

CHAPTER II

QUALITY CONTROL CIRCLES

This chapter gives an account of the origins of QCC. It goes on to define the QCC concept and gives an account of the fundamentals of QCC activities, the QCC organizational structure found in a QCC system and finally it gives an account on how a QCC group operates. The intention here is to introduce some of QCC's unique features which differentiates QCC from the other management techniques. The aim of this chapter is to provide background information on the QCC concepts and its elements so as to facilitate the discussion in subsequent chapters.

2.1. Background to QCC Development

The development of QCC in Japan can be traced to the post-World War II era in Japan. Devastated by the war, the Japanese economy was at the crossroads. Her only resource available was her plentiful supply of people; abundant but unskilled and illiterate. Japan had to rely on imported materials and energy. Her image was one of 'a producer of shoddy goods'. There was therefore a need to obliterate this image which they successfully

did subsequently. Today Japan walks tall, excels in almost anything she does, especially in high-precision technology. Today Japan is synonymous with quality and is a frontliner in the world economy. How did this economic breakthrough come about? The answer to this extraordinary success of the Japanese is through the use of various innovative techniques among which are Japan Incorporated and the Quality Control Circles. QCCs were extensively used throughout Japanese industries and quality control forms an integral part in the manufacturing process.

The Quality Control approach was first developed by JUSE (Union of Japanese Scientist and Engineers) who introduced the first QCC in 1962. The concept was based on the Western ideas of Statistical Quality Control (introduced by two Americans, Dr. J.M. Juran and Dr. Edward Demming, in a series of lectures) and behavioural science. These Western management practices were incorporated with the Japanese cultural values (embedded in 250 years of Tokugawa religion) which emphasised group - oriented achievements rather than individual achievements. This was how the shape of the QCC approach developed, emphasising the importance of work group cooperation in improving product quality. JUSE has since then been active in the promotion of training courses which emphasise the leadership role of the supervisor in catalysing his work group activities in solving their own work-related problems. The QCC thus became 'a

fascinating tool created in America and well-nourished in
Japan'¹ .

The Japanese have now used the QCC techniques for more than twenty years. Indeed, it has been a major factor among the several factors responsible for the outstanding success of the Japanese today. It has been estimated that some one million Quality Circles operate throughout the nation involving some ten million people. Its success had definitely been an important phenomenon in Japan that has led to many countries adopting it. It should be noted that the process of adaptation of QCC to other countries have resulted in many cases in slight modifications of some of the basic characteristics of QCCs found in Japan. The concept has made its mark in so many countries - something which Malaysia, in its path to increased productivity cannot afford to ignore. The successful transplanting of the concept outside Japan goes to support the claim that the concept is widely applicable and is not rooted in the characteristics of one particular national culture - the Japanese. Dr. Ishikawa, the father of Japanese Quality Circles, acknowledged the fact that 'QCCs can grow in any country and in any culture for so long as one respects the brain power of human beings and uses it effectively to the betterment of society'² . It can also occur

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1. Donald L. Dewar, The QCC Guide to Participative Management (New Jersey: Prentice Hall Inc., 1983) p. 4.
 2. S. Ingle & N. Ingle, Quality Circles in Service Industries (New Jersey: Prentice Hall Inc., 1983) p. 8.

anywhere whether in the manufacturing or the service sectors for in both these sectors, one thing is common - its people. In order to run both these sectors, we need people. The inherent brain power of these people is tremendous and QCC involves the harnessing of this valuable asset of the organization towards the achievement of the organization's goals.

2.2. Definition of QCC

Mike Robson describes a Quality Control Circle as 'a group of 4 to 10 volunteers working for the same supervisor or foreman who meet once a week for an hour, under the leadership of the supervisor to identify, analyse and solve their own work-related problems'³. Dewar describes it 'as a group of people who voluntarily meet together on a regular basis to identify and solve quality and other problems in their area'⁴. There are not many differences between the above definitions. The differences that can be seen are in terms of the number of members in the Circles. In fact, most authors would be in agreement that a QCC is a small group of employees in an organization doing a similar or related work, who meet regularly to identify, analyse and solve quality and other problems in their work area.

3. Mike Robson, Quality Circles - A Practical Guide (England: Grower Publishing Co. Ltd, 1982), p. 3.

4. Dewar, loc cit, p. 325

From the above definitions, it would seem that the basic concept of QCC would seem very simple; it is a small group of workers from a shop or organization meeting regularly under the leadership of a foreman or supervisor or section head to examine work problems that affect the quality of output and to recommend solutions to those problems. This simple structure however, more often than not makes it easy to dismiss QCCs as just another variation of the much existing techniques such as committees, task forces, suggestion schemes and all the other well-known and well-tried methods to improve quality and raise productivity. In fact it is beneath the simplicity of the QCC concept that 'lies a concept and an approach to a range of organizational problems of remarkable sophistication and power'⁵. Attempts will thus be made in the following paragraphs to prove that QCCs differ radically from other management techniques, both in concept and in manner of operations.

2.3. Fundamentals of QCC Activities

The following are some of the salient features/fundamental features which underscore the QCC technique:

5. Robson, loc cit, p.3

- (i) Self-development. QCC aims to foster the development of the individual. Members who participate in QCC learn new methods of analysis and besides, in the process of solving problems, they encounter a further learning process. Thus, their participation allows them to develop themselves through the experiential mode.

- (ii) Voluntary Activities. A key feature of QCC is voluntary membership. Members join Circles on a voluntary basis. This characteristic is stressed because if coercion is used in ensuring Circle membership, then the members will not exhibit enthusiasm and energy in going about QCC activities. Members will be willing to join voluntarily because of the opportunities for self-actualization available in QCC participation.

- (iii) Group Activities. QCC stresses on group rather than individual efforts in problem-solving. This is partly because group problem-solving tends to be generally more productive than individual efforts in solving work problems. Additionally, QCC is also utilized as a vehicle for fostering team spirit which it is hoped will also be transmitted beyond the boundaries of QCC to other aspects of the organization.

- (iv) Participation by Everybody. The membership is open to everyone within a work unit organization. There is no other criterion for membership than interest and enthusiasm in participation in such activities. Every worker in a unit is expected or encouraged to participate.
- (v) Application of Techniques. In the process of solving problems QCC groups tend to utilize a set of basic simple analytical techniques. They also tend to follow a certain procedure in approaching a problem. However, groups are not restricted in their use of techniques. The use of techniques not basic to QCC depends on the group members' knowledge of other available techniques relevant to their problem-solving efforts.
- (vi) Level of Operation. There is a tendency for QCC to be focused at the workshop level. It is based on the belief that the workers at the workshop level are able to identify and solve their work-related problems. QCC have tended to be very successful in solving operational problems at this level.
- (vii) Mutual development. QCC activities through the group process encourage participants to provide stimulus and learn from each other, because activities are enlivened by the participation and cooperation of all Circle members.

2.4. The QCC Structure

In any type of organization activity there must be an organizational structure to guide the activities. Likewise, QCC in any organization requires an organizational structure which is often considered a parallel organization to the formal organization structure. The structures may differ from organization to organization. For instance, a Japanese model may differ from that of a non-Japanese model (after adoption and adaptation). Nevertheless, whatever the differences are, what is common is that a QCC structure consists of the following parts - a Steering Committee, facilitators, leaders and members as shown in figure 2.1 below.

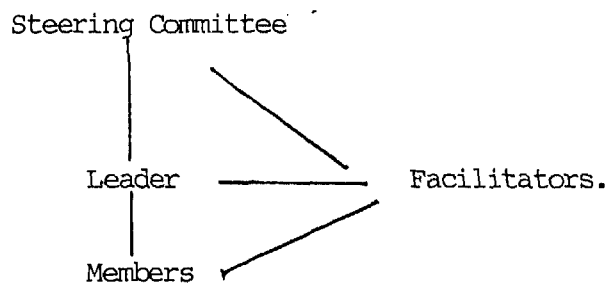


Figure 2.1: A QCC Structure

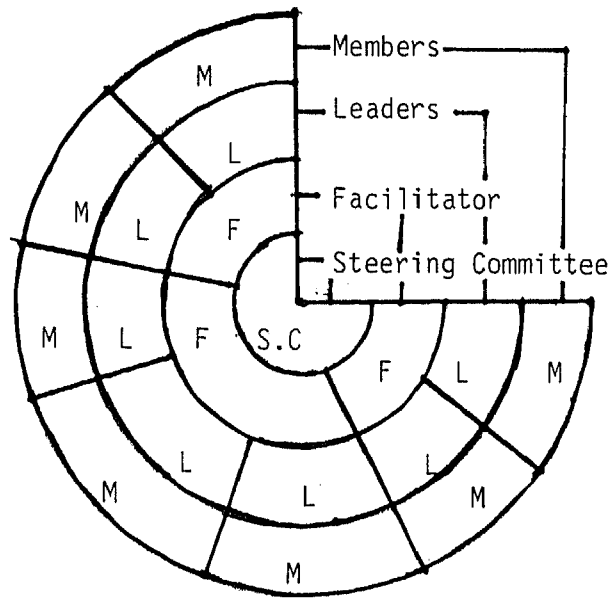


Fig. 2.2: Position of the Different Parts of a QCC Structure

Figure 2.2 above shows the position of the different parts in the QCC structure.

2.4.1 The Steering Committee

The Steering Committee exists at the apex of all QCC structures. It is made up of representatives from the various departments within the organization. This Committee is set up, aimed at overseeing the programmes, ensuring proper implementation of Circle projects and promoting Circle activities. It acts like an Advisory Committee and makes sure that QCC programmes are progressing well. In cases of

difficulties, the Steering Committee guides the Circles in the right direction. In short, its function is to keep the QCCs effective and on target. The Steering Committee is such an important apparatus in the sense that it opens the door for better communication between management and those people actually doing the work. It gives the employees an opportunity to see how management operates and help in the decision - making and solving-process within the organization.

2.4.2. Facilitator

The facilitator is a key person in any QCC structure. In fact no organization should embark on any QCC programme without appointing facilitators from within the organization. As shown in Figure 2.2, the facilitator is made responsible for coordinating a number of Circles. In some organizations, the facilitators' task is a full-time vocation while in some it is not. His tasks include the training of leaders, coordinating Circle activities and assisting inter - Circle operations. He gets involved with the Circle programmes from the beginning and his responsibilities never end as far as the Circle programmes are concerned.

2.4.3 : Leader

The QCC leader is normally elected by the Circle members. He is responsible for guiding the operations of his Circle. The leader works closely with the facilitator. Together with the

facilitator, he helps keep the Circle meetings on the right track, help members to apply the QCC techniques, helps in developing a cohesive team in their efforts to solving quality problems. It is important that the leader must be one who has been trained in the basic problem-solving techniques as well as in handling groups. His most important function is to enable the members to operate as a group and not as a bunch of individuals, for QCC involves group efforts.

2.4.4 : Members

The Circle members are the most important part in the QCC structure, for without them, there will be no Circles and no programmes at all. They form the heart of the QCC programme and a proper use of their untapped brainpower is the key to QCC success. A group of members come under the supervision of a Circle leader as is indicated in Figure 2.2 above. Membership of a Circle must be within manageable units in order to be able to carry out the Circle activities properly. A large group may not meet easily and discussions may not be effective. Membership in a Circle is strictly voluntary and it is important that members and leaders must all belong to the same workshop.

Training is vital for Circle members. All members must go through training so that they will understand the basic concepts and become familiar with the techniques. Without training there will be less cohesiveness in the group and members may soon lose interest in the project.

2.5. Circle Operations

The Circle meeting is an important step in the implementation process of a QCC. It is important for the meetings to be conducted properly so as to obtain an effective use of the group. In the course of the meetings, each member should be given a fair chance to express his or her own views. Leaders must be able to talk with members to arrive at the selection of a problem collectively then solicit discussion and invite solutions to the problems. In short the entire group should be made to think and participate actively. In identifying problems to be solved, the Circle themselves identify the problems on their own. It is important to their successful operation that they be free to select the problems to be solved. Once a problem or project is selected, it is necessary that members collect data to discover the magnitude of the problem. There are a number of ways to collect data such as through the use of check sheets, graphs, histograms, control charts and sampling. Once the data is collected, Circle members need to analyse it properly. At this stage members are encouraged to exercise their creativity and analytical ability to try and obtain good solutions for the purpose of eliminating the selected problems. QCC groups tend to resort to a set of basic data analysis techniques such as brainstorming, Pareto analysis, cause-and-effect analysis. However, successful groups have very often used many other analytical tools found in various

disciplines to complement the basic QCC analytical armoury. There is no restriction on importing analytical techniques from other disciplines or areas. Once a solution is found, the final stage of the process then involves the presentation of the Circle's recommended solution to the problem to management. The essence in QCC is that the discretion to implement solutions usually lies in the hands of management. They can reject or accept the recommended actions. However, in cases where the implementation of a solution can be done without any fuss, or any repercussions for other units or demand for extensive implementation resources the group can immediately implement it; of course this must be done also through the consent of the management. It is here that real management commitment is called for. There must be genuine commitment on the part of management to try to implement the valid solutions if they make sense as well as give due recognition for the contributions made by the QCC groups. Recognition by management will provide the source of motivation in employees. In instances where a rejection of the solutions become necessary, it is vital that the reasons are clearly and fully explained to the Circle members. This is vital for a continued enthusiasm of the Circle.

It cannot be denied that when well-designed, the QCC concept does provide important benefits. For instance there is likely to be increased productivity of the employees and improved employer-employee relations. Employees may see themselves participating as a way to develop themselves and to become more

proficient in their job. It will also help the individuals to use their creativity and problem-solving skills to the fullest and help them derive job satisfaction. Job satisfaction originating from the work itself, which QCC provides, is stronger and lasting than the motivation imparted by monetary incentives.

2.6 : Summary Remarks

Thus it is obvious that the QCC is unique in comparison with other management techniques. It requires almost no change in the organizational structures nor does it require the hiring of new personnel. With management support and careful groundwork, preparation and gradual introduction, QCCs can achieve successful establishment.

From the above paragraphs, it becomes clear that QCCs have a number of features which distinguish them from the other management techniques. First, the Circle is a relatively autonomous unit. It works from the bottom up, drawing directly on the knowledge and skills at the shop-floor level. It is a completely voluntary body. Nobody is paid to join, nobody is forced to join and nobody is penalised for not taking part. It is an entirely self-directing operation. The Circle, once formed, sets its own terms of reference, selects itself the problem it wishes to tackle and in due course presents its recommendations for their solution. In short, the Circles function organically, according to its own perceived needs rather

than compulsively in response to externally determined criteria. It is important to note here that QCCs are not a response to any specific problems. They are in fact a continuous study process occurring in the work place all the time.

Finally, QCCs are 'purely concerned with an organization's most valuable and most expensive resource - one that is virtually untapped - that is, its work force'⁶. The basic philosophy in QCC is to inspire the workforce to take more pride and be more interested in their work through the process of involving them in the decision-making and problem-solving processes related to their work. It is this participative management generated through QCCs that 'taps the creativity of every individual in an organization'⁷. All employees are brought into the mainstream of the organization's life through participative activities so that they will be properly recognised as a potentially powerful and valuable resource. In essence, the Circle is a way of capturing the creative and innovative power that lies within the workforce. Through this process there develops improvement of worker morale and motivation, stimulation of teamwork, and recognition of worker achievements.

6. Donald L. Dewar, loc cit, p. 4

7. Ingle / Ingle, loc cit, p.6