CHAPTER III

CONCEPTUAL FRAMEWORK OF INFORMAL GROUPS PARTICIPATION

The subject of quality control has been gaining increasing importance as a result of more and more stringent demands being now placed by the customers on goods procured by them. It is not simply a question of controlling the quality of product as it rolls out from the production line, but more so, it has become necessary to manage the quality of the entire system responsible for manufacturing the product. This system is composed of Materials, Machines and Manpower as the three vital resources. Quality of every resource has to be ensured at every stage, right from the product design to the last stage of product performance at the customer’s premises. To be competitive in the international market, the motto of a product has to be “to provide right first time, every time, on time and at a cost reasonable to the customer”. The standards for materials, processes, product requirements and the performance in service have also been developed at the levels of individual countries as well as at international level, which demand conformance of the product to the customer’s requirements.

Definition of quality

The word ‘quality’ has different meanings under different circumstances. The quality of product may have greater or lesser significance depending on the need and requirement of the user. The easiest way to define quality would be “the degree to which a product meets the requirements of a customer”, or still simply, “the fitness of a product or service for its intended use.” Quality control includes all efforts to manage quality and maintain
assurance of continued high quality of product or service. Customer satisfaction is therefore the key to effective quality assurance.

3.1 HISTORICAL BACKGROUND OF QUALITY CONTROL

Looking back to the history of human evolution, it will be observed that, quality has always been integrated into the development of society. It is quite possible that ancient builders and artisans were more skilled and quality conscious than what we prefer to be today. However, quality was confined to manual skills, workmanship and proficiency. The entire work of building houses, halls, temples, producing agriculture implements, as well as arms and animation was taken as a matter of art. In the period before the industrial revolution in Europe, the entire manufacturing activity was carried out by the cottage industry and remote areas away from large towns which relied heavily on the craftsman. The craftsman in turn trained apprentices thoroughly who later took over their positions. Thus, skills and quality were passed on from one generation to the next.

This trend is still very much evident in various trades which are dominated by specific committees such as textile dyeing and printing for handloom cloth, statue making, sculpturing, wood work, etc…With the advent of industrial revolution, manufacturing was broken up into small parts. Craftsman became inspectors and standards started to emerge. Thus gradually, three or four of workmen were formed; the highly skilled, skilled, semi-skilled and unskilled. Mechanization and later automation were introduced for faster production with the changes demand for skills reduced and industries relied more on inspectors to ensure quality of the product.

It was realized that quality was the responsibility of everyone right from drawing board stage through project definition, planning, material processing and production, supply and customer service. Schewart, for the
first time, brought a statistical approach to quality control in the year 1924. Later during and after the Second World War, statistical quality control became an essential technique to assist in quality control and production. The era of ‘quality control’ changed to ‘quality assurance’. Deming and Juran contributed to a large extent in late forties by introducing statistical practices and ushering the modern concept of quality assurance. In the early fifties, Dr. K. Ishikawa introduced a new technique of worker motivation for improving quality and called it ‘informal groups’.

### 3.2 FROM INFORMAL GROUPS TO TQM

**Cornerstones of quality**

Some companies, such as Hewlett Packard and Xerox, already had business relationships with Japanese firms, and became the early champions of the quality movement's importation back into the United States. But many American companies and some government agencies were looking for a quick turnaround approach that would replicate the Japanese quality success without altering the structure of American management. Most attractive was the Japanese use of voluntary work groups who met regularly to discuss how to improve the quality of products and work processes—a concept called "informal groups." So began a rather tenuous experiment: the formation of informal groups in which small groups of employees and supervisors—"volunteers"—would receive basic training in statistical quality control techniques and then, under the leadership of a trained facilitator, meet regularly to analyze, solve and recommend solutions to quality problems to top management. While these early efforts were hailed as revolutionary first-time efforts at participative management, they largely failed.

Indeed, just as some government agencies were starting up their informal groups, private companies were abandoning the effort in droves. Of course, there were many small successes within informal groups. Federal
organizations as diverse as the Norfolk, Va., Naval Shipyard, NASA's Lewis Space Center and the U.S. Customs Service reported varying degrees of success in using informal groups to improve products and services. But any comparison to the Japanese model showed vast inadequacies. Model Japanese companies had 75 percent or more of their workforce in informal groups and many workers participated in several informal groups. Top managers relentlessly pushed all of their cost, quality and performance data down to the lowest levels of the organization for rigorous evaluation and action. Every worker and supervisor already had extensive training in quality measurement concepts and trust between management and employees was high. Most Japanese labor unions were company unions that supported different kinds of employees meeting and discussing work process changes. Few of these conditions were prevalent in American corporations and government. Even those experimenting with informal groups with the best intentions simply faced too many obstacles. After a few successes, most organizations were willing to declare victory, abandon the circles and then wait for the next stage of development—an organizationally comprehensive approach to quality under the banner of total quality management.

3.3 THE ADVENT OF TQM

In the mid to late 1980s, total quality management, or TQM, was all the rage. Billions of dollars were invested in training, consulting, and management education efforts in an all-out effort to close the quality gap between the United States and Japan and to remake the basic management precepts of American industry.

In 1987, Congress created a national quality award competition, named in honour of Commerce Secretary Malcolm Baldrige, who had died as a result of a road accident. The Baldrige Award has been a central element both in promoting American quality progress and providing a framework for
evaluating an organization's management effectiveness. This latter aspect is even more prominent with major changes that have been made in the 1997 award criteria, emphasizing business results, markets and strategic planning.

TQM was, as most management tools all these days, a consulting term. Indeed, as a label it eventually became such an albatross that many organizations came up with their own terms, such as TQL (total quality leadership) or TQO (total quality organization) to replace it.

The focus on total quality was centered on measuring the costs incurred because of defects in products or services. This led to larger, systematic efforts at continuous improvement in quality through work groups or teams (often called quality improvement teams) that tried to refine their work processes to improve quality levels.

But in TQM, quality and continuous improvement must be integrated into an overall organizational approach that focuses management planning and workforce involvement on improving current and future quality levels to meet customer requirements. The result is a management system whose basic elements are customer focus, quality planning, process measurement, continuous improvement cycles, quality goals and objectives, and total participation within an organization.

TQM is not a short-term accomplishment. Anyone who has worked in quality management will say that it requires years to create a mature quality management system. TQM is often described as a journey, not a destination. That instantly became the first major obstacle in applying TQM to the public sector-getting long-term support from the short-term-focused political appointees in government agencies who wanted results for which they could take credit in their two- to three-year average length of stay in office.
3.4 ADAPTING TQM TO GOVERNMENT

There are factors that would make adapting TQM to the public sector difficult. First, there was the argument that TQM was mostly used by manufacturing organizations. Critics were quick to point out that Japanese government agencies didn't use TQM.

Questions were also raised about who were government's "customers"--citizens, interest groups, members of congress or other stakeholders? Government had to serve too many competing groups to be truly customer-focused, or so the argument went.

Despite such roadblocks, TQM began to make considerable inroads into government in the late 1980s. The Reagan administration created a Federal Quality Institute and a quality award for agencies--the President's Quality Award--using a modified version of the Baldrige Award criteria.

But partly because of the less-than-enthusiastic agency response to President Reagan's productivity improvement initiative, there would be no executive order requiring the adoption of TQM. Quality would be accomplished by example and promoted by success stories.

Many of those examples would come from the Defense Department, which saw TQM in much the same light as did its contractors--as a valuable management philosophy and a set of quantitative tools and techniques that should be widely disseminated.

3.5 INFORMAL GROUPS

The informal group is a small group of employees who voluntarily meet at regular times to identify, analyze and solve quality and other problems in their work areas. Normally members of a particular IG come
from the same workshop who face and share similar problems in their daily work life. Ideally, the group size should be seven or eight to give enough time to each member to actively participate and contribute in each meeting.

The benefits of informal group activities

- Increase in quality consciousness of employees
- Development of an attitude of problem prevention
- Promotion of employee motivation
- Improvement in the human relations
- More effective company communication
- More active job involvement
- Utilization of employee problem solving capabilities
- Contribution to personal development of employees
- Encouragement of teamwork, improvement of work environment
- Development of safety awareness
- Control and improvement of quality
- Productivity improvement
- Increased job security

Informal group activities are voluntarily carried out as part of company-wide quality control. The basic idea behind these activities is as follows:

I. Contribute to the excellence in quality.
II. Respect humanity and make worklife more enjoyable,
III. Sharpen human capabilities and utilize the available brainpower.
Informal group is a unique management tool with which a suitable atmosphere is created in which people attempt to solve the problems in their own work environment.

Informal group was born in Japan in 1961. The Union of Japanese Scientists and Engineers (JUSE) sponsored the research work which combined the theories of behaviour science to quality control concepts and techniques under the leadership Dr. K. Ishikawa, an engineering professor at Tokyo University.

The techniques of Statistical Quality Control (SQC) and the total quality control philosophy was born in the United States and introduced to Japan by Drs Deming and Juran after the Second World War, which paved the path to informal group concept. Quality awareness is developed based on these activities. We can identify three phases prior to the birth of informal group. The first phase is the period of research and study during 1946-1950. The second phase is the period of statistical quality control, its introduction and widespread application of statistical methods by engineers during 1950-1954. Finally, the third period witnesses systematic application of quality control during 1955-1960.

An important milestone which triggered the second phase is the visit of Dr. W.E. Deming as a lecturer at an 8-day seminar on statistical quality control held in July, 1950. This seminar was designed to teach the concepts of control charts and methods of sampling inspection. Japanese engineers were first introduced to the statistical method of quality control through this seminar.

Another important contribution came with the visit of Dr. J.M. Juran in July, 1954. Informal group management seminar marked the beginning of the third phase. Thus, the methods and concepts of SQC and TQC which were
developed in the United States, were imported and gradually penetrated into the Japanese factories. However, recognition and wide use of these techniques at the shop floor was original to Japanese companies.

Japanese workers were introduced to the basic informal group techniques through a magazine which was published for their interest. This magazine "Genba-To-IG" which was later renamed as "FQC (IG for the Foreman)" was designed for this purpose and gained popularity among workers in a short time. The magazine was inexpensive enough for workers to subscribe to on their own account. Its subject matter was easily understandable to shop floor people. The first issue was published in April, 1962. This periodical was also published by the same editorial board of the magazine "Statistical Quality Control" (HINSHITSU KANRI). In the first issue, "Genba-To-IG" invited workers for the formation of IG Circles.

JUSE (Union of Japanese Scientists and Engineers) organized the first "IG Conference for Foremen" in November, 1962. The target population for the conference was foremen at the shop floor. While the capacity was set at 180, there were more than 250 participants in the conference. Voluntary members of IG circles studied IG techniques through "Genba-To-QC (FQC)" for some time and started to apply their knowledge to their every day job. They were eager to share their experiences with other fellow workers as well as present their results to management. The first informal group circle conference was held in Sendai, Northern Japan in May, 1963. The conference was attended by 149 people, and 22 cases were presented. Subsequent conferences were held in Osaka, Kanazawa, and Nagoya in 1964.

When IG circles were first organized in 1962, at the time when "GENBA-TO-IG" ("FQC") was published, three objectives were set up as guidelines. Since 1962, informal group circles at company as well as at national level have promoted their activities under these guidelines. Informal
group circle activities are characterized by many good features unique to Japan.

3.6 THE QUALITY AND ITS RELATIONSHIP WITH INFORMAL GROUP

A great deal of planning for quality is done with the aid of formal repetitive-use plans called systems and procedures. Such procedures are thought out, approved formally, and published to become the authorized, legitimate way of conducting the company's affairs relative to planning for quality. The subject matter of these quality plans ranges over the entire spectrum of the activities through which companies manage for quality. In many companies these plans are published collectively in a document known as a 'Quality Manual' (also 'Quality Assurance Manual', 'Quality Management Requirements' etc.).

The Quality Manual is the document in which it is explained how the company carries out its' quality policy. It is a statement of the duties of personnel at all stages of production, the correct procedures for production and control, sampling and testing procedures. The Quality Manual lists the procedures designed to maintain the quality of the product. The manual provides a complete description of the quality management system. It can give customer confidence and is a vehicle for auditing, reviewing and evaluating the management and quality system. The manual should allow for up-dating and improvement in the light of operational experience.

In summary, the sections of a Quality Manual include:

- Communications responsibilities
- Control procedures during design and development
- Control procedures during production
Customer liaison, customer complaints procedure
Organisation and procedures for vendor and supplier assessment
Review and evaluation procedures

Large organisations with many employees with one or more sites will tend to have a more complex Quality Manual, perhaps a multi-layer manual which may take the following format. LAYER 1 Overall Quality Policy, normally a brief extension of the Quality Policy statement; LAYER 2 Business group quality manual, a summary of a component group's management responsibilities; LAYER 3 Site Quality Manual, detailed description of how the standard requirements are met at the site; LAYER 4 Departmental Quality Manual, detailed description of how the standard requirements are met at local level. It will cross-reference test methods, product and performance specifications, technical and operational procedures; LAYER 5 Operational Procedures, details of how all methods relating to the business are carried out.

All sections should be set out in a manner that is well organised, comprehensive and succinct. It is essential to remember that documentation in all levels must reflect what is done. It, therefore, serves the company, it does not master it! The Quality Manual must refer to the system that actually does operate - not one that a Director might like to operate. There is no standard form for a Quality Manual, all are unique to the company for which they are written.

For each functional section of the Quality Manual, the following questions need to be addressed and answered:

- What is done? (to meet the requirements)
- Why is it done? (or why is it done that way?)
- How else might it be done?
➢ Where is the requirement met?
➢ When is the requirement met?
➢ Who is responsible for ensuring that it is done?
➢ How is it done?

The Quality Manual may contain the purchasing manual, this describes how the purchasing system operates and will include the following: The assignment of responsibility for and within the purchasing function. A definition of the manner is that in which suppliers are selected to ensure that they are continually capable of supplying the requirements in terms of materials and services. Indication of the appropriate purchasing documentation e.g. written orders from customers plus any specifications and certificates of conformity, add on to the solution.

Most organisations, industrial, commercial or governmental, 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 organisational 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 or service requirements given in the technical specifications.

3.7 QUALITY AUDIT

Quality audit means "A systematic and independent examination to determine whether quality activities and related results comply with planned arrangements and whether these arrangements are implemented effectively and are suitable to achieve objectives." Audits and reviews are required to
ensure that the Quality system is functioning properly. Audits are carried out to ensure that the actual procedures being used do conform to those documented. Reviews, which should be carried out periodically and systematically, reveal whether or not the system is achieving the desired results.

Audits should be carried out by independent investigators since they can be objective. Managers or staff members attempting to audit their own activities are not usually so objective in their appraisal since they are familiar with the 'problems' and traditions of their activities. Auditors may be 'outsiders' brought into the company for the sole purpose of the audit or company employees from other departments within the company.

The audit will include an examination of procedures, records and results, as well as discussions with the staff. The audit process should not be seen as confrontational but should attempt to explore the rationale of the operations, the procedures, perceived shortfalls in procedures and attainment and suggestions for possible improvements. The audit should ideally take place away from the work area and in comfortable surroundings. The interviewee should be made to feel important, not under any threat.

The aim of this exercise is for the auditor to learn what is going on so that considered judgements can be made. Only one question should be asked at a time and the auditor should ensure that the answer is complete before moving onto the next question. The auditor should appear to be interested in the answers given. The questions should be phrased in such a way that the answers 'Yes' and 'no' are not possible. Questions should also be clear, i.e. incapable of reinterpretation. Auditors should try to ask questions that cause the interviewee to think and to explain.
3.8 QUALITY CHARACTERISTICS

Quality characteristics are "the basic building blocks on which fitness for use is built". Quality of design requires a very high level of market research. One of its main objectives must be to establish what is the ultimate customers' preference, at an acceptable price, amongst a competing set of characteristics. These can then form the basis for the design. Customers may demand various combinations of the following, in various orders of importance:

- Price and apparent value for money
- Individuality of appearance
- Fashion appropriate to the group and period
- Image enhancement
- Comfort in wear, both from cut and from fabric
- Durability of appearance and function
- Physiological qualities (waterproofing, warmth, sweat absorption, etc.)
- Ease of care (crease and stain resistance, shape retention, ability to wash etc.
- Size and shape (smaller size intervals for the more expensive and a basic block appropriate to the target group of customers)
- Consistency of product.

However, the production department can do little about many of the quality characteristics except to stick to the specifications. They are more concerned with the needs of the retailers, which are: Consistency (dependent on clear specifications with tolerances; the means to achieve the required quality level; the will to conform of management and workforce)
• Delivery on time
• Low cost to support the competitive price.

The balance between the quality of a garment and its cost is the secret of good commercial design. The correct emphasis on the different quality characteristics will have been established by the buyers from the retail organisation and/or by market research. There will probably a price range into which it must fit.

Informal Group Development

The development of informal groups has been one of the most publicised aspects of the Japanese approach to quality. A informal group can be defined as a group of workers doing similar work who meet: voluntarily regularly in normal working time under the leadership of a supervisor to identify work related problems to analyse and (hopefully) solve these problems to recommend solutions When and where possible, informal group members should have the opportunity to implement their own solutions to problems identified. Membership of a informal group ideally should be in the range of 3 to 15 people. In larger circles it would become difficult for all team members to participate in discussions.

For the operation of informal groups to be successful the following points should be observed:

1. Meetings should be held away from the area of work so that members are free to concentrate on the discussions.

2. New circle meetings should last for no more than 1 hour and take place about once per week.
3. Once established, meetings should be less frequent, perhaps once per month, to avoid participants becoming bored.

4. Meetings should aim to be productive, i.e. they should lead to a positive result.

5. The informal group will normally select its own topic for discussion.

6. The topic should be developed from day to day practices in the workplace.

7. Occasionally, and under special circumstances, a topic for discussion may be referred to the circle by senior management when a particular problem is perceived.

8. Although the circle should attempt to solve the problems they discuss it is sometimes useful or necessary to bring in an expert to join the discussions.

9. These experts should only be used as consultants not as full members.

10. The ultimate purpose of the informal group is to provide the opportunity and the motivation of allowing people to take some part in deciding their own actions and futures.