CHAPTER 2

Total Quality Management In General

2.1 Definition of quality

The American Society For Quality Control has defined quality as the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs (Heizer & Render, 1993, pp. 730).

However, different writers and qualified experts have different definitions and understanding about quality. One authority on product quality, David Garvin, believes that definitions of quality fall into few categories. Some definition are said to be user-based. They proposed that quality "lies in the eyes of the beholder". To production managers, quality is manufactured-based. They believe that quality means conforming to standards and "making it right the first time". A third approach is product-based definition, which views quality as a precise and measurable variable (Heizer & Render, 1993, pp. 732).

In this case study, the writer adopt the manufacturing definition of quality, that is quality means conforming to the standards and "making it right the first time".

2.2 The root of TQM

To write the root of Total Quality Management (TQM), one can not run away from explaining the history of quality. The field of quality control has come a long way since the era of Industrial Revolution. In the early 1800s skilled artisans carried out production, with one individual starting and finishing a whole product. With the Industrial Revolution and the factory system, semi-skilled workers, each making a small portion of final product, became common. With this, responsibility for the quality (and quantity) of

the final product tended to shift to supervisors. Inspections ranged in various organizations from nil to 100%, and pride of workmanship declined. (Heizer & Render, 1993 pp. 734).

As organization became larger in 1900s, inspection became more technical and organized. Inspectors were often grouped together, reporting to a chief inspector. The job of the inspectors was to make sure bad lots were not shipped to customers.

Starting in the 1920s, major statistical QC tools were developed. W. Shewhart introduced control charts in the 1924, and in 1930 H.F. Dodge and H.G.Romig designed acceptance sampling tables. Also at that time the importance of quality control in all areas of the company's performance became recognized. In many manufacturing firms, the head of inspection and QC was placed on the same level as production manager.

During and after World War II, the importance of quality grew often with the encouragement of the U.S. government, companies recognized that more than just inspection was needed to make a quality product. Quality need to be built into the production process. This requires the involvement of product design engineers, process engineers, QC analysts, inspectors, workers and equipment, and the support of top management. The natural progression of late has been to place the quality control manager on the same original level as engineering, purchasing, manufacturing, marketing and other major heads of functional areas.

Besides that, the QC department also directs the broader issue of quality through its staff authority of consideration, consultation, inspection, auditing and analyze of inspection. The quality control manager also works with the engineering / R & D function to develop new product specification and standards. The manufacturing function is increasing responsibility for its own quality.

Quality control evolved into quality assurance (QA). The QA department focuses on assuring process and product quality through executing operational audits, supplying training, performing technical analyses, and advising operational areas on quality improvement. QA consults with the departments where the responsibility for quality actually rests.

QC is still alive in some organizations where QA has not evolved. It is considered to be a functional area, which is responsible for inspecting products, calibrating instruments, testing products, and inspecting incoming material.

As the issue of quality becomes more prominent, QA is evolving into a company-wide quality management (CWQM) function. CWQM is also called total quality management (TQM) or total quality control (TQC).

2.3 Concepts of TQM

What is TQM? TQM refers to a quality emphasis that encompasses the entire organization from supplier to customer (Heizer & Render, 1993, pp. 738). It involves the application of quality management principles to all aspect of the business, including customers and suppliers.

In BS 4778 : Part 2 (1991), it is defined as :

"A management philosophy embracing all activities through which the needs and expectations of the customers and the community and the objectives of the organization are satisfied in most efficient and cost effective way by maximizing the potential of all employees in continuing drive for improvement."

TQM is quality management process that is customer oriented and continuously making improvements in all aspects within an organization. It involves a whole spectrum of

changes in the organization structure, system and procedure and most important of all, values and attitudes. The organization structure must be flexible enough to existing or potential requirements. Process capability must be ensured so that all products and services are delivered according to requirements. Finally, proper values and attitudes must be present as these form important inputs in the quality equation. In short, it is a culture transforming process where the organization embarks on a journey from a conventionally managed organization to a quality organization that does not need to be managed. It becomes a self-sustaining and self-motivating organism. At this level, quality exhibits efficiency in administration, increase in staff ability and smooth operational system.

TQM possesses few important characteristics as follows:

1. Goal

    a. Customer's satisfaction.

    b. Zero defect or error free.

    c. Right the first time and every time.

2. Focus

    a. System and process.

    b. Organization.

    c. Customer.

    d. Supplier.

3. Strategy

    a. Continuous improvement.

    b. Total involvement.

    c. Strategic actions.

d. Long term goal oriented.

e. Quality cost control.

f. Preventive.

g. Quality assurance.

h. Systematic solving of problems.

4. Implementer

a. Top management.

b. Total participation.

c. Team work.

TQM advocates that managers and employees become so customer focused that they continually find new ways of meeting of exceeding customer expectations, thus creating not only customer satisfaction but also customer loyalty. For each output that has been produced. It is defect free because for each defect will in turn affect customer satisfaction.

TQM focuses of development of quality systems and processes. This is because only quality systems and processes can produce quality outputs. All feedback and opinions from customers are used for the purpose of designing work system or process. Suppliers are considered partners shouldering the same responsibility of producing quality goods because of their role in supplying quality input into the organization.

In an effort to achieve a continuous improvement, TQM emphasizes strategic actions that are well planned and long term. This process involves everyone in the organization whereby all resources are harnessed to achieve quality results. Stages of actions are as follows:

8

a. Setting the goal of improvement task.

b. Determining the methods of implementing.

c. Train those who are involved.

d. Implementing the planned improvement.

e. Evaluating the achievement.

f. Standardizing the work processes which have been improved and disseminating to other section of department.

TQM always control the cost of quality in non-conformance to standards that have been set. This is the monetary term for the prices of wastage such as redoing work, payment of compensation and complaint handling. For this purpose, TQM emphasize prevention. This is done by improving the work process so that the chances of mistake can be controlled to minimum. Besides, quality problem that is detected can be solved quickly using systematic methods. This is to ensure that problem will not be prolonged and affect the everyday running of organization. One of the important strategic plan of TQM is quality assurance. It is aimed to ensure that every unit quality output can satisfy the customer.
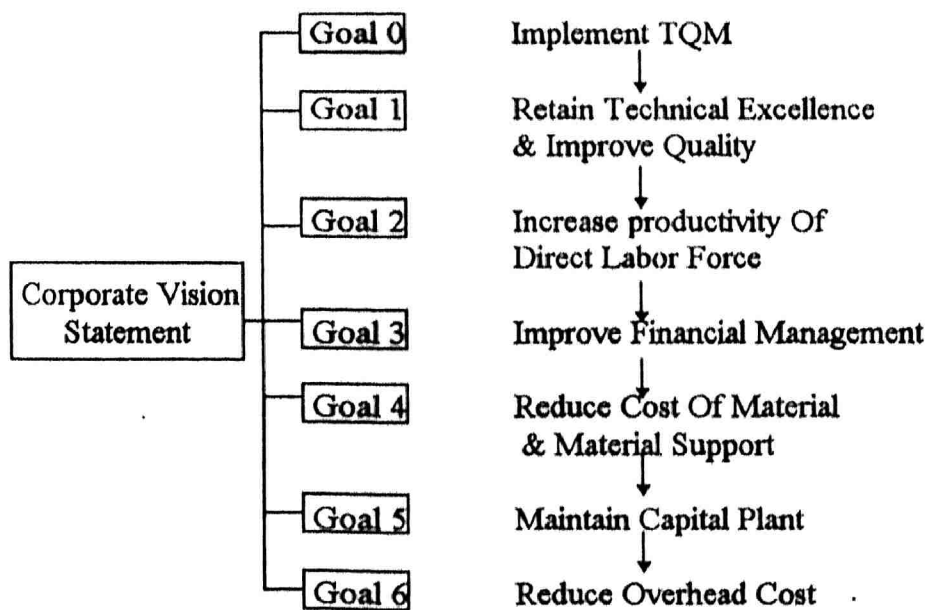
One of the approaches of TQM is to involve everyone in the organization shouldering the equal responsibility of continual quality improvement. With this total participation only can the efforts be more effective and perpetual. However, the role of top management is utmost important for the leadership can effect the change in organization culture. Leadership is one of the factor that will determine the success of failure of a TQM strategy.

2.4 How TQM can be integrated into corporate goals?

Development of the organizations vision statement is the first positive step towards TQM. Ideally, this take place during a brain storming session, typically off-site, with the aid of a trained professional, facilitator. Here, via consensus, key executive arrive at a brief, concise statement as to why they are the business. It is normally expressed in terms of a commitment to quality, responsiveness to customers' requirements, and a desire to become competitive.

Next, is the corporate goal. The corporate goals must flow from the organization vision statement. There may be many goals but they must be concise. Figure 1 provides an example of an organization's corporate goals. From this diagram you see that the focus of this organization's corporate goals touches every aspect of the organization - from retaining technical excellence in its people, to maintaining a safe work environment

Figure 1: Organization's corporate goals

	Goal 0	Implement TQM
	Goal 1	Retain Technical Excellence & Improve Quality
	Goal 2	Increase productivity Of Direct Labor Force
Corporate Vision Statement	Goal 3	Improve Financial Management
	Goal 4	Reduce Cost Of Material & Material Support
	Goal 5	Maintain Capital Plant
	Goal 6	Reduce Overhead Cost

Implementation of TQM is treated as "Goal 0". It seems almost automatic for corporate executives to place this on their list of corporate goals. The writer mentioned this because he believes goals should be fluid, dynamics, changing with time. The corporate executive who places this "Implement TQM" on this list may latter discover that it needs to remain in there forever. If removed, it can be construed that TQM is done, accomplished, finished. And as we all know real TQM is a continuous process that goes on forever. (Jablonski, 1995, pp. 99).

Besides that improvement programmes advocated by TQM involve total change in the running of a company. The change touch in all aspects like policy, philosophy, system and procedure structure. These changes will occur effectively if top management support TQM because the power of making strategic decisions lies in their hands. Top management can support TQM by :

a) having a quality policy.

b) having a quality management structure like steering committee on quality and productivity; quality coordinator and task force; quality improvement team.

c) encouraging the involvement of all staff.

d) supporting the dissemination of quality information.

e) managing the process of change.

f) having quality programme like quality suggestions, quality day and so on.

11

2.5 Literature review

The case study done by W.K. Lo, Managing Director of Computer Products Asia Pacific Limited on his own company (Lo, W.K., Winter 1993-1994, pp. 47) showns that to implement TQM successfully, one need to establish ISO 9000. He believed that ISO 9000 helps to install an effective quality management system in a company.

Besides that, he found out that in order to be truly TQM implementer and world class product production, they have to continue to improve their products and manufacturing technologies, design-in quality, be responsive to customers, reduce cycle time and deliver on time. Lastly he found out that human resource management is the key to successful TQM implementation.

He concluded his study by mentioning that TQM implementation is an ongoing process (Lo, W.K., Winter 1993-1994, pp. 47-66).

Therefore a case study in Harris Malaysia is important because it will reveal to us whether these activities play an important part of the successful implementation of TQM.

Danny Lam and Ng Aik Huang have done a study on implementation of TQM in nine services excellence companies. The study reveal that these services excellence companies rely on TQM principles to achieve total quality in service delivery. For example, these services excellence companies listen to and respond often in unique and creative ways to the evolving needs and constantly shifting expectations of their customers' expectations (Lam, D & Ng, A. H., Winter 1993-1994, pp. 67-92).

Therefore since studies have been done on the implementation of TQM on service provider companies, the researcher would like to see how TQM is being implemented in a

12

manufacturing company. Besides that, the researcher would also look into these areas when discussing the implementation of TQM in Harris Malaysia.

Shadur in his case study on Australian Car Plant argued that TQM can contribute to improve international competitive. He concluded that there are two different approaches toward the implementation of TQM. According to him, standards-based approaches are more suited to the manufacturing industry, culture-based approaches are more fragile and difficult to implement(Shadur, M.A., April 1995, pp. 115-125). Therefore, will standards based approach more effective in Harris Malaysia? This study will try to answer this question.

Whereas B.G. Dale and his friends have conducted three case studies on three organizations; namely Girobank, Grace Dearborn Ltd and John Cotton (Colne) Ltd.

Girobank, Grace Dearborn Ltd and John Cotton (Colne) Ltd involved in different sectors of the economy; financial services, specialty service chemicals and automotive trim components, respectively.

They found that commitment from the top management is very important toward the success of TQM implementation. They also mentioned that pretense and half-hearted attitude toward TQM must be avoided because it would waste the organization resources like time, money and manpower. The case study on Harris Malaysia will also reveal to us whether the management totally committed to TQM or not?

Carpenter, D.G. (Autumn1995, pp. 57) in his case study on the implementation of TQM at Friendly Ice Cream Corporation revealed to us that TQM has empowered employees to make critical decisions, generating ideas and implementing solutions. This can be done through team which formed the part of TQM programme.

13

The results of their efforts have been dramatic. Some of the results are lowered operating and material costs by over $2 million, lowered inventory by 50 per unit, established a supplier partnering process and increased revenue by 30 percent while reducing costs.

Likewise the study on Harris Malaysia is important because the researcher will also look into the team effort and to see how they contribute to the successful implementation of TQM in that company.

Attaran, M., and Fitzgerald, H.D.(March/April 1991) in studying the implementing TQM in the Delivery of Government-Contractual Healthcare - FHP Incorporated has revealed that in order to maximize conformance to requirements, FHP recognized that management and employees must determine what the customers' requirements are. They encouraged the employees to utilize a process to determine the requirements of their patients and clients. Next, FHP management not only shares this information with employees, but communicate these requirements to suppliers and service partners to ensure quality throughout a member's healthcare unit.

Besides that, the quality system employed by FHT in its quality improvement progress is prevention. Employees are encouraged to productively prevent problems before they occur. This eliminating waste, saving time, and reducing expenses.

Therefore in studying Harris Malaysia, the researcher will also look into how Harris Malaysia determine the needs of their external customers, and how Harris Malaysia communicate this needs to its suppliers.

Oakland and Porter (1994, pp. 25-41) in their study on the implementation of TQM in Prudential Assurance Co. Ltd. Life Administration Home Service Division found

14

that the Life Administration Home Service Division developed its own training programme to train its quality management team and educating the staff when the Life Administration TQM programme was launched. To achieve the main objective of sustained quality improvement activity, the training material was designed so that there was a seamless transition between learning and productive involvement. It had to be flexible in physical design so that it could be used in workplace and had to allow for different learning speeds and styles of delivery. All training was conducted by Prudential staff and its effectiveness evaluated by independent consultants.

Therefore, this case study will also look at the training programme being provided by Harris Malaysia.

Last but not least, Oakland and Porter (1994, pp.3-9) in their study on the implementation of TQM in Lynx, mentioned that Lynx encourage improvement competition by recognizing their winners, from both individual and teams. Tangible, but not monetary rewards were made. They used in-house journals and noticeboards to highlight and celebrate winners and in this way events and changes were expected. These were often insignificant in themselves, but they gave huge message to everyone about what the leader wanted and what happened when he/she got it.

Therefore, in studying Harris Malaysia, the researcher will also look at how Harris Malaysia rewards it's teams and staff who have contributed to the success of TQM implementation in Harris Malaysia.

The last case study reviewed by the writer was done by Rahim Bin Osug @ Richard as research report entitled Total Quality Management in Sabah : A case study at Syarikat Sinora Sdn Bhd (Rahim, 1994-1995, pp. 1-65). He argued that the effective and

efficient management and control of quality are very important to the survival, development and progress of timber companies.

However, if the company instead of adopting changes, they stick to the "status-quo" of their organization, company is not only being threaten by competitors but their image in producing good quality timber materials will be at stake.

Rahim emphasized the point that the company must be able to face transformation, learn from the past failure and be able to take criticism and opinion from staff.

Therefore, the study on Harris Malaysia will also show us how important is the effective and efficient management and control of quality toward the successful implementation of TQM in the company.

2.6 Harris Advance Technology (M) Sdn Bhd in brief

Harris Advance Technology (M) Sdn Bhd is one of the largest World-Class Manufacturer of Semiconductor Products world-wide. The Assembly and Test Manufacturing facility is located at Ulu Klang Free Trade Zone, Kuala Lumpur.

Established in 1974, the company has a workforce of 4500 employees. The operations are housed in a 4 modern complexes spreadover 22 acres of green campus.

Harris Quality Technology and Systems are well integrated to create and sustain a Quality System that ensures the satisfaction of customer requirements on a repetitive basis. The facility is ISO 9002 Certified since 1993 and a key supplier to all major US and European Automotive manufacturers and the stringent US Government and Space programme.

Team Based Management is ingrained in their style of leadership. 95% of their employees are in teams of whom over 40% are at the self-directed stage.

Using Total Quality Management way of operation, the company has succeeded in harnessing the energy of its employees towards obtaining maximum customer satisfaction, continuous improvement and employee involvement.

2.7 Mission of Harris Malaysia

To implement TQM, the management of Harris Malaysia realized that they need to direct their staff to an organizational cultural change. Therefore one of the early task of the TQM Steering Committee was to develop a mission statement and vision statement for the organization. The mission statement provides an understanding of what the company is and does, while the vision statement provides a picture of what it wants its business to be in the future. Besides that, the Steering Committee also has decided the quality policy and the values which will be adopted by all Harris Malaysia staff involve with the TQM implementation.

The following is the mission, vision, quality policy and the values of Harris Malaysia :

The Mission

To achieve the sector growth and profit objectives through aggressive throughput enhancement and operating expense control.

The Vision

To be a world class semiconductor assembly and test facility.

* Achieve TQRS score of 750.

* ISO 9002 certification.

Quality Policy

Harris Malaysia is committed to being a company of highest quality in every aspects of its business activity.

2.8 The values of Harris Malaysia

1. Customer Focus

   Customer satisfaction is the paramount purpose of all company activities. Meeting the requirements and values expectations of their internal and external customers is the primary task of every of their employee.

2. Continuous Improvement

   Their planning activities will recognize continuous improvement as a primary business objective. Their products and services, together with processes and system which produce them will be world class.

3. Employee Involvement

   They will provide an environment and related value system in which Harris people are personally involved, individually and as team members, in establishing and achieving quality goals.

4. Partnership

   They will develop and maintain mutually beneficial partnerships with customers and suppliers who share their commitment to achieving increasing level of customer satisfaction through continuing involvement in quality, service, delivery and cost.

5. Highest Standards Of Conduct

They will conduct their business in strict compliance with applicable laws, rules and regulations; with honesty, and integrity; and strong commitment to the highest standards of business ethics.