all the government agencies which were set up to look after the well being of SMIs, have so far done their job well.



**Table 7.54(a): The Umbrella Companies such as the Following, have done their Job Well in helping SMIs to enhance their Quality Programme, as well as Subcontracting Works**

Umbrella Companies	Strongly disagree	Disagree	Slightly disagree	N/A (Neutral)	Slightly agree	Agree	Strongly agree
Besta	1	2	3	4	5	6	7
Guthrie Manufacturing Berhad	5	1	6	11	16	24	7
Malaysian Agriculture Research & Development Inst (MARDI)	4	0	3	11	21	29	10
Standards and Industrial Research Institute of Malaysia (SIRIM)	4	1	1	12	24	23	5
Federation of Malaysia Manufacturers (FMM)	2	0	4	10	18	27	16
Heavy Industries Company of Malaysia (HICOM)	2	1	6	8	21	25	9
Perbadanan Otomobil Nasional (PROTON)	3	1	3	14	17	25	7
PERWAJA	3	1	3	12	14	24	14
Petroleum Nasional Berhad (PETRONAS)	3	1	6	13	22	22	3
	3	3	3	13	20	20	9

Most respondents agreed that the umbrella companies, have done their job well in helping SMIs to enhance their quality programme, as well as their subcontracting works

**Table 7.53(b): The Following Government Agencies  
which were set-up to look after the well-being of SMIs, have so far  
done their Job Well**

Government Agencies	Strongly disagree 1	Disagree 2	Slightly disagree 3
Bank Industry Malaysia Bhd. (BIMB)	NB 1(SS1) P 1(MSI)	NB 1(SS1) P 1(MSI)	B 1(MSI) NB 1(SS1) JVNB1 1(MSI) P 1(SS1+MSI)
Bank Pembangunan Malaysia Bhd. (BPMB)	NB 1(MSI) P 1(SMI)	NB 1(SS1) P 1(MSI)	0
Malaysia Export Credit Insurance Bhd. (MECIB)	NB 1(MSI) P 1(SS1+MSI)	NB 1(SS1)	P 1(MSI)
Credit Guarantee Corporation Malaysia Bhd. (CGC)	P 1(MSI)	0	NB 1(SS1) JVNB1 1(MSI)
Malaysian Industrial Finance Bhd. (MIDF)	NB 1(MSI) P 1(SS1)	NB 1(SS1)	JVNB1 1(MSI) P 1(SS1)+2(MSIs)
MARA (Loan)	NB (MSI)	B 1(MSI) NB 1(SS1) P 2(MSIs)	NB 1(SS1) P 1(SS1+MSI)
SIRIM (ITAF)	NB 1(MSI)	B 1(MSI) NB 1(MSI) P 1(SS1+MSI)	NB 1(SS1) JVNB1 1(MSI) P 1(SS1+MSI)
Customs Department (Tax Incentive)	NB 1(MSI)	P 1(SS1)	B 2(MSIs) NB 2(SSIs) P 1(SS1)
Income Tax Department (Tax incentive)	NB 1(MSI) P 1(SS1)	B 1(MSI) NB 1(SS1) P 1(SS1)	NB 1(SS1+MSI) P 1(MSI)
MITI (Pioneer status)	NB 1(MSI) P 1(SMI)	0	0

**Keys: B = Bumiputra NB = Non-Bumiputra JVBM = Joint Venture with Bumiputra Majority  
JVNB1 = Joint Venture with Non-Bumiputra Majority P = Payong or Umbrella**

When looking at Table 7.53(a), and Table 7.54(a), superficially it appears that everything is all right, but once we go deeper under the surface we realise that there are problems. Implementation of the Government's development programmes, especially the two-pronged NEP objective started in 1970, has faced some negative responses. The Non-Bumiputra SMIs view it as a competitive threat to their livelihood, especially in trading and manufacturing. The researcher does not intend to politicize this issue, but interested parties are recommended to read the latest edition of *The Malay Dilemma* by Dr.

Mahathir Mohamed, 1994. Further suggested reading is Chandra Muzaffar's book entitled 'The NEP Development Alternative Consciousness' published by Aliran, Penang; Malaysia.

Looking at Table 7.53(b) and Table 7.54(b) we can concluded that the Non-Bumiputra SMIs are not very happy with the job done by the SMIs' Development Agencies. The job of the Umbrella companies is also being questioned by the Non-Bumiputra SMIs, as shown in both the above tables.

**Table 7.54(b): The Umbrella Companies such as the Following, have done their Job Well in helping SMIs to enhance their Quality Programme, as well as Subcontracting Works**

Umbrella Companies	Strongly disagree 1	Disagree 2	Slightly disagree 3
Besta	B 1(MSI) NB 2(MSIs) P 1(SSI+MSI)	JVNBM 1(MSI)	NB 3(SSIs) JVNBM 1(MSI) P 2(SSI+MSI)
Guthree Manufacturing Bhd.	NB 2(MSIs) P 1(SSI+MSI)	0	B 1(SSI) NB 1(SSI) P 1(MSI)
MARDI	NB 2(MSIs) P 1(SSI+MSI)	NB 1(SSI)	B 1(MSI)
SIRIM	NB 1(MSI) P 1(SSI)	0	NB 2(SSIs) P 2(MSIs)
FMM	NB 1(MSI) P 1(SSI)	P 1(MSI)	B 2(MSIs) NB 1(SSI) JVNBM 1(MSI) P 1(SSI+MSI)
HICOM	NB 2(MSIs) P 1(MSI)	B 1(MSI)	NB 1(SSI) P 1(SSI+MSI)
PROTON	NB 2(MSIs) P 1(MSI)	P 1(SSI)	NB 1(SSI) JVNBM 1(MSI) P 1(MSI)
PERWAJA	NB 2(SSIs) P 1(SSI)	P 1(MSI)	B 1(MSI) NB 1(SSI) JVNBM 1(MSI) P 2(SSIs+1(MSI)
PETRONAS	NB 2(MSIs) P 1(MSI)	NB 1(SSI) P 1(SSI+MSI)	NB 1(SSI) JVNBM 1(MSI) P 1(MSI)

**Keys: B = Bumiputra NB = Non-Bumiputra JVBm = Joint Venture with Bumiputra Majority  
JVNBM = Jiont Venture with Non-Bumiputra Majority P = Payong or Umbrella**

## **7.6 Conclusion**

In this chapter the researcher has analysed, discussed and tabulated all the information gathered from the TQM-SMIs survey 1996. Much new information and new data on Malaysian SMIs have been found, which will be very useful for the future development of Malaysian SMIs and also to develop TQM strategies for the SMIs.

The business, social and economic questions facing Malaysian SMIs can now be assessed and evaluated more closely, with these findings upon which discussion and decisions can be based . These discussions and decisions would, however, be basically pointless if the data used were biased or misleading. For this reason, the researcher has made every possible effort to ensure that the data in this chapter are free from bias and perfectly useful for discussions and decision making.

## **CHAPTER EIGHT**

### **Discussion: Part One**

#### **8.0 Introduction**

Inevitably, looking at the Data Analysis in **Chapter Seven** and discussions in the previous chapters, TQM culture varies from one SMI to another, in the same way that culture and values vary from one type of SMI to another. However, the essential principles are the same and equally useful, not only among the different SMIs, but also among the different divisions of the same SMI, the service areas such as sales and marketing, production, customer service, procurement, management, finance, R&D, personnel and HRM. However, the organization plans to embark on Quality Programmes among the different type of the SMIs differ slightly (Chapter Seven, Table 7.11, pp. 230-231). More than half of the total respondents had no plan to embark in Quality Programmes, while the other have some experience but only as beginners. The main reasons given for not implementing quality programmes were shown by Tables 7.13(a), (b) and (c), pp. 234-235. In the current scenario, SMIs require a total achievement in TQM programmes and maintenance of quality initiatives on a total scale basis. This needs the involvement of everyone, working towards a common goal of improving organizational activities which can easily be analysed by an examination of its inputs and outputs.

Major achievements claimed in the survey include increase of profitability, removal of waste, reduction of costs, improvement of reputation, improved quality of service and quality of product, improved employee satisfaction and participation and increased market share. (See Table 7.36, pp. 265-266). However, these are not the main objectives of TQM, they are simply its natural consequences. Continuous improvement and innovation are the main objectives. Quality of service and of product improvement is the main choice of most SMIs (Table 7.37, p. 267). When this area has improved, the customer satisfaction will be taken care of, while the increase in profitability is due to the result of the main choice earlier. This choice can be considered as an objective in which one can give a 'name' to a non-static, updating and never-ending process of improvement. It is an objective without a completion date, because nothing can ever be immune from further improvement; new technologies, methods and attitudes or the presence of innovation which advocates change, that will enable and which can ensure the achievement of the Total Quality objective.

In a TQM culture, the top executives themselves are the advocates of change [see Tables 7.18(a), (b) and (c), pp. 242-244 and Table 7.19, pp. 244-246]. They must be, because no improvement can ever be materialised without a change in the old management attitudes and, in particular, in the attitude embodied in the maxim, *stick to what you know*. The stage can never be reached when what you know is enough. Progress and breakthrough have always been due to those advocates of change who did not want to adjust their actions to fit in with their environment; to those who eventually succeeded in making the environment fit with their belief and actions; actions which turned out to be correct. Progress and success for SMI, therefore, can be materialised only when a committed top

management accepts the challenge of change, and becomes the leader in defining a (new) Total Quality Policy and in creating the conditions to enable everybody to fit into this policy. As major shareholders, they normally have to decide the ethos of the company.

### **8.1 Direction of TQM for Malaysian SMIs**

Following from Chapter Five, pp. 170-181, it is necessary to examine the TQM Model for SMIs and with reasons given by SMIs for not undertaking Quality Programmes, indicated by Tables 7.13(a), (b) and (c), pp. 234-235. There are , a great number of the respondents have already shown a positive attitude towards quality programmes. This is a very encouraging state of affairs and therefore, the researcher felt that in order to encourage the undertaking of quality programmes and to encourage the application of the quality model mentioned earlier, the definition for TQM in SMI's context should be as follow:

‘Total quality management is a management philosophy which puts systems and processes in SMI organizations in place to meet and exceed the expectations of customers. It is a relentless quest for SMI's continuous improvement through documentation and the use of tools in a problem solving atmosphere that features SMI team action and good leadership practices which leads the SMI business or organization to its maximum achievement’.

There is a need for SMIs to be given priority for exposure to the importance of quality programmes in order to ensure that they can survive and grow in the highly competitive market. Improvement of systems through process management, then, is a key feature of TQM implementation. The goal is to improve systems and processes by creating an environment where management (including the owner of the SMI / business) and workers

examine *customer needs* and do their jobs in the most efficient manner possible. As the year 2020 approaches, SMIs' development is vital. Therefore, to ensure this, the *Training Institutions and Development Agencies* dealing with SMIs need to keep abreast of new theories and requirements of Total Quality for SMIs. The staff of the Training Institutions (see Tables 7.23(a), (b) and (c) pp. 249-252) such as SIRIM, MARA Entrepreneurs' Development Division, NPC, CIAST, MEDEC, ITI, MARDI, FRIM, PSDC, MIT, IKM and local Universities and Development Agencies such as Bank Industry Malaysia Berhad (BIMB), BPMB, MECIB, CGC, MIDF, Mara (Loan), SIRIM (ITAF), Custom Department (Import and Export Tax incentives), Tax Department (Tax incentives) and MITI (Pioneer status), with responsibility for SMIs' development, need training in Total Quality Management concepts, tools and techniques, so they can assist SMIs to know their roles and responsibilities in this quest for continuous improvement. This is important because SMI owners are often people with relatively little education; therefore they will normally have less interest and initiative for the improvement of their business. Training institutions and government agencies as *'the professionals'* therefore, have to lead the way to encourage these SMI owners to accept the TQM concepts, tools and techniques to ensure the survival of their business in the future.

The best way to begin this quest is to improve communication lines and ensure that everyone is more comfortable with their work situation. There is an indication that this have been done and shown in the SMIs environment [see Tables 7.35(a), (b) and (c), pp. 263-264]. Therefore, the training institutions and development agencies' staff must be encouraged to inform their management (*administrators and staff*) about situations in which process improvement can occur. Management must remove barriers which stand



in the way. It must also be recognised that organizations will benefit when people are empowered to improve themselves. This will need a focus on *professional development* and solid support from all concerned (Deming, 1986).

Management support includes firm commitment to implement and support a total quality improvement initiative. This involvement and commitment are essential because TQM is *a long term, rather than short-term process*. Training institutions and development agencies' staff need assurance that total quality improvement is not just another administrative programme which will wither and die. TQM theories and concepts will fit in SMIs when all concerned are convinced that their application can be customised to the need of SMIs; thus, they too will be involved in their implementation.

### **8.1.1 The Concept of Quality in SMIs**

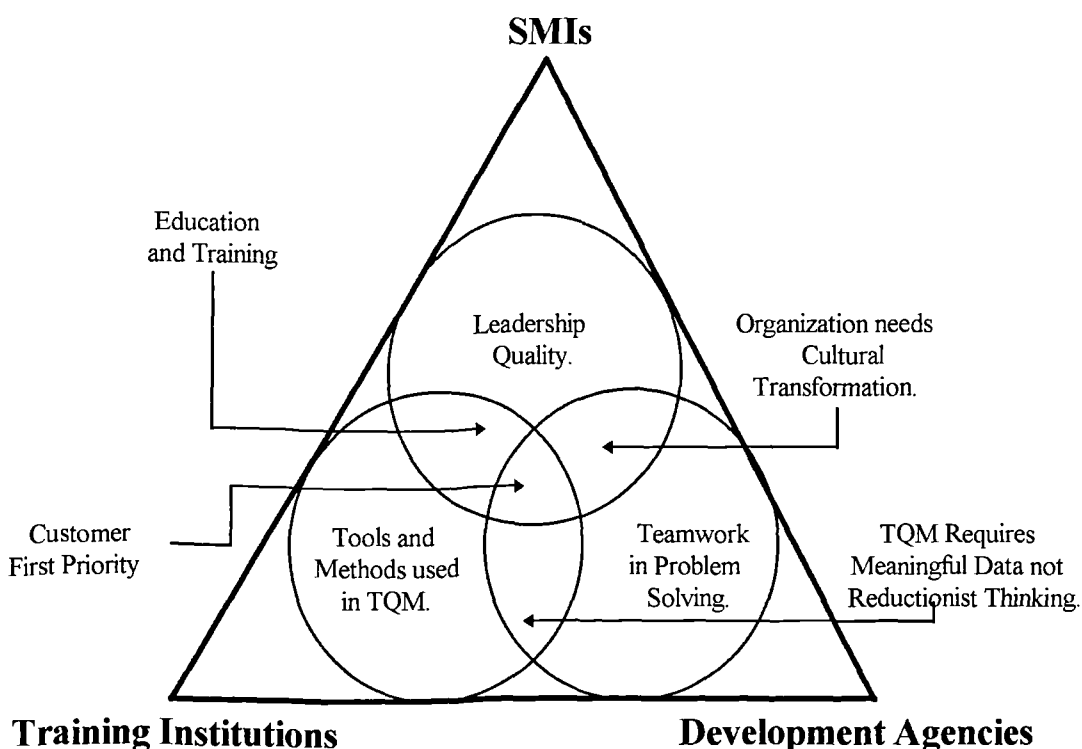
There are a number of Quality Concepts as understood by many people, but the management approach for SMIs presented in this chapter is the TQM approach. It is also known by many different terms such as Continuous Process Improvement (CPI), Total Quality Leadership (TQL), Total Productive Management (TPM), Total Quality Control (TQC) and Continuous Quality Improvement (CQI). For the purpose of standardisation, these different terms are all accepted to mean TQM. Details of these management approaches, concepts and their strengths and weaknesses were presented in **Chapter Four**.

The approaches used have focused largely on measurement and Statistical Quality Control (SQC) or SPC. The focus was broadened in Japan to include human development features and customer service emphasis. While TQM has taken its share of criticism, largely owing to statistical control and patchwork applications, the humanistic approaches taken recently have resulted in an organizational force which believes that quality can be achieved best by an educated, motivated and empowered workforce. The reasons become obvious, when work and the way it is organised are examined.

When work is viewed as a process (**Chapter Four**, pp. 112-114), it is easy to understand that improvement will come when input is received from everyone involved in each segment of it. In this *new people centered* atmosphere, *those who deliver the work and perform the process define quality according to standards which are set based on those who use or benefit from the product or service being delivered*. It is the customer service which distinguishes TQM from other systems of improvement. This *customer first* approach is rather alien to Malaysian SMIs (see Table 7.10, pp. 228-229) where more than half of the respondents did not have experience of quality programmes. The focus in the past has often been ‘*self*’ rather than *others*. The TQM ethic, however, focuses on service to others.

SMIs, being small in size, normally have no interest and facing financial difficulties to implement the quality initiative programme themselves (see Tables 7.12, pp. 231-233). Therefore, they need the support of training institutions and development agencies. The researcher believes that there is a need for joint efforts of these three institutions (SMIs, training institutions and development agencies). Together, they will strengthen and

brighten the future of the Malaysian SMIs. In this chapter, the **TQM organization model for SMIs** is therefore discussed with the hope of improving the current quality problems faced by most of the Malaysian SMIs [see Tables 7.13(a), (b) and (c), pp. 234-235] so that it will be in line with Vision 2020's mission and goals.



**Figure 8.1 TQM Organization Model for SMIs**

## **8.2 Customer is SMIs' First Priority**

As mentioned in the introduction paragraph earlier, SMI give services and products to customers just like any other business, and those customers express satisfaction and

dissatisfaction on the products and services provided. When TQM is applied to an SMI, it is essential that customers be identified by the supplier and that processes be established in order to determine their specific needs. The quality of service and products must then be continually analysed as efforts are made to meet or perhaps exceed customer expectations. (See **Chapter Five**, pp. 177-181).

SMIs must learn what constitutes quality in the eyes of past, present and potential future customers and then deliver what is necessary to meet those expectations. To define quality, it is necessary to ask those people whom the products or services are intended to benefit. Customer service compels organizations to be specific about those they serve (See Chapter Four, **Principles of TQM**, p. 115).

Who is the SMI intended to benefit? The current scenario somehow assumes and emphasises that Large Scale Industries (LSIs) are the primary customers. They are customers, to be sure, but the customer relationship is somewhat different from the case of customers in schools, hotels, restaurants or government offices. LSIs may or may not know what they want or what SMIs can provide them with. This is where the *professional* (training institutions and development agencies) comes in. Such institutions and agencies can observe the '*whats*' and '*needs*' of the LSIs, then balance those needs with the needs of '*other customers*' who may also have a stake in SMIs' development programme. These include export markets which use the LSIs' services and other agencies which may later provide advanced instruction or demand. The professional in this process applies expertise in meeting and exceeding the expectations of the various stakeholders (customers) and determining how best to do it, given the desires and

constraints imposed by all. Likewise, training institutions and development agencies, too, are customers or suppliers for *'the internal'* process. An institution or agency is a customer of other SMIs, as it cooperates to integrate the requirement of the specific customers. Training institutions and development agencies receive services from others within the *organization* . In this scenario, all the training institutions and development agencies' staff are suppliers as they provide services to both SMIs and the training institution and development agencies. The ultimate target, objective, goal or vision is to improve processes and systems to exceed the needs of both internal and external customers.

In return for taking part in this 'Joint Venture', SMIs were assured of other benefits of the venture such as shown and supported by Table 7.26, p. 256 and Tables 7.35(a), (b) and (c), pp. 263-264 as discussed earlier.

### **8.2.1 Competitive Benchmarking and Diagnostic Process**

The customer focus also uses another concept of *TQM - competitive benchmarking*. The best description of benchmarking is that it involves searching systematically for the best practices and then adopting them by trying to do as well as or better than the competition. But, benchmarking strategy alone will not necessarily make the organization ahead of its competitors. Proper selection of quality programmes and quality costs implementation that suit your organization's need is important to ensure the success of the strategy (See **Note 2** and **Note 3** attached at the end of this thesis). For this, a diagnostic process prior

the introduction of the quality programme is equally important to save the organization from making mistake, losing money and time. Tables 7.31(a) , (b) and (c) pp. 259-261 reveal the details of some of the tools used by Malaysian SMIs and the main functional areas examined in the diagnostic process before introducing quality programme.

In the SMI, this idea should be attractive, as there are several well-conceived initiatives and training institutions available. The TQM process itself offers great opportunities for diagnostic process, benchmarking and sharing success and tribulations. The target is to have TQM Models for SMIs unique to each SSI and MSI and their areas of concentration as discussed in Chapter Five, pp. 170-181. There are several ideas and activities that can and should be shared and replicated

### **8.3 Leadership Qualities**

As has been discussed in the introduction earlier, leaders who have vision and can demonstrate commitment must be provided for the TQM process. Top-level buy-in and support are essential to show genuine concern to everyone in the quality improvement initiative. Besides this commitment to TQM at the upper echelons of the organization, assistance and support from the other functional areas in the organization such as Sales and Marketing, Production, Customer Service, Finance, Personnel / Human Resource, Quality Control and etc. shown by Tables 7.31(a), (b) and (c) pp. 259-261, are also required. This calls for an identification of priorities and design of action plans which

have to be endorsed by all concerned. Good communication and active involvement by all are the best way to make the new initiative work effectively.

The emphasis on leadership instead of traditional management will change the focus and transform the culture of the 'TQM SMIs'. Managers and executives and some senior workers will take on the new role of facilitator which centres on shared decision making with maximum input from the workers. In this transformed system, friendly collaboration and empowerment should prevail in a less hierarchical and more integrated network.

This shift toward new leadership styles throughout the organization would be a marked departure from traditional bureaucracies with top-to-bottom control. While those traditional approaches focused on *accountability and authority*, they usually lost effectiveness, efficiency and spirit because of the control imposed by those in charge. The TQM culture has manager, executive and workers owning their work and taking responsibility for learning, with a common mission and vision. A non-threatening environment is created through sharing of power, ownership, authority and trust. The idea is to encourage leadership skills throughout the organization by mutual understanding of the *common mission and vision* of both the organization and the professionals (training institution and development agencies) responsible for quality improvement of SMIs. The leadership styles practiced by the senior executives will become the leadership model for the staff and workers.

### 8.3.1 Teamwork in Problem Solving

The new TQM culture of the SMI also requires *renewed and genuine* teamwork because a lasting and significant changes such as shown by Tables 7.35(a), (b) and (c), pp. 263-264 and consequences of quality programme as shown by Table 7.26, p. 255, will not occur unless all parties concerned are directly and actively involved in the planning and development of desired changes. Such involvement by people close to the customer is paramount to the success of TQM in the SMIs. This requires everyone to be involved in quality improvement by participating on the teams as well as willing to accept cultural and structural change in the organization.

As mentioned in **Chapter Four**, teams are groups of people who work together toward common ends. In Japan this type of group is commonly known as QCC. This is the cornerstone of TQM. QCC can best review processes, determine where problems are, find their root causes and eliminate them forever. QCC has the expertise because members are usually close to the customer. QCC solves problems by documenting the processes of the work they are involved in and building consensus around issues while eliminating the causes of the problems in a systematic way. In its simplest form, teamwork can be defined as a joint action by a group in which each individual subordinates his or her interests and opinions to the unity and interests of the group. Teamwork is not only desired, it is required if problems are to be solved and meaningful changes are to occur in SMIs.



The TQM systems approach seeks to improve the whole without ignoring individual departments' accomplishments. In an environment of continuous improvement, dynamic and proactive approaches with an eye toward interrelationships become the norm. This improvement model views the entire organization as a system with hundreds of processes which are subject to review and analysis. This philosophy of continuous improvement, when applied to SMIs , examines all instructional processes. The entire planning and executing system, and all other supportive processes, commonly called employees or workers and / or manufacturing services, should come under review by the CEO and staff.

### **8.3.2 Tools and Methods used in TQM**

The review of process, required methods and tools common to TQM organizations, as was discussed in Tables 7.30(a), (b) and (c), pp. 258-259, could be used in the selection process. Teams address problems by applying the correct tools and scientific approaches in an atmosphere of a shared decision-making. (See **Note 2** attached at te end of this thesis for details). Management monitors the corrective solutions being tried, and standardises those which work, in cooperation with others. In this environment of problem-solving, data and scientific methodology ensure that systems are designed carefully and faulty ones corrected in '*permanent ways*' rather than with '*temporary fixes*'. The control mechanism discussed in Chapter Five, pp. 177-181, can be modified to suit and meet the process requirement. The goal is to eliminate the causes of problems forever.

There are several tools and techniques commonly used in problem-solving. Ishikawa calls them the seven management tools. As discussed earlier, these tools were outlined by the researcher in **Note 2**, at the end of this thesis. Other effective tools and methods include surveys, focus groups and interviews with customers. Several planning tools are also needed to create strategic directions and set goals in the organization and its quality teams.

As also have been discussed earlier, a system of ongoing quality assessment is also required. This control and evaluation system which examines the entire organization using agreed indicators of institutional effectiveness such control mechanism noted in Chapter Five, pp. 177-181 is crucial and important. This standard become the benchmark for the SMI quality initiatives or programmes and targets for improvement as they are continuously readjusted in a dynamic environment of assessing customer needs and setting systems in place to meet and exceed expectations.

#### **8.4 TQM Requires Meaningful Data, not Reductionist Thinking**

Quality must be specific and monitored and that requires the use of meaningful, correct data in the TQM organization. Unfortunately, many SMIs use antiquated systems to gather, compile and report information. (Chapter One, p. 11). Usually, *owing to lack of knowledge and competence*, a free recording system is used to collect and compile customers' and business records. These mammoth systems have elaborate record keeping processes which have been established for variety of reasons. SMIs are usually required

to report data in a certain way to comply with Government and government development agencies' directives. As a result, *reductionist thinking is always preferred*. The outcome is a mass of superfluous and confused information which is not meaningful for the decision-making process.

In the TQM environment, the goal is to collect data which determine and document user (customer) needs. It deploys public, visible information systems to let each person and each team know how they are doing. The information is shared with training institutions and government development agencies in concise and meaningful reports which are used to improve systems and processes. After processes are reviewed and changed to meet customer needs, *timetables or progress charts* are established to monitor processes and collect data on a sectional and organization-wide basis (**Chapter Five**, 'Visible Management System', p. 149). Everyone has access to information which in the past was reserved for *only a select few*. This sharing is necessary as the information is used by people to help them make better decisions with meaningful data collected, used and analysed by those closest to the processes and the customer. Tables 7.15(a) and (b), pp. 238-239, shows some of the improvement such as improved budget utilization, improved cost saving, improvements in organization structure and its control, improved technological processes and operations and last but not least, improvements in culture, attitude and perception of all people involved in the quality initiative programmes.

## 8.4.2 Organization needs Cultural Transformation

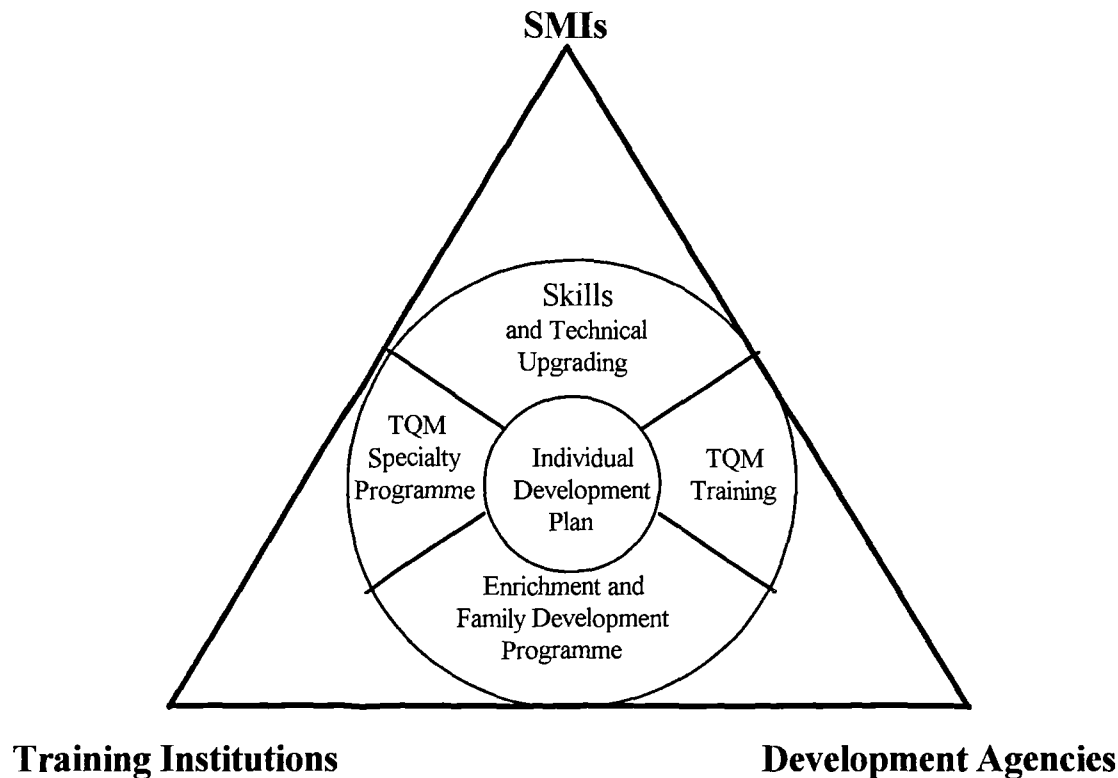
In the TQM institution, as mentioned and discussed at length in **Chapter Four**, people are seen as its most important resource. Everything possible must be done to develop them to be useful to the organization. The training [see tables 7.20, 7.21, 7.22 and 7.23(a), (b) and (c) pp. 246-252)], the common type of quality training and the initiatives taken (see Table 7.24, pp. 252-253) are geared towards contributing to the organization's mission and goals. Training programmes for staff and workers are very important to equip them with the knowledge and skills to face the type of quality programmes to be undertaken by the organization, and the structural changes resulting from the introduction of quality programmes [(see Tables 7.35(a), (b) and (c), pp. 263-264)], or changes of concentration resulting from the consequences of undertaking quality training programme as shown by Tables 7.25(a), (b) and (c), pp. 253-254. These changes need meaningful reform in SMIs. TQM becomes the model for systematic and continuous improvement and the change should be based on the needs of external and internal customers. New leadership skills emerge as SMIs' management and administrative styles come under review. A cultural revolution should occur across the whole SMI's organizations as these changes occur and *mutual accountability* replaces individuality.

Unfortunately, most of the time human and organizational development has often been ignored in half-hearted efforts to implement TQM using statistically based approaches and problem-solving activities which focus on accountability alone. The preferred system is to have a balanced approach which improves processes and accountability and enhances the welfare and morale of everyone associated with changes being advocated.

Such positive changes will set the stage for further improvement through team-building, consensus reaching and conflict resolution through QCC as mentioned in **section 8.3.1** above. Agreed operational guidelines and standards are written, and cooperation and partnerships flourish as it is realised that everyone in the institution wants to improve. All this will not happen quickly; it requires commitment and, most of all, patience.

### **8.4.3 Education and Training**

As agreed by most of the Quality writers discussed at length in **Chapter Four**, *'quality begins with education and ends with education'*. Therefore the primary factor which distinguishes TQM organizations from others is the focus on the individual development of employees. Those in charge realise that they can gain competitive advantage over other organizations by having a skilled workforce who are well-trained and up-to-date. They know that a highly skilled team of individuals who examine and change how work is processed and reviewed will set them apart from other institutions. Skills and technical programmes should be based directly on the professional development needs of every individual from the CEO to lowest personnel level on SMIs. **Figure 8.2** shows an ideal individualised plan with four components: skills technical upgrading, TQM training, TQM specialty programmes, and enrichment and family development programmes. An integrated approach with these four aspects of development will show everyone that employees' development is considered to be a top priority.



**Figure 8.2: An Individualised Professional Development Plan for a TQM Organization Model for SMIs**

As shown in the model, each person needs to be skilled and technically competent in his or her specialty (manufacturing, managing, processing, service, technical etc.). Unless individuals are up to date in their specialty, the professional and the SMI's owner and workers will become complacent and will fall behind. The second part of the model provides education and technical training in TQM concepts, education philosophy and technical skills. This keeps the process going and links employees together toward a common purpose. It reminds everyone about the organizational commitment to TQM and keeps individuals familiar with topics related to the movement. The ideal programme is one where everyone participates and there is emphasis on TQM application at each

personnel level (manufacturing, production, service and administration). This application feature is complemented with specialty topics related to TQM which are offered based on individuals' responsibilities and requirements. Types of quality training taken by most SMIs' employees are shown by Table 7.24, pp. 252-253 and the consequences after taking the quality training are shown by Tables 7.25(a), (b) and (c) pp. 253-254.

The final component is the enrichment and family development programme. It has a growing importance in today's organizational, physical, economic, emotional and family relationships. Organizations have begun to realise that the physical and mental health of employees and their families is important to the well-being of the institution, for it leads to greater productivity and improved relationships, as already discussed in **Chapter Five**. Therefore, the ultimate goal of the employees' development programme should be a plan which is comprehensive and individualised with integration of TQM instruction with other career enhancement aspects. The researcher strongly believes that this TQM concept can work in Malaysian SMIs.

## **8.5 Expected Results**

What results can a SMI expect from implementing TQM? What are the returns on the investment? Tables 7.32(a) and (b), p. 261, Table 7.34, p. 263 and Tables 7.35(a), (b) and (c), pp. 263-264 could be used to satisfy those questions asked. To create transformation in the SMIs, the initiators (SMIs, training institutions and development

agencies) must work hard and work hand in hand to ensure the likely returns on the investment.

The benefits of quality implementation are long-term. Some people will be looking for quick results, but patience is needed. This is why top-level commitment is so vital. Otherwise, those early expectations of workers will create *special challenges* which might be hard to overcome. If there is enough patience, the results will begin to justify the early investments in training and workers' time. The *experts* feel that an organization will automatically improve and show results in time if the quality process is *properly* applied.

The compilation of these benefits from the departments, and the results documented during the assessment process, will produce the outcomes which critics have been asking for. The researcher contends that SMIs, training institutions and development agencies have the responsibility to provide the same kind of information and documented results that corporations give to board directors and stockholders. In SMIs, results should be examined in four main areas, in relation to these questions:

1. Has production improved as a result of TQM implementation?
2. Is the organization more efficient?
3. Do the products and services reflect TQM competencies?
4. Has the culture of the institution changed with a primary focus on the needs of the customers?



These should be the major criteria in examining the results of TQM implementation. The sum total of any institutional effectiveness plan must also reflect measurement in those areas. Those results should provide enough indicators to justify the quality initiative. However, to have a further benefit, the above criteria should be combined with the TQM Models for SMIs discussed in **Chapter Five**, The eight areas of concern and measurement to check the successful implementation of the quality initiative should closely be followed and they should further be dealt with in detail. These said areas of concern and measurement are: Leadership, Policy and Strategy, People Management, Resources, Processes, Customer Satisfaction, Employee Satisfaction and Business Results or the outcome of the initiative / operation, and are discussed at length as **Note 5**, pp. 23-28, at the end of this thesis.

## **8.6 Conclusion**

There are often disagreements about the merits of TQM in SMIs among *'people who know very little about it'*. The attempts of some SMIs to limit TQM to administrative and service sections only have done a disservice to the quality initiative. Quality in SMIs demands fundamental change in the way things are done in these institutions and requires systematic review of all processes in the institutions.

The nature of problems of quality implementation in SMIs has caused many TQM movements to be initiated from the top, and these movements are occurring in some of the most elite Malaysian SMIs such as the only SMI to receive the Prime Minister's

Quality Award to date, Cepak Paper Products (M) Sdn. Bhd, (1994), and SIRIM QIP Award; Malpro Industri Sdn. Bhd., Akib Holding Sdn. Bhd. and Promotex Sdn. Bhd. as reported by SIRIM (1995). Many people currently feel that fiscal problems such as occurred in the 80s will continue and require massive change in the way SMIs do business. Fundamental to this is the demand for quality products and services delivered at a reduced cost or price.

The claims of both proponents and critics of TQM initiatives in SMIs are usually overblown, which also creates problems. Some see TQM as merely a new formulation of old ideas; others feel that continuous improvement efforts can open doors to potential changes in such traditional ideas as institutional methodology and assessment. Deming, for one, would have grades eliminated entirely. What is important is to sort out these problems and other issues as the TQM initiative begins to take hold in SMIs. This means that it is necessary to analyse how these and other features of TQM will fit SMIs:

- serving customers;
- reducing variations in processes;
- decentralising management; empowering teams;
- fostering continuous improvement;
- determining institutional effectiveness;
- conforming to requirements;
- focusing on prevention rather than inspection;
- managing vs. leading;
- establishing assessment criteria.

Demands to review these features and change time-honoured practices through claims by a handful of TQM '*champions*' have created an initial reaction which has been somewhat negative ( see **Note 2**, at the end of this thesis for details). Yet there is enough evidence to show that there is undoubtedly something behind TQM. The concepts seem to fit the times and TQM does contain some new insights attractive to growing numbers of Malaysian SMIs [(See Chapter Seven, Table 7.26, p. 256; Tables 7.33(a) and (b), pp. 262-263 and Tables 7.35(a), (b) and (c), pp. 263-264 for details)].

## **CHAPTER NINE**

### **Discussion: Part Two**

#### **9.0 Introduction**

Malaysia has probably the most extensive network of SMI agencies and programmes. However, important though the institutional framework may be, more pertinent is the net impact of these agencies and programmes on the overall development of SMIs in their respective field of undertaking. Since a vast amount of resources appears to have been committed to their development, the results of the efforts should be worthwhile. The year 1993 was a fulfilling year for the Civil Service of Malaysia. The administrative improvement efforts rigorously pursued over the past few years brought gratifying results in terms of increased quality of output as well as recognition and application. The Civil Service should be justifiably proud of the recognition it received from various quarters of the Malaysian economy, especially the Development Agencies and the Training Institutions that are responsible in the development of the SMIs [( see Table 7.45, p. 278; Table 7.48, pp. 279-280; Table 7.49, p. 280; Table 7.51, p. 281; Table 7.53(a), p. 282 and Table 7.54(a), p. 283].

However, as has been indicated in the previous Chapters, it was reported that in the Malaysian experience, the results still do not appear commensurable with their cost. After more than two decades of development efforts, there is little indication that Malaysia has a dynamic SMI sector. In fact, the ‘neglected’ sector is still dominated by traditional,

inefficient and non-competitive SMIs producing low quality, low price products largely for a parochial market, (see **Chapter Three** for further details). But Table 7.52 on p. 281, indicated otherwise, that the quality standards of products and services of SMIs are high and should therefore be able to fetch higher prices and easily penetrate the internal as well as the external markets. The problem is not the SMIs but probably to the lack of proper planning and strategy on the part of the Government and the agencies that are responsible for the development of this 'unfortunate' sector.

The relatively unattractive salaries and working conditions offered by many SMIs' Development Agencies, could be the main reasons because they deprive SMI organizations of qualified and competent officers to look into the welfare of SMIs. This is quite obvious in many SMI training institutions where the trainers often lack the minimum technical skill, the special knowledge and needs of SMIs or having the necessary business experiences to provide useful training (see Chapter Three, pp. 85-86 and Chapter Seven, pp. 246-254 for details).

Limited resources, however, is only one aspect of the problem. Even if more resources were available, SMI training institutes' programmes may not necessarily be effective. For example, although the official stance has been one of firm commitment to the promotion of SMIs and indeed many government agencies and programmes have been established to help the proper development of this sector, the general consensus of opinion among scholars and policy-makers alike is that the Government has not succeeded in helping SMIs. One reason is bias in the government incentives and assistance programmes which tend to favour large industries and the concentration given to the development of

Bumiputra SMIs. (See all the seven Malaysia Plans strategies in Chapter Three, pp. 74-85). The existing case-by-case tariff setting and tariff exemption mechanism require information which small enterprises are usually not able to provide; the government's insistence on banks providing cheap loans to small enterprises has made such loans unattractive to bankers as well as making the banks unpopular with SMIs (see Table 7.49, p. 280). The racial bias in the assistance programmes, as indicated earlier, has caused a diversion of funds and resources from productive economic use and at the same time creates negative impacts in their implementation (see Tables 7.53(b) and 54(b), pp. 284-285).

Useful data for planning SMI's development are often not available. (See **Chapter Two** for details). Consequently, planning for SMIs is often carried out on the basis of assumptions and crude estimates, while assistance programmes for SMI evolve on an *ad hoc* basis. As a result, SMI programmes generally lack a clear focus. Instead of targeting a specific SMI group, the assistance is often dispersed widely and ends up benefiting SMIs which neither need nor deserve the assistance. At the same time, the failure of SMI's development programmes must also be attributed to the SMIs themselves. Although SMIs comprise a large majority of manufacturing enterprises they are generally weak in organising themselves. Therefore, in order to be successful, the government development agencies as well as SMIs must work hand in hand to achieve the set goals (see Model for SMIs organization in Chapter Eight, p. 293 for details). The success of SMI programmes must be assessed on the genuine participation of the three players, i.e., the government development agencies, the training institutions and the SMIs themselves.

## 9.1 The Government Recognition on the Civil Service Improvement Efforts

Dato Sri Dr. Mahathir bin Mohamad, the Prime Minister, had earlier given recognition to the Civil Service and government agencies for their efficiency during the Excellent Service Awards function at the Home Ministry held on 30 April 1993 (Ahmad Sarji, 1993). In his keynotes address during this function The Prime Minister quoted:

*'.....Malaysia does not face the kind of problems encountered by many developing nations because its administrative system is well-organised and forward-looking. It has succeeded where many countries, which achieved their independence after the Second World War, had failed because the Government had a capable and dedicated administrative workforce.*

*Even the British Colonial masters had no confidence but we have made it in administration by disciplining ourselves. Some countries, especially the developing nations and those with different ethnic groups, are so impressed with our administration system that they want to learn from us.*

*Malaysia should be proud of its success and its efficient administrative system. Because of our success in the administrative system, we have earned the respect of the others and are able to stand tall even among the developed countries'*

Even with the above recognition, there are still a lot more improvement to be made especially in making sure that the workers' attitude and the way the task of implementing

quality initiatives undertaken to improve productivity as well as to ensure that the quality standards of SMI products and services are accepted by their customers. Therefore, all common issues and problems of the SMIs must become the number one priority of all government agencies and the training institutions listed in Table 7.53(a) and Table 7.54(a) on pp. 282-283. This is important, at least, to safe-guard the trust that was given by the Prime Minister to the Civil Service as quoted above.

## **9.2 Key Issues and Problems**

Continuing from **Chapter Three**, the common issues and problems appear to be a lack of access to commercial bank credit, lack of technology, lack of management, lack of skilled labour and training programmes, lack of marketing strategy and information, discriminatory government policies and practices, poor sub-contracting activities, a shortage of suitable sites and premises for SMIs' operation and poor quality and productivity initiatives and practices. Needless to add, the nature and extent of the problem varies among different types of SMIs and different types of business operations.

### **Lack of Credit**

Lack of credit has been identified as of the major factors inhibiting the expansion of SMIs. Access to credit is essential to finance the upgrading of technology, to expand production capacity, to purchase larger inputs and better quality materials, provide credit to customers and to provide a larger budget for quality initiative programmes and proper training facilities for workers and staff. Denied institutional credit, many SMIs are forced



to finance their operations using their own capital, with shortfalls being met from relatives, friends, or other non-institutional sources.

Non-institutional sources of credit include unlicensed moneylenders, loan sharks and mutual credit funds or chit funds. Obviously, non-institutional sources of finance involve a great risk. Many of these sources are operated illegally and there have been several cases where the organisers of mutual credit associations have absconded with the funds, sometimes even making death threats to borrowers. Equally important, non-institutional sources of finance are generally more costly than any type of institutional credit (Kim, S. J. & S. J. Won. 1992).

On the supply side, there are several reasons why commercial banks are reluctant to lend to SMIs. Firstly, it is less profitable to lend to SMIs than to large establishments because of higher lending costs and greater risks. Lending costs tend to be high because of the diseconomies of scale. As to the risk element, this tends to be greater because SMIs are typically deficient in equity and acceptable collateral. The risk of business failure is also higher for SMIs. Secondly, the banks find it difficult to obtain credit information about the applicants and their business. The loan applications are often not accompanied by balance sheets, income and cash flow statements or, even if the statements were forwarded, they are not properly prepared. Even though there was a broad agreement among respondents to this survey that SMIs are very sincere and frank when answering all questions relating to their loan application forms or when applying government subsidies, in a number of cases it is also necessary to visit these small establishments, but few banks or government agencies have the personnel or time to do so. When access is

available, SMIs find that they have to pay a higher rate of interest for their bank loans compared to their large counterparts. (See Chapter Three, pp. 61-62).

### **Technological Problems**

One of the most obvious problems facing SMIs is their utilisation of traditional technology. Many SMIs use little or low level technology in their production. In light engineering, while the majority of SMIs owned some machinery, only 30 percent used milling machines and none had a digital or numerical-controlled milling machine. Of the food processing factories surveyed, the most common method of drying was sun drying. Solar, freeze or vacuum dryers were not widely used (Mohayuddin, M. G. & Hamid, S. A. 1988). Another reason may be that the application of high level technology requires a very high level of investment. Moreover, wages are lower in SMIs and this reduces the economic incentive for SMIs to adopt labour-saving microelectronics technology. As a result, the scattered empirical evidence points to a positive correlation between growing firm size and the readiness and ability to introduce new technologies. Computer illiteracy is also common and widespread among SMIs (Table 7.47, p. 279).

The use of traditional technology by many of the SMIs is manifested in their low productivity and, more specifically, in the low quality of their products which are either often defective or have a high rejection rate. Although SMIs account for a large majority of the total number of manufacturing enterprises in Malaysia, they contribute only a relatively small proportion of the total output (Mohayuddin, M. G. & Hamid, S. A. 1988)

### **Management**

Management problems in SMIs arise partly because most SMIs entrepreneurs have neither a high level of education or any professional qualification. In addition, many of them were lack the basic skills which are widely needed in order to manage an enterprise successfully. Thus, all SMI entrepreneurs have to be familiar with all aspects of management such as finance, personnel, sales and production. The entrepreneur does not understand financial statements and is unable to interpret or use them in planning and decision making. Most SMIs do not use statistical quality control and inspection is carried out by sampling or whenever there was a problem, while the rest used their own standards. In such cases, the SMI's real problem may not be really of a technical nature but more a problem of poor management. Even with adequate machinery and skilled workers, efficient production requires proper planning and careful quality control to ensure the manufacture of high quality products at minimal costs [(Chee, 1990) and (M. S. Ismail, 1990)].

### **Labour and Training Problems**

As with the above, SMIs generally are not only run by entrepreneurs who have little education or training, they are also staffed by workers who suffer from the same deficiency. Most SMI workers have no or only little formal education and little or no practical training. They are trained at the workplace by the entrepreneur or one of the qualified workers. SMIs generally do not have the resources to conduct any formal training programmes or send their workers for out-of-plant training. Most seriously, SMIs have problems recruiting workers or even keep the good ones. Workers are generally reluctant to work in SMI which offer relatively lower pay and inferior terms and

conditions of work compared to large enterprises. For the same reasons, workers tend to leave SMIs as soon as they have acquired a certain level of skills or experience. This problem has grown more acute in Malaysia, especially as the development pace is fast and shortages of skilled workers are evident (see Table 7.46, p. 279).

The difficulty in attracting and retaining skilled workers is considered one of the most pressing problems faced by Malaysian SMIs, especially in the metal-working industry. SMI metal-working enterprises cannot pay attractive wages, and their working environment is extremely disagreeable, largely as a result of inadequate factory facilities. With improve accessibility to bank credit and the advance of technology, SMIs would be able to cope better with this problem by restoring to greater mechanisation and the use of computers. In the meantime, to increase their production, SMIs rely mainly on part-time contractors, home workers or family members (Chee, 1990).

With the present labour shortages felt in Malaysia, the use of part-time workers is not limited to SMIs, but affects the large enterprises too. This creates a competitive atmosphere for labour between the large enterprises and the SMIs. Under such conditions, normally the large enterprises will benefit most. Therefore, SMIs have to hire as part-time workers, housewives who are not wanted by the large enterprises, on a piece-rate basis. Needless to say, the use of these part-time workers is not a satisfactory arrangement and may be one of the factors responsible for high rejection rate and low productivity in SMIs [(Chee, 1990) and (Kim, S. J. & S. J. Won, 1992)].

### **Marketing**

Marketing problems include seasonality of demand, customer problems, delivery, and keen competition. A number of SMIs have problems in marketing their products because of a number of factors such as poor designs which are both inefficient and anesthetic, low quality of finished products due to the use of poor quality raw materials and insufficient quality control, lack of after-sale service and precision due to inadequate equipment and lack of skilled personnel (Mohayuddin, M. G. & Hamid, S. A. 1988).

In so far as SMIs sell their products through a retailer, some of the problems related to marketing, such as advertising and product design, may be avoided although they may end up with other problems. SMIs tend to leave marketing to the middleman (BESTA, Guthree manufacturing and PROTON), therefore SMIs know almost nothing about changes in demand for their products, price fluctuations, changes in customer tests, or other market trends. Some SMIs even borrow their materials from the same middlemen to whom they entrust their marketing and are subsequently not free to sell their products at a better price to other middlemen. The marketing problem as a whole is, therefore, an important reason for the widespread inability of these enterprises to establish the medium and long term planning for their businesses.

### **Discriminatory Government Policies and Practices**

Generally, government policies, regulation and practices do not deliberately discriminate against SMIs. Nevertheless, the nature of these policies and regulations and the ways they are implemented often impose a penalty on SMIs. This is true of a wide variety of trade

and investment promotion policies, as well as some monetary and credit policies which are applied on many occasions.

Another form of discrimination against SMIs relates to the activities of the State Government. In each state extensive purchasing activities make the Government the major or dominant buyer of a wide range of goods and services. The government's purchasing activities inevitably discriminate, albeit unwittingly, against SMIs. Generally Government does not buy from, or give out tenders to any particular or group of firms. Such a policy tends to favour the larger enterprise. The reason is that in the interests of administrative efficiency, and in the search for economies in purchasing, Government purchasing agencies tend to place their orders in relatively large amounts at a time and often by a selective tender. Bulk purchasing and selective tender favour large firms, so SMIs are generally left out of lucrative government purchasing business (Kim, S. J. & S. J. Won, 1992).

Other forms of discrimination are less subtle but not less effective. Consider for example, government regulations which prescribe zoning regulations. These regulations have the most severe impact on SMIs because of their inadequate capital and limited geographic nature of the markets. Owing to inadequate capital, a number of SMIs often first set up shop in a residential area. Initially, the local authorities tolerated their existence but subsequently, regulations were tightened up and more strictly enforced. At the same time, the local authorities failed to appreciate the locational problems of SMIs and did not provide alternative sites before evicting these enterprises. As a result, a number of SMIs,

particularly in the larger towns and cities like Kuala Lumpur and Selangor, have closed their businesses owing to immediate lost of their regular customers (Chee, 1990).

Another regulation which has an adverse effect on SMIs is that relating to product quality standards. Such standards may be relevant to export-oriented economy but when applied indiscriminately to goods meant for local consumption, they impose a heavy burden on SMI's development. For example, those introduced in the Malaysian pineapple canning industry have discouraged the entry of small, less capital-intensive enterprises (M. S. Ismail, 1990).

Although SMIs may suffer from the unintended adverse impact of government policies and regulations, it should also be pointed out that other aspects of these policies and regulations benefit them in some ways. Loans were provided at a subsidised interest rates to SMIs. In addition, SMIs below a certain size do not have to register with the licensing authority and be subsequently subjected to a host of bureaucratic and financial demands (Chee, 1990). Moreover, government authorities generally accept simpler records of accounts from TSIs and SSIs. In such cases, SMIs have more leeway for a certain measure of financial legerdemain. Unfortunately, only these 'small' SMIs gain from the unintended bias in favour of SMIs. The larger SMIs do not benefit but still suffer from the unequal impact of government policies and measures.

### **Sub-contracting**

Sub-contracting provides a useful mechanism for developing linkages between SMIs and large enterprises. However, the level of sub-contracting within the manufacturing industry

is relatively low. A study of sub-contracting in the transport and machinery industries by Kim Seung Jin and Suh Jang-Won in 1992 concludes that most of the assembly firms prefer to import their components rather than purchase them from local suppliers. The reasons commonly given are the relatively high price and low quality of locally produced components. Although the complaints may be valid even in some of the current cases, the reluctance of assembly firms to purchase locally produced components makes it difficult for ancillary firms to achieve economics of scale and a possible reduction in price and improved quality. Thus, SMIs engaged in sub-contracting are caught in a vicious circle. Fortunately, the Government is aware of the problem and has instituted a local content policy, whereby primary firms in selected industries (PROTON, PRADUA, HICOM) are required to achieve a certain proportion of local content by a given target date. In the agricultural machinery industry a similar imposition has been introduced where manufacturers are generally required to delete the electrical motors from imported machinery assembled locally. In the case of power tillers, manufacturers / assemblers are required to adopt a progressive timetable for deletion of simple components from their CKD parts (Chee, 1986).

### **Site and Premises**

SMIs have a narrower choice of sites and premises for their operations compared to large enterprises because of a shortage of capital. Very often, the small entrepreneur begins production in a small building or even a part of a building which in many cases may also serve as his residence. The illegal location of SMIs creates environmental problems for residential areas in the forms of noise, dirt, refuse and fire risks, not to mention other problems such as traffic congestion (Chee, 1990).



Reallocation of these SMIs is not easy because the Government often fails to make provisions for SMIs in planning industrial estates. For example, the State Economic Development Corporation (SEDC) has so far completely excluded from its planning (e.g., in plot delineation and rents) the possibility of allocation of industrial premises to small industries on a rental basis or for purchase by instalment. Even where industrial land is available (in MIDA and MIDF projects), the cost of the land, the rents, and the instalments are too expensive for SMIs to bear. Therefore, it is obvious that the SMI entrepreneur faces a very real constraint in the case of land and building [(M. S. Ismail, 1990) and (FMM, 1995)].

### **Quality Initiative Programme**

As demonstrated in Chapter Seven, Table 7.10 pp. 228-229 and table 7.11 pp 230-231, a vast majority of SMIs are still not taking any form of quality initiatives for their organization. Quality is a long term process. Therefore, SMIs which normally having small paid up capital will not be interested to undertake the quality initiative programmes. The Government has attempted through its development agencies to bring about some changes in the attitude of SMIs' owners and managers (see **Note 4** pp. 20-22 at the end of this thesis). But this is not enough. The amount of money and other resources invested in the development of quality initiative programmes in SMIs appear not to have met with commensurable results. Only a little encouragement has resulted from the initiatives. A lot of improvement needs to be made if the Government wants see excellent results. Therefore, there is an urgent and greater need for the Government, government agencies and the SMIs to work together to play their part in achievement of the nation's Vision 2020.

In summing up the various dimensions of the problems confronting SMIs, it can be suggested that one of the major causes is lack of effective SMIs societies, business clubs or associations. As a result, SMIs are unable to take advantage of cooperative measures in solving their common problems or in making representations to the Government on the adverse impact of certain of its policies or regulations.

### **9.3 Environmental Threats and Opportunities**

#### **Threats**

- The financial problems facing by SMIs such as lack of start up capital and working capital, and SMIs' inability to gain access to institutional credits, cripple the birth of SMIs and deny the available opportunity for further development of the SMIs.
- Lack of market and marketing capability stop SMIs from keen competition. Unless the entrepreneurs have marketing experience they generally have problems acquiring the skill to market their products effectively. They also have problems acquiring marketing information.
- The reliance on traditional or low-level technology is reflected in the low productivity of the SMIs, and in the generally low quality in their product. Hence, an upgrading of the technology level in SMIs, particularly the introduction of more advanced technologies, is needed.
- Poor quality initiatives in the SMIs lead to poor quality products and services, and consequently hinder SMIs from competition in the local and international market especially when current market competitiveness is concerned. The long term survival

of SMIs depends on their ability to sell or market their products and services locally or internationally.

### **Opportunities**

- SMIs not only form the majority of industrial enterprises in Malaysia and the neighbouring countries, they also play a significant role in overall economic development of the region.
- Existing Asean industrial cooperation schemes in the form of Asean Industrial Partnership (AIP), Asean Industrial Council (AIC) and Asean Industrial Joint Venture (AIJV) concentrate on large-scale projects. These industrial projects require a relatively large amount of capital investment and operating expenses, a high level of management capability, high level of technology and skilled labour force. In the face of a worsening debt burden, due partly to declining prices of primary commodities including oil which are the main sources of export earning of the Asean region, coupled with increasing risk due to the rapidly changing world economic environment, some Asean member countries are reluctant to commit themselves to cooperation schemes which involved huge amount of resources. Therefore, Malaysia could fill up the vacuum and further take over the opportunities.
- Given the lop-sided nature of the industrial sector in the Asean countries, there is an urgent need to develop SMIs to achieve a more balanced structure. This is necessary if the manufacturing sector in Asean is to become efficient since SMIs are needed to supply parts and components and because SMIs' structure and organization are still under-developed, especially in this region. The development of SMIs will contribute

to the process of industrial deepening in the Asean and increase manufacturing value added.

- Unlike LSIs, SMIs typically lack certain strategic expertise and resources especially in formation of export market and computer and information technology. Such expertise and information are not expensive to develop but also are not currently available to SMIs operating on a relatively small scale. The development of the Multimedia Super Corridor and Asean cooperation will change this scenario and will help to overcome such constraints more effectively and at a much lower cost than is possible through individual efforts at all levels. This particularly applies to the provision of export marketing and technology.
- The key objective of cooperation among SMIs is to develop strategic SMIs which can form a vital link with LSIs in the industrial sector of Asean. These SMIs refer mainly to selected small and medium enterprises employing modern techniques of production such as those which contribute such a vital component of the industrial structure in Japan, Taiwan and Korea. This will give rise to opportunities to develop the remaining SMIs.
- With the Government concern for quality improvement in the SMIs, especially in terms of ready subsidies such as the ITAFs, SMIs with less capital and less resources will be able to undertake quality programmes and to improve the quality of their products and services. This will in turn improve their productivity and thus increase their organizational profitability.

## 9.4 Strengths and Weaknesses of the SMIs

### Strengths

- The role of SMIs in economic development with respect to employment creation and growth of income, has been given increasing attention by the developing countries in recent years.
- SMIs demonstrate '*a higher degree of efficiency*' as compared with large-scale industries in term of using capital especially in mobilising savings, entrepreneurial talent and other resources that would otherwise remain idle.
- SMI can be efficient suppliers to large establishments and can satisfy areas of demand neglected by large enterprises, thus contributing to making manufacturing industries more efficient, more flexible, and less prone to external shocks.
- SMIs are the dominant feature in the industrial scene and are increasingly being given this recognition as a potent force in industrial development.
- The Government has recognised the contribution and particularly important role of SMIs, and has exerted special efforts to develop SMIs at the national level.
- There is now a growing concern by Asean Governments with the development of SMIs through regional cooperation, with a view that the various support programmes and agencies established to develop SMIs at the national level could be more effective if they were coordinated as part of an Asean rationalisation programme on SMI in order to achieve better access to market, capital, technology, entrepreneurial skills and raw materials.

### Weaknesses

- The tremendous potential which SMIs have for accelerating Asean industrial development has not been fully realised because of a variety of problems confronting SMIs. These include the lack of access to commercial bank credit, modern technology, management and problems in marketing.
- There is no trade association for SMIs, or if there are any such associations; their membership is are very small; furthermore, there is no organization representing SMIs at the regional and national and international levels.
- Many programmes for promoting SMIs are in the areas of finance, training, technology and marketing. Not many of these programmes have a significant impact on SMI development for various reasons such as lack of planning and follow up studies, useful data for planning SMI development are often not available, planning is often on the basis of assumptions and crude estimates while assistance programmes for SMI evolve on an ad hoc basis (Kim, S. J. & S. J. Won, 1992).
- The main coordinating agency, the SMI section of the MITI, has little authority to coordinate the activities of other SMI agencies, thus making its existence a mockery.
- SMIs have not been able to organise themselves effectively and have done very little to help themselves. This is clearly seen in the relatively low productivity and export potential of the SMI sector in the country.
- The quality initiatives among the SMIs currently are considered very weak. Even the extensive development programmes drawn up by the Government and the government agencies will be worthless, unless the SMIs are willing to help themselves (See Table 7.10 pp. 228-229 and Table 7.11 pp. 230-231 for details).

The Government must be rigorous in its programmes' choice and implementation. In this respect, business strategy and policy for SMIs must be thoroughly evaluated before being implemented or carried out. Details of this strategy and policy are discussed at length and shown as Note 6, pp. 29-41, at the end of this thesis.

## 9.5 Generation of Alternatives

### Expansion Strategies

- Expand the development strategies for the present line of actions by the Government and the government development agencies especially towards encouraging the full utilisation of financial assistance, access to new and appropriate technology, marketing, export planning and database improvement and quality initiative programmes implementation.
- Increase its efforts in computer's downstream activities especially in view of the development of the Malaysia's MSC. SMIs must be encouraged to take advantage of this opportunity and make full use of the facilities available because it will be cost effective as well as advantageous for Asean nations' SMIs to hook onto or link-up with this network system. In return, monetary compensation could be given to the leading nation's SMI who provides the service and for allowing access to its database system. Similarly, brokerage (arbitrage fees) should be paid under commercial terms. This activity is, therefore, best negotiated between the interested parties concerned.
- Expand the capital base by merger with other SMIs in the Asean region, acquiring small and tiny SMIs or merging among the SMIs when such opportunity arises

especially when industrial cluster and *sogo shosha* development are taken into consideration. But this strategy could only be taken if the constraints on paid capital limitation and maximum number of employees were relaxed.

- Diversify the present SMIs' business lines by setting up linkages with the larger-scale enterprises or the MMC, in order to get or obtain free and up-to-date market information and a tailored marketing strategies.
- Hire or encourage more skills and qualified managers and workers to manage the existing government development agencies in lieu of proper managing of the existing and future SMIs so that the development of SMIs will be at par with the large-scale enterprises.

### **Retrenchment Strategies**

- Cut down direct costs on overlapping programmes undertaken by the government development agencies, the idle capacity of the agencies and the administrative and operational capacity.
- Identify SMI product lines with low sales and low profit margins. In this case, those long terms activities which require labour intensive and those activities which require extensive capital involvement have to be stopped.
- Reduce or eliminate the quality initiative programme and replace it with the normal ad hoc and low cost programmes usually undertaken by government agencies, so that there will be no need to have long-term planning for the development of the SMIs.
- Drop the idea of cooperation and joint venture initiative between the Asean countries' SMIs and concentrate only on the development of local SMIs.



### **Stability Strategies**

The best strategy is the strategy of not doing anything. This is exactly what is happening in the stability strategy. In other words, just concentrate on the present activities and only carry on with those works which are in arrears and which have bottle-neck. However, this is not a good strategy, especially when one knows that in business one has to compete, there is always war between competitors. In wars there are tragedies. Those who can survive are those who are able to withstand the pressure and are alert with all the situations. It is a world of the survival of the fittest.

## **9.6 Evaluation of Alternatives**

### **Expansion Strategies**

#### Pros

- Increasing facilities for the development of SMIs by adding more opportunities for SMIs to obtain new sources of credit facilities and bank loans, full utilisation of financial assistance and grants with less bureaucratic procedures, access to new and appropriate technology, access to more markets and market information, special preferences in export opportunities and a proper process of quality programmes implementation.
- The Government stands to increase its efforts in computer downstream activities with the aim to give special opportunity to SMIs to participate in the activities using the available resources of the government development agencies and the training institutions. In view of Malaysia's MSC, SMIs must be encouraged to take advantage

of the project and to encourage Asean SMIs to hook onto or link-up with the network system, led by Malaysian SMIs. In return for the services rendered, the leading SMI can charge a fee or be given monetary compensations.

- Merging with other SMIs can be a major step in carrying out a desired strategy. The merger or acquisition may provide a much needed resource, give access to new market; provide a scale of operations that will support and improve technology or improve SMI services and productivity. Synergy effects will be observed. There is also a possibility of practicing economies of scale of production. Merging and acquisition will also help reduce competition among SMIs, provide a base to widen the existing market and thus increase sales and profits.
- Diversification will save money, efforts, time and resources. There will be a better control on the activities of the SMI and the SMI will be able to concentrate on the activities which give the maximum benefit for the resources rendered. It may also help to smooth the sales and profitability of the SMI in the long run.
- Hiring skilled and qualified managers and workers to manage SMIs will not only help in the improvement of SMIs' management and processes but it will also help SMIs to compete in the open market and ensure SMIs opportunities of achieving the right quantity and quality of production. TQM and other quality initiatives can be implemented without much delay or difficulty.

#### Cons

- In the effort to increase the development opportunities for SMIs, there will be no doubt be additional operational and administrative expenses due to increase in work

processes, training and related activities. Whether the effort will succeed is still uncertain.

- Increasing government effort in the computer downstream activities in lieu of Malaysia's MSC, will no doubt entail considerable utilisation of financial and human resources, especially in the computer technology and software development, telecommunications, marketing, distribution network and royalty payments. Whether the payment for the service rendered for using the database can be collected, especially from the Asean SMIs, may be doubtful. There are also question of trade secrecy, patent and copy right reserve requirements. The leading Malaysian SMIs have to compete with other SMIs in Asean region who are well-developed in this field, for the leading role.
- With regard to merging and acquisition with other SMIs, the question is, takes over whom? With the constraint on paid up capital of MR2.5 million and the maximum of 199 workers, Malaysian SMIs may not be able to take other SMIs in the Asean region. Perhaps Singapore's SMIs would stand a good advantage in this kind of exercise. It is also doubtful whether SMIs in the Asean region would agree to such mergers (even though only in specific areas). The price paid must also be weighed. A heavy burden, trouble 'stock options' and exhaustion of cash reserves could result and this unhealthy financial condition could seriously deter execution of other facets of the SMI strategy. Apart from this, the numerous internal adjustments in both SMIs will need careful planning, organizing and controlling. New motivation and communication flows have to be established.

- In diversification, there will be an additional capital outlay required. Therefore, cost benefit analysis must first be done. The SMI may or may not have the expertise and money to carry out the project.
- Hiring skilled and qualified managers and workers may result in additional funds required to pay their services. The Government or the government development agencies may or may not have the funds to undertake the sudden change.

### **Retrenchment Strategies**

#### Pros

- A compromise to reduce the dependency on the part of SMIs on Government and government agencies' support, which could reduce the direct cost of the organization so that the overall saving will increased and cutting down operation and administrative expenses will further improve savings. These savings could be channeled to develop the most profitable project of the Government thus improving the overall GDP.
- Disposing off all the unprofitable activity lines with low return and low savings would improve the financial position of the Government or the government development agencies, as less operating and maintenance cost would be incurred.
- Perhaps the Government or the government agencies may retain a fraction of the bonus and excellent service award paid or eliminate them altogether in order to be able to invest or undertake new benefited projects to bring more saving and thus, more new development in the future (cobweb theory).

## Cons

- By reducing the dependency of SMIs on the government development agencies subsidies and help, many of the newly born SMIs would stop functioning. Thus there would be a chain-link effect and the Government would be left with older SMIs which have no innovation in them. In lieu of the MSC and the Vision 2020 objective, the Government could not afford to hold such a stock of SMIs. This would definitely affect its credibility as a leading development agency of the country.
- Unjustified slashing of necessary operating and administrative costs may cause dissatisfaction and the quality of works and services may suffer.
- A negative reaction is expected, especially from politicians whose constituencies are affected by cuts in the agencies' subsidies. The SMIs owners (normally the political supporters and back-benches of the ruling party) might think that the Government is running at a loss and therefore will quickly transfer their support to the leading opposition parties.

## *Stability Strategies*

### Pros

- A lower subsidy cost means there is a possibility of improving the other profitable projects of the Government and in consequence, helping to create a better quality of staffing and improving the working environment. The quality of service will also be improved and hence, so will customer satisfaction. Once the customers' needs are satisfactorily met, there will be fewer complaints and therefore the Government can

concentrate fully on the nation's development, to ensure peace and prosperity to the people.

- If the Government can concentrate on pushing the present development programmes, taking into consideration the available 'excess resources', the improvement will not only bring additional revenues to the nation but will also ensure that the ruling party winner retains power in the next election. Stable political and continuous economic progress will ensure further development of the nation in the future.
- In times of capital squeeze the best thing to do is to stay put with the present machinery availability. Any increase in capital outlay will have a negative effect on spending. Perhaps the good image of the government development agencies must be protected; otherwise, the trust of the people will be lost. The contact or relationship which exists between the government development agencies and its customers will result in achieving the corporate objectives of the nation.
- Retaining a good rapport with present connections will ensure a continuity of support or additional support required in the future. Continuing training and R&D programmes will further ensure success in times when the capital position of the Government improves.

#### Cons

- The cost of goodwill with the existing customers will suffer. If the Government lowers its subsidies, customers relations and support in the future will be affected. The time and administrative work involved in looking for alternative projects, drawing up new contracts, rescheduling of activities and processes may incur higher

operating costs. Thus , in actual fact there is no saving at all. It takes time for new activities to build up an understanding with a development agency, i. e., its needs and problems.

- ‘No risk gets nowhere’. According to the Financial Management theory, the higher the risk, the higher the potential return, and vice versa.
- In time of capital squeeze, many government agencies cannot afford to spend. Therefore the demand for goods and services will be low. Thus, price of goods and services will be lower. If SMIs buy the required machinery to meet their need for technological improvement at this time, they can dictate terms to the suppliers.
- Opportunities only come once; if they come, one should grab them. How can they be grabbed, if the SMIs themselves still need Government help and subsidies?
- Investment in training and R&D programmes is a high cost projects. Therefore, if staff do not stay long in the organization it means a great loss to the organization, and hence to the nation.

The mission of a SMI is to protect its future survival and profitability by formulating and evaluating its feasible strategic alternatives. In this respect the SMI could increase its profit and perhaps its continuing existence by careful study and undertaking some of the expansion, retrenchment and stability strategies discussed above, single or in combination. (See **Chapter Ten** for detailed strategies and other recommendations).

The cultural and value system of SMIs can be changed through the application of TQM or any other quality initiatives. This can be done through the strong support and initiative

to be given by the training institutions and the government development agencies. (See **Chapter Eight** for details) Since SMIs generally have limited initial capital and further development funds for their quality development, the government agencies and the training institutions could lead the way by executing some of their fund allocation and their technical and staff resources for the improvement of the standard of quality initiative and quality programmes tailored for the SMIs. However, SMIs on the other hand must respond and show keen interest to participate in such a scheme in order to have a full success in the implementation of such initiative. Together, hopefully, all of them will play their parts in contributing towards the achievement of the nation's vision 2020.



## **CHAPTER TEN**

### **Conclusion**

#### **10.0 Introduction**

For the last 25 years, a great amount of effort has been given to the development of Malaysian SMIs. 13 ministries and more than 30 agencies have been involved in these efforts. A large amount of money and other resources has also been allocated for their development. These initiatives were clearly shown in all the Malaysia plans. However, the success of these efforts has been negligible. With 25 years to go to Vision 2020, the question is, are we going to repeat the same low level of progress of the past 25 years?

Malaysia hopes that SMIs will assume a pivotal role in the Malaysian industrialisation process towards Vision 2020. Their role as suppliers of parts and components to the big industries for the production of final products is crucial in the process of widening and deepening industry. As quality and productivity among SMIs develop as a result of the application of quality initiatives and undertaking quality programmes, including TQM, and their production capacity increases to supply the requirements of the local industries, their excess capacity can be utilised to produce parts and components for the export market. This will not only replace the dependency of local industries on imported parts and components, but will also reduce the outflow of foreign exchange.

The OPP2 which covers the period of 1990-2000 and the Seventh Malaysia Plan period (1996-2000) clearly laid down the role of SMIs as the backbone of Malaysia's industrialisation process. As such, based on the plan, they will be further promoted and upgraded by creating inter- and infra-industry linkages and support services to ensure the successful development of larger industries.

As promised by the Prime Minister: *'The Government will devise appropriate assistance schemes and will seek to raise the level of management expertise, technological know-how and skills of the employees in this very important and in many ways neglected sector of our economy'*. The target is, therefore, further to coordinate SMIs and assist them to become well equipped feeder organizations for both the LSIs and MNCs.

The Look East Policy, a strategy used by the Government in the 80s to replace the long-established Look West approach previously adopted by Malaysia since her independence in 1957, marked the beginning of the country's strategy of freeing herself from dependency on the United Kingdom and the Western countries, especially in terms of procurement requirements (through the Crown Agent) for the Ministries of Defence, Health, Education and National Development. However, the most important component of the Look East Policy was the development of a Malaysian type of *Sogo Shosa* to act as a lead conglomerate for the development of Small and Medium Feeder Industries in Malaysia. These SMIs will act as linkages to the larger enterprises, in preparation for the year 2020, when Malaysia will become a New Industrialised Country (Chapter Two, pp. 33-37).

The Seventh Malaysia Plan also seeks to ensure that Malaysia retains its international competitiveness through the acceleration of the country's research and development programmes, particularly in the fields of science and technology. SMIs, with different technical needs from larger conglomerates, must be encouraged and be given further assistance in the form of special technology development programmes, in such a way as to prepare them to participate in this programme. Therefore, the initial budget of RM100 million which has been provided through the said Seventh Malaysia Plan must be fully utilised specifically for this purpose.

In order to enhance international competitiveness, high priority will have to be accorded to the promotion of scientific and technological innovation on SMIs moving from borrowed to original design and complex development work. The emphasis of the Seventh Malaysia Plan, therefore, will be to exploit and utilise the existing technologies, improve on imported technologies and generate Malaysia's own technologies.

For this purpose, the allocation for research and development on SMIs has been increased to RM1 billion (compared with RM629 million for RM6) while RM2 billion more will be provided for related SMI infrastructure facilities and services. In allocating and utilising these resources, a new evaluation process will be introduced whereby research agencies and universities are subject to a competitive bidding process. The aim is to develop competence in selected areas to allow industries to exploit fully the latest advances. To accelerate such development, concerted efforts will have to be taken commercially to exploit the large pool of untapped research findings in the public sector and universities. Research agencies and universities will, therefore, have to be

encouraged to identify and market their intellectual property with commercial potential widely. Thus, SMIs should encourage themselves to take the opportunity especially to become new incubator companies to undertake the initial development of these intellectual properties.

To date, there are no definite data on SMIs exports. Various studies, however, indicate that contribution by SMIs to export does not exceed 15 percent of total export. They are either limited by their inability to produce goods competitively or the small volume of their production does not merit aggressive exporting efforts. Therefore, efforts must be made to ensure that products and services of SMIs achieve the required standards of the export markets. Cooperation among SMIs must be encouraged to produce the required volume to meet the demands of the overseas export market.

Nevertheless, SMIs' contribution to exports could also be enhanced if networking arrangements with trading houses or large-scale manufacturers, through subcontracting activities such as the vendor programme, were well established. For instance, in the export of telephones by SAPURA, component inputs supplied by SMIs are reported to account for as much as 40 percent in terms of value. In the PROTON car project, SMIs inputs are about 51 percent in value terms (Omar, Y. 1993). This contribution could be increased further if SMIs are willing to correct the existing shortfall ( see Table 7.47, p. 279) and willing to accept the use of computer and advanced technology in their business operation.

*'The Government wants the move to large-scale production for world markets to spawn the development of industrial clusters'.* ( See The New Straits Times, May 7th, 1995).

Therefore, for the majority of SMIs to be involved in the mainstream of Malaysian economic and industrial development, SMIs need to establish a symbiotic relationship with the large scale industries and MNCs, particularly, in the supply of industrial inputs of machinery and equipment. These needs will continue until Malaysia becomes a NIC or at least until the year 2020.

## **10.1 Summary of Findings**

The findings of this study are as analysed and shown in **Chapter Seven** and will be discussed in terms of the objectives outlined in **Chapter One** and in other earlier **Chapters**.

### **10.1.1 Problems and Issues in SMIs' Development**

Before concluding the research findings, it is best to understand the problems and issues of SMIs' development brought about by the study and the possible experienced during the OPP1 and OPP2 periods. Based on the study and continuing from the discussions on **Chapter Eight** and **Chapter Nine**, the following issues and problems faced by the SMIs need an immediate follow-up and action:

1. The survey indicated that in terms of *productivity and capital intensity per worker*, *the SMIs' figures were relatively lower*, amounting to RM11,900 and RM12,300

- respectively, as against RM33,700 and RM45,400 for large-scale industries (Chapter One, p. 9).
2. Since 1987, SIRIM has registered a total of 394 organizations for compliance to ISO 9000 series quality standards. (As at 30 March 1996, 596 organizations had received their ISO 9000 quality standards certification and there were many more companies on the waiting list for certification). *However, very few of them are SMIs* (Chapter One, pp. 9-10).
  3. Research on *quality* and the *quality standards* in SMIs in Malaysia is very limited or non-existent ( Chapter One, p. 11).
  4. Despite extensive media attention, *there has been little academic exploration of the motivations for, and implications of, implementing quality in SMIs*. The main objective of the research is therefore to review quality initiatives in relation to SMIs. *This will help inform a position from which it will be possible to conduct further research in the future* (Chapter One, p. 11).
  5. The *absence of a comprehensive policy framework for the development of SMIs*, gives rise to an urgent need for the Government to introduce one.
  6. *Different definitions* are used by different agencies to categorise SMIs at the operational level (Chapter Two, pp. 26-29).
  7. Too many agencies and institutions exist to deal with SMIs' development *without an effective coordinating mechanism*, causing duplication of efforts and lack of transparency to the target groups (Chapter Three, pp. 87-88).
  8. *Most SMIs are incapable of being involved in the mainstream* of industrial development, that is, in actively supporting the large scale industries and MNCs in terms of industrial input supply and manufacturing. The Look East policy is the initial

step, used by Malaysian Government to counter-act this shortfall (Chapter Two, pp. 33-37 and Chapter Three, pp. 68-70).

9. Marketing problems include *seasonal demand, customer problems, delivery difficulties and keen competition*. A number of small industries have problems marketing their products due to a number of factors, such as *poor designs*, which are either inefficient and / or unaesthetic; the *poor quality of finished products*, due to the use of poor quality raw materials and lack of quality control; *lack of after-sales service* and lack of precision, due to inadequate equipment (Chapter Nine, p. 319).
10. Small industries face numerous problems in exporting their products, the major one being the *difficulty of finding an export market*. Other external problems are the increasing *competition from other exporting countries*, the *increased prices* of raw materials and *unfavourable movement of international currencies*. Small industries are more vulnerable to these external factors than their large counterparts. As a result of these problems SMIs in Malaysia do not contribute significantly to export earnings (Chapter Three, p. 66).
11. Most SMIs have difficulty getting *access to loans and other forms of financial assistance* from the banks (Chapter Three, p. 61).
12. Most SMIs are *still occupying land, sites, and buildings* which are not approved for industrial purposes (Chapter Three, pp. 72-73).
13. Most SMIs are *not fully utilising the technical assistance, advisory extension services and funds* which are made available through various Technical Support Institutions (TSIs) such as SIRIM, FRIM, MARDI, CIAST and RRIM.
14. Most SMIs are *not employing skilled workers* to ensure quality production of goods and services (Chapter Three, pp. 64-65).

15. *Most SMIs are unable to take advantage of various incentives provided under the Promotion of Investment Act, 1986 and the Income Tax Act 1967.*

16. *There is no national SMI association to address and bring up issues to the authorities.*

This has further aggravated the position of SMIs vis-à-vis the large scale industries which are well represented by trade and industry association such as the FMM. As industrial subcontractors, the SMIs could easily fall prey to exploitation by the large corporations and MNCs in undertaking subcontracting activities (Omar, Y. 1993).

The main concern, therefore, is the inability of a large number of SMIs to establish business linkages with large companies and multi-national corporations. Hence, the biggest challenge facing the country's development planners in the coming decades will be in devising practical programmes and schemes to establish and enhance the competitive position of the SMIs, to meet the need for industrial inputs for manufacturing industries and also to meet the purpose of the study as mentioned in **Chapter One**.

## **10.2. What is the Status of Quality Activities in the SMIs Concerned?**

On a specific question as to whether the organization had any experience of quality programmes, 3 SMIs or 1.8 percent did not answer at all, 76 SMIs or 45.0 percent said 'yes' they did have experience of quality programmes, 84 SMIs or 49.7 percent answered that they did not have any experience of quality programmes in their organizations and 6 SMIs or 3.6 percent were undecided or answered *don't know*. In view of the above



problems, it is understandable, that the majority of the SMIs have not undertaken quality activities (See Table 7.10, pp. 228-229).

This result shows that the majority of the SMIs do not have any experience of quality programmes in their organization and this is understandable because quality in Malaysian SMIs started basically in 1993, soon after the speech made by Dr. Mahathir Mohamad on the important role SMIs have to play in generating employment opportunities, in strengthening industrial linkages, in penetrating markets and generating export earning in 1992. As a result, the efforts of government agencies and orientation of management began to move in the direction laid down in Malaysia: The Way Forward.

The results of the survey [(Tables 7.53(a) and 7.54(a), p. 282 and p. 283)] clearly showed how satisfied SMIs are with the efforts of the government agencies which were set up to look after the well being of SMIs, and the role of the umbrella companies in helping SMIs to enhance their quality programme, as well as subcontracting works. Both questions received a tremendous response. However, the government development programmes especially the two-pronged NEP objective, was not been fully accepted by the Non-Bumiputra SMI enterprenours. The details of their rejection could clearly be seen in Table 7.53(b) and Table 7.54(b), p. 284 and p. 285.

### **10.2.1 What are the Different Quality Programmes undertaken by SMIs?**

The research has seen the different quality programmes favoured and undertaken by Malaysian SMIs as shown by Table 7.20, pp. 246-247. They are : ISO 9000, 5Ss, QCC, TQC, TQM, JIT, TPM, Productive Management, Programmes/Philosophy from Quality writers, (such as the Zero defect, AQL , QIP, BPR, etc.) and Visible Management System. Details of these programmes were given in Chapter Five , pp. 147-151.

### **10.2.2 What are the Most Common Quality Programmes undertaken by SMIs?**

The most common quality programmes undertaken by Malaysian SMIs are the same as in 10.2.1 above and they are clearly shown by Table 7.24, pp. 252-253, according to which the number of employees attending Quality Training Programmes in 1993, 1994 and 1995 increased year by year. The three most popular quality programmes were the 5Ss, the ISO 9000 series and the QCC.

### **10.2.3 What are the Preferred Quality Programmes undertaken by SMIs?**

From Table 7.22, p. 249, the most popular quality programmes among Malaysian SMIs were the 5Ss with 113 weighted average points, the ISO 9000 series with 107 weighted average points and TQM with 59 weighted average points. Next came QCC with 44 weighted average points.

#### **10.2.4 What are the Most Common Reasons for SMIs not undertaking Quality Programmes?**

Among the most common reasons given by Malaysian SMIs for not undertaking quality programmes were: that the company was too small, (32.5 percent) or that no budget was allocated for that purpose (34.9 percent). However, 36.7 percent indicated that they would carry out quality programmes later. Other reasons for not undertaking quality programmes were that the company was newly established (13 percent), and lack of importance attached by management to quality programmes (12.4 percent). One SMI (0.6 percent) stated 'other reasons'. This suggests that there is a need for SMIs to be given priority for exposure to the importance of quality programmes in order to ensure that they can sustain and grow in the highly competitive market. However, a great number of them have already shown a positive attitude, judging by their intentions to carry out programmes later. This is a very encouraging state of affairs. Effort, therefore, should be made to ensure that this interest is strongly maintained. [See Tables 7.13(a), (b) and (c), pp. 234-235)].

#### **10.2.5 Is Reshuffling Required on the Part of the Agencies Responsible for the well being of SMIs in the Future, in Relation to Vision 2020 Requirement?**

As stated in 10.0 above, SMIs will assume a pivotal role in Malaysia's industrialisation process towards Vision 2020. Their role as suppliers of parts and components to the big industries for the production of final products is crucial in the process of widening and

deepening industry. As quality and productivity among SMIs develop as a result of the application of quality initiatives and undertaking the quality programmes including TQM, and their production capacity increases, and they thus become able to supply the requirements of the local industries, their excess capacity can be utilised to produce parts and components for the export market. This will not only replace the dependency of local industries on imported parts and components, but will also reduce the outflow of foreign exchange.

Before those dreams suggested in 10.0 and 10.1 above can become reality, however, the following measures are overdue and it is suggested that they be implemented.

### **10.3 SMI Policy Guidelines**

In his speech, 'Malaysia: The Way Forward', the Prime Minister stressed that *'the SMIs will be one of the foundations for our future industrial thrust. The Government is fully committed to its healthiest development'*. Continuing from this, the National Development Council (NDC) in its meeting on 7th. January, 1992, set policy guidelines for the development of the Small and Medium Enterprises (SMEs) *which includes the SMIs*. Hence, the development of the SMIs will be carried out based on the guidelines as follows:

1. The SMIs were to assist the development of a balanced economy, the use of advanced technology and a more equitable distribution of income.

2. The SMIs were to complement and support large scale industry, heavy industry and modern industry through a network of industrial linkages.
3. The SMIs were to produce quality and high value-added products and services for the domestic and export markets and contribute equitably to GDP.
4. The SMIs were to increase productivity through the use of modern technology and management, which in turn will increase SMIs' competitiveness in the export market.

Judging from the results of the Survey, the researcher believes that most of the above Government plans have so far met with little success. SMIs still have a narrower choice of sites and premises for their operations compared to large enterprises. [See Tables 7.9, 7.10, 7.11, 7.12 and 7.13(a), (b) and (c), pp. 227-235]. *'Reallocation of SMIs sites is not easy because the Government often fail to make provision for small industries when planning industrial estates'*, (FMM, 1995).

#### **10.4 SMI Development Strategies**

The study also revealed that, in spite of an elaborate institutional network and a great variety of programmes to assist small industries, the Malaysian approach to SMIs development has not been very effective. There seem to be several reasons for this. Firstly, the agencies and the development programmes tend to aim at all SMIs, instead of selected SMIs groups. Thus, traditional and modern small industries, as well as very small, *'small'*, *'medium'* and *'large small'* industries, all come under the scope of SMIs development. Given the large number and great diversity of small industries and the

limited resources available, it is not surprising that most SMIs agencies' resources have been dissipated with minimal results.

A large majority of SMIs are quite traditional and very small, employing less than 10 workers (Kim Seung Jin and Suh Jang-Won, 1992). These small industries, like bakers and ice-cream makers, have very little potential for development. They usually use traditional or elementary techniques of production, and often produce traditional products which have a very limited market. Over time, industrialisation and market forces may gradually eliminate many of these SMIs in the economy. Government assistance should not be used to help these SMIs that resist such market forces.

Instead, assistance should be used to help *'larger small industries'* employing 20 or more workers except IT SMIs, which have potential for growth and development, as well as the possibility of practicing TQM in their daily operation, especially those SMIs which produce vital parts and components for large enterprises, or small industries which manufacture products for a growing market. Given adequate assistance, they will be able to modernise their production techniques and, thus, increase their productivity.

Government assistance is currently being dispersed indiscriminately on all kinds of small industries, regardless of whether they have the *potential for growth or are doomed to disappear*. Perhaps, this is based on the principle that small industries should be assisted on the ground of equity, i.e. that small industries should be assisted because they are small, as the government assists the poor, to ensure a fairer distribution of income. Unfortunately, such a policy not only *wastes* resources, but also *condemns* the

beneficiaries by *prolonging their unviable existence*. A classic outcome of such a policy may be seen in India, which provides special privileges to ‘small and household’ industries under the influence of Gandhian thinking.

Government assistance for SMIs should be used to offset the disadvantages imposed upon some of them as a result of *unintended bias in government policies and regulations*. At the same time, the assistance should be such in nature and magnitude that it would not provide small industries with an undue advantage over their *large-scale rivals*. Policies which reserve certain products exclusively for small industry production or provide subsidised credit are counter-productive since they often have *a negative impact*. More importantly, small industries which are *over-protected and over-assisted* may never become viable. Instead, the aim should be to create a favourable environment in which small industries can compete on more equal terms with their large-scale rivals.

For this reason, policymakers should always consider the impact on SMIs when formulating or implementing any administrative regulation. Unlike large enterprises, small industries generally do not have any *effective organization to represent* their interests, so that they often tend to be overlooked by government officials who have the tendency to regard small industries as an industrial anomaly. Some SMIs also complain that government administrative requirements and policies *keep changing all the time*, making it difficult for small entrepreneurs to keep up with them (Chapter Three pp. 68-70).

#### 10.4.1 Restructuring the Development Agencies

The existence of *too many agencies and institutions* dealing with SMIs development without an effective coordinating mechanism, causes *duplication of efforts* and lack of transparency to the target groups. Therefore, it is suggested that the *SMIs development strategies (Chapter Eight)* should work hand in hand through the following strategies:

- ***Institutional Arrangement*** - Instead of 13 ministries and more than 30 agencies being involved in SMIs' development, it is suggested that the *Lead agency concept* should be adopted, under which *only six ministries* and one department should be appointed as lead agencies to coordinate the six categories of assistance required by SMIs. This lead agency concept is entirely different from the one that was suggested by the Government in 1992, which neglected the importance of the *Ministry of Education*, as a main ministry in giving and facilitating *education in quality and its awareness* at all levels of the population, from primary and secondary school to college and university level. This is important, because most managers of SMIs currently are school leavers. Hence, the following lead agency format is suggested:

<b>Lead Agency</b>	<b>Assistance</b>
Ministry of International Trade and Industry (MITI).	1. Market promotion. 2. Incentives.
Ministry of Finance (MOF).	3. Financial assistance.
Ministry of Science, Technology & Environment (MOSTE).	4. Technical assistance and R&D.
Ministry of Human Resources (MHR).	5. Skills training and management.
<b>Ministry of Education</b>	<b>6. To support all the above Ministries with the required manpower with TQM through Education and Training, thus equip the workers with quality thinking and skills. (at School, College or University level).</b>
Implementation & Coordination Unit, PM Dept.	7. Infrastructure support.



With this approach, the coordination problem will hopefully be resolved. SMI entrepreneurs seeking development assistance will only need to approach *six lead ministries*, instead of the 13 ministries and more than 30 agencies as in the past. The strategies in Chapter Eight, pp. 289-307, must be closely followed in order to get *the full benefit of implementing TQM in the SMIs*. The following packages should be considered and improved for the purpose of future continuous development of the SMIs:

- **Market Promotion Package:** The Market promotion package comprises of the following programmes and schemes should be improved and continued;

- Vendor Development Scheme

- Subcontract Exchange Scheme

- Umbrella Concept in Marketing

- SMIs expo and Industrial Fairs

- Product and market segment studies

- **Investment Incentive Package:** Existing investment incentive packages should be maintained and improved so that equal treatment and opportunity are given to the Bumiputra and Non-Bumiputra SMIs at par with the LSIs:

- Supportive Subcontracting guidelines

- Tax incentives, automatic pioneer status approvals to SMIs

- Tax exemptions on industrial machinery, equipment and raw materials inputs.

- Double deduction on training.

- **Technology Development Package:** The Technology Development Package must also be continued and improved. It comprises the following:

Industrial Technical Assistance Fund (ITAF)

Quality Management Practice (QIP)

Orientation and Factory Visits

Dissemination of technology based information through the Malaysian Industrial

Technology Information Centre (MITIC)

Technology based workshops and clinics

Bilateral arrangements to fund studies on SMI technology development

Advisory assistance on purchase of technology and procurement of foreign technical assistance.

#### 10.4.2 SMIs' Modernisation

Continuing from Chapter Three pp. 64-65, there is a need for improvement of the knowledge base of the SMIs' managers and workers through proper training and education. There is also an urgent need to modernise the management of SMIs in terms of motivation, attitudes, skills and structure (see **Chapter Eight** for details). Many SMIs are characterised by *poor division of labour in management*, SMIs managers should *learn how to delegate their work*. At present, not only are important management functions of the firm concentrated with the entrepreneurs, but they are also performing routine daily work which tends to absorb most of their time. In the process of modernisation, entrepreneurs should ease their workload as far as possible by delegating routine tasks to their subordinates and by rationalising the administration of the firm.

The modernisation programme which has been outlined in **Chapters Five, Eight and Nine**, calls for *enormous resources*, most of which will have to be raised by the SMIs themselves. However, supplementary inputs will be needed, and these should be provided by the Government. Government assistance should include *R&D and marketing*, especially to access the export markets, and most important of all, financial assistance in the form of bank loans with 'no interest' or with 'token interest' and export credit.

The large firm has the resources to mobilise all the inputs necessary for its production needs. It can set up its own R&D unit or establish marketing offices overseas to facilitate exports. By virtue of their size, SMIs need government assistance to fill this gap. That is why *an integrated programme of assistance* is absolutely vital to ensure small industry modernisation. Presently, many small industry programmes in Malaysia fail to provide such an integrated package of assistance, and hence, are ineffective, e.g. many financial assistance programmes provide only financial assistance and little else.

Finally, it is intended by this research to create awareness on the part of managers, of the need for critical thinking and the importance of management theories, especially the application of TQM in managing SMIs, in order to ensure their *continuous survival in the competitive international market*.

Other strategies that should be developed further include:

- ***Human Resource Development Packages***. This strategy addresses three levels of needs: the entrepreneur, management and the shopfloor or supporting workers level. Strong emphasis should be given to the creation of entrepreneurs and *highly skilled*

*and intelligent workers, artisans and designers.* The acquisition of industrial skills is envisaged to reduce the SMIs weakness in quality production and services, small volume outputs and late deliveries.

For this, the Government has also devised appropriate assistance schemes and sought to raise the level of management expertise, technological know-how and skills of the employees. Technology, training and quality improvement, have been extended, while the infrastructural support, which was laid by the Government, has been fully utilised. Therefore, plan to encourage more SMIs to utilise the infrastructural support must be made at once, so that this Government effort is not wasted.

*'It is blindingly clear that the most important resource of any nation must be the talents, skills, creativity and will of its people. What we have between our ears, at our elbows and in our hearts is much more important than what we have below our feet and around us. Our people is our ultimate resource. Without a doubt, in the 1990s and beyond, Malaysia must give the fullest emphasis possible to the development of this ultimate resource.'* ( Dr. Mahathir Mohamad in *Malaysia: The Way Forward*, 1991, p.415).

- ***Infrastructure Support - Industrial Park.*** Given the number of handicaps faced by the SMIs the introduction of the SMI Industrial Park Concept is timely and should be continued. This will reduce the pressures on SMIs' entrepreneurs in terms of upfront capital asset commitment. Statutory requirements and approvals to which a project must adhere will be greatly reduced by having industrial park as SMIs are sited in one

location. This, in turn, will shorten the start-up time of a project from the normal two to three years to less than one year.

- ***BCIC Development Packages.*** The Bumiputra Commercial and Industrial Community (BCIC) must further be nurtured and continued through the implementation of the above programmes. Through the VDP, it is to be hoped that Bumiputra entrepreneurs would be able to gain a strong foothold in the industrial subcontracting market.

#### **10.4.3 Product and Market Segment Studies**

With the assistance of Japanese International Cooperation Agency (JICA), Commercial Business Interchange (CBI), International Trade Commission (ITC), Institutions of Higher Learning, and private sector management and industrial consultancy firms, a number of product and market segmentation studies have been carried out intermittently over the past two or three years. Reports from these studies are available in the SMI Section, MEXPO, and MIDF.

The objective of this exercise is to enable SMI manufacturers and entrepreneurs to obtain relevant information on potential products and processes that can be adopted for their business ventures. However, *not many SMI manufacturers and entrepreneurs have made full use of these reports.* The lack of utilization of the reports may be due to their not

realising the need and importance of having adequate information in business planning. (MITI, 1996). Therefore, there is a need to encourage SMIs to utilise this facility.

#### **10.4.4 Technology Development**

**Industrial Technical Assistance Fund:** The ITAF was set up with the purpose of modernising and enhancing the development of SMIs into a progressive and modern sector capable of supporting the large industries in the country. This fund was implemented in 1993 with an initial allocation of RM50 million. The fund provides matching grants for SMIs. (See Note 1 at the end of this thesis for details). Unfortunately, the processes / procedures for getting a grant are excessively rigid. It is timely now to reexamine this rigidity in the light of the Government's new strategy and commitment to SMIs in the Seventh Malaysia Plan.

**Soft Loan Scheme For Modernisation and Automation:** This scheme was introduced in February, 1993. Its aim was to promote SMI modernisation and automation through the use of technology. This scheme was allocated RM50 million under RM6. It is managed by MIDF. Priority is given to existing SMI vendor companies who are currently involved in subcontracting activities. Loans extended to qualified SMIs carry an interest rate at 4.0 percent per year, over a maximum period of 10 years.

**Soft Loan for Furniture and Food-based Products:** The scheme was introduced in February, 1993. Its aim was to provide soft loans to Bumiputra SMIs in the food-based

and furniture industries. This scheme was allocated of RM50 million under the RM6 and is managed by Bank Pembangunan Malaysia Berhad (BPMB). Loans extended to qualified SMIs would carry an interest rate at 4.0 percent per year for a maximum period of 10 years.

Both of the above loans should be grouped under the ITAF, to remove the current duplication of activities.

#### **10.4.5 SMIs Investment Incentive**

**General Information:** Fiscal and non-fiscal incentives presently provided under the Promotion Incentive Act (PIA) 1966 and Income Tax Act 1967, although not specifically meant for the SMIs, are provided to companies including SMIs which undertake the commercial production of promoted and gazetted products under the said Acts. However, not many SMIs use those facilities, or are aware of them. This could be due to ignorance and also the excess beaucracy in the application procedures. Therefore it is suggested that automatic approval be made available for all categories of SMIs.

**Fiscal Incentives:** Specific fiscal or tax related incentives presently available to SMIs, should be widely made known to them. Therefore, it should be made mandatory for all agencies responsible for the development of SMIs to alert the SMIs to these incentives, which include:

- Automatic approval of pioneer status, specifically for the small scale industries (SSIs). (*This should also include MSIs*).
- Reinvestment allowance at the rate of 50 percent for SSIs as against 40 percent available to MSIs and LSIs.
- Full import duty exemption / surtax exemption on raw materials, components, machinery and equipment which are not produced locally and directly used in the processes.
- Double deduction for industrial training undertaken through approved institutions.

*Non-fiscal Incentives:* Non-fiscal incentives available to SMIs include grants or other forms of developmental assistance such as *the relaxation of administrative controls to facilitate smooth flow of business transactions*. Current forms of non-fiscal incentives available to SMIs include the following:

- Matching grants up to 50 percent under the ITAF schemes first introduced in 1993
- Credit guarantee scheme formulated and implemented by CGC.
- Special loan schemes, for example under the Asian Japan Development Fund (AJDF).
- Government direct procurement schemes under the Umbrella Concept Schemes.
- Proton Vendor Schemes.
- Nursery Factory Schemes and affordable factory buildings.
- Loans and training schemes provided by MARA. etc.



These non-fiscal incentives should be reexamined and improved to suit the current government strategies stipulated in the Seventh Malaysia Plan.

#### **10.4.6 Infrastructure Development Programme**

**General Background:** Except for the *nursery scheme* under BPMB and certain specific industrial parks dedicated to wood, ceramic and engineering-based industries and the Taman Technology Malaysia (Malaysia Technology Park), no comprehensive nationwide infrastructural facilities are provided for SMIs. Therefore, steps must be taken to improve this situation. At least one park should be provided for each state.

**SMIs Industrial Park Concept:** The SMIs' Industrial Park Concept was introduced in 1992 with the implementation of a pilot project at Kampong Batu in Batu Caves, Kuala Lumpur. Under this Industrial Park Concept, a 55 acre piece of land was made available to the developer (MIEL) on term lease and at an affordable price. The Government provides part of the budget to cover infrastructural costs (RM5 million) while MIEL bears the remaining development cost, including industrial buildings, flatted factories, shophouses, administration building and 9-story minimum-cost apartment blocks.

The Kampong Batu Complex provided 209 factory units which were either sold or rented to SMIs at a price 15 percent lower than market prices or rental of industrial buildings in the surrounding area. However, the researcher feels that even this rate is too high for SMIs with maximum paid up capital of RM2.5 million, especially in areas in Federal

Capital, Selangor, Penang, Seremban and Johor baharu. The cost of a factory/site/shop may take more than 50 percent of their paid up capital.

MITI is responsible for the planning and development of similar SMIs Industrial parks in other states. In this regard, consultations should be made to all other states of the country, regarding the need of the parks. To date, Melaka, Penang, Pahang and Kedah have responded with offers of land. Therefore, it should be the responsibility of MITI, to provide at least one sizable SMI Industrial Park in each state. For this purpose, the sum provided under the RM6 and RM7 should be utilised fully for this purpose.

#### **10.4.7 Human Resources Development Programme**

**Objective:** This programme is aimed at providing training for SMIs to upgrade the skills of workers as well as enhance the management capabilities of the promoters and entrepreneurs.

**Training Institution:** This programme is implemented by NPC and a number of Human Resource Support Institutions (HRSIs) namely, MEDEC, MARA, SIRIM, PRIM, FORIM, CIAST and Trade and Industry Associations such as the FMM. In addition, human resources training programmes conducted by AOTS, JICA, JPA, CBI, UNDP either on a bilateral or multilateral basis are also available. These training facilities should be made known to all small industries, whether they are interested in participating or not. The management information system (MIS) in this respect must be used for the benefit of

all SMIs. Of particular interest is the Creation of Entrepreneurs and Formation of Enterprises (CEFE) 5-day workshop jointly organised and financed by Technonet Asia, Gtz Germany and SIRIM/NPC/MARA.

This workshop model should be extensively replicated by other institutions, as it gives participants the opportunity to explore together business opportunities with the objective of identifying at least three products/projects in which the individual would like to venture.

Beside NPC, MITIC at the SMI section MITI also provides limited training by way of '*business clinics*' and seminars conducted regularly on specific subjects of interest to most SMIs such as in marketing and incentives. This practice should be continued and updated from time to time to keep abreast with the current SMIs' need.

#### **10.4.8 Business Information Support System**

The Malaysian Industrial Technology Information Centre (MITIC) of the SMI Section provides a one-stop referral centre for SMIs to get information on various SMIs-related development programmes and schemes. It is situated on the 9th floor of MITI's Building. The services offered by MITIC, such as the following, should be continued and improved.

- Dissemination of information on government policies, strategies, development assistance and schemes related to SMIs;

- Collection and dissemination of information on current technological processes to SMIs with the view of developing more data-base information facilities for use by interested SMIs;
- Dissemination of information on vendors' participation under the various market promotion schemes provided by MITIC and relevant agencies;
- Networking of computerised information on marketing and technological innovations with relevant institutions in the country as well as overseas;
- Organising Business Clinics for entrepreneurs on specific subjects, issues and development schemes;
- Operating the Sub-contract Exchange, where large companies as well as potential vendor companies are registered;
- Registration of management and industrial consultants who could be of assistance to SMIs.

These facilities should also be made known to all SMIs, (Bumiputra and Non-Bumiputra) whether they are interested or not. The *information must get through* to its intended customers.

**Registry of Industrial Contracting Manufacturers (RICOM):** In addition, MIDA through the services of the RICOM is providing a mechanism to facilitate the establishment of joint-ventures between Directorate of Foreign Investments (DFIs) and Malaysians enterprises and individuals, as well as between Bumiputra and Non-

Bumiputra enterprises and individuals. This facility should be grouped under the BCIC programmes.

**Current SMI Development Issues:** The survey reveals that the main issues facing SMI development are mainly in the following areas:

1. Lack of a comprehensive data base on SMIs which is vital for policy formulation; consequently, there is a need for an urgent survey of all SMI establishments of this comprehensive data base information.
2. Weak inter-sectional and inter-industrial linkages, resulting from the inability of SMIs to transform themselves into efficient supporting industries which are able to supply the necessary industrial inputs to large companies and MNCs. In this respect, efforts have to be made to enhance and expand the existing VDP into other sectors and sub-sectors.
3. Related to (2) is the increase in the number of foreign SMIs operating in the country. This is of concern to both the Government and the SMIs themselves and therefore, the possibility of some form of action to regulate their activities should be considered.
4. The absence of a national level SMI Trade Association to represent SMIs. Action must be initiated by SMIs to form a body soon, as this will facilitate interaction between the Government, the large companies, MNCs and SMIs.
5. The need to have a SMI Agency to be responsible for the overall policy, implementation and coordination of SMI Development Programmes.

The performance of SMIs in the coming decade will determine the extent of success in the process of the widening and deepening of the industrial base of the nation, to create a workforce which emphasises the importance of *hard work and commitment*, so local contractors and businessmen get the benefit and be able to learn the skills employed by the Japanese and Korean contractors which have been discussed in **Chapter Two**.

For this reason, SMIs have to be further promoted and upgraded into viable vehicles for industrial expansion. To take action on all the above weaknesses and suggestions, an integrated organisation (see **Chapter Eight** for details) or a ministry is required, with special responsibility for looking after the welfare of SMIs. Japan, Taiwan, Korea and the Philippines have done this, and the researcher feels that it would be appropriated for Malaysia to follow suit. Further suggestions in this regard are given below.

### **10.5 A Ministry or An Integrated Development Organization specially for SMIs**

Continuing the suggestion on restructuring of development agencies, discussed in 10.4.1, a ministry or an integrated development organization specially for the SMIs, Ministry of SMIs (MoS) or SMIs' Integrated Development Organization (SIDO) is suggested. For the purpose of easy reference the researcher has adopted the term MoS as the organization representing SMIs, in the following discussion. The various arguments in favour of a MoS for Malaysia are summarised below:

1. The establishment of a MoS will help to solve the coordination problem and will also eliminate duplication in SMIs programmes. This is the most obvious argument in favour of a MoS. The MoS will help to eliminate redundant agencies and programmes, and consolidate them under one roof. In this way, there will be savings, rather than 'further waste' of funds and the problem of lack of awareness of quality costs initiatives among Malaysian SMIs will be addressed (see **Chapter Four**).
  
2. Another argument in favour of the proposed MoS is the need to provide an integrated package of assistance for small industry. As stated on many occasions in this thesis, small industry faces a variety of problems which cannot be solved on an *ad hoc* basis. Financial assistance must go hand in hand with various other types of non-financial help such as training, marketing, proper choice of quality initiatives and advisory service. (See **Chapter Eight** and **Nine** for detailed suggestions on these issues). Existing agencies are unable to provide an effective integrated package of assistance because, individually, they do not have the whole range of '*expertise*' required. The same applies to the Directorate of Small Industries (DSI) in the MITI, which is too small to undertake such a huge task.
  
3. There is a need to establish a strong agency to be concerned exclusively with the development of small industry. At present, there are only three agencies exclusively concerned with small industry, namely, the DSI, BCIC and the CGC. These agencies have very few staff and are unable to expand much because of organizational constraints. As far as CGC is concerned, its functions are too restricted. In short, currently, there is no agency large enough to promote small industry effectively.

4. As indicated by the Prime Minister, Dr. Mahathir Mohamad, quoted in Chapter One, p. 2, SMIs have an important role as a spawning ground for the birth of tomorrow's entrepreneurs. Therefore, there is a need to collect basic data on small industry to review and formulate more effective and equitable policies and to reorganise the whole gamut of programmes for assisting small industry. This gigantic task can only be undertaken effectively by a MoS. It cannot be done on a piecemeal basis by different agencies with very different priorities.

In the long run, the MoS should be able to transform small traditional enterprises in Malaysia into small modern enterprises which utilise R&D programmes, particularly in the fields of science and technology (S&T) and IT, as suggested by RM7. Such a transformation has taken place in Japan and is taking place in Taiwan, Korea and Singapore. Small industry in Malaysia will have to undergo the same process if Malaysia is to become an industrialised country soon. Over the short term, the immediate tasks of a MoS should be as follows:

1. To formulate a comprehensive national policy and an effective programme of assistance for small industry. The policy should be formulated in conjunction with overall planning for the economy as a whole and for the manufacturing sector in particular. To the greatest extent possible, policies should be implemented through a system of incentives, rather than by direct government administrative intervention. Lack of administrative skills often makes such intervention ineffective or even counter-productive because of bureaucracy, red tape and poor staff ability and quality. (See Chapter Eight for strategies to counter-act these problems);



2. To investigate discriminatory aspects of existing policies and formulate positive policy counter-measures as well as counter-strategies;
3. Continuously control or monitor and further implement appropriate policy measures through legislative and/or administrative action;
4. Evaluate existing programmes of subsidies and assistance for small industry to improve, or if necessary, revive the programmes to ensure maximum effectiveness. An across-the-board promotional drive is not likely to lead to effective use of Malaysia's scarce resources since not all small enterprises are capable of further growth. A selective approach will enable the Government to concentrate its limited resources on small enterprises which have competitive advantages over their large-scale counterparts. Attention should be directed to financial, quality initiative, marketing and technical assistance. At the same time, MoS should also seek to promote mutual cooperation, not only among small enterprises, but also between small, large and multi-national corporations. This will assist small industries to reduce their dependence on government subsidy and assistance. Mutual interaction between small and large enterprises can be developed through sub-contracting.
5. Another most urgent task of a MoS would be to improve the provision of advisory services for small industry, since such services are the weak link in the chain of small industry assistance programmes in Malaysia. Finance, as at this point of time, is relatively abundant, but effective advisory capacity to provide *extension services* is very scarce. There is a need for more consulting assistance in this field, particularly with small industry practical orientation. The shortage of such personnel is so great that the efforts of all agencies offering this kind of programmes are frustrated.

6. *The MoS's industrial extension service* can also try to improve complementariness between large and small enterprises, by collecting information on the types of operations that SMIs establishments might carry out for the large firms. Alternatively, a *subcontractors' exchange* could be set up, where *demand and supply* are made known and information provided. Thus, on the supply side, there would be information on the availability of machinery, production capacity and *small industry specialisation*. On the demand side, information would be provided on the demand for parts, components and processing or finishing operations by the large counterparts. In this way, both parties are in a *win win situation*. Thus, the MoS would help to enhance the symbiotic relationship between small and large industry.

Finally, SMIs should be encouraged to help themselves by establishing an association and cooperative societies. A strong and effective SMIs' association is needed to represent their views and interests. Such an association can encourage SMIs to organise and to protect their own interests. In a world where every individual and group has to look after its own interests, the smaller the enterprise, the greater the need for an organization to protect its interests. Let us hope that the sad stories of *rubber glove* and the *soya bean* will not be repeated in Malaysian SMIs. (Chapter One pp. 9-10 and Chapter Two p. 37).

## **10.6 The TQM Model for SMIs**

The Government's recent emphasis on SMIs promotion in the RM7 and in Vision 2020 reflects the official recognition of the importance of this sector in generating employment

opportunities, providing a training ground for future entrepreneurs, meeting social economic objectives and penetrating the market through a subcontracting system, whereby they provide specialised services of parts and components to the larger companies. In addition, the important role played by SMIs in terms of generating export earnings, is also recognised.

The success of the efforts in developing the SMIs in meeting the above objectives, hinge largely on *financial assistance, appropriate management practices, quality enhancement, and proper organization structure of the agencies* that look after their well being, as well as the readiness of the agencies that are responsible for SMIs and the people that run the SMIs to accept change, to be more specifically attuned to the needs of this sector. Their ability to raise the level of skills of the employees, technology and managerial capacity, as well as marketing know-how, will require a greater commitment. This calls for a comprehensive strategy, with the aim of creating a risk taking and more aggressive and robust SMIs sector, which is outward-looking and thus capable of competing in the borderless world market.

It is, therefore, suggested that SMIs make a full use of the TQM Model for SMIs which was discussed by the researcher at great length in Chapter Five, pp. 170-181. As mentioned in the Chapter, the Model is divided into two parts. The first Model is for the SSIs while the second Model is for the SMIs. The operation of these Models should preferably make full use of and follow closely the requirements of the Organization Model described in **Chapter Eight**.

A discussion on the proper use and proper ways of determining the quality costs in **Chapter Four** is also suggested in order to ensure proper calculation and determination of SMIs' profit and operational results in order to ensure their usefulness.

### **10.7 Suggestions for Further Research**

Further research will need to be conducted after more SMIs have accepted TQM principles and implemented quality programmes in their daily operations, to see if there are signs that quality management and initiatives are used, when, in which situations, and what are the most appropriate management practices. A longitudinal study could be carried out to find:

1. Whether there is an increase in the percentage of SMIs who use the device for business operation from year to year;
2. Whether there is an increase in number of times a particular SMI's manager uses a particular quality initiative from one year to another;
3. The type of quality programme that is popular among the SMIs' managers and why;
4. The type of training that suits the managers most;
5. Organizational influence on the success of implementation;
6. Whether there is a change in attitude after attending quality speeches or training and
7. Cultural change in the TQM organization and its impact.

The attitudes, perceptions and expectations scales which were developed in this study could be used to analyse the SMIs' managers' attitudes, perceptions and expectations of TQM before and at the beginning of the implementation of quality programmes. The same test could be given after the implementation of a quality programme in the organization. Such a study might reveal:

1. The relationship between managers who adopt the quality programmes in their business operations and their attitudes, perceptions and expectation of TQM;
2. The type of quality initiatives that should be presented and discussed as part of the inservice and preservice training; and the content of quality training that could be used as a guideline for inservice and preservice SMIs' manager and worker training

Although this study has touched on the same aspects, further research would need to be conducted to see whether the outcome of the study would be the same when:

1. More SMIs have a larger experience of TQM;
2. A greater number of quality programmes for SMIs is made available to SMIs' managers;
3. More quality training programmes (with varied and specialised content) have been organised for managers and SMIs workers;
4. More positive steps have been taken by the administrator to assist managers in using the quality initiatives for SMIs.

A study should also be conducted to investigate the impact on quality initiatives in SMIs of the attitudes and motivation of the SMIs development agencies and TQM training institutions. The results of such study could be used for further planning regarding quality initiative achievement for the Malaysian SMIs as well as making them *quality and productivity-driven* organizations.

*The future* is not a gift to us but, a reward for what we do now. *Quality* is not an accident, it is a consequence of an intelligent planning and hard work. Therefore, those who are *successful* are those who are *willing to try* and *keep trying* and *keep trying* and *keep trying*.

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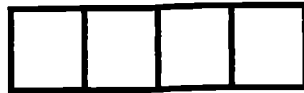
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## APPENDIX 1



Questionnaire on Quality Enhancement Programmes in Small and Medium Industries (SMIs) in Malaysia.

Date : \_\_\_\_\_

Company : \_\_\_\_\_

Address : \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Please answer only the questions which are relevant to your company. The present tense has been used throughout this questionnaire for consistency. However, the questionnaire has been designed to gather information in Quality Programmes at all stages of implementation and respondents should complete all relevant sections, regardless of the status of their programmes. ***You need about 30 minutes to answer this questionnaire .*** A glossary of terms is attached for ease of reference.

Institute of Education,  
Loten Building,  
University of Hull,  
Hull, HU6 7RX,  
UNITED KINGDOM.

Secretariat,  
Survey TQM-SMIs 1966,  
Malaysian Accreditation Council,  
21st. Floor, Wisma MPSA,  
40675 SHAH ALAM, SELANGOR D.E.

March, 1996.

## **Objectives and Importance of this Survey**

Sustained economic growth is the key to attaining the objectives of Malaysian Vision 2020, which requires an average 7 percent growth per year for the next 25 years. Small and Medium Industries (SMIs) have an important role to play to sustain this growth, especially in generating employment opportunities, in strengthening industrial linkages, in penetrating markets and generating export earnings. They have a crucial role as a ground for the growth of tomorrow's entrepreneurs.

The government will devise appropriate assistance schemes and will seek to raise the level of management expertise, technological know-how and skills of the employees in this very important and, in many ways, neglected sector of our economy.

### **The Survey aims to answer the following questions:**

- (1) What is the current status of Quality Initiatives undertaken by SMIs?
- (2) What different Quality Programmes are undertaken by SMIs?
- (3) What are the most common and preferred Quality Programmes undertaken by SMIs?
- (4) What are the common reasons of SMIs for not undertaking Quality Initiatives or Programmes in their daily operations?
- (5) What is the best way to introduce the application of Quality Initiatives in SMIs?
- (6) Is (a major) restructuring required on the part of the agencies responsible for the well being of SMIs in the future, in relation to Vision 2020 requirements?

Last, but not least, the survey intends to come up with recommendations to help in promoting the application of Total Quality Management (TQM) in the SMIs.

Your cooperation in this survey will go a long way towards achieving the country's Vision 2020 directly and the findings will also be of benefit to SMIs in general.



**SECTION ONE**

**(A) COMPANY PROFILE**

(1) Is the organisation:

- Private sector - Limited company, Sdn. Bhd., Partnership or Sole proprietor.
- Public sector - non-trading public corporation or agency.
- Public sector other organisation ( local government, SEDC, MARA, RISDA, MARDI, EON, HICOM etc.)

(2) Is the Organisation:

(Please tick one box only)

- A wholly Malaysian based company
- A headquarters establishment of a foreign company
- An autonomous division of a foreign company
- A joint venture with a foreign company
- A managed division of a larger establishment
- Other (Please specify).....

(3) What is the ownership of the organisation?

- Totally Bumiputra company
- Totally Non-Bumiputra
- A joint-venture with Bumiputra majority
- A joint venture with Non-Bumiputra majority
- Umbrella / Payong company

(4) Number of employees employed by the organisation.

- 4 and less
- 5 to 49
- 50 to 199
- 200 and above

(5) What is your company's paid up capital?

(RM.....)

(6) Number of years in operation:

(Please tick one box only)

- 5 years and less
- 6 to 10 years
- 11 to 15 years
- 16 to 20 years
- 21 years and above

(7) Nature of business or service rendered: (Please tick one box only)

- Manufacturing enterprise
- Commerce (retailers, wholesalers, agents)
- Services (technical, professional)
- Contracts (constructions, suppliers, services)
- Agriculture (fisheries, animal husbandry, floriculture, horticulture and vegetable farming)

Transport

Other (Please specify).....

What is your Organisation / Company's main trade?

.....  
.....  
.....  
.....

(8) How long has the organisation been established on its current site(s)?

(.....years)

(9) Was the organisation established on a greenfield site?

Yes       No       Don't know

(10) Has the organisation had any experience of Quality Programmes?

Yes       No       Don't know

If **yes**, please go directly to Section **Two** and complete **all** of the remaining sections.

If **no**, please complete the remainder of Section **One** only.

(11) Does the organisation have any plans to embark on a Quality Programme in the future?

Yes       No       Don't know

If yes, please give brief details :

.....  
.....  
.....

Please specify what kind of Quality Initiative is envisaged by the management and human resource department to begin with :

.....  
.....  
.....  
.....

(12) Is any pressure for a Quality Programme currently felt within the organisation?

Yes       No       Don't know

If yes, in what areas does such pressure arise? Please give brief description :

.....  
.....  
.....  
.....  
.....  
.....

(13) If your answer to question (12) is **no** give reasons why.

(You may tick more than one of the following)

- Not aware of quality programmes.
- At the moment management feels that it is not important.
- No budget allocated for quality initiatives.
- Company newly established.
- Company too small.
- Propose to carry out programmes later.
- Other reasons (Please specify).....  
.....  
.....

*Thank you for your cooperation. Please return this questionnaire in the envelope provided.*

**NOTE :** The remainder of this questionnaire is **ONLY** applicable to respondents who answered **YES** to question (10).

**SECTION TWO**

**(A) ORIGIN OF QUALITY PROGRAMME**

(14) In which year did your organisation first begin to implement a programme to improve Quality?  
.....

(15) In which areas are changes considered necessary for the Quality Programme to be judged to have significant results?

- Financial (budget, costs)
- Organisational (structure, control)
- Technological (process, operation)
- Philosophical (culture, attitude, perception)
- Other..(Please specify).....

(16) What time scale was originally perceived for significant results to accrue from the Quality Programme?  
.....years.....months.

Has implementation matched the projected time scale?

- Yes
- No
- Don't know

If **no**, please give possible reasons and problems experienced.

.....

.....

.....

(17) Where, in the organisation was the decision taken to embark on a Quality

Programme?

- Chief executive / Board.
- Executive management.
- Management initiative : Production function
- Sales function
- Financial function
- Personnel (HRD) function
- Others (Please specify).....

(18) Where does responsibility lie for initiating, steering and facilitating the Quality

Programme? (Please tick).

	Initiating	Steering	Facilitating
Chief Executive/Board			
Executive Management			
Production			
Quality Management Dept.			
Training Dept.			
Personnel Dept.			
Other (please specify).....			

(B) APPROACH TO THE QUALITY CHALLENGE

(19) Please tick the Programmes which are conducted in-house\* or externally\*\*. (You may tick more than one). Please refer to the glossary at the end of the questionnaire.

<u>In-house</u>	<u>External</u>	
<input type="checkbox"/>	<input type="checkbox"/>	ISO 9000 series
<input type="checkbox"/>	<input type="checkbox"/>	5S (Seiri, Seiton, Seiso, Seiktsu and Shitsuke)
<input type="checkbox"/>	<input type="checkbox"/>	Quality Control Circles (QCC)
<input type="checkbox"/>	<input type="checkbox"/>	Total Quality Control (TQC)
<input type="checkbox"/>	<input type="checkbox"/>	Total Quality Management (TQM)
<input type="checkbox"/>	<input type="checkbox"/>	Just -In-Time (JIT)
<input type="checkbox"/>	<input type="checkbox"/>	Total Productive Maintenance (TPM)
<input type="checkbox"/>	<input type="checkbox"/>	Productivity measurement
<input type="checkbox"/>	<input type="checkbox"/>	Programme / Philosophy from quality gurus
<input type="checkbox"/>	<input type="checkbox"/>	Other (Please specify).....
		.....

\* In-house : Programmes conducted by own personnel and invited speakers  
(organised specifically for your employees only).

\*\* External : Programmes conducted by other institutions (private or government).



(20) If your company sends employees to attend external programmes, who conducts the Programmes? (You may tick more than one).

- Standards and Industrial Research Institute of Malaysia (SIRIM)
- MARA Entrepreneurs Development Division.
- National Productivity Corporation (NPC)
- Centre for Instruction and Advanced Skills Training (CIAST)
- Malaysian Entrepreneurial Development Centre (MEDEC)
- Industrial Training Institute (ITI).
- Malaysian Agriculture Research and Development Institute (MARDI).
- Forest Research Institute of Malaysia (FRIM).
- Penang Skills Development Centre (PSDC).
- MARA Institute of Technology (MIT).
- Institut Kemahiran MARA (IKM).
- Other (Please specify)

(21) Which kind of training do you think has been more effective?

- In-house training
- External training

Please specify reasons.....  
.....  
.....  
.....  
.....

(22) For each Quality Programme attended, please state the **number** of employees who have participated in the following programmes respectively for the last 3 years.

Programmes undertaken	Number of employees on training programmes					
	<u>In house</u>			<u>External</u>		
	1993	1994	1995	1993	1994	1995
ISO 9000 series						
5S						
Quality Control Circle						
Total Quality Control						
Total Quality Management						
Just In Time						
Total Productive Maintenance						
Productivity Measurement						
Programme/Philosophy from gurus						
Others (Please specify).....						

(23) Please indicate the consequences in the organisation of the training undertaken.

Please also state the actions undertaken (you may tick more than one).

Formally discuss the feasibility of implementing the techniques.

Engage a consultant to institute changes.

Implement the quality activities. (Please specify)

(1) .....

(2) .....

(3) .....

(4) .....

(5) .....

No consequence.

What problems hinder your organisation in implementing fully the quality techniques learnt; for example management resistance, budget constraints etc.

.....  
.....  
.....  
.....

(24) Please rank in order of importance the main aims of Quality Programme. (No. 1

being the most important factor and no. 8 the least important)

Improve productivity.

Reduction in cost of poor quality

Increase consistency in working practices.

Improve competitive advantage service image.

- Reduce errors and inefficiency.
- Improve management and facilitate Organisational culture change.
- Satisfy the external and internal customers
- Other (Please specify).....

(25) Where did the pressure for change originate?

(Please rank in order of priority; No. 1 denoting the most important factor and No. 5 being the least).

- Economic consideration.
- Operating environmental consideration.
- From the people of the organisation.
- From top management.
- Other (Please specify).....

.....  
 .....

(26) For courses conducted, kindly state which language is preferred.

<u>Language preferred</u>		<u>Participants</u>
Bahasa Malaysia	English	
<input type="checkbox"/>	<input type="checkbox"/>	Top management
<input type="checkbox"/>	<input type="checkbox"/>	Middle management
<input type="checkbox"/>	<input type="checkbox"/>	Supervisory
<input type="checkbox"/>	<input type="checkbox"/>	Operational

(27) What is the most preferred Programme? (Please rank 1 to 10 according to order of preference).

- ISO 9000 series
- 5S
- Quality Control Circles
- Total Quality Control
- Total Quality Management
- Just-in-time
- Total Productive Maintenance
- Productivity measurement
- Programme /philosophy of quality gurus
- Other (Please specify).....  
.....

Please state reasons for preferences for the first three Quality Programmes chosen. :

.....  
.....  
.....

(C) NATURE OF THE QUALITY PROGRAMME

(28) Is the introduction and design of the Quality Programme comprehensive, that is, are all aspects of Organisational activities examined?

- Yes       No       Too early to say

(29) What tools are used in the diagnostic process?

- Attitude survey
- Organizational systems and process analysis
- Analysis of Organisational structure or effectiveness
- Customer survey
- Evaluation of production processes
- Quality Circles
- Employees participation / consultation
- Other .(Please specify).....

(30) Which functional areas are examined in the diagnostic process prior to the introduction of the Quality Programme?

- Sales and marketing
- Production
- Customer service
- Finance
- Personnel / Human Resources
- Quality control
- Other (Please specify).....

(31) Is your Quality Programme perceived as an added dimension to existing systems and processes?

- Yes       No       Don't know

(32) Are existing business systems regarded as having already incorporated a Quality Philosophy?

- Yes       No       Don't know

(33) Have any changes in your Organisational structure resulted from the Quality Programme to date?

- Yes       No       Don't know

If **yes**, what is the nature of these changes. (You may tick more than one).

- Improved communication
- Flatter hierarchy
- Devolution of responsibility
- Less control in the systems
- Improved reporting systems
- More emphasis on team work
- Improved management systems

If your answer is **no**, give reasons why :

.....

.....

.....

.....

Please refer to question (24) and answer the following questions in **Section Two, Part D**.

(D) EVALUATION

**(a) On Quality Programme undertaken:**

(34) What criteria are used to measure the success of the Quality Programme?

(Please rank in order of importance; No.1 denoting the most important factor)

<u>CRITERIA</u>	RATE OF SUCCESS			
	VS	RS	US	D/K
<input type="checkbox"/> Profitability				
<input type="checkbox"/> Market share				
<input type="checkbox"/> Quality of service/product				
<input type="checkbox"/> Unit cost				
<input type="checkbox"/> External customer satisfaction				
<input type="checkbox"/> Internal customer satisfaction				
<input type="checkbox"/> Employee satisfaction				
<input type="checkbox"/> Employee participation				
<input type="checkbox"/> Other (please specify)				

**Key:**

**VS** = Very successful.

**RS** = Reasonably successful.

**US** = Unsuccessful.

**D/K** = Don't know



(35) At what level is the measurement of objectives carried out?

- Departmental
- Divisional
- Corporate
- Others (Please specify).....

(36) What problems are being / have been experienced in the implementation process?

- Resistance to change in the Organisational culture
- People resistant to change - top management
- middle management
- supervisor
- employee
- Operating environment
- Economic pressure
- Training / education
- Monitoring
- Other (Please specify).....

(37) What is being done to overcome the above problems?(Please specify)

.....

.....

.....

(38) What percentage of total payroll does your company allocate for the Quality enhancement programme?

- Less than 1.0 percent
- 1.1 to 2.0 percent.
- 2.1 to 3.0 percent.
- 3.1 to 4.0 percent
- 4.1 to 5.0 percent.
- 5.1 percent and above.

Would you consider allocating a bigger budget for the Quality enhancement programme in the future?

- Yes
- No

If yes, how do you propose to invest?

- Set up own training department.
- Send more participants on courses.
- Engage a consultant to advise / implement.
- Other (Please specify).....

(39) What is the general / overall strategy of the Quality Programme in your organisation over the next five years? (Please specify)

.....

.....

.....

**(b) On SMIs development strategies**

Responses to many of the remaining statements should fall into the following categories:

<b>Strongly disagree</b>	<b>Disagree</b>	<b>Slightly disagree</b>	<b>N/A</b>	<b>Slightly agree</b>	<b>Agree</b>	<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

(40)The training institutions in question 20 are currently doing a good job in disbursing their responsibilities in giving technological enhancement and training to SMIs workforce.(Please tick)

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
----------	----------	----------	----------	----------	----------	----------

(41) The following Government agencies which were set up to look after the well being of SMIs, have so far done their job well.(Please tick)

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
Bank Industry Malaysia Bhd. (BIMB)							
Bank Pembangunan Malaysia Bhd. (BPMB)							
Malaysia Export Credit Insurance Bhd. (MECIB)							
Credit Guarantee Corporation Malaysia Bhd. (CGC)							
Malaysia Industrial Development Finance Bhd. (MIDF)							
MARA (Loan)							
SIRIM (ITAF)							
Customs Department (Tax incentive)							
Income Tax Department (Tax incentive)							
MITI (Pioneer status)							

(42) Currently SMIs do not face any shortage in manpower to manage their operation, especially in the field of modern and advanced technology, they can manage the SMIs, both with technical and professional standards.(Please tick)

1	2	3	4	5	6	7
---	---	---	---	---	---	---

(43) Computer literacy is widespread in SMIs.(Please tick)

1	2	3	4	5	6	7
---	---	---	---	---	---	---

(44) The Umbrella companies such as the following, have done their job well in helping SMIs to enhance their quality programmes, as well as subcontracting works.(Please tick)

	1	2	3	4	5	6	7
BESTA							
GUTHRIE							
MARDI							
SIRIM							
FMM							
HICOM							
PROTON							
PERWAJA							
PETRONAS							

(45) The Government (State and Federal) currently gives full support to SMIs in getting suitable factory sites and affordable office spaces for their business.(Please tick)

1	2	3	4	5	6	7
---	---	---	---	---	---	---

(46) The financial institutions currently are very realistic, especially in charging reasonable interest rates, as well as imposing easy loan terms on SMIs.(Please tick)

1	2	3	4	5	6	7
---	---	---	---	---	---	---

(47) SMIs are very sincere and frank when answering all questions in the loan application forms and when applying for Government subsidy or grant.(Please tick)

1	2	3	4	5	6	7
---	---	---	---	---	---	---

(48) With the current leadership commitment and sincerity, SMIs will become the core organisation to enhance the development of socio economic activity of the country.(Please tick)

1	2	3	4	5	6	7
---	---	---	---	---	---	---

(49) The Quality Standard of products and services of SMIs is high and therefore they could easily penetrate the internal and export markets.(Please tick)

1	2	3	4	5	6	7
---	---	---	---	---	---	---

*Thank you for your cooperation. Please return this questionnaire in the envelope provided.*

## GLOSSARY

### **Quality Programme**

This term is intended to refer to any management initiative designed to improve the Quality of Production, Service or Management within the organisation.

### **Diagnostic Process**

The process used to investigate where and how Quality Programmes should be applied and targeted.

### **Pilot Approach**

Trial in one or more departments/units to refine the elements of Quality Programme before adoption throughout the organisation.

### **Greenfield Site**

The establishment of an organisation from a zero starting point, for example, building a new plant, establishing a new breed of skilled workforce and developing new policies; rather than developing an organisation out of the existing establishment.

### **Customised Quality Programme**

A programme designed and tailored for a particular organisation's needs as opposed to the Quality Packages marketed by some Quality consultants.

### **5S**

The concept of good housekeeping in Japanese companies is a concept popularly known as 5S. *Seiri* (to take out unnecessary items and throw them away); *Seiton* (arrange necessary items in a proper order so that they can be easily picked up for use); *Seiso* (clean your work place completely so that there is no dust anywhere); *Seiketsu* (maintain a high standard of housekeeping in workplace or organisation at all times); and *Shitsuke* (train people to follow good housekeeping disciplines independently).

### **Quality Control**

Quality Control techniques have their foundations in the manufacturing sector and emphasise conformance to specification. The assessment of "output" against the predetermined standard takes place "after" production but before provision to the final customer or user. The main characteristics are containment and inspection, the reasons for failure not being addressed.

## **Quality Control Circle (QCC)**

A Quality Control Circle is made up of a small group of employees who are independent and are generally from the same work or working at a related product. The group meets voluntarily and regularly to identify problems, investigate causes and recommend solutions to the most senior decision-making body within their work system. The organisation improves the efficiency of its operation, firstly, because of the employee commitment to success, and secondly, because of the increase in the number of problem solvers.

## **Total Quality**

Refers to the situation where the principles of Quality Assurance are applied to “every activity” carried out by the organisation. The aim is to achieve zero defects. Like Quality Control, its main characteristics are also problem solving and prevention. It recognises that the quality of all intermediate stages of production ultimately influence quality of the final output.

## **Total Quality Control (TQC)**

TQC is an effective form of business management and has its major components, such as, Quality assurance, Strategic management, Market research and analysis. Total Quality Control demands that we build quality into our product. Seven tools (Statistical Quality Control, Cause and effect diagram, Pareto chart, Histogram, Check sheet, Control chart, Bar graph and Scatter diagram) have been designed to help us build Quality into every single management decision that goes beyond manufacturing into such areas as design, delivery and service.

## **Total Quality Management (TQM)**

Total Quality Management requires the ongoing, never-ending commitment of managers who, not only understand but are dedicated to the pursuit of never-ending improvement in meeting (external and internal) customer needs. The never-ending improvement cycle ensures that the organisation learns from results, standardises what it does well in a documented quality management system and improves operations and outputs from what it learns

## **Just In Time**

Just In Time is essentially a philosophy rather than a rigid methodology. Materials and goods arrive “Just In Time” to be used for manufacture or for dispatch to the customer. Working towards JIT means moving steadily towards building Quality into the product at the point of manufacture.

## **Quality Assurance**

Quality Assurance is about designing “procedures” that will avert problems which would otherwise reduce the quality of output. Its main characteristics are problem-solving and prevention. It is most relevant where production and consumption are simultaneous, so there is no opportunity for quality control.

### **Quality Assurance : ISO 9000**

The ISO 9000 is an internationally agreed set of Quality System Standards. ISO 9000 is a series of five related international standards for quality assurance. ISO 9000 provides general guidance on the choice of the appropriate quality system. ISO 9001 is to be used where a company is involved in design, development and production and, when appropriate, also covers installation and servicing activities. ISO 9002 is to be used where there is no design activity, or where the activity of the company may involve design but is limited to simple engineering of standard parts, or the manufacturing requirements are fully specified by others. ISO 9003 is for companies manufacturing relatively simple products where conformance to specification can be verified by final inspection or test, where there is no need for any special quality control during manufacture. There are few companies where this level of standard is considered adequate. ISO 9004 provides general guidance on the interpretation of the requirements contained in ISO 9001, 9002 and 9003. The various quality assurance standards relate not only to manufacturing but also to service industries. Every company, regardless of the industry in which it operates, would require quality programmes, audits, quality programme documents, planning, documentation control of non-conformance, corrective action and training.

### **Total Productive Maintenance (TPM)**

We can increase productivity through good maintenance management. Total Productive Maintenance was intended to optimise maintenance performance by minimising the sum of “loss from deterioration”. In this way, productive maintenance stressed the economy of maintenance. TPM is distinguished by the following:

- (a) Establish objectives which maximise plant effectiveness to raise total plant efficiency.
- (b) Establish a total system for TPM covering the whole plant life cycle.
- (c) Involve all departments such as planning, operation and maintenance in the programme.
- (d) Have all members from top management to first line workers participate.
- (e) Form small autonomy groups for motivations and promotion of TPM.



## APPENDIX 2



Questionnaire for the study of Agencies / Organisations and their Quality Initiative Programmes in use, to help the development of Small and Medium Industries (SMIs) in Malaysia.

Date: \_\_\_\_\_

Organisation / Agency: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Please answer only the questions which are relevant to your organisation / agency. ***You need about 90 minutes to answer this questionnaire.*** Thank you very much for your cooperation.

Institute of Education,  
Loten Building,  
University of Hull,  
Hull, HU6 7RX,  
UNITED KINGDOM.

Secretariat,  
Survey TQM-SMIs 1966,  
Malaysian Accreditation Council,  
21st. Floor, Wisma MPSA,  
40675 SHAH ALAM, SELANGOR D.E.

March, 1996.

## **Objectives and Importance of this Survey**

Sustained economic growth is the key to attaining the objective of Malaysian Vision 2020, which requires an average 7 percent growth per year for the next 25 years. Small and Medium Industries (SMIs) have an important role to play to sustain this growth, especially in generating employment opportunities, in strengthening industrial linkages, in penetrating markets and generating export earnings. They have a crucial role as a ground for the growth of tomorrow's entrepreneurs

The government will devise appropriate assistance schemes and will seek to raise the level of management expertise, technological know-how and skills of the employees in this very important and, in many ways, neglected sector of our economy.

### **The survey aims to answer the following questions:**

1. What is the current status of Quality Initiative Programmes undertaken by your organisation to help the development of the SMIs?
2. What different projects are undertaken by your organisation to help the SMIs?
3. What are the most common and preferred programmes undertaken by your organisation to assist the SMIs?
4. What are the common reasons for SMIs not getting help from your Organisation?
5. What are the best ways to introduce the application of Quality Initiative programmes in the SMIs?
6. Is (a major) restructuring required on part of the Organisations / Agencies responsible for the well being of SMIs in the future, in relation to vision 2020 requirements?

Last, but not least, the survey intends to come up with recommendations to help in promoting the application of Total Quality Management (TQM) in the SMIs.

Your cooperation in this survey will go a long way towards achieving the country's Vision 2020.

**Questionnaire for the study of Agencies / Organisations and their  
Quality Initiative Programmes in use to help SMIs development.**

**(A) AGENCIES:**

*General:*

(1) Name of your Agency:-.....

(2) Year of Establishment:-.....

(3)(a) Nature of the Agency (Please tick)

- Government
- Quasi Government
- Voluntary
- Other (Please specify).....

(b) Area of operation:

- National
- Regional
- Local
- Other (Please specify).....

(4) Finance of Agency:

- Own fund
- Foreign assistance
- Disinvestment proceeds
- Other sources (Please specify).....

(5) Functions:

(a) Which of the following functions related to SMIs development, are performed by your agency (you may tick more than one box).

- Publicity of entrepreneurial opportunities
- Helping in entrepreneurial education
- Helping in identification of entrepreneurs
- Providing motivation and training to prospective entrepreneurs
- Training of entrepreneurs
- Giving help and guidance to entrepreneurs
- Preparing and evaluating projects undertaken by entrepreneurs
- Arranging techno-economic information for entrepreneurs
- Making available product profiles for entrepreneurs to decide / select
- Evolving locally suitable new products or processes
- Training of officers and personnel for counselling and promotion of entrepreneurship
- Offering entrepreneurial counselling
- Organising entrepreneurial forums
- Publishing journals / literature which are useful to entrepreneurial development
- Registering the unit
- Arranging finance on credit for entrepreneurs
- Providing sheds, power, water etc. for entrepreneurs
- Help and guidance in selecting and obtaining machinery and equipment
- Supplying scarce raw materials to entrepreneurs
- Providing common facility centres
- Granting Tax Relief and other types of subsidy for entrepreneurs
- Assisting in Quality programmes
- Offering managerial consultancy
- Helping in marketing of products
- Helping in modernising the unit

- Helping and guiding in expanding the unit
- Helping and guiding in replacement of equipment and process for entrepreneurs
- Others (Please specify) (1).....  
 (2).....  
 (3).....

(b) What are its policies and programmes in relation to these functions? (may be elaborated in detail)

.....  
 .....  
 .....

(6) Extent of emphasis on SMIs development:

- Wholly (most of the programmes of the organization are related to SMIs development)
- Partially (some of the programmes are related to SMIs development)
- Occasional (sometimes, some programmes related to SMIs development)

**(B) ORGANIZATIONAL:**

(7) Organizational set up:

- (a) What is the organizational structure of the agency?  
 (include an organizational chart)
- (b) Does the agency have any branches? If yes, how many and where? (Also note the area of operation of each branch office)
- (c) Who are the target recipients of assistance from the agency?  
 (Include details, if any)

(8) Policy:

- (a) Who formulates the agency's policies related to SMIs developments?
- (b) How are they incorporated into the programmes and functions?
- (c) What problems / difficulties are encountered / faced / solved?

(9) Problems:

- (a) What problems have been encountered in formulating and implementing policies and programmes related to SMIs developments?
- (b) What has been done about the problems raised in [(9) (a)] above?
- (c) What are your agency's plans for the future?
- (d) What learning benefits have been gathered from past experiences in SMIs developments?

(10) Personnel:

What is the composition of personnel in terms of their qualifications, experiences, training and turnover?

Category of staff	Number	Av.	Training		Turnover		
		Exp.	In-house	External	1993	1994	1995
Professional							
Postgraduate							
Graduate / Adv. Diploma							
Diploma							
HSC / STP							
S.C. / MCE / SPM							
Others (Please specify)							

(11) Inter agency Cooperation and Coordination:

- (a) What programmes of the respondent agency require the cooperation of other agencies?
- (b) What programmes of other agencies require the cooperation of the respondent agency?
- (c) Are the related agencies involved at the time of planning the programmes by the respondent agency? If so, how?
- (d) Do other agencies involve the respondent agency in their planning programme related to SMIs development? If yes, how?
- (e) How are the related activities of these agencies coordinated?

- through formal organization (Describe the nature and function and method of operation)
- through coordination committees represented by the members of collaborating agencies (Describe the activity)
- through direct dealing.

(f) Is there duplication of functions between your agency and other agencies?

(1) If yes, in what areas?

(2) How does the duplication affect the responding agency's operation?

(g) (1) What problems / difficulties are encountered in working / relating with other agencies?

(2) What has been done to overcome such problems / difficulties?



**(C) INTERNAL PROMOTIONAL ACTIVITIES:**

(12) (a) How are SMIs identified?

(b) Are they selected to be included in the programme?

Ans :  Yes  No

If yes, (1) I. What selection procedures are used?

II. Does the selection procedure include tests  
(such as aptitude test)?

Yes  No

III. How are they developed?

IV. What are the objectives of selection techniques?

(2) Is the selection procedure flexible in relation to different  
localities, races and communities?

(3) How many applicants sought help during each year (from 1993,  
1994 and 1995) and how many of them received assistance?

(4) What is the average time taken in processing the requests?

(5) What problem(s) are experienced in selecting the entrepreneurs?

(13) What type of help / guidance is provided to SMIs for:

(a) selecting product

(b) preparing the project

(c) obtaining information regarding financial support, machinery and equipment,  
processes, and product profiles.

(14) What motivational efforts are attempted to generate SMIs?

(a) Arrange preliminary motivation training

(b) Announcement of incentives

(c) Organising entrepreneurial forum

(d) Regular publication

(e) Mass media publication of success stories

**(D) FINANCIAL SUPPORT ACTIVITIES:**

(15) Activities:

- (a) What type of financial assistance is provided?
- (b) What are the objectives of such assistance?
- (c) What activities have been / are being undertaken to promote the programme?

(16) Beneficiaries:

- (a) Size
- (b) Location
- (c) Type

(17) Terms:

Describe separately for different types of assistance.

- (a) What is the maximum and minimum value of each type of loan?
- (b) What are the interest rates?
- (c) What collateral, if any, is required for each type of financial assistance?
- (d) What are the debt equity requirements?
- (e) What is the repayment period?

(18) Filing and processing:

- (a) What paper requirements are asked of borrowers?
- (b) What are the procedures of loan application?
- (c) What are the procedures for loan processing?
- (d) What is the average time required for each step?
- (e) Types of expenditure, if any, in obtaining assistance.

(19) Project Evaluation:

- (a) Is financing done on a project basis?
- (b) What system is followed in project evaluation?
- (c) Who evaluates the project?
- (d) Do they require formal training in project evaluation?
- (e) Who makes the decision to approve or reject the loan / financial assistance?

(20) Repayment:

- (a) What is the percentage of repayment made on schedule?
- (b) What is the number and value of bad debts?
- (c) What are the reasons for failure of repayment?
- (d) What actions are taken to recover bad debts?

(21) Impact:

- (a) How many applicants applied for various types of financial assistance during 1993, 1994 and 1995 and how many of them received assistance?

Type of Finance Assistance	Your target number	Total no. of Applicants	No. of loan approved			No. and value of loan available	
			93	94	95	No.	Value

- (b) How many applications were rejected and why?
- (c) Is there any follow up work after sanctioning of financial assistance?  
If yes, give details.
- (d) How many and what percentage of recipients make profit out of the assistance?
- (e) Is any learning experience(s) recorded?

**(E) TRAINING ACTIVITIES:**

(22) Types:

- (a) What type(s) of training are provided? (Specify Entrepreneurial motivation, TQM, Inplant training or Project preparation training etc.)
- (b) What are the objectives of such training?
- (c) What is the duration / frequency of such training?
- (d) Are these training programmes intended to be income-generating?

(23) Targets:

- (a) Who is eligible for such training?
- (b) How are they selected (specify the selection procedure, if any)?
- (c) Has the selection process been tested for validity and reliability?
- (d) Do the participants receive financial assistance while on training?

(24) Faculty:

- (a) Who are the faculty for the various training courses?
- (b) Has the faculty been formally trained in various aspects of SMIs development?
- (c) Are the faculty involved in further support activity?
- (d) How are they evaluated?

(25) Content:

- (a) What are the curricula of the various training courses?
- (b) Has the curriculum been reviewed up-dated since it was first initiated?
- (c) How is the curriculum for training developed?
- (d) What is the ratio of theory / practice in the training?

(26) Follow-up:

- (a) Is there any follow-up activity? If yes, how?
- (b) Is there any programme to evaluate other training activities? (If yes, give details).

(27) Impact:

- (a) What are the most popular types of training for SMIs?
- (b) How many participants have been trained so far and in what courses?
- (c) What is the rate of adoption of ideas learned during training. (Stated enterprises' TQM, modernisation or expansion, etc.

(28) Learning experiences from the above training activities.

(Please make your comments)

.....

.....

.....

.....

.....

**(F) TECHNICAL & INFRASTRUCTURAL SUPPORT ACTIVITIES:**

- (29) (a) Does the programme include techno-economic survey of the area?  
(b) Has it been completed? Yes / No  
If yes, when?  
(c) Are the product profiles available?
- (30) (a) Are the land and factory arranged for entrepreneurs? If so, on what terms and conditions?  
(b) Does the programme envisage providing an industrial estate? What is the number of sheds (factories) and land facilities provided?  
(c) What is the experience regarding the use of these industrial estates?
- (31) (a) What is the source of the existing supply of energy? (whether atomic, electric, hydro-electric, nuclear, gas, oil, etc.)  
(b) Is the energy supplied adequate?  
(c) What is the policy regarding the supply of energy to SMIs?
- (32) Does the programme facilitate water supply to the unit? (State extent, manner and adequacy).
- (33) (a) How many banking systems exist in the programme area?  
(b) How are the bank branches distributed (comparative to state, country)?  
(c) What is the ratio of banks to the population in urban, semi-urban and rural areas?  
(d) Is there anything special in the programme to facilitate involvement of more banks in SMIs development?
- (34) (a) What are the existing public / private transport facilities?  
(b) Are they adequate to meet the needs of SMIs?  
(c) Does the programme include efforts to improve the existing transport

facilities? If yes, how?

(35) (a) What communication systems are available in the programme area? (include number of telephones and telegraph and post offices).

(b) Is there any priority or subsidy related to communications items for SMIs?  
If so, state the nature and extent.

**(G) SUPPLY & MARKETING SUPPORT ACTIVITIES:**

(36) Activities:

(a) What activities have been done and are being done related to supply and marketing?

(b) What are the specific objectives for each activity?

(c) What is done to let the SMIs know about their activities?

(37) Target and Approach

(a) Who is eligible for assistance?

(b) Why?

(c) What is the procedure to process such assistance (in terms of who initiates it and how much time is taken)?

(38) Impact:

(a) What is the response to different activities?

(b) What is the percentage of utilisation of such assistance?

(c) What are the difficulties experienced?

(d) What has been done to overcome such difficulties?

**(H) MANAGEMENT CONSULTANCY & EXTENSION ACTIVITIES**

(39) Activities:

- (a) What activities are carried out?
- (b) What are the specific objectives for each activity?
- (c) What type of services are in greatest demand?
- (d) What is done to make the entrepreneurs aware of existing extension services?
- (e) What effort is made to get to know the people involved?

(40) (a) Who is eligible for assistance?

- (b) Do they get the services free, subsidised or bear the whole cost themselves?
- (c) Who initiates the move (client or agency)?

(41) Impact:

- (a) What has been learned in terms of problems-solving / identification?
- (b) What has been done to overcome difficulties?
- (c) How do the entrepreneurs perceive such services / initiatives?

*Thank you for your cooperation. Please return this questionnaire and the rest of your answers in the envelope provided as soon as possible (on or before 8th. April, 1996).*



## NOTES

## **Note 1**

### **The Industrial Technical Assistance Fund (ITAF)**

#### ***Introduction***

The ITAF was set up by the government in early 1993 with an initial allocation of RM50 million. As noted earlier SMIs represent an important sector in Malaysia although their overall contribution to the manufacturing sector and national economy is still small. The introduction of this assistance is intended to enhance the development of the SMIs into a progressive, high quality and modern industry capable of supporting the large industries in Malaysia. Details of the ITAF objectives, eligibility for application, form of assistance,

#### ***Objective***

This fund was set up with the purpose of providing grants to SMIs which participate in any of the following schemes:-

- Feasibility Study Scheme
- Product Development and Design Scheme
- Quality and Productivity Improvement Scheme
- Market Development Scheme

#### ***Eligibility For Application***

SMIs operating in the manufacturing sector may apply for this assistance if they fulfil the conditions below:-

- They are incorporated under the Companies Act, 1965;
- Shareholders' funds do not exceed RM2.5 million;
- At least 70 percent equity is held by Malaysian citizens.

#### ***Form of Assistance***

Assistance is given in the form of a matching grant whereby 50 percent of the project cost is borne by the Government, the remaining 50 percent to be borne by the applicant company.

#### ***Priority***

Priority will be given to SMIs which manufacture or intend to manufacture product(s) promoted under the Promotion of Investments Act 1986.

#### ***Evaluation and Management***

All applications will be evaluated by an Evaluation Committee at the relevant Implementing Agencies which are fully responsible for the management, approval and supervision of each study / project.

### **ITAF1: Feasibility Study Scheme**

#### ***Objective***

The purpose of this scheme is to appoint a consultant to carry out a feasibility study:-

- to modernise and increase the capacity of existing plants;
- to increase production and improve product quality.

#### ***Eligible Expenses***

Expenses eligible to be claimed are as follows:

- service fee for the consultant undertaking the study which covers:-
  - data collection and analysis;
  - plant layout;
  - manufacturing process and marketing
  - documentation cost.

#### ***Maximum Grant***

The maximum grant for each study is RM10,000.

### Mode of Disbursement

The grant will be disbursed in two stages on a reimbursement basis. The first disbursement will be 50 percent of the cost incurred or 50 percent of the grant approved, whichever is lower. The balance of the grant will be disbursed after the report on the study has been submitted and Bank Pembangunan is satisfied with the result of the study.

All claims for payment must be accompanied by supporting documents verified by an external auditor.

### Condition For Approval

Companies applying for the grant must satisfy the following conditions:-

- The grant shall be utilised by SMI to engage consultants to conduct feasibility studies to:
  - Modernise and upgrade existing plants and
  - Improve quality and increase productivity.
- The feasibility study must be a new one which has not been done before by any party;
- The study is to be carried out by a local consultant accredited by and registered with Bank Pembangunan or other agencies.;
- The consultant firm appointed by the applicant company to undertake the feasibility study must possess sufficient experience and knowledge and be capable of undertaking the study;
- The applicant company must have the ability to implement the project if the study proves it to be viable;
- The company must possess the technical and management knowledge in the relevant field;
- The company must be capable of bearing at least 50 percent of the cost of the project / study;
- The company must possess the necessary production facility or have access to other facilities approved by the government, such as the Technology Park and SIRIM, to carry out the project; and
- The company must have a good business record with financial institutions and government agencies.

### Application

All applications for the grant must be made in the prescribed form, ITAF 1, and forwarded to the Entrepreneur Development Department, BPMB.

## **ITAF2: Product Development & Design Scheme**

### Objectives

- to improve local product development and design;
- to build up indigenous technological know-how to develop new product / process;
- to improve new product / process.

### Eligible Expenses

- salary of technical manpower directly involved in product development;
- cost of purchasing additional equipment for existing machinery;
- cost of materials used for designing prototypes;
- cost of acquiring technology / licence / patent / copyright / prototype;
- cost of packaging and documentation;
- consultancy fees.

### Maximum Grant

The maximum grant for each study / project is RM100,000.

### Mode of Disbursement

The grant will be disbursed in two stages on a reimbursement basis. The first disbursement will be 50 percent of the cost incurred or 50 percent of the grant approved, whichever is lower. The balance of the grant will be disbursed after completion of the project and submission of all claims and a project report.

All claims for payment must be accompanied by supporting documents verified by an external auditor.

### Conditions For Approval

Companies applying for the grant must satisfy the following conditions:-

- The proposed product must be of a high technical standard in the Malaysian context and conform to sound design practice;
- The development team undertaking the project must possess in-depth knowledge of the technical and commercial aspects of the product and / or process;
- The development work must be carried out in Malaysia by local engineers or designers. However, where appropriate foreign experts or consultants may be engaged to lead or supervise the project;
- The project and / or process must be a marketable item and not a one-off project tailored to a particular customer;
- Should a company decide to conduct a technical and/or marketing feasibility study to establish the viability of a proposed product/process, 50 percent of the related expenses can also be supported subject to a maximum grant of RM5,000;
- A separate application is required for a feasibility study. Upon completion of the study, the applicant company can then apply for the grant to carry out the development phase of a project provided that the outcome of the feasibility study is favourable;
- A company may apply for the two phases simultaneously but the approval for the second (development) phase is conditional upon the positive outcome of the first (feasibility study) phase;
- In cases where a feasibility study is not necessary, a company can proceed to apply for support of the development phase;
- The company must possess the technical and management knowledge in the relevant field;
- The company must be capable of bearing at least 50 percent of the cost of the project / study;
- The company must possess the necessary production facility or have access to other facilities approved by the Government, such as the Technology Park and SIRIM, to carry out the project; and
- The company must have a good business record with financial institutions and government agencies.

### Application

All applications for the grant must be in the prescribed form, ITAF 2, and forwarded to the Corporate Affairs Division (ITAF Secretariat Unit), SIRIM.

## **ITAF3: Quality & Productivity Improvement Scheme**

### Objectives

- to improve the quality assurance system in order to meet the requirements of the National Certification Scheme, the ISO 9000 as a recognition for *Good Manufacturing Practice (GMP)* and other standard schemes of SIRIM
- to encourage SMIs to achieve high Quality Management Practice.

### Eligible Expenses

- service fee for the consultant accredited by SIRIM to carry out the study;
- cost of training managers, technical staff and other approved personnel;
- testing fees charged by SIRIM or other approved laboratories;
- registration fees charged by SIRIM;
- cost of purchasing additional quality development tools.

### Maximum Grant

The maximum grant for each study / project is RM100,000.

### Mode of Disbursement

The grant will be disbursed in three stages on a reimbursement basis. The first disbursement of 20 percent will be made after the appointment of the project consultant. The second payment of 30 percent will be made

upon submission of the consultant's report. The balance of the grant will be paid upon obtaining certification with SIRIM and submission of a final project report.

All claims for payment must be accompanied by supporting documents verified by an external auditor.

#### Conditions For Approval

A company applying for the grant must satisfy the following conditions:-

- Have applied to SIRIM to participate in the relevant certification scheme;
- Have been in production and its product sold in the market;
- Possess the necessary technical and management knowledge in the relevant field;
- Be capable of financing at least 50 percent of the cost of the project / study;
- Possess production facility or have access to other facilities approved by the Government, such as the Technology Park and SIRIM, to carry out the project; and
- Have a good business record with financial institutions and government agencies.

#### Application

All applications for the grant must be made in the prescribed form, ITAF 3, and forwarded to the Corporate Affairs Division (ITAF Secretariat Unit) SIRIM.

### **ITAF4: Market Development Scheme**

#### Objective

The purpose of this scheme is to assist SMIs to enter the export market and develop export marketing expertise.

#### Eligible Expenses

- Cost of producing promotional materials for international marketing;
- Fees for consultancy assisting SMIs to apply for overseas *Certificate of Recognition*

#### Maximum Grant

The maximum grant for each study / project is RM20,000.

#### Mode of Disbursement

The grant will be disbursed in two stages on a reimbursement basis. The first disbursement will be 50 percent of the cost incurred or 50 percent of the grant approved, whichever is lower. The balance of the grant will be disbursed upon successful implementation.

All claims for payment must be accompanied by supporting documents verified by an external auditor.

#### Conditions For Approval

Companies applying for the grant must satisfy the following conditions:-

- The consultant appointed by the applicant company to undertake the study under this scheme must possess the necessary experience and knowledge in this field;
- The company must be willing to accept advice given by technical agencies like MARDI, NPC, MTIB, SIRIM and other agencies which may be identified if necessary;
- The company should be exporters of Malaysian manufactured products. For the purposes of this scheme, Malaysian manufactured products must have 50 percent or more of local content;
- The company must be capable of bearing at least 50 percent of the cost of the project / study;
- The company must possess the necessary production facility or have access to other facilities approved by the Government, such as the Technology Park and SIRIM, to carry out the project; and
- The company must have a good business record with financial institutions and government agencies.

#### Application

All applications for the grant must be in the prescribed form, ITAF 4, and forwarded to the Director, Malaysia Trade Centre, Kuala Lumpur.

## Note 2

### The Philosophies and Approaches of the Quality Writers

#### Introduction

The details philosophies and approaches of the quality writers, their strengths and weaknesses are lengthily discussed and appeared as below:

#### 1. Deming's Approach to Quality

Deming is widely regarded as the person who helped to bring about the Japanese quality revolution. He is associated with statistical process control (SPC) and other problem-solving techniques which measure performance in all processes. His definition of quality is that of *satisfying customers* (internal and external); *not merely to meet their expectations, but to exceed them*. This means focusing on the customer's needs, not just demands (as expressed by effective demand in the market place). Deming has stressed the need to stay ahead of the customer, to anticipate needs and demands. Deming's philosophy thus starts and finishes with the customer. The aim is to add value which the customer wants. Anything which does not do this is not a quality feature.

The means to improve quality are in the ability to control and manage systems and processes properly, and the nature of management responsibilities in achieving this. Deming is associated with SPC and other problem-solving techniques which aim to improve processes and reduce the inevitable variation which occurs in production from *common causes* and *special causes*. Common causes of variations are systemic and are shared by many operations, machines or products. They include poor product design, incoming materials not suited to their purpose, and poor working conditions. These are the responsibilities of management. Special causes relate to the lack of knowledge or skill or poor performance. These are the responsibilities of *operators and workers*.

Deming stressed the responsibility of top management to take the lead in changing processes and systems. Management is responsible for most quality problems (Dale, 1990, suggests a figure of 85 or 94 percent. See details in Chapter Four). Management should give workers clear standards for what is considered acceptable work, and provide the tools to achieve it. These tools include the appropriate working environment and climate for work, free of fault finding, blame or fear. Deming also strongly promoted employee participation. This principles are set out in his 14 points or guidelines for managers (Deming, 1986), though it must be recognised that these were not intended as *tablets of stone*.

The 14 points put forward by Deming are summarized below:

1. Create and publish to all employees a statement of the aims and purpose of the company or other organization. The management must demonstrate constantly their commitment to this statement.
2. Learn the new philosophy, top management and everybody.
3. Understand the purpose of inspection, for improvement of processes and reduction of cost.
4. End the practice of awarding business on the basis of price tag alone.
5. Improve constantly and forever the system of production and service.
6. Institute training
7. Teach and institute leadership.
8. Drive out fear. Create trust. Create a climate for innovation.
9. Optimize toward the aims and purposes of the company, the efforts of the teams, groups.
10. Eliminate exhortations for the workforce.
11. (a) Eliminate numerical quotas for production. Instead, learn and institute methods for improvement. (b) Eliminate MBO (Management by Objectives). Instead, learn the capabilities of processes and how to improve them.
12. Remove barriers that rob people of pride of workmanship.
13. Encourage education and self-improvement for everyone.
14. Take action to accomplish the transformation.

Many of Deming's ideas outlined above, were implemented in Japan. Deming is a national hero of the Japanese people. He is recognised as the prime mover in securing quality in Japanese manufacturing. All sorts of honours, have been bestowed upon him including Japan's Premier Imperial Honour, the *Second Order of the Sacred Treasure*. His systematic statistical-based methods were entirely applicable to the mechanistic needs of Japan's post-war economic rebirth. When Deming switched attention to North America, however, his ideas met with less acceptance. Long established, deeply rooted North American practices were hard to eradicate.

Whilst it could be argued that North America or even the rest of the West, needed similar mechanistic advances in quality in manufacturing, the dominant set of issues that had to be tackled first were of human origin. They were cultural and political in nature. Deming ran into strong workforce resistance, from both the managers and the workers. He encountered major difficulties arising from poor motivation, leadership and training. Difficulties were also found in standards of practice, and too heavy a reliance on technology rather than people. These issues significantly affected the ensuing development of his ideas. Deming became more human oriented in his writings. He tried to work out clearly what the fundamental issues were that North American industry faced in the 1980s. He came up with a core *five deadly diseases* to be tackled. The five diseases he believed, were:

1. A general lack of constancy and purpose.
2. Too much emphasis on short term profit.
3. A lack of unsuitable evaluation of performance, merit rating or annual review.
4. Excessively mobile management, and
5. Management decision-making too readily reliant on quantitative data without paying due consideration to less tangible or hidden factors.

These core diseases, he was convinced, have been added to the *fundamental causes of quality failure*.

### 1.1. Strengths and Weaknesses

As with any major contribution, strengths and weaknesses of Deming's contribution can be found in his work. The purpose behind a critical analysis of this kind is not to run a piece of work down, but to learn from significant contributions, and to bring together the positive worth from this and a diverse range of other findings. This is how (in the researcher's opinion) to develop a strong quality discipline and to improve upon the efforts made so far.

The main strengths of Deming's contribution are:

1. A systematic functional logic provides an insightful way of reasoning about organizations; e.g., identification of stages and their inter-relationship, and the mutual dependence linking an organization and its suppliers.
2. Deming makes a notable prioritization that management comes before technology.
3. Leadership and motivation of employees are recognised as important.
4. The work is strong on statistical and quantitative methods which are needed in some circumstances, and
5. The different contexts of Japan and North America are recognised and responded to in different ways.

The main weaknesses are:

1. The action plan and methodological principles are too vague to be readily put into practice. There is no clear *Deming method*.
2. Following 3 above, the literature dealing with motivation and leadership has not been adequately drawn upon, and
3. The principles and methods have nothing to say about intervention in situations that are political and coercive, even though Deming explicitly recognises this difficult area in his philosophy.

## 2. Juran's Approach to Quality

Juran is another path-finder, whose early achievements in Japan were rewarded with the same main honours that Deming received. He defined quality as *fitness for purpose to use*. This definition is applicable to all organizations, whether manufacturing, service, profit making; or non profit-makers (Juran, 1994). Quality is

judged by the user or customer. The aim is to satisfy the customer in exactly the right amount; any more or less costs money. This is, thus, an external customer-led approach. It is quite different from a *conformance to requirements or specification* approach. It is possible for a product or service to conform to its specification, yet fail to be fit for its purpose.

Fitness for purpose or use has five major dimensions or quality characteristics. These are listed as follows:

1. Quality of design - the design concept and its specification.
2. Quality of conformance - the match between actual product and design intent.
3. Availability - including reliability and maintainability. These are all time-oriented.
4. Safety - risk of injury due to product hazards.
5. Field use - product conformance and condition after it reaches the customer.

These dimensions and characteristics are further subdivided into a *tree of quality*. This illustrates Juran's comprehensive approach to quality, to span a product's entire life, including design, vendor relations, process development, manufacturing control, inspection, test, distribution, customer relations and field service. Each area needs to be examined carefully. It also illustrates Juran's emphasis on the importance of non-technical aspects of quality control as well as traditional technical aspects. He has identified problems with organization, communication and coordination of functions, the human element. Understanding this is a prerequisite for solving technical problems.

Juran also believes that most quality problems are due to management, not workers. Top management need as much training in quality as they usually receive in finance. The approach to quality needs to be inter-departmental, which top management can ensure. Juran shares with Deming a dislike of *campaigns* of exhortation and motivation to do *perfect works* or achieve *zero defects*, because such an approach is not reasonable or achievable and fails to set specific goals. A distinctive feature of the Juran approach is the emphasis on team and project work. He proposes quality circles as a way of:

1. promoting quality improvement and
2. improving communications between management and employees. He recommends SPC but warns against this leading to a tool-oriented approach.

Juran advocates ten steps to quality improvement. These are as follows:

1. Build awareness of the need and opportunity for improvement.
2. Set goals for improvement.
3. Organise to reach the goals (establish a quality council, identify problems, select projects, appoint terms, designate facilitators)
4. Provide training.
5. Carry out projects to solve problems.
6. Report progress.
7. Give recognition.
8. Communicate results.
9. Keep score.
10. Maintain momentum by making annual improvement part of the regular systems and processes of the company.

Juran's approach is essentially a practical one, not a perfectionist *zero-defects* one. The attraction of a quality approach to top management is to reduce the costs of quality. He also identified four types of cost associated with quality:

1. initial failure costs (defect discovered before shipment);
2. external failure costs (defect discovered after shipment);
3. appraisal costs (costs incurred for assessing the condition of materials and products);
4. prevention costs (for keeping defects from occurring in the first place). For details see Chapter Four.

It is commonly known that internal and external failure costs account for between 50 and 80 percent of the costs of quality (Chapter Four). Management should aim to reduce these failure costs to the point where any additional spending on appraisal and prevention would not exceed the savings from decreased failure or defect costs. This suggests that *zero-defects* is not a practical goal.



To achieve the minimum cost of quality, Juran proposes a three-pronged approach:

1. breakthrough projects;
2. the control sequence;
3. annual quality programmes.

At the early stages, when *failure costs* are high in relation to *prevention* and *appraisal costs*, there are significant gains to be made from breakthrough projects on chronic problems. A *breakthrough sequence* would identify the vital few projects, selling these to management, analysing the problems, and involving the key people required for the implementation (See Chapter Four).

The *breakthrough sequence* involves the following steps:

1. Breakthrough in attitude - convince top management of the need for change and of the benefits (probably in terms of the costs of quality).
2. Identify the *vital few projects*.
3. Organise for breakthrough in knowledge, by establishing an inter-departmental steering group which defines the programme and has the authority to examine problems, experiments and implementation, serviced by a diagnostic group to analyse the problem, consisting of quality professionals and, sometimes, line managers.
4. Conduct the analysis - the diagnostic group studies symptoms, develop hypotheses and experiments to find the true causes of the problems. The group uses a wide range of data techniques for this stage. The group then proposes solutions to the problem.
5. Determine how to overcome resistance to change - key people need to be convinced that change is necessary. This is achieved through involving the key people in both technical and social aspects of change.
6. Institute the change - departments which are required to take corrective action, need to be convinced in order to cooperate. Effective presentations, adequate time for consideration and training are key elements.
7. Institute controls - these need to be established to monitor the solution, to examine that it works and to check on unforeseen developments.

Juran's distinctive contribution to thinking on quality has been to emphasise the primary importance of understanding customer needs, as opposed to demand / wants. This requirement applies to all involved in marketing, design, manufacture and services. Wants only reflect surface features, whereas identifying customer needs requires more vigorous analysis and understanding to ensure the product meets the needs and is fit for the use intended.

## 2.1. Strengths and Weaknesses

The strengths and weaknesses of Juran's contribution to quality can be critically assessed as follows:

The main strengths:

1. There is a strong desire to move away from quality-gimmicks, away from empty or superficial slogans etc., to concentrate on genuine issues of management practice.
2. The work establishes a new understanding of the customer, which refers to both internal and external customers, and
3. Management involvement and commitment is stressed.

The main weaknesses are:

1. The emphasis on management's responsibility for quality ironically fails to get to grips with the literature on motivation and leadership.
2. Juran undervalued the contribution that workers can make, rejecting in principle bottom up initiatives in the West; and
3. The methods advocated in many ways are traditional and old-fashioned, getting at the basic control systems but failing actually to deal adequately with the human dimension of organizations. Cultural and political issues are not meaningfully managed.

### 3. Crosby's Approach to Quality

If Deming's presentation is sometimes considered somewhat theoretical and academic for his intended audience, and if Juran speaks the language of shop-floor in terms of *defect rates* etc., Crosby's approach directly addresses its intended market of top executives. He presents a message to executives with a mixture of narrative, anecdotes and case studies.

Crosby's aim has been to change the perception and attitudes of top management about quality. He defines quality as *conformance to requirements*, a supply-led definition, thus making quality tangible, manageable and measurable. The requirements of a product need to be defined and specified clearly so that they are properly understood. Quality is measured by the cost of quality. This, he defines as the *expense of non-conformance, the cost of doing things wrong*. His categories of quality costs are similar to those of Juran; prevention, appraisal and failure (See Chapter Four for details). The aim is zero defects, or '*getting it right the first time.*' This requires an emphasis on prevention rather than after the event inspection, reflecting the difference between quality assurance and quality control. Crosby's maxim that *quality is free* is based on the reasoning that *quality improvements will reduce total costs, thus increasing profitability* (Crosby, 1980).

The key to quality improvement is the change in the thinking of top managers, to get them not to accept mistakes and defects as this would in turn reduce work expectations and standards in their jobs. Understanding, commitment and communication are all essential.

Like Deming and Juran, Crosby promotes *a participative management approach and culture in an organization*. Crosby stresses that managers are responsible for quality. They must lead the process, but participation via teamwork in quality improvement teams and quality councils is essential. Unlike Juran, Crosby sees improvement as being brought about on a continuous basis towards improvement goals, not project by project. Crosby offers a 14-step programme for quality improvement.

The 14 steps emphasise in particular management commitment, a participative organizational culture for developing quality awareness and action throughout the organization, an emphasis on prevention of defects over inspection and the continuous nature of the quality improvement process. Crosby's proposed 14 steps are summarised below:

1. Management commitment - make clear where management stands as regards to quality.
2. Quality improvement team - set up a team to run the quality improvement programme.
3. Quality measurement - provide a display of current and potential non-conformance problems in a manner that permits objective evaluation and corrective action.
4. Cost of quality evaluation - define the ingredients of the cost of quality and explain its use as a management tool.
5. Quality awareness - provide a method of raising the personal concern felt by all personnel towards product / service conformance and the reputation of the company.
6. Corrective action - provide a systematic method of resolving quality problems that have been identified through the previous steps.
7. Zero-defects planning - examine, identify and implement the actions necessary prior to the launch of *zero defect* programme.
8. Employee education - identify and introduce the training that employees need in order to carry out their part in the quality improvement process.
9. Zero-defects day - create an event will let all employees know, through personal experience, that there has been a change.
10. Goal setting - turn pledge and commitment into actions, by encouraging individuals to establish improvement goals for themselves and their groups.
11. Error cause removal - give the individual employee a method of communicating to management the situations that make it difficult for the employee to meet the pledge to improve.
12. Recognition - appreciate those who actively participate.
13. Quality councils - bring together the professional quality people for planned communication on a regular basis.
14. Do it over again - emphasise that the quality improvement process never ends.

Crosby helps further. He has provided a number of tools to help operate the above 14 steps method. The main ones are the *quality maturity grid*, the *make certain programme*, *management style evaluation* and *quality vaccine*.

Overall progress in the organization can be assessed by using a quality management maturity grid. This sets out five stages of development to a fully mature quality management approach, starting with *uncertainty*, then *awakening*, *enlightening*, *wisdom* and, finally, *certainty*. These can be used to assess progress on a number of *measurement categories*, such as management understanding and attitude, the status of quality in the organization, problem handling, and cost of quality as a percentage of sales. The quality management maturity grid and cost of quality measure are the two main tools for managers to assess the seriousness of their quality problems.

The quality maturity grid provides a way for management to measure the organization's progress as a quality company. Its purpose is to point out what quality management can do for an organization and it can also be used to help persuade budget heads to spend money now to prevent failure in the future. Long-range programmes can be deduced theoretically from the grid.

As mentioned earlier, the grid is divided into five stages of maturity. Six management categories serve as measurement categories. This produces a 30-cell matrix which can be used to identify key issues characterising a business context. The five maturity stages are:

1. *Uncertainty* - Management is confused by and uncommitted to quality.
2. *Awakening* - Management is beginning to recognise quality management can help but is unwilling to devote time or money to make it happen.
3. *Enlightenment* - Management establishes a quality policy and admits that the firm causes its own problems.
4. *Wisdom* - Management has the chance to make the quality improvement stick. Cost reductions are in effect and problems that do occur are handled and disappeared. However, in-depth reviews must be continually conducted.
5. *Certainty* - Management knows why there is no problem with quality. Quality management is an absolutely vital part of company management.

Each stage can be assessed in terms of six management categories. The categories and their range of measurement are:

1. Management understanding and attitude - from no comprehension, to quality being an integral part of day-to-day work.
2. Quality organization status - where in the hierarchy the quality people reside; from non-existent to on the Board of Directors.
3. Problem handling - from fire-fighting to prevention.
4. Cost of quality as a percentage of sales - from 20 percent to 25 percent.
5. Quality improvement action - from no activity to continuous activity.
6. Summation of company quality posture - from not knowing why problems occur to knowing why problems do not occur.

The *make certain programme* instigates an on-going examination of procedures and methods by the personnel involved to help them contribute to defect prevention activities on a regular basis. It asks people in groups guided by a facilitator what their biggest problem is and points out that in most cases the problems selected are caused by others. The participants are asked to work out how these can be tackled. Feedback is given. More problems are identified that now include self-created ones. Participants are encouraged to get together with their supervisor to set up a defect programme to tackle them. *Make certain* is successful when this happens.

Management evaluation style encourages managers to evaluate themselves in terms of the following activities:

1. Listening - taking time to understand people.
2. Cooperating - being part of the team.
3. Helping - letting someone lean on you without you leaning back.
4. Transmitting - in writing, prepared speaking and conversation.
5. Creating - developing original concepts or expanding on the idea of others.

6. Implementing - figuring out how to do it, and doing it right.
7. Learning - pursuing personal development programmes.
8. Leading - stating objectives clearly, getting commitment of others to those objectives, defining methods of measurement and providing the impetus to get things done.
9. Following - achieving the intent of superior's request.
10. Pretending - acting; a dangerous method of management.

This evaluation helps managers to evaluate what assets they have, the basis for learning about them, and subsequently exploiting them.

The quality vaccine uses a medical analogy, bringing forward the idea of vaccinating an organization against non-conformance. There are antibodies that prevent problems. Some are managerial and others are procedural common sense. Vaccine preparation should have the following ingredients:

1. Integrity - everyone is dedicated to having the customer receive what is promised.
2. Systems - main systems must be in place, e.g., financial measurement, measurement of company's service, quality education, etc.
3. Communication - a continuous supply of information helps to identify error, waste and missed opportunities.
4. Operations - education of suppliers, continuous examination of procedures, routine training etc.
5. Policies - clear and unambiguous.

The vaccine is administered through:

1. Determination - action is the way forward.
2. Education - developing a common language, understanding each other's role and acquiring a quality knowledge.
3. Implementation - guiding the flow of improvement.

### 3.1. Strengths and Weaknesses

Like Deming's and Juran's approaches, Crosby's approach can be assessed in terms of its strengths and weaknesses as follows:

The main strengths are:

1. The Crosby approach is clearer than those of Deming and Juran, and is supported by a number of tools that are easy to grasp and to implement.
2. Workers' participation is recognised as having value.
3. The idea of quality as a problem is rejected. However, it is believed that problems exist as real tangible things that have to be solved.
4. Crosby is very creative in getting ideas across, by using metaphors like *vaccine* and *maturity*.
5. Crosby, as a person, is a great motivator and starter for quality programmes; he gets things going. Attending one of his seminars convinces most people that they must straight away launch their own quality improvement programme.

The main weaknesses are :

1. The philosophy implies that workers are *to blame for quality problems*. This can mislead management into believing that their own efforts will only be a fraction of what they turn out to be, needing only to trigger off the drive for quality. This lack of forewarning to management can be a primary cause for failure of quality programmes.
2. The ideas are heavily marketed, promoted through slogans and too often full of platitudes, raising insufficient awareness of genuine difficulties that might be encountered when implementing quality initiatives.
3. The 14 steps method is a strongly management and goal-oriented philosophy, that wants to free workers from externally generated goals.
4. Zero defects is often misunderstood to mean avoidance of risk and hence, may have a negative effect on creativity.
5. The philosophy assumes that people will be prepared to work in an open and conciliatory way. It would not be effective in political or coercive contexts where openness does not exist.

It is not wrong to assume that Deming, Juran and Crosby are the most popular and well-cited characters on the quality scene. However, other names are likely to be encountered. These include Feigenbaum, Groocock, Taguchi, Ishikawa and Shingo. We will now take a brief look at their contributions.

#### 4. Feigenbaum's Approach to Quality

Feigenbaum defines quality as the total composite product and service characteristics of marketing engineering, manufacture and maintenance through which the product and service in use will meet the expectation of the customer. This definition recognises that quality is a multi-dimensional entity and there are trade-offs between various individual quality characteristics. He argues that the product/service quality is dynamic in nature because customers' expectations are subject to change. Thus, it is imperative for the management to recognise that the balance between various individual quality characteristics is subject to temporal variations. Furthermore, quality cannot be separated from product cost.

He states that TQM covers the full scope of the product and service *life cycle* from product conception through production and customer service. The key elements of *TQM and control* propagated by Feigenbaum are briefly discussed here.

The quality chain, he argues, starts with the identification of all customers' requirements and ends only when the product or service is delivered to the customer, who remains satisfied. Thus, all functional activities, such as marketing, design, engineering, purchasing, manufacturing, inspection, shipping, installation, service and accounting, etc., are involved in and influence the attainment of quality. Effective *total quality control*, therefore, requires a high degree of functional integration. Furthermore, it guides the coordinated actions of people, machines and information, to achieve the quality goals.

Total quality control, Feigenbaum claims, consists of four main stages. They are:

1. Setting quality standards;
2. Appraising conformance to these standards;
3. Action when standards are not met;
4. Planning for improvements in these standards.

The emphasis is on *prevention of poor quality rather than detecting it after the event*. He argues that quality is an integral part of the day-to-day work of the line, staff and operatives of an organization. It cannot be effectively separated from other activities undertaken by employees and any attempt to do so, will be likely to result in substandard quality.

Feigenbaum, like most other quality writers, considers effective staff training and education as an essential component of TQM. He states that education and training should address the three vital areas of:

1. quality attitudes;
2. quality knowledge;
3. quality skills.

Feigenbaum's distinctive contribution is to recognise that all quality approaches are synergistic (Chase & Aquilano, 1989). This means that quality improvements need to be applied to all aspects of operations. The system is as strong as its weakest link.

##### 4.1. Strengths and Weaknesses

Feigenbaum's ideas are found to have the following strengths and weaknesses.

The main strengths are:

1. A total or whole approach to quality control is advocated, eliminating the dangers of piecemeal quality management.
2. Feigenbaum places emphasis on the importance of management.
3. The value of *socio-technical system thinking* is taken into account.

4. Participation is promoted, harnessing everyone's contribution, leading to people having a greater sense of belonging and generating more creativity.

The main weaknesses are:

1. Although Feigenbaum's principles go beyond a whole systems approach, he has not worked out the relevance of different methods, whether for the workers or technology orientation, or for the different kinds of quality context.
2. Feigenbaum has recognised the availability of different management theories, but he has failed adequately to bring them together as one force for quality management.
3. Nothing is said about how to operate in a political or coercive context.

## 5. Groocock's Approach to Quality

Groocock's definition of quality is a synthesis of Crosby's *conformance to requirements* and Juran's *fitness for purpose*. He states that *the quality of a product is the degree of conformance of all the relevant features and characteristics of the product to all of the aspect of a customer's need, limited by the price and delivery he or she will accept.* (Groocock, 1986). This is a value-led definition. It explicitly recognises that there is a trade-off between the quality of a product and its price.

Based on his experience in industry, Groocock argues that quality needs to be made an organizational priority because product quality superiority enhances competitiveness. Like Deming and Feigenbaum, Groocock recognises that meeting customer expectations creates a need to improve quality continuously in order to match readjusted expectations. The expectations are achieved through the *chain of quality*, and *chain of conformance* throughout the life of the product, from marketing design to purchasing and manufacturing processes.

Groocock emphasises that at each part of the chain, specific determination of conformance to customer needs should be built in. Much of this emphasis on conformance to requirements echoes Crosby's approaches.

Top management commitment, employees' involvement, and education and training are all considered essential. Groocock proposes the use of various techniques to develop quality, for example, SPC for manufacturing part of the chain. He advocates *competitor quality evaluation* as a means of determining quality to the customer, and *system quality audits* to assess the organization's quality level.

Groocock's approach to quality improvement is modelled on Crosby's 14 steps programme, with reservations about the value of pursuing *zero defects*. He also suggests a longer period for reflection (or reviews) at the end of the programme rather than embarking on the same sequence straight away.

Groocock stresses the *people factors* in quality. Quality circles and other participatory methods are endorsed, where appropriate.

### 5.1. Strengths and Weaknesses

The strengths and weaknesses of Groocock's approach to quality philosophy, principles and methods can be analysed as follows:

The main strengths are:

1. Groocock's approach is in line with those of Deming, Juran, Crosby and Feigenbaum, but stresses that *product price and delivery* are the main determinant of the fulfilment of customer needs. Even with the right quality, if the price is high and the delivery is poor, the goods will not meet the customers' needs.
2. Groocock recognises that meeting customers' expectations creates a need to improve quality continuously to match readjusted customers' expectations.
3. He advocates competitor quality evaluation (*bench marking*) as a means of determining quality to the customer, and system quality audits to assess the organization's level.

The main weaknesses are:

1. His principles go beyond what we have seen so far but he has not worked out the relevant technical methods for different kinds of quality context.
2. Nothing is said about how to operate in a political or coercive context.

## 6. Taguchi's Approach to Quality

Taguchi defines quality in terms of the *loss imported to the society from the time a product is shipped*. Examples of loss include:

1. failure to reach ideal performance;
2. failure to meet customers' requirements;
3. breakdown; and
4. harmful side-effects caused by products. (Taguchi, 1988). Thus, the smaller the loss, the more desirable is the product. The aim of quality control is to reduce the total costs to society, and the function of quality control is to discover and implement innovative techniques that produce net savings for the society. Implicit in Taguchi's philosophy is the premise that *in a competitive economy, continuous quality improvement and cost reduction are necessary to remaining in business*.

The key elements of Taguchi's quality concepts are briefly stated below:

1. Quality improvement should concentrate on reducing the variation of the product's key performance characteristics about their target value.
2. The loss suffered by a customer due to a product's performance variation is often approximately proportional to the square of the deviation of the performance characteristics from its target value. This statistical concept of Taguchi is called *Taguchi's quadratic loss function*.
3. The final quality and cost of manufactured products are determined to a large extent by the engineering design of the product and the manufacturing process.
4. A product's or process's performance variation can be reduced by exploiting the non-linear effect of the product or process parameters on the performance characteristics.
5. Statistically planned experiments can be used to identify the settings of product/process parameters that reduce performance variation

Taguchi's concepts can be applied off-line in design or on-line in production. He argues that 100 percent conformance as suggested by Crosby or Grocock is impractical, while it is possible to reduce continuously the variation on key performance characteristics around the target value. His method can play an important role in the implementation of the total quality control management, particularly in the manufacturing organization.

### 6.1. Strengths and Weaknesses

We will now subject Taguchi's ideas to a critical analysis of their strengths and weaknesses.

The main strengths are:

1. Taguchi's method pulls quality right back into the design stage rather than relying on adjustments to the process on-line, or inspection of trial product.
2. The philosophy recognises quality as a societal issue and not an organizational issue. Quality is the minimum loss imparted by the product to society from the time the product is shipped.
3. The method is developed for practising engineers rather than theoretical statisticians.
4. The method helps a company to determine the best method of process control, reducing process costs incurring only small amounts of capital expenditure.

The main weaknesses are:

1. The method has little relevance to processes where measurement will not produce data that can be assessed through sensitivity analysis and minimisation, i.e., it is not relevant to many important success factors in the service sector.

2. Following 3 above, there are no directives about how to manage a quality oriented organization, particularly the people. Quality is placed firmly in the hands of a specialised team of expert designers and does not involve managers and workers. Taguchi's method is designed for engineers and not for managers.
3. A corollary to 2 is that Taguchi has nothing to say about humans as social, cultural or political beings, and therefore makes no contribution to managing employees.

## 7. Ishikawa's Approach to Quality

Ishikawa defines quality as the *development, design, production* and service of a *product that is most economical, most useful, and always satisfactory to the consumer*. He argues that quality control extends beyond the product and encompasses after-sales service, quality of management, quality of individuals and the company itself (Ishikawa, 1985). In this respect, there is a strong similarity between his views and those of Feigenbaum and Groocock. Ishikawa strongly advocates the deployment of *quality circles*. In his work, like all other quality writers, he emphasises the importance of education.

He states that *quality begins and ends with education*. In his view, every employee should be taught the *seven basic tools* of quality. These are:

1. Process flow charting - what is done.
2. Check sheets / tally charts - how often it is done.
3. Histograms - what overall variations look like.
4. Pareto analysis - which are the significant problems.
5. Cause-and-effect analysis - what causes the problems, and brain storming.
6. Scatter diagrams - what are the relationships between factors.
7. Control charts - what variations to control and how.

### 7.1. Strengths and Weaknesses

There are several points to be made regarding the strengths and weaknesses of Ishikawa's ideas.

The main strengths are:

1. There is a strong emphasis on the importance of people participating in the problem-solving process, and on providing them with the tools to guide their thinking and acting. This helps to improve motivation, creativity and a wider understanding of other people's roles in the organization.
2. A mix of statistical and human oriented techniques and methods is provided.
3. A whole system view is stressed, with the aim of achieving quality thinking within the company and in all its external relations.
4. QCCs are relevant to manufacturing and service sectors.

The main weaknesses are:

1. Although fish-bone diagrams are extremely helpful when organising thoughts about causes of variation of quality in production and services, relationships are represented as simple causal ones and interrelationships between causes are not shown. These diagrams do not explicitly show how causes and effects can benefit from each other. They do not show the issues as a whole interactive system. The fish-bone approach uses systematic but not systemic logic.
2. If management is not prepared to listen to the ideas generated by the circles, then the whole process breaks down. This is a particular difficulty in the West where the relationship between managers and workers is often in conflict and best understood as *us and them*.
3. A corollary to 2 is that Ishikawa's ideas would struggle in a political and / or coercive environment.

## 8. Shingo's Approach to Quality

Shingo has passed through various stages of thinking in his management career. Three stages can be identified that are relevant to the research. Very early on in his career, he held an interest in scientific management. This was followed by an interest in, and application of, Statistical Quality Control (SQC). Shingo's contribution to



quality management, however, arose from a personal realisation that statistical methods detect errors too late in the manufacturing process. What is needed is to identify errors as they happen and to correct or deal with them right away.

To this end, Shingo proposed his own version of zero defect. This method is called *poka yoke* or *defect 0*. The idea, as stated, is to handle errors as they occur. Initially, potential error sources in the manufacturing process are identified. Since this identification procedure is vital to the success of poka yoke, it must be carried out rigorously and thoroughly. All potential points of error must be located. Then, at each point, monitoring for error is undertaken.

Monitoring this error is to be run mechanically because human assessment is inconsistent and prone to error. When errors are found, people are then employed to establish what has caused the error and to get rid of the cause. This can mean halting the manufacturing process until the error is located and eradicated.

Alternatively, the error may be dealt with, by making alterations to the product and / or process whilst the manufacturing process continues. Whichever approach is taken, the error is prevented from becoming a defect in the final product. Over time, the process will clean off all the likely recurring errors. Only in exceptional cases will further unremoved tough errors have to be dealt with. Production therefore, runs smoothly and / more-or-less continuously.

### **8.1. Strengths and Weaknesses**

As with the rest of the quality writers reviewed above, we will assess the strengths and weaknesses of Shingo's contribution. There are as follows:.

The main strengths are:

1. The method provides on-line, real time measures for immediate use. This prevents over-reaction in the processes that ordinarily occur when information about errors is used that is out of date.
2. Poka yoke emphasises dealing with technological issues with a relevant technical feedback and control system. It does not rely on exhortations and slogans aiming to motivate people to zero defect, which leaves fallible human beings at the centre of the zero-defect process.

The main weaknesses are:

1. The emphasis on source inspection by non-human instruments can only effectively be employed in manufacturing. Substantial redevelopment of the ideas is required to ascertain whether they can be adapted to the service sector.
2. Shingo's ideas say nothing about human beings as social, cultural or political beings.

### Note 3

#### Prevention Appraisal and Failure Cost Element Method

##### Introduction

Whenever the cost element method is used in whatever form, *the first step is* to identify the elements of cost, the second is to measure and quantify the elements and the final step is to cost the elements. The usual approach is for a quality assurance and/or technical specialist, in conjunction with other appropriate company personnel, to take responsibility for identifying the elements and provide appropriate quantitative data relating to each element. The accountant will then put costs on the elements which have been identified. It is helpful if the quality assurance and technical personnel work closely with the accountant during this activity.

The list of cost elements identified in publications such as BS6143: Part 2 (14) and Campanella (1990) is a useful starting point. They have particular attractions for those with little knowledge of quality cost collection. The list and guidance notes on cost elements of prevention, appraisal and failure from BS6143 Part 2 follow.

##### (a) Prevention Costs

These costs are incurred to reduce failure and appraisal costs to a minimum. The usual categories include the following:

1. *'Quality planning'* The activity of planning quality systems and translating product design and customer quality requirements into measures that will ensure the attainment of the requisite product quality. It includes that broad array of activities that collectively create the overall quality plan, the inspection plan, the reliability plan and other specialised plans as appropriate. It also includes the preparation and vetting of manuals and procedures needed to communicate these plans to all concerned. Such quality planning may involve departments other than the quality organization.
2. *'Design and development of quality measurement and test equipment'*. Included are the costs of designing, developing and documenting any necessary inspection, testing or proving equipment (but not the capital cost of the equipment in question).
3. *'Quality review and verification of design'*. Quality organization monitoring activity during the product's design and development phase to assure the required inherent design quality. Quality organization involvement with design review activities and in verification activity during the various phases of the product development test programme including design approval tests and other tests demonstrate reliability and maintainability. This includes organization effort associated with that part of process control which is conducted to achieve defined quality goals.
4. *'Calibration and maintenance of quality measurement and test equipment'*. The cost of calibration and maintenance of templates, jigs, fixtures and similar items should be included.
5. *'Calibration and maintenance of production equipment used to evaluate quality'*. The costs of calibration and maintenance of templates, jigs, fixtures and similar measurement and evaluating devices should be included but not the cost of equipment used to manufacture the product.
6. *'Supplier assurance'*. The initial assessment, subsequent audit and surveillance of suppliers to ensure they are able to meet and maintain the requisite product quality. This also includes the quality organization's reviews and control of technical data in relation to purchase orders.
7. *'Quality training'*. Includes attending, developing, implementing, operating and maintaining formal quality training programmes.
8. *'Quality auditing'*. The activity involving the appraisal of the entire system of quality control or specific elements of the system used by an organization.
9. *'Acquisition analysis and reporting of quality data'*. The analysis and processing of data for the purpose of preventing future failure is a prevention cost.
10. *'Quality improvement programmes'*. Includes the activity of structuring and carrying out programmes aimed at new level of performance, e.g. defect prevention programmes, quality motivation programmes.

## **(b) Appraisal Costs**

These costs are incurred in initially ascertaining the conformance of the product to quality requirements; they do not include costs from rework or reinspection following failure. Appraisal costs normally include the following:

1. *'Pre-production verification'*. Cost associated with testing and measurement of pre-production for the purpose of verifying the conformance of the design to the quality requirement.
2. *'Receiving inspection'*. The inspection and testing of incoming parts, components and materials. Also included is inspection at the supplier's premises by the purchaser's staff.
3. *'Laboratory acceptance testing'*. Costs related to tests to evaluate the quality of purchased materials (raw, semi-finished or finished), which become part of the final product or that are consumed during production operations.
4. *'Inspection and testing'*. The activity of inspecting and testing first during the process of manufacture, and then as a final check to establish the quality of the finished product and its packaging. Included are product quality audits, checking by production operators and supervision and clerical support for the function. It does not include inspection and testing made necessary by initial rejection because of inadequate quality.
5. *'Inspection and test equipment'*. The depreciation costs of equipment and associated facilities; the cost of setting up and providing for maintenance and calibration.
6. *'Materials consumed during inspection and testing'*. Materials consumed or destroyed during the course of destructive tests.
7. *'Analysis and reporting of tests and inspection results'*. The activity conducted prior to release of product for transfer of ownership in order to establish whether quality requirements have been met.
8. *'Field performance testing'*. Testing is performed in the expected user environment, which may be purchaser's site, prior to releasing the product for customer acceptance.
9. *'Approval and endorsements'*. Mandatory approvals or endorsements by other authorities.
10. *'Stock evaluation'*. Inspecting and testing stocks of products and spares which may have limited shelf life.
11. *'Record storage'*. The storage of quality control results, approval and reference standards.

## **(c) Failure Costs**

These are sub-divided into internal and external failure costs: internal costs arising from inadequate quality discovered before the transfer of ownership from supplier to purchaser and external costs arising from inadequate quality discovered after transfer of ownership from the supplier to the purchaser. The internal failure costs include the following:

1. *'Scrap'*. Materials, parts, components, assemblers and product end items which fail to conform to quality requirements and which cannot be economically reworked. Included is the labour and labour overhead content of the scrapped items.
2. *'Replacement, rework and repair'*. The activity of replacing or correcting defectives to make them fit for use including requisite planning and the cost of the associated activities by material procurement personnel.
3. *'Troubleshooting or defect failure analysis'*. The costs incurred in analysing non-conforming materials, components or products to determine causes and remedial action, whether non-conforming products are usable and to decide on their final disposition.
4. *'Reinspection and retesting'*. Applied to previously failing material that has subsequently been reworked.
5. *'Fault of subcontractor'*. The losses incurred due to failure of purchased material to meet quality requirements and payroll costs incurred. Credits received from the subcontractor should be deducted, but costs of idle facilities and labour resulting from product defects should not be overlooked.
6. *'Modification permits and concessions'*. The costs of the time spent in reviewing products, designs and specifications.
7. *'Downgrading'*. Losses resulting from a price differential between normal selling price and reduced price due to non-conformance for quality reasons.

8. *'Downtime'*: The cost of personnel and idle facilities resulting from product defects and disrupted production schedules.

The external failure costs:

1. *'Complaints'*: The investigation of complaints and provision of compensation where the latter is attributable to defective products or installation.
2. *'Warranty claims'*: Work to repair or replace items found to be defective by the purchaser and accepted as the supplier's liability under the terms of the warranty.
3. *'Products rejected and returned'*: The cost of dealing with returned defective components. This may involve action to either repair, replace or otherwise account for the items in question. Handling charges should be included. (Note: While loss of purchaser goodwill and confidence is normally associated with external failure costs, it is difficult to quantify).
4. *'Concessions'*: Cost of concessions, e. g. discounts made to purchasers due to non-conforming products being accepted by the purchaser.
5. *'Loss of sales'*: Loss of profit due to cessation of existing markets as a consequence of poor quality.
6. *'Recall costs'*: Cost associated with recall of a liability, litigation damages.

**Note 4**

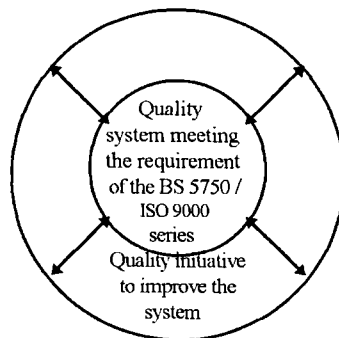
**Guidelines and Development of ISO 9000 for UK's SME by Dale B. G.**

**Introduction**

The guidelines and development of ISO 900 and its benefits for UK's SME by Dale, B. G. (1990), advanced by Long et al. (1991) based on their research into the application and use of ISO 9000 quality system series in small and medium-size enterprises (SME) in the UK environment:-

- The development of a quality system to meet the requirements of ISO 9001, ISO 9002 or ISO 9003 should be managed as a project, with identification of key steps, milestones and time-scales.
- An organization should be clear on the reasons for seeking ISO 9001, ISO 9002 and ISO 9003 registration. Implementation for the wrong reasons will prevent the company from receiving the full benefits. In addition, it may be found that implementing and maintaining the standard is a burden in terms of costs and extra paperwork, with no compensating benefits. ISO 9001, ISO 9002 or ISO 9003 registration must therefore not be sought just to satisfy the contractual requirements of major customers or for marketing purposes. Indeed, when most competitors have ISO 9000 series registration there is little marketing advantage; in many markets it is now an order qualifying criterion.
- The ISO 9000 series should be considered as *the minimum requirement*. Without a documented quality management system there is neither basis nor connected reliable data to monitor the process of quality improvement. Organizations should, however, aim to have a quality system which surpasses the standard's requirements, with new quality initiatives built into the system, as illustrated in *Figure 1*. A quality system which meets the requirements of ISO 9001, ISO 9002 or ISO 9003 should in no sense be regarded by senior management as the pinnacle of their quality management achievements. All it says to the outside world is that the organization has controls, procedures and disciplines in place. The organization should treat ISO 9000 series registration as a precursor to developing their approach to Total Quality Management.

Enhancement of quality system



**Figure 1: Quality System Deployment**

- There is a need to create a conducive environment for the development of a quality system which meets the requirements of the ISO 9000 series. This can be achieved by the formulation of organizational quality policy and quality objectives. The responsibility of executives in the establishment, maintenance and development of the ISO 9000 series cannot be overstated. The total commitment and leadership of senior management to the process of quality system registration to ISO 9001, ISO 9002 or ISO 9003 is vital, and it is only they who can deliver the resources and co-operation of appropriate personnel and provide the necessary direction. The chief executive officer (CEO), while accepting ultimate responsibility, has - *as one would expect* - to delegate a variety of tasks to his or her reportees. Senior management must not only understand the principles of the ISO 9000 series but should ensure that the quality policy is implemented and understood by all employees and everyone in the organization has

quality improvement objectives for their jobs. They also need to react positively to the actions resulting from quality audits.

- Prior to a programme of ISO 9000 series implementation it is important that an internal quality audit is conducted on the existing quality system against the appropriate part of the standard by a qualified auditor. This will determine the company's quality management system status, enable management to assess the amount of work required and what is needed to meet the requirement of ISO 9000 series and also to plan for systematic implementation of the standard. Without this knowledge the project planning referred to earlier would be impossible. It is important that a realistic time-scale is established, because if it is set too tight, there will be a tendency to do things artificially and this will result in considerable time spent later in debugging the system. Involvement of the appointed management representative during the quality audit is essential.
- A steering committee should be established comprising all the heads of departments and chaired by the CEO. This type of representation is essential to gain cross-functional support for the project and to help ensure the smooth development and implementation of the system. Participation and commitment from all the heads of department is essential in order to gain employee support for the project, and will help to ensure the smooth implementation and subsequent maintenance of the standard. In extremely small companies where there is little or no second-tier management the wholehearted commitment and involvement of the CEO is critical and essential.
- Training at all levels within the company is required on the importance of product and service quality, in general, and the reason for the quality system and its benefits, in particular. This will help to facilitate the right behaviour, attitude and values of employees towards the ISO 9000 series and will encourage total participation. A systematic approach to quality, education and training will reduce resistance to change and other related obstacles. An element of this awareness can occur if the initial audit is well explained and systematically carried out, explaining the reasons for recommendations.
- Once all the above steps have been taken the organization is now in a position to commence developing its system to meet the requirements of the ISO 9000 system series. Accurate procedures including operating and working instructions are required. These procedures must be practical, workable and easily implemented. Wherever possible, they should document what employees are currently doing; they are most likely then to continue in the same way and fulfill assessment requirements naturally. Only where the standard would suggest that some modification is required should these be introduced. In writing the procedures, it is worthwhile to keep in mind how to demonstrate to the auditor that ISO 9000 series requirements have been fulfilled. The personnel who are given responsibilities for writing the procedures must be familiar with the requirements of the ISO 9000 series and be fully conversant with the procedures they are drafting. The use of consultants to write procedures is less desirable as they are less likely to understand fully all the activities as practiced by the company; also 'ownership' of the processes by those operating them is lessened. The procedures need to be checked as they are being developed and/or documented to see how they meet the requirements of the ISO 9000 series and how they impact on other procedures, systems and activities.

### **The Benefit of Using the ISO 9000 Series**

In the absence of any published account of the benefit of the ISO 9000 series in Malaysia, the researcher has chosen to quote the benefits of the BS 5750 standard, which is an equivalent of the ISO 9000 series standard. The British Standard Institution (BSI, 1987) in an introduction to market 'BS 5750, has published some of the claimed benefits. They are:

1. BSI certification is a first-class marketing tool; the certification marks and symbols can be used on publicity, packaging and company literature.
2. Major buyers, like the Ministry of Defence and British Coal, already accept BSI certification and recognition as proof of quality and technical expertise.
3. Customers are much less likely to act on their own special assessments, thus saving everyone time and money.
4. Where there is a need for it, a company will improve its quality performance and as quality rises so will company morale.

5. The cost of lost orders, reworking, extra handling, production waste and senior executive time will fall once a company is operating to BS 5750.
6. Better quality performance will improve customer satisfaction and lead to increased sales, competitiveness and profitability.
7. Confidence comes from knowing that the organization's quality system is under independent surveillance.
8. The company's name will appear in the BSI Buyer Guide - an essential reference for buyers at home and abroad - and in the Department of Trade and Industry's National Register of Quality Assured Companies.

As more British Standards become harmonized with international ones, BSI certification will be of increasing help to the public in export markets.

## Note 5

### The Area of Concern for Successful Implementation of the TQM Models

#### **Introduction**

Continuing from the chapter Eight, and with regard to the TQM Models for SMIs, which combine knowledge about Malaysian SMIs and the Prime Minister's Quality Award, the researcher feels that there are eight areas of concern that are required for the successful implementation of the model and they should further be carefully dealt with in detail. These areas are: Leadership, Policy and Strategy, People Management, Resources, Processes, Customer Satisfaction, Employee Satisfaction and Business Results or the outcome of the initiative / operation.

#### **(a) Leadership**

This describes the behaviour of all SMI managers in driving the organization towards TQM; how the executive team and all other managers inspire and drive TQM as the organization's fundamental process for continuous improvement. A total approach should demonstrate:

1. ***Visible involvement in leading total quality.*** Areas to be addressed could include how the CEO, Managers, executives and other top management officers:
  - communicate with employees and each other;
  - act as role models, leading by example;
  - give and receive training;
  - support cross-functional understanding; demonstrate commitment to TQM.
2. ***A consistent total quality culture.*** Areas to be addressed could include how the CEO, managers, executives and other top management officers and the department leaders:
  - are involved in assessing awareness of TQM;
  - are involved in reviewing progress in TQM;
  - include commitment to and achievement in TQM in appraisal and promotion of employees at all levels;
  - include TQM in daily management, to show employees what they personally can and must do to keep the organization running.
3. ***Timely recognition and appreciation of efforts and success of individuals and teams.*** Areas to be addressed could include how the CEO, managers, executives and other top management officers and the department leaders are involved in recognition:
  - at board of directors level;
  - at departmental level;
  - at regional level;
  - at sectional level;
  - at groups outside their responsibility areas (e.g. training institutions and development agencies).
4. ***Support of total quality by provision of appropriate resources and assistance.*** Areas to be addressed could include how the CEO, managers, executives and other top management officers and the department leaders provide support through:
  - funding employees' training programmes;
  - funding facilitation;
  - funding improvement activities;
  - helping to define priorities in improvement activities
5. ***Involvement with customers and suppliers.*** Areas to be addressed could include how the CEO, managers, executives and other top management officers and the department leaders:
  - meet customers, visitors, members of other SMIs and all other customers and suppliers;
  - establish and participate in '*partnership*' relations with customers and suppliers;



- establish and participate in joint improvement teams with customers and suppliers.
6. **Active promotion of total quality outside the organization.** Areas to be addressed could include how the CEO, managers, executives and other top management officers and the department leaders promote quality management outside the SMIs through:
- discussions or lectures at other SMIs;
  - presentations at SMIs Quality conferences, seminars;
  - publication of articles, papers or even books on SMIs;
  - technology transfer activities;
  - assistance to local community, community services.

## (b) Policy and Strategy

This refers to the organization's mission, values, vision and strategic direction, and ways in which the organization achieves them. It is concerned with how SMIs' policy and strategy reflect the concept of TQM and how the principles of total quality are used in the determination, deployment, review and improvement of policy and strategy.

1. **How policy and strategy are based on the concept of TQM.** Areas to be addressed could include how TQM is reflected in the SMIs' production, services, administrative and interrelated areas through:
  - values;
  - vision;
  - mission statements, for example: *'The staff of ABC Sdn. Bhd. (a SMI) are dedicated to providing quality products and services to all its customers (internal and external) at all times, as long as the company exists'*;
  - strategy statements, for example: *'Through effective communication and teamwork, we (ABC Sdn. Bhd.), will constantly focus on our mission.....We will centre our attention on those we serve, both internally and externally, to ensure their needs are considered in every decision and action taken. Participation by all employees in identifying and addressing these needs is critical to our success'*.
2. **How policy and strategy are formed on the basis of information relevant to total quality.** Areas to be addressed could include how:
  - feedback from employees, e.g. other departments and sections, is used;
  - data on the performance of other SMIs - *local and national competitors* - are used in the sense of benchmarking;
  - data on social issues and figures about number of SMIs received awards, new SMIs and SMIs on umbrella and incubator projects are used.
3. **How policy and strategy are the basis of business plans.** Areas to be addressed could include how:
  - business plans in production and service areas are made involving all relevant; member groups or teams of the company (SMI);
  - business plans are tested, evaluated, and aligned with the company's (SMI's) policy and strategy.
4. **How policy and strategy are communicated.** Areas to be addressed could include how:
  - newsletters, posters, videos, etc. are used;
  - communications on policy are planned and prioritised;
  - the SMI evaluates employees' awareness of its policy.
5. **How policy and strategy are regularly reviewed and improved.** Areas to be addressed could include how:
  - the SMI evaluates the effectiveness and relevance of its policy;
  - the organization reviews and improves its policy.

### (c) People Management

This refers to the management of the SMIs' employees, and is concerned with how the SMI relies on the full potential of its people to improve its business continuously. In this context, it is important to remember that all employees are members of the administrative, production and services departments; together they are responsible for continuous total quality improvement of the SMI.

1. ***How continuous improvement in people management is accomplished.*** Areas to be addressed could include how:
  - people management is reviewed and improved and customer affairs are included;
  - the human resources strategy plan supports the SMI's policy and strategy;
  - surveys of perceptions of the company's workers and management staff are used.
2. ***How the skills and capabilities of people are preserved and developed through recruitment, training and career progression.*** Areas to be addressed could include how:
  - employees' skills are defined and compared with the SMIs' requirements;
  - recruitment and advancement are not planned specifically for a certain sector, but for all members of the SMI;
  - training plans and advancement are established and implemented;
  - the effectiveness of training and further education is continuously reviewed;
  - people are developed following initial training (training one, two, three.....) respecting first seniority and demand.
3. ***How people or teams, agree targets and continuously review performance.*** Areas to be addressed could include how:
  - objectives of individuals and teams are negotiated combining the interests of all involved;
  - people are appraised.
4. ***How the involvement of everyone in continuous improvement is promoted and people are empowered to take appropriate action.*** Areas to be addressed could include how:
  - suggestion schemes are used taking into account of all concerned in the SMI;
  - use (employee) is made of (cross-functional) teams for quality improvement;
  - in-house conferences and meetings are used;
  - employees are empowered to take action.
5. ***How effective top-down and bottom-up communication is achieved.*** Areas to be addressed could include how:
  - regular briefings between all concerned in the SMI are used;
  - the SMI keeps in touch not only with employees but also with stakeholders.
  - the SMI transmits information to its employees, top-down, between different sections and areas of the organization and to the stakeholders.

### (d) Resources

Here, the focus is on how the management utilises and preserves resources and how the organization's resources are effectively deployed in support of policy and strategy.

1. ***Financial resources.*** Areas to be addressed could include how:
  - transactions records, budgeting and balance sheet elements are managed;
  - subsidies and grants are managed;
  - criteria for financial decision making support total quality or TQM;
  - quality cost concepts are developed and used for administrative (e. g. purchasing) and production areas (e.g. cost of break- even, unit cost and marginal cost) of product etc.;
  - cost reduction programmes enable improvement and increase productivity and fixed assets are utilised to optimum effect;

- the loading factors or overhead cost of central services such as transportation, administrative, storage, building operation, delivery, renting etc. are managed and improved.
2. **Information resources.** Areas to be addressed could include how:
    - the SMI area network and other information systems are managed;
    - information validity, integrity, security and scope are assured and improved;
    - information to employees, training institutions, development agencies, customers and other people involved in improvement of the SMI is made more accessible and easy to understand;
    - information strategies and information network support total quality throughout the SMI, involving all parties concerned.
  3. **Material resources.** Areas to be addressed could include how:
    - (raw) material resources and supplies are managed;
    - paper flow is reduced;
    - material waste is minimised;
    - inventories are utilised to optimum effect with accessibility to all concerned.
  4. **Application of technology.** Areas to be addressed could include how:
    - alternative and emerging technologies are identified, evaluated and used in production, service and administrative areas;
    - the development of people's skills and capabilities is harmonised with the development of technology;
    - business patents (new discoveries) are protected and exploited.

#### (e) Processes

This is the management of all the value-adding activities within the organization. It concerns how processes are identified and, if necessary, revised to ensure continuous improvement of the organization's business.

1. **How processes critical to the success of the organization are identified.** Areas to be addressed could include how:
  - critical processes are defined: what processes are currently on the SMIs list;
  - the method of identification is conducted;
  - interface SMIs issues are resolved;
  - the impact on SMIs business is evaluated.
2. **How the organization systematically manages its processes.** Areas to be addressed could include how:
  - process ownership and standards of operation are established;
  - standards are monitored, and by whom;
  - performance measures are used in process management.
3. **How process performance measurements, along with all relevant feedback, are used to review processes and set targets for improvement.** Areas to be addressed could include how:
  - feedback from people, customers, suppliers and data from benchmarking are used in setting standards of operation and targets for improvement;
  - current performance measurements and targets for improvement are related to past achievement;
  - the processes critical to the success of the SMIs business are reviewed;
  - challenging targets are identified and used.
4. **How the organization stimulates innovation and creativity in process improvement.** Areas to be addressed could include how:
  - new disciplines of design, new technology and programmes are discovered and utilised;
  - the creative talents of the SMI's workers and management are brought to bear.
5. **How the organization implements process changes and evaluates the benefits.** Areas to be addressed could include how:

- new or changed processes are piloted and implementation controlled;
- process of SMIs' changes are communicated and to whom;
- employees of SMIs are trained prior to implementation;
- process changes in SMIs are audited to ensure the predicted results are achieved.

#### **(f) Customers' Satisfaction**

The concern here is with external customers' perception of the organization and its products and services. A total quality approach will satisfy the needs and expectations of customers, both internal and external.

#### **(g) People Satisfaction**

A total quality approach will satisfy the needs and expectations of the organization's people. Some of the customers stated in 8.4.2 pg. 302 and (f) above may be 'people' or employees of the SMI at the same time. This means that, to some extent, the areas to be addressed in the 'customer satisfaction' criterion fit also in the 'people satisfaction'. However, there is a slight difference between *customer satisfaction* and *people satisfaction*. People in *customer satisfaction* are receiving quality products or services from the previous process of the operation, while *people satisfaction* is the result of the quality treatment people receive from the employer or organization where people work.

Areas to be addressed could include the perception of the SMI's people with respect to:

- good communication between all the employees in the organization;
- working environment;
- health and safety provisions;
- training and development;
- possibility and feasibility of assistance to go for further study;
- management style;
- awareness of the SMI's values, vision and strategy;
- cooperation between all departments and sections within the organization;
- awareness of total quality philosophy;
- recreational services;
- staff parking opportunities (not necessarily car parking only);
- organization (e.g. postal service, payroll, printing/services etc.).

Additional indications of people satisfaction could include:

- absenteeism and sickness;
- employees' rate of turn-over;
- ease of recruitment;
- grievances;
- use of SMI provided facilities.

#### **(h) Business Results**

What the organization is achieving in relation to its business performance. It can be measured in two ways: financially and non financially.

**Financial measures.** Areas to address could include:

- increase of the amount of government subsidy or grants received for quality improvement;
- additional funds/allocations from other government agencies/private sectors for purchasing the SMI products and services;
- improvement of cost-reduction rates;
- cost of non-quality reduced;
- increase in market share;

- waste reduction in defect rate;
- improved amount of products and services sales and revenues.

*Non-financial measures.* Areas to address could include:

- local, national and international reputation;
- increase technology transfer rates;
- higher position within SMIs ranking
- fewer customer complaints;
- receiving awards. etc.

## Note 6

### Business Policy and Strategy for SMIs

#### Introduction

The proper application of business strategy, the right kind of business structure, the right kind of workers and staff attitude and the correct use of management techniques can improve business performance. In this chapter the researcher is also looking at the possibility of improving the strategy of the SMIs and the immediate measures which should be taken by the responsible agencies as well as the Government to facilitate the development of a robust and a successful Malaysian SMIs.

Tools without strategy are not good enough. The rules of the game must be clear and properly laid down. Therefore, the researcher believes that there is a need for a business policy and business strategy to be set for SMIs before any attempt is undertaken to develop any TQM organization and model for these institutions. *'The structure of a company can not be defined and understood, much less evaluated without prior knowledge and understanding of company strategy'* Chandler (1962).

#### 1. History of Business Policy and Strategy

In 1911 the Harvard Business School introduced a new course into its curriculum called Business Policy (Christensen, 1985). This course as it eventually evolved was envisioned, in the words of one of the pioneering professors, Kenneth R. Andrews, as the integrative capstone course in the MBA curriculum:

*'one devoted to the problems of company as a whole as seen from the perspective of the president of chief executive. Its format has traditionally included complex cases, continually renewed, which present as far as practicable the total situation of the company. Students are asked to analyze the state of the company, to identify the principal problems in its situation, and to prescribe a program of action. They soon discover that only the determination of suitable objectives make possible a satisfactorily rational choice among action alternatives. The discussion of individual companies therefore matures into a consideration of how to formulate an appropriate pattern of purpose and policy and how to convert plans into results'*

To provide a theoretical framework for the teaching of business policy, the Harvard Business School faculty developed the concept of corporate strategy which Professor Andrews again defined as follows:

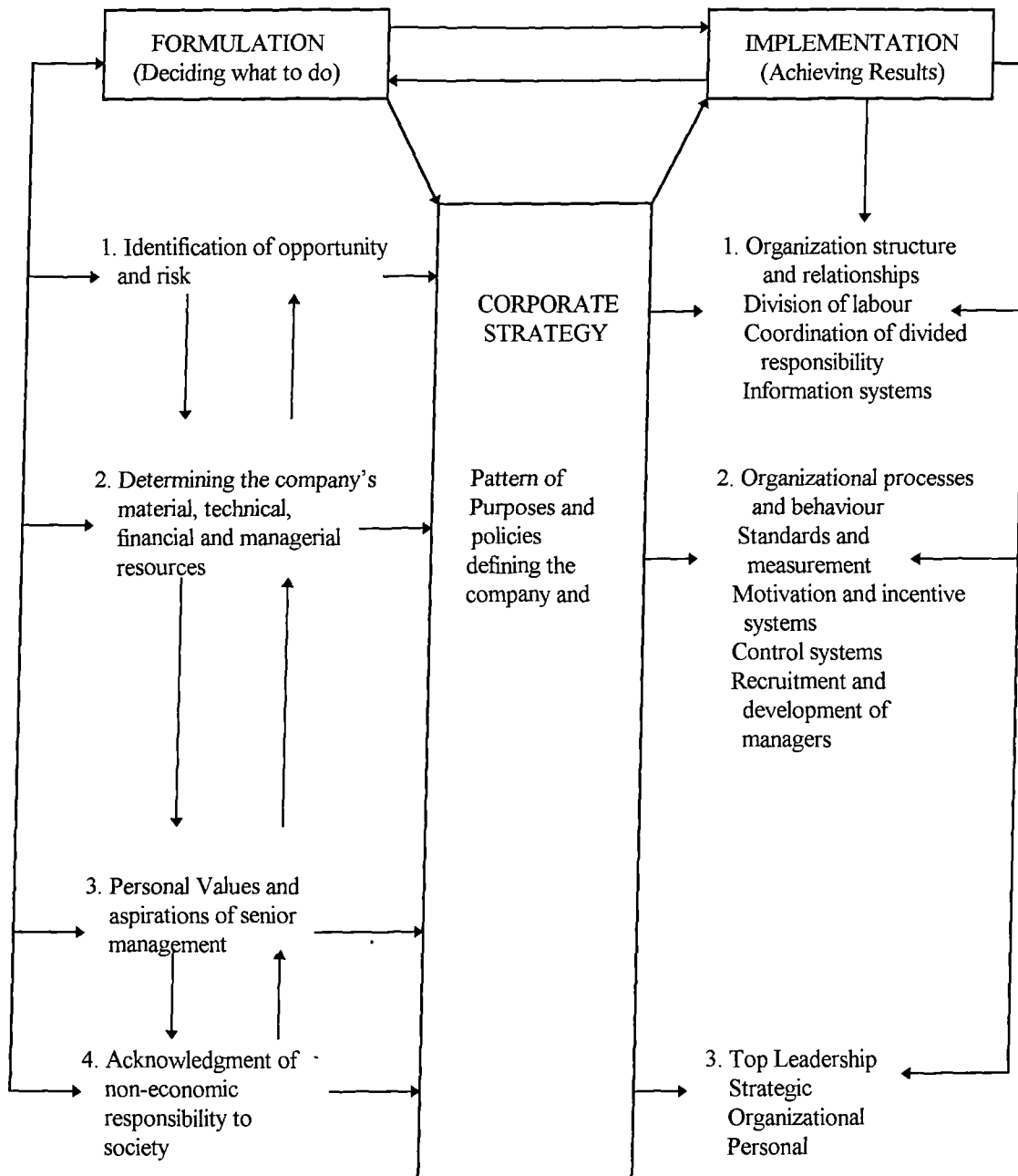
*'Corporate strategy is the pattern of decisions in a company that determines and reveals its objectives, purposes, or goals, produces the principal policies and plans for achieving these goals, and defines the range of business the company is to pursue, the kind of economic and human organization it is or intends to be, and nature of the economic and non-economic contribution it intends to make to its shareholders, employees, customers and communities....Corporate strategy defines the business in which a company will compete, preferably in a way that focuses resources to convert distinctive competence into competitive advantage'*.

Elaborating further on the concept of strategy, Professor Andrews identified the four components of corporate strategy: *market opportunity, corporate competence and resources, personal values and aspirations, and acknowledged obligation to segments of society other than stockholders*. Professor Andrews' thesis was that the combination of these four components was necessary not only in formulating strategy (deciding what to do) but also in implementing strategy as well as achieving results. **Figure 1** presents Andrews' framework.

While acknowledged as a successful pedagogical concept, business or corporate strategy did not initially elicit interest from either management theorists or management practitioners (Wren, 1979 and Andrews, 1964). Several reasons can be given for this neglect. For one, the interest of management theorists and management practitioners lay elsewhere (Wren, 1979). For another, the concept of corporate strategy was perceived more

as a normative rather than a descriptive model. (i.e. what is taught in school but what is not followed in practice).

**Figure 1: Andrews' Strategy Framework**



Source: Kenneth R. Andrews, *The Concept of Corporate Strategy, Revised Edition*, p.28.

Alfred Chandler (1962) challenged the prevailing perception and initiated the still-continuing interest of both scholars and practitioners in business policy in general and corporate strategy in particular.

Examining briefly the administrative histories of close to a hundred of American's largest enterprises (fifty with largest assets in 1909 and seventy with the largest assets in 1948) and more intensely the administrative histories of four American companies which first created the modern *decentralised* form of organization - du Pont, General Motors, Standard Oil (New Jersey), and Sear, Roebuck and Company - Chandler reached the following conclusion:

- Insofar as the planning and carrying out company's growth may be considered strategy, the management of the companies in question has been formulating and implementing strategy.
- The structure of a company, which can be defined as the design of organization through which the enterprise is administrated, follows strategy. Thus, the structure of a company can not be understood, much less evaluated, without prior knowledge and understanding of a company's strategy.

The interest which Chandler generated among both management theorists and management practitioners resulted in the explosion of research and publications which can be classified as follows:

1. The formulation of different concepts of strategy. For example, Charles Hofer and Dan Schendel, in their book entitled *Strategy Formulation: Analytical Concepts*, present a table comparing the three concepts of strategy of Chandler, Andrews and Ansoff, plus nine other concepts of strategy by Cannon, Katz, Ackoff, McNichols, Newman and Logan, Uyeterhoeven, Glueck, Steiner and Miner and present their own, Hofer and Schendel.
2. The attempts to test the value and validity of business policy and strategy concepts. For example, Jay Galbraith and Daniel Nathanson in their book entitled, *Strategy Implementation: The Role of Structure and Process*, provide a summary of the research that has been undertaken to provide empirical foundations for the business policy concepts.
3. The attempt to link the concepts of the new discipline to the older and more established concepts in other fields of discipline. Examples of such attempts are those of the economist Oliver Williamson in his book, *Markets and Hierarchies*, of the sociologist James Thompson in his book, *Organizations in Action*, and of business professor Bruce Scott, in his papers entitled, *Stages of Corporate Development (Part 1 and Part 2)*.
4. The attempt to extend the applicability of the concepts developed beyond the field of business. For example, the Harvard Business School has several policy cases on non-profit organization.

## 2. Alternative Strategy Framework

In the aftermath of Chandler's study, two alternatives strategy frameworks initially gained acceptance. Professor Andrews' concepts were formalised initially in a textbook entitled *Business Policy: Text and Cases*, which he co-authored with Edmund Learned, C. Roland Christensen, and William Guth in 1965. In 1971 his ideas and concepts on corporate strategy were published separately in a book entitled *The Concept of Corporate Strategy*.

The framework presented by Professor Andrew represented a formalisation of the concepts developed by Harvard Business School faculty in their core course, Business Policy. Igor Ansoff, in his 1965 book entitled *Corporate Strategy: An Analytic Approach to Business Policy for Growth and Expansion* provided the first alternative approach to strategy formulation approach of the Harvard Business School Method.

Ansoff viewed strategy as the common thread among an organization's product / markets and activities that defined the essential nature of the business that the organization was in and planned to be in the future. Ansoff then identified the four components that such common thread would possess: a product / market scope, a growth vector, competitive advantage, and synergy. Ansoff's unique contributions could be in the use of the matrix (forever the staple of all future strategy theorists) and the concept of synergy (defined as the  $2+2 = 5$  effect). **Figure 2** presents the initial use of the matrix by Ansoff.



**Figure 2: Ansoff's Product / Mission Matrix**

Product Mission	Present	New
Present	Market Penetration	Product Development
New	Market Development	Diversification

**Source:** Igor Ansoff, *Corporate Strategy: An Analytic Approach to Business Policy for Growth and Expansion*. p.109.

In the ensuing years since the pioneering work of Professor Andrews and Ansoff, several management theorists have sought to present their own concepts of corporate strategy. But the next breakthrough must be attributed to another group of management experts; the management consultants.

In 1979, Bruce D. Henderson, founder and chief executive of the Boston Consulting Group, published a book from the essays he wrote for clients of the company entitled *Henderson on Corporate Strategy*. In this book Henderson presented the strategy concepts which established the reputation of his consulting firm. The most notable of such concepts was what has been termed 'the Product Portfolio Mix'.

To be successful, a company should have a portfolio of products with different growth rates and different market shares. The portfolio competition is a function of the balance between cash flows. High growth products require cash inputs to grow. Low growth products should generate excess cash. Both kinds are needed simultaneously.

The balanced portfolio has '*stars*' whose high share and high growth assure the future; '*cash cows*' that supply funds for that future growth; and '*problem children*' to be converted into '*stars*' with the added funds. '*Dogs*' are not necessary. They are evidence of failure either to obtain a leadership position during the growth phase, or get out and cut the losses.

Figure 3 presents the product portfolio mix in matrix form.

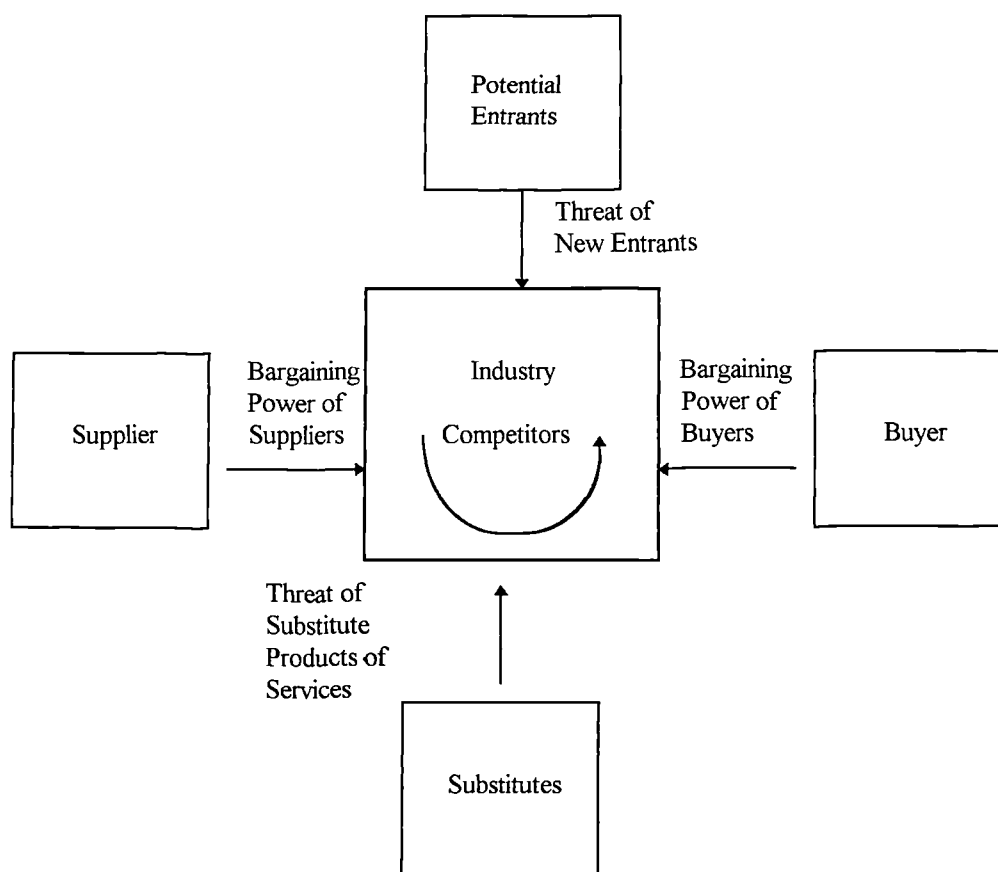
**Figure 3: Product Portfolio Mix**

	High	Low
High	* STAR	? PROBLEM CHILD
Low	\$ CASH COWS	x DOG

**Source:** Bruce D. Henderson on Corporate Strategy, p. 170.

The next conceptual breakthrough in corporate strategy can be found in the books of Michael E. Porter, *Competitive Strategy: Techniques for Analysing Industries and Competitors*, (1980) and *Competitive Advantage: Creating and Sustaining Superior Performance* (1985). Porter, building on what he termed the classical approaches to strategy formulation introduced the concept of generic competitive strategies, the forces driving industry competition, the value chain concept as well as various frameworks for successfully conducting company, industry and competitor analysis. **Figure 4** presents the forces driving industry competitiveness while **Figure 5** presents the three generic strategies.

**Figure 4: The Five Competitive Forces that Determine Industry Profitability**



**Source:** Michael E. Porter, *Competitive Advantage: Creating and Sustaining Superior Performance*, p.5.

**Figure 5: Generic Competitive Strategies**

		Competitive Strategy	
		Lower Cost	Differentiation
Competitive Scope	Broad Target	1. Cost Leadership	2. Differentiation
	Narrow Target	3A. Cost Focus	3B. Differentiation Focus

Source: Michael E. Porter, *Competitive Advantage: Creating and Sustaining Superior Performance*, p. 1.

### 3. The Validity of Business Policy Hypothesis

The basic premise of the Business Policy and Strategy Hypothesis is that firms with better implemented strategies perform better than other firms. The initial evidence presented was of course in the historical studies of Alfred Chandler. Seeking to extend the validity of the hypothesis beyond the different type of firms and to the present environment, researchers encountered several research design issues.

The principal research issue is the tautology that the better strategies (the independent variable) are defined by better results (the dependent variable). The usual research studies therefore have compared the performances of companies or firms doing formal corporate strategy formulation (or strategic planning) with the performances of similar companies or firms (same size, same industry, etc.) *not* doing formal strategy formulation.

As expected, the results were mixed. Karger and Malik studied the performance over period of ten years of nineteen planning and nineteen nonplanning firms in the machinery, electronic, and chemical industries. Their findings indicated that formal planners significantly outperformed the nonplanners (Karger & Malik, 1975). Rue and Flumer came out with opposite conclusions. After surveying the planning practices and the performances of 432 firms in three industrial groups - durables, nondurables, and service - Rue and Fulmer concluded that in the service industries the nonplanners outperformed the planners in all instances but that in durable and nondurable industries the planners outperformed the nonplanners in all instances (Rue & Fulmer, 1973).

The proponents of the business policy and strategy hypothesis have, of course not depended on the above type of surveys to prove the validity of their hypothesis. They advance more compelling arguments for the validity of the hypothesis they advocate:

1. They point out that the business policy and strategy concepts they have advocated are grounded in the older and firmer disciplines of economics and mathematics. They argue, for example that the concept of

distinctive competence is based on the economic theory of comparative advantage, that the concept of building on strength is validated by economic theory of specialization and that concepts of competitive strategy are based on rules postulated by special branch of mathematical economics called Game Theory.

2. They point to the widespread acceptance of the concept of corporate strategy by a significant number of corporations.
3. They point to the widespread diffusion of the concepts of corporate strategy beyond the field of business to other fields of endeavour such as the public sector and even to other non-profit organizations such as private schools and quasi-public museums. Moreover, Bruce R. Scott, John W. Rosenblum and Audrey T. Sport of the Harvard Business School extended the applications of the concepts to analysis of countries. In their 1980 book entitled *Case Studies in Political Economy: Japan 1854-1977*, they used the business policy framework to do country analysis:

‘To accomplish this analysis, it is useful to regard the nation state as a purposeful entity, in much the same way that many analysts choose to view the firms. In both instances, of course, an extraordinary simplification is involved. Decisions, public and private, are the outcome of complicated processes of bargaining and negotiating and the use of power which we call politics. To posit a rational manager of the processes is certainly not of much descriptive value or perhaps of much normative value. On the other hand, this assumption and the framework of analysis that it facilitates provide a significant aid to business managers in improving their prediction about the future directions of national economics. The framework offers a useful format for the organization of data and a place to start in Analysing national policy’ (Scott et. al., 1980. pp. 7-8).

Assuming the validity of the business and strategy hypothesis, two other research issues attracted the attention of business policy and strategy researchers: determining *as an outsider* what specific strategy of a specific company is, and evaluating the effectiveness of a specific strategy.

Professor Andrews, in his book entitled *The Concept of Corporate Strategy, Revised Edition*, pp. 21-22 and pp. 36-42 argued that careful examination of the behaviour of a company will reveal what its strategy is. As an illustration, he cited the analysis of a business policy student of the strategy of Heublein on the basis of a case written about the company. Professor Andrews also proposed nine criteria for the evaluation of a corporate strategy which he stated in question form.

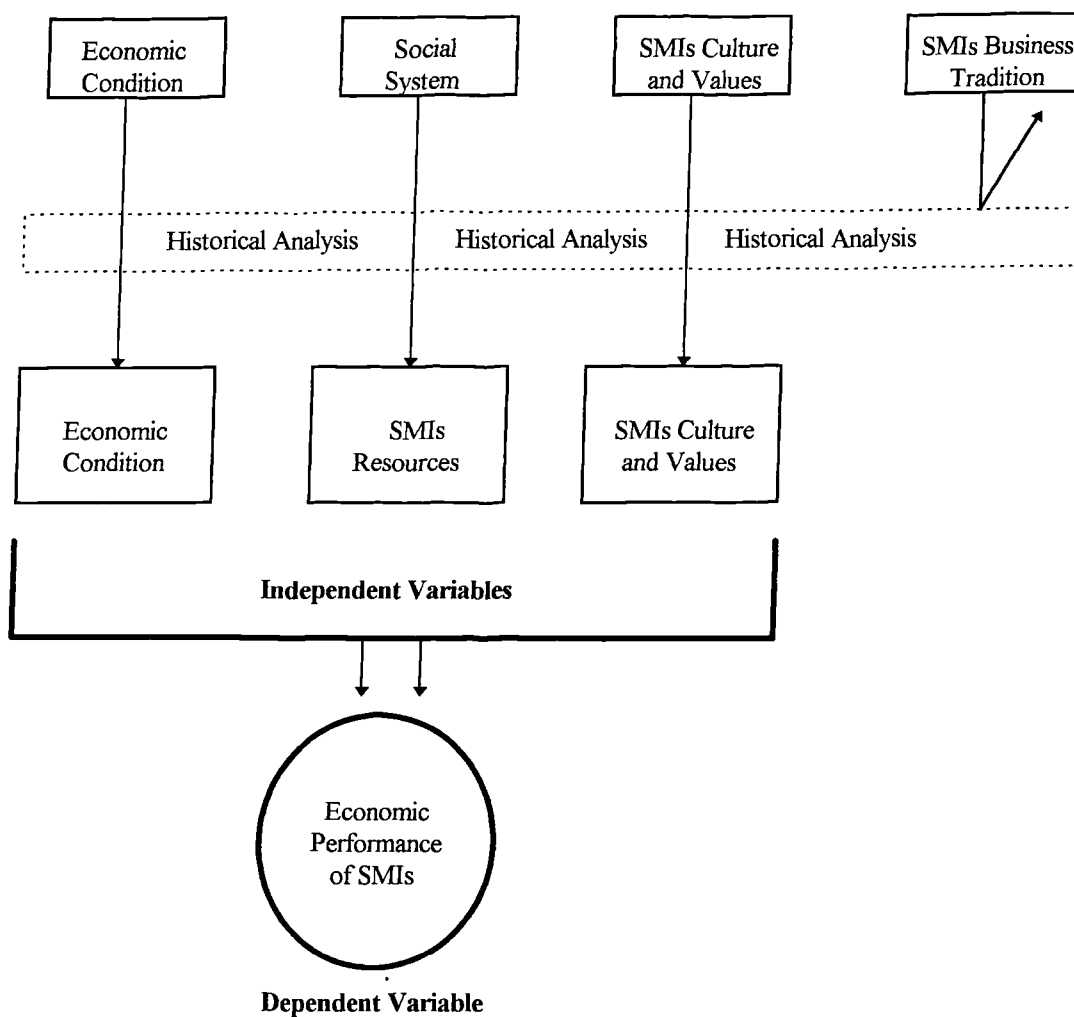
#### 4. Applying the Business Policy Framework to the SMIs

Table 7.53(b) and Table 7.54(b) have indicated that there are problems of perception on the implementation of SMIs development policy and strategy by the different groups of SMIs. However, applying the historical analysis the researcher has validated the existence of three independent variables which can be responsible for the success / failures of Malaysian SMIs. All these three variables were uniquely present in Malaysia and among the SMIs owners.

1. *The transformation of the economy of the region*, first under the colonial rule of British powers which brought the Chinese and Indians to the country in the first place and later under the independent government which pressed economic development policies has created economic opportunities for the other Chinese and Indians as well as the illegal immigrants from neighbouring countries to exploit;
2. *The status of the Chinese, Indians and the illegal immigrants as immigrants* provided then with a more powerful motivation for exploiting the opportunities presented by the transformation of the economy of the country as compared to any other distinguishable group (i.e. the indigenous Malays on the one hand and the major Bumiputra groups, such as the Iban and the Kadazan);
3. *The social organizations, culture and values* which the different immigrants inherited and brought with them, developed, and maintained in a threatening environment provided them with a distinct competitive advantage (see *The Malay Dilemma* by Dr. Mahathir Mohamad for further details)

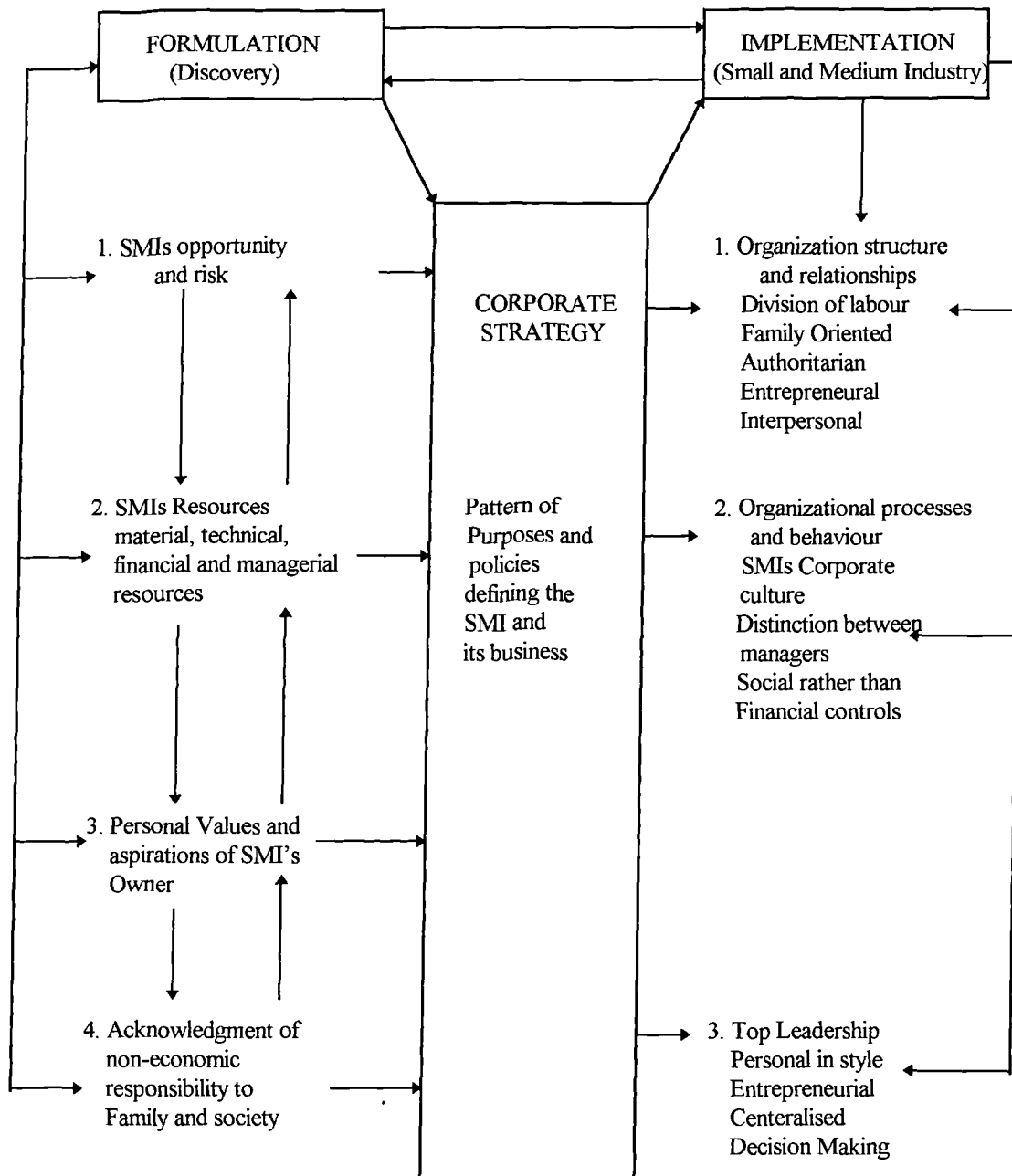
**Figure 6** presents what is termed as the first stage in the researcher hypothesis formulation process. As stated earlier, the effect of the three independent variables on the economic performance of the different type of the SMIs occurs only with the presence of all three independent variables.

**Figure 6: Hypothesis Formulation Process:  
Stage One**



The absence of any one variable in other environments, has not resulted in economic performance such as occurred in the different types of SMIs in Malaysia. Further analysis of these three factors indicates a similarity with the four major components necessary for the formulation of corporate strategy as postulated by Professor Andrews. **Figure 7** shows the similarity in graphic form.

**Figure 7: Hypothesis Formulation Process:  
Stage Two**



Once we adopt the business policy framework in seeking to explain the economic performance and failure of SMIs, we are then able to tap a whole body of conceptual frameworks. The researcher's hypothesis is that the application of this body of knowledge to the question of economic performance and failure of SMIs will enable us to explain the basic transformation, variation, alternative strategies, organization structure and operation as follows:

1. the transformation of SMI owner from 'coolie labourers', (paid workers, rice planters, road builders and rubber tappers) to successful entrepreneurs;
2. variations in the performance of the different type of SMIs in specific industries;

3. the alternative strategies pursued by SMIs in each sector of their business;
4. the structure and operation of the organization chosen by the SMIs to implement their business strategies.

In his book entitled *Competitive Advantage: Creating and Sustaining Superior performance*, Michael Porter outlines three generic strategies for achieving above-average performance in an industry: cost leadership, differentiation and focus (see **Figure 5** for details).

Based on this strategy framework, we could argue that the initial strategy adopted by SMIs was one of cost leadership. Coolie labour, due to its many abuses, provided the cheapest labour and thus a competitive advantage. But cost leadership under these conditions was not sustainable. Competition in the form of alternative cheaper labour source arose. Thus in colonial Malaya, the Chinese and the Indians were brought into the country. Moreover, the reforms introduced to correct the grave abuses of the coolie trade also raised the cost of coolie labour. At the other end of the spectrum, the British colonial powers were continuously introducing cost-saving technologies, i.e. steam engines, electricity, specialised equipment which slowly eroded the cost advantage of coolie labour. Within the framework, it could be argued that the shift of the immigrants from coolie labour to entrepreneurship was dictated, not so much by *business acumen as by economic necessity*.

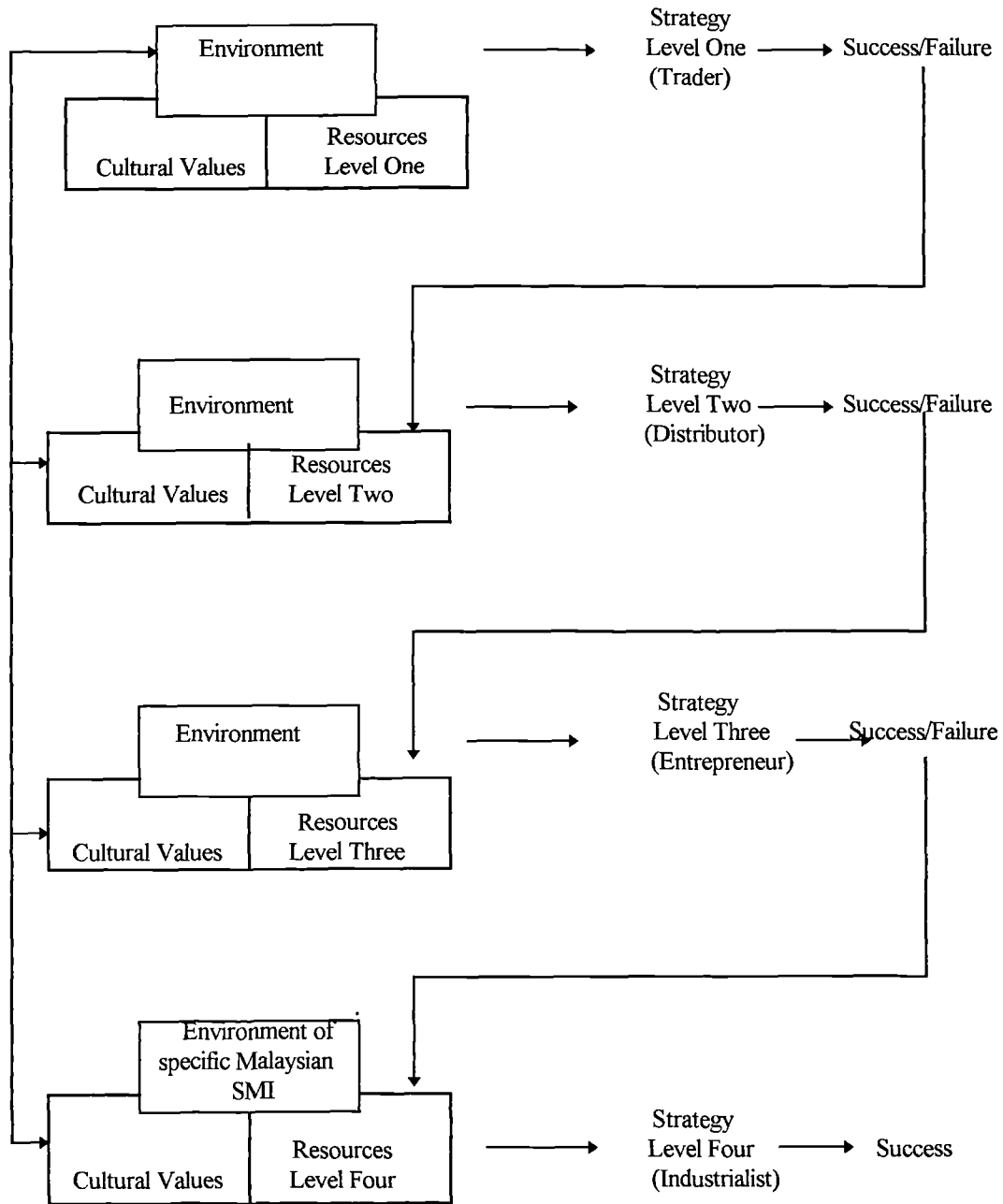
The business policy framework could then explain why the Non-Bumiputra and the Joint Venture with Non-Bumiputra Majority SMIs were more successful in some fields rather than in others (see **Chapter Seven**). There is some historical documentation for such disparity in each economic performance.

To prove that the business policy hypothesis offers the most credible explanation for the transformation of these coolie labourers into successful entrepreneurs by postulating what are normally being called as the multi-level strategies which in this case, the said labourers could adopt and then discard as they became more and more successful, **Figure 8** presents how the multi-level strategy would work.

The previous business policy hypothesis was refined by varying the level of resources available to the different type of SMIs. The business policy hypothesis could also be differentiated by varying the cultural and economic background under which the SMI entrepreneurs would operate. Thus, using each type of different group of SMIs as a different environment, one could speculate on the alternative strategies pursued by the successful SMIs. **Figure 9** shows how this strategy would look.

Finally, the business policy hypothesis can be used in presenting a systematic analysis of the strategy, structure and operations of the SMIs as was discussed at length in Chapter Eight. **Figure 10** shows the classic business policy framework used in describing the strategy and structure of the different type of Malaysian SMIs.

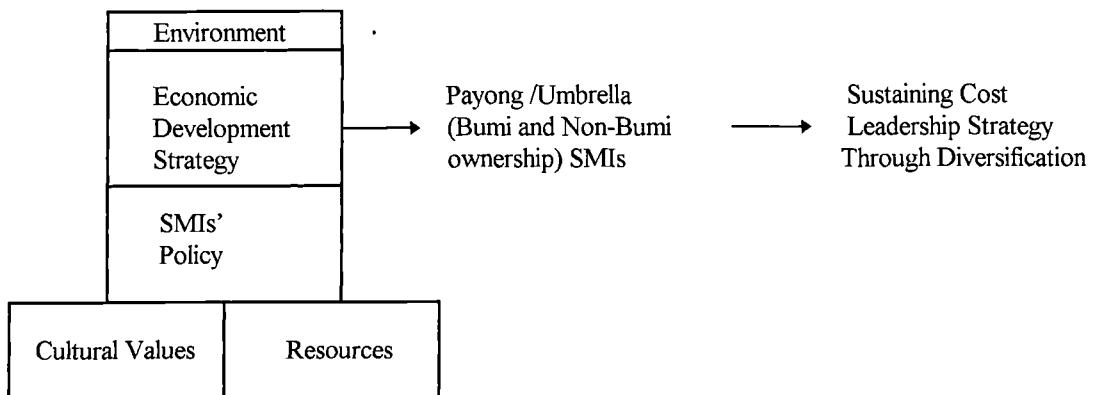
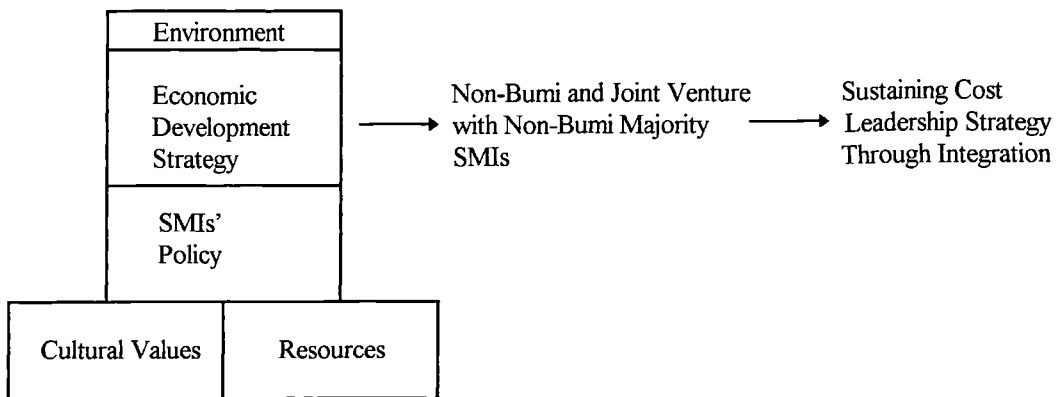
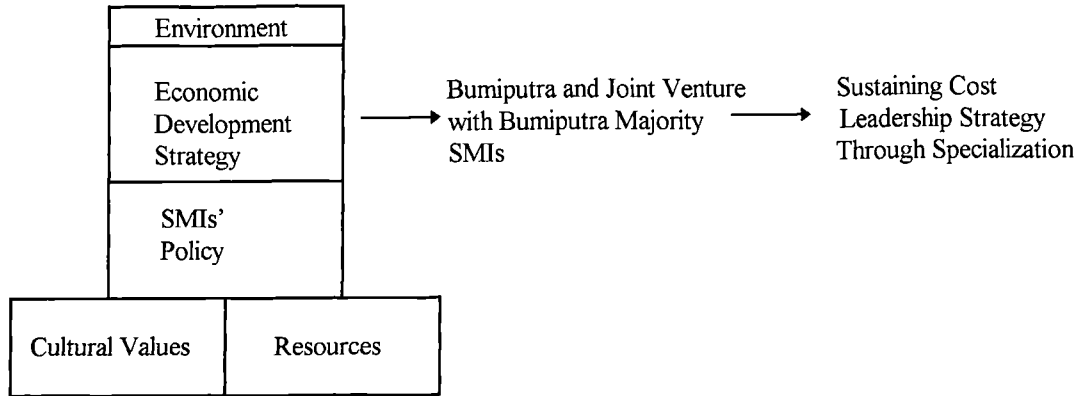
**Figure 8: Hypothesis Formulation Process:  
Stage Three**



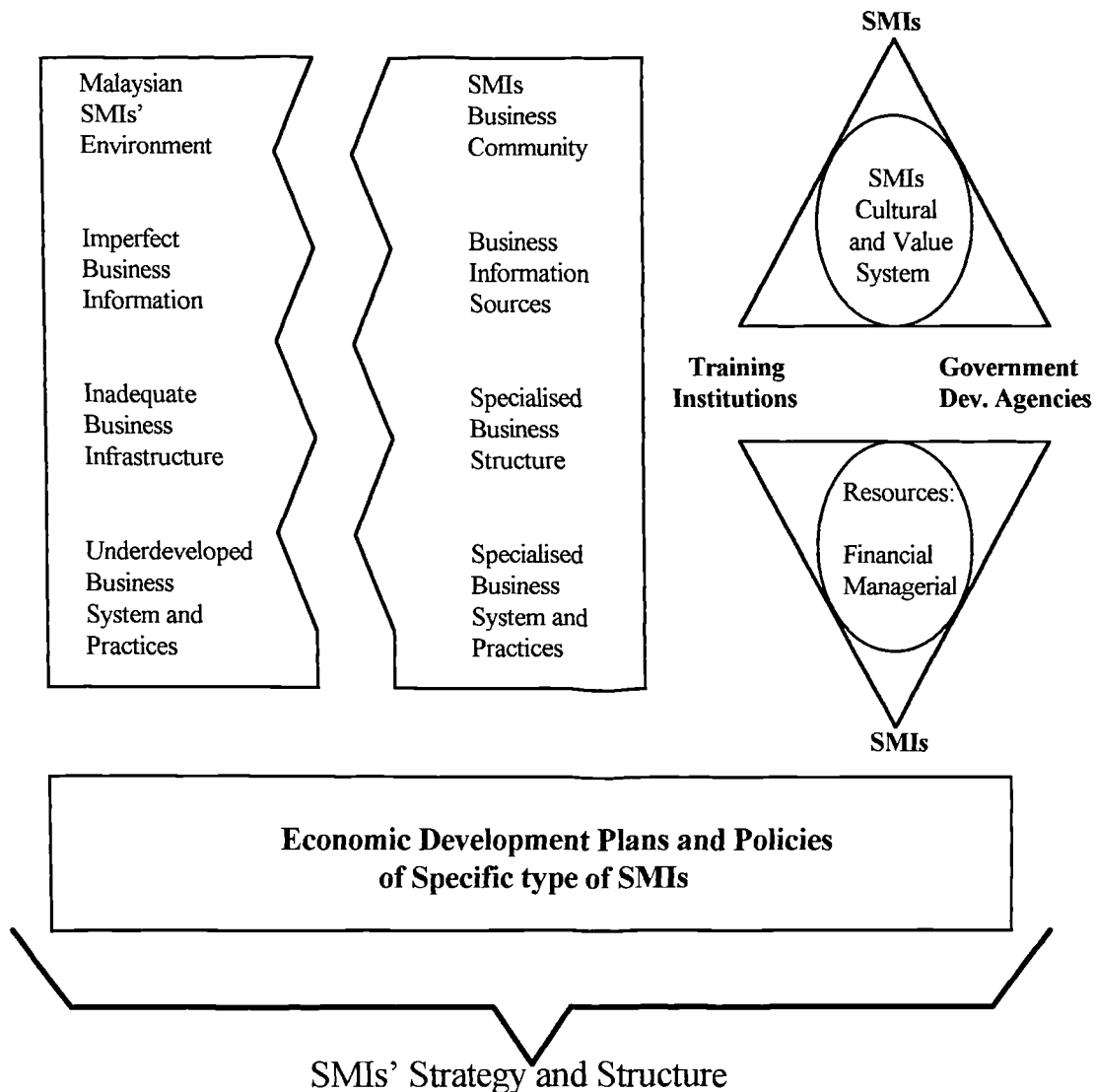
**Note:** SSI normally at level One and Two; MSI mostly at Level Three and Four.



**Figure 9: Hypothesis Formulation Process:  
Stage Four**



**Figure 10: Hypothesis Formulation Process:  
Stage Five**



Continuing from **Chapter Eight**, the interesting information portrayed by **Figure 10** above is that the cultural and value system of SMIs can be changed through the application of TQM or any other quality initiatives. This can be done through the strong support and initiative to be given by the training institutions and the government development agencies. Since SMIs generally have limited initial capital and further development funds for their quality development, the government agencies and the training institutions could lead the way by executing some of their fund allocation and their technical and staff resources for the improvement of the standard of quality initiative and quality programmes tailored for the SMIs. However, SMIs on the other hand must respond and show keen interest to participate in such a scheme in order to have a full success in the implementation of such initiative. Together, hopefully, all of them will play their parts in contributing towards the achievement of the nation's vision 2020.