Chapter: 3

Quality Circles – Development Over the Years

QC find its roots in the informal circles in America in the 1940s. The basic idea of worker participation was effectively used by many people in the 1940s. One of the major proponents of this idea was Walt Disney. He used to call the wives and children of his employees weekly just to meet and talk with them. He would say, “I get good, useful ideas from children and mothers”. It is even said that he got his best ideas from them.

Walt Disney encouraged workers participation all the time. On one occasion, one of the key attractions were reviewed by several employees. A janitor did not like the set up, mainly the atmosphere. When asked why, he replied, “It does not resemble the actual conditions.” He then went on to explain the differences. When asked how he knew so much about the place, he replied, “I was born there and lived there for twenty years. I should know something about the place.” The attraction was immediately modified according to the suggestions. This practice was the reason Disney was able to maintain quality and near perfection in his work. Many other entrepreneurs followed Disney, even though there are no formal records. However, it is certain that in those years companies were small, communication was good and employees were closer to the management. (Ingle, 1985)

Peter Drucker, in his book Management, has also reported group activities that took place in Germany during 1890. Ernst Abbe of Zeiss Company, a famous German optical company, went for solving a lot of problems with the help of workers. He turned the responsibility of working out jobs to the work force itself. Abbe insisted that the skilled workers, with the assistance of scientists and engineers, develop the machinery needed to make optical glass in terms of the quality and quantity required. He insisted on the feedback and ideas from the workers and respected craftsmen. Group problem-solving helped the Zeiss Company become one of the well-known companies in the optical business.
According to Frank Squires in *Quality* magazine, the Statistical Quality Control (SQC) techniques developed through group participation. In 1925, in New Jersey, AT&T had acquired Bell Laboratories. They promptly appealed to what was to become the “brains” of AT&T or help in solving the massive inspection problem at Western Electric. At Bell Laboratories, Shewart, Dodge, Remig and others shared the honour for developing Statistical Quality Control. The classic work on this subject is *The Control of Quality of the Manufactured Product* by Shewart, which appeared in 1931.

In the late forties, IBM had used group problem-solving technique, while developing the first electronic computer. The demand was so great that the production had to be started even before the engineering work was complete. The final details were worked out by engineers in collaboration with foremen and workers. The result was a superior design. The production engineering was significantly better, cheaper, and faster.

It was after the World War II that workers’ participation in group problem-solving took a back seat. With companies growing much faster combined with mass production resulted in too many problems, both at the managerial and workers’ levels.

It was in the late 1950s when Sidney Rubenstein started a programme called Participative Management System. The basic idea was the same as that of QCs. He implemented this programme in many small companies. This programme helped in enhancing production, and improving both quality and communication when implemented in a glass factory and an envelop-making company. Rubenstein has worked with the Chrysler Company as well as General Motors plants.
Quality Education in Japan

After the World War II, many industrial organisations in Japan were almost ruined and there were no worth mentioning production activities as such. People were desperately trying to survive after the disaster. The quality of the goods manufactured was known to be shabby and the products seldom lasted for more than a day or so. People were not trained to build quality. The nation was without guidance.

At that time, General Douglas MacArthur, then in command of the allied forces in Japan, felt that something should be done to improve the nation's image and asked that the USA government to send someone to teach better quality control methods to the Japanese people. Dr. Edward Deming, the eminent expert in the USA on SQC Techniques was sent to train the management personnel in Japan from 1948 to 1950. He performed his job so well that he was called upon again and again to train more and more engineers and scientists in statistical methods. The Japanese government was so satisfied with Dr Deming's achievements that they honoured his services by instituting the Annual "Deming Prize" for Quality. Dr Deming's philosophy is also known as the Deming Wheel. He professes that everyone should plan, collect data, analyse, and act and keep the circle rotating. This is how the quality is properly maintained in a company which is shown below.

![THE DEMING WHEEL (PDCA Cycle)](image)

Source: Ingle (1985)

It was during 1954 to 1955, another famous consultant, Dr. Juran, started visiting Japan. He lectured and preached what is known as Total Quality Control (TQC).
According to him, quality begins with design and ends after satisfactory services are provided to the customer. It is not just the manufacturing quality that one should be concerned with. It is the total quality that counts for the success of the company. The Japanese government was also deeply committed to the service aspect in the context of quality improvement programmes. Later, many programmes on quality control, statistics, and related subjects were broadcast on radio and television. The month of November was declared as Quality month. “Q” flags, quality slogans, seminars, and conventions were initiated during November to promote a quality culture.

Slowly the Japanese image started changing. Special checks and additional requirements were added for the products that were to be exported. Exports started slowly and by 1970 Japanese products were no longer considered to be of low quality. Today Japan is considered to be a leader in producing quality products but the change did not take place overnight. It took Japan nearly 30 years of hardship, with a very strong commitment to quality to become the third industrial power in the present world. A brief sketch of the thirty years’ quality progress in Japan is presented below.
# History of Quality Progress in Japan

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre 1940</td>
<td>Japan was known worldwide for poor quality.</td>
</tr>
<tr>
<td>January, 1949</td>
<td>An Overseas Technical Research Committee was formed by the Union of Japanese Scientists and Engineers (JUSE). The sub-committee later developed into the quality Control Research Group, which introduced Quality Control in Japan.</td>
</tr>
<tr>
<td>June, 1949</td>
<td>Japanese Standards Association (JSA) organised a seminar on “Statistical Quality Control.”</td>
</tr>
<tr>
<td>September, 1949</td>
<td>JUSE organised a seminar on “Quality Control-Basic Course.”</td>
</tr>
<tr>
<td>March, 1950</td>
<td>JUSE published a magazine - “Statistical Quality Control”. Japanese Industrial Standards were established under the Industrial Standard Law. Quality Control people at the corporate level started implementing the IS system.</td>
</tr>
<tr>
<td>July, 1950</td>
<td>Dr. Deming was invited to an eight-day Quality Control Seminar organised by JUSE.</td>
</tr>
<tr>
<td>June, 1951</td>
<td>Deming awards established by JUSE.</td>
</tr>
<tr>
<td>September, 1953</td>
<td>JSA organised a seminar on “Standardisation and Quality Control-Basic Course.”</td>
</tr>
<tr>
<td>July, 1954</td>
<td>Dr. Juran was invited to teach in the Quality Control Management Seminar organised by JUSE. Dr. Juran’s lectures on TQM focused that quality is responsibility of all from top management to workers.</td>
</tr>
<tr>
<td>July, 1956</td>
<td>Japan’s short wave radio started broadcasting a Quality Control course organised by JUSE.</td>
</tr>
<tr>
<td>November, 1960</td>
<td>Government declared November of each year as the “National Quality Month” and “Q” flag was formally adopted.</td>
</tr>
<tr>
<td>1962</td>
<td>Japan “invents” QCs. Magazine “QC for Foremen” was launched.</td>
</tr>
<tr>
<td>1963</td>
<td>Top managements’ annual quality audits gained popularity.</td>
</tr>
</tbody>
</table>

(contd.)
1973 | Fantastic growth in QCs-1/2 million circles. 6 million members. Japanese image for high quality is achieved.
--- | ---
1974 | Annual QC meetings started on an international basis. Top twenty QC leaders were sent around the world in recognition of their contributions.
1980 | Goal is to become undisputed world leader in quality
MESSAGE | The effort to improve quality began long before the reputation for quality is achieved.

*Source: Udpa (1992)*

One of the key factors that helped Japan in this revolution was QC. QCs are helping Japan both in improving quality continuously and saving billions of dollars in all types of industries.

**Quality Circle Progress in Japan**

The origin of QCs in Japan was in the invaluable training given to the Japanese people by Deming and Juran. Most of the foremen in industries, who received quality training, were wondering what to do with the knowledge they acquired. In April 1962, a magazine, called FQC (QC for the Foremen), designed for employees in workshops, was launched. The main objective was to facilitate education, training and propagation of Quality Control techniques and to help the first-line supervisors and foremen improve their Quality Control abilities. The foremen and other supervisors soon realised that discussing the contents of this magazine with their co-workers would improve their performance much faster and more effectively. That is how the concept of small group activities (SGAs) took birth in Japan in 1962. One major aspect of Japanese CWQC is the QC movement started in 1962, with the first QC being registered with Nippon Telegraph and Telephone Public Corporation. Toyota was the second company in the world to start QCs in 1963. After just 2 years, Toyota had 60 QCs, and since then it has expanded into thousands *Bedi (2008).* In order to afford an opportunity for the QC participants to express their experiences in the
operation of the concept, the first Quality Control Circle (QCC) Conference was held in May, 1963. Consequent, upon the overwhelming response to this gathering, similar conferences were held each year at different venues. The number of QCCs grew and it was no longer possible for their activities to be coordinated from the central headquarters. This led to the formation of QCC Regional Chapters at different centres with the objective of providing any assistance that might be required for proper implementation of the concept. The following table gives the chronology of development of QCCs in Japan:

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1962</td>
<td>JUSE published a quarterly magazine “Genba-To-QC” (Quality Control for Foremen) [a monthly magazine since 1964. A QC headquarters was established. The first QC was registered with the QC headquarters (Matsuyama Carrier Equipment Circle of Japan Telephone and Telegraph Corporation).</td>
</tr>
<tr>
<td>November, 1962</td>
<td>The first Annual QC Conference for foremen was held.</td>
</tr>
<tr>
<td>September, 1964</td>
<td>Regional Chapters of QCCs were organised in four different Districts. The 200th QCC Conference was held.</td>
</tr>
<tr>
<td>April, 1966</td>
<td>Dr. Juran observed Japanese QCCs' activities.</td>
</tr>
<tr>
<td>June, 1966</td>
<td>A special QCC session was organised at the 10th Conference of the European Organisation for Quality Control, held in Stockholm, Sweden.</td>
</tr>
<tr>
<td>June, 1967</td>
<td>The number of registered QCCs grew to 10,000.</td>
</tr>
<tr>
<td>April, 1968</td>
<td>JUSE sent the first QCC Study Team Overseas.</td>
</tr>
<tr>
<td>March, 1969</td>
<td>Registered QCCs grew to 20,000.</td>
</tr>
<tr>
<td>May, 1969</td>
<td>The 100th QCC Conference was held in Tokyo.</td>
</tr>
<tr>
<td>July, 1970</td>
<td>Registered QCCs grew to 30,000.</td>
</tr>
<tr>
<td>June, 1971</td>
<td>JUSE organised the first QCC Seminar.</td>
</tr>
<tr>
<td>August, 1971</td>
<td>The 200th QCC Conference was held.</td>
</tr>
<tr>
<td>September, 1971</td>
<td>Registered QCCs grew to 40,000.</td>
</tr>
<tr>
<td>November, 1971</td>
<td>The First National QCC Conference was held in Tokyo.</td>
</tr>
</tbody>
</table>

(contd.)
November, 1972  Registered QCCs grew to 50,000.
May, 1973  The 300th QCC Conference was held.
June, 1974  Registered QCCs grew to 60,000.
October, 1974  The 400th QCC Conference was held.
June, 1975  Registered QCCs grew to 70,000. The 500th QCC Conference was held.
January, 1977  Registered QCCs grew to 80,000.
March, 1977  The 600th QCC Conference was held.
December, 1977  The 700th QCC Conference was held.
June, 1978  Registered QCCs grew to 90,000.
October, 1978  The First International QCC Convention was held.
February, 1979  The 800th QCC Conference was held.
June, 1979  Registered QCCs grew to 1,00,000.
January, 1980  The 900th QCC Conference was held.
September, 1981  The Second International QCC Convention was held.
May, 1985  The Third International QCC Convention was held.
April, 1989  Dr. K. Ishikawa expired.
October, 1990  The Fourth International QCC Convention was held.

Source: Udpa (1992)

There were more than one million Circles with over ten million circle members operating in Japan in 2008 (Bedi, 2008).

Increase in the scope of Quality Circle

Initially, in the early 1950s and 1960s, the major concern of the Japanese organisations was improvement of quality. Naturally, most of the QCCs started working on problems concerned with quality. The foremen gathered the volunteers together and suggested them to pick up a problem in their work area and offer a solution that would improve the quality of their product. The objective also supported the nation's need for building good quality products. But as the QCC activities expanded and as the members gained more experience in problem-solving and
application of various techniques, the nature and scope of the subject matter being discussed also started changing. The idea was to take up larger and more difficult tasks having policy implications. The outcome was that themes taken up by the QCCs were no longer limited to the issues concerning quality. Productivity, efficiency, cost reduction, design, safety, production control, etc., also came within the scope of the QCC activities.

With increase in the QCC members' confidence, some variations and changes were incorporated in the concept. Originally, foremen and supervisors acted as leaders of QCCs. But as members became more knowledgeable and experienced, they themselves started organising smaller groups as sub-circles or mini-circles within the original QCCs. This helped in increasing the sense of participation and belongingness as workers had to play a more responsible role than they used to do in the original group. This also provided an ideal environment for more workers to assume leadership by actually acting as sub-circle leaders. This led to increase in group cohesiveness and better team work.

Another minor variation was the formation of “Joint QCC”, e.g., a coalition of QCCs in a production workshop which precedes the other in a manufacturing process or coalition of QCCs in production department and other departments such as inspection, maintenance, warehousing, shipping, process control, etc.

Having mastered simple Quality Control techniques, some QCCs started applying more sophisticated methods of industrial engineering such as motion study, time study, process analysis, PERT, design of experiments, regression analysis, etc. While these techniques, if properly applied, are definitely effective, it was emphasised that simple techniques should first be learnt and be applied thoroughly. QCCs were characterised by their ability to learn and apply simple Quality Control techniques.

Another development that took place was that, while QCCs during the initial stages were introduced mainly in production workshops, the movement started spreading to include non-production areas such as Offices, Sales Departments, Warehouses,
Insurance Companies, Banks, Hospitals, etc. It has since been established that the QCC concept can be effectively introduced in any kind of work environment.

It was observed that during the evolution of the QCCs concept in Japan, there were QCCs involving both a parent company and its affiliate or sub-contractors, who worked closely together in day-to-day operations. This not only helped to improve their performance but also resulted in better communication between them.

The inception of the QCC concept owes itself to the prevailing circumstances in Japan in the early 1960s. Much of the success of the Japanese industries today can be ascribed to the QCC concept developed through the dedicated efforts of JUSE as well as individuals like as Ishikawa. To quote one single instance of the miraculous turnaround of the Japanese industry, in 1960, Japan was unable to sell a single car abroad but, by 1974, they were exporting 2.5 million cars a year and, by 1979, that figure almost doubled. Realising the efficacy of this philosophy, the QCC movement grew rapidly in that country and the painstaking and persevering efforts of the Japanese leaders resulted eventually in the QCC concept being accepted all over the world as a very effective instrument for improving the total performance of any organisation.

**Quality Circles beyond Japan**

During the 1960s and 1970s, the number of QCCs was seen to be an unofficial measure of productivity and quality efforts in the Asian countries. In QCC conventions, the reports on the number of QCCs were made with national pride. For instance, Matsushita introduced QCC in Malaysia as early as 1971. By 1983, a total of 129 QCCs had been formed involving 961 employees out of 1,028. In 1979, Hewlett Packard Malaysia launched quality-improvement programmes that, by 1983, had more than 44 QCCs. Together with the concept of workers' involvement, QCC initiatives enabled workers to be trained in problem-solving techniques, including brainstorming, use of scatter diagrams, histograms, Cause-and-Effect charts, and 80/20 rule known as Pareto analysis (Tan and Torrington, 1998).
In Philippines, Onglatco (1985) studied 370 Japanese and 133 Filipinos who were involved in QCCs. In Singapore, Bridgestone (S) Pte. Ltd. became the first company to start QCC in 1973 and this was followed by other companies. By 1981, the (then called) National Productivity Board launched the productivity movement to promote QCC at the national level. This was successful with 2,534 QCCs with 18,525 member recorded in 1984. Thailand started QCCs in 1975, first with the industrial sector and then, in 1981, the service sector adopted the concept. By 1987, there were 6,400 QCCs (Tan and Torrington, 1998). In Indonesia, the first national convention of QCC was held in 1985. By 1991, there were 425 companies were involved in QCCs (Prajogo, 1999). Brunei introduced QCC in the Civil Service in 1984 (Heng, 1999).

In South Korea, the first QCC convention was held in support of the Korean Standards Association’s promotion of quality. Only 1,257 QCCs were formed (KSA, 1998). By 1997, more than 122, 289 QCCs were active. When the awards were elevated to the status of the Prime Minister’s Award in 1989 and the President’s Award in 1992, the prestige of QCCs grew and private sector companies became interested to participate in these programs (Kim and Park, 1999).

In Bangladesh, quality improvement is still not a major consideration for the industrial sector as quality-improvement initiatives are seen to increase cost and decrease in productivity (Mamun, 1999). This stems from the fact that, in Bangladesh, local industries were keen to focus on production of goods for local consumption and for export. Only multinational companies and a few large Bangladeshi enterprises were keen to pursue quality-improvement programmes. Hence, there was no early nation-wide QCC activity recorded in Bangladesh.

In India had a National Productivity Council was established as early as 1958 and the country has one of the oldest institute of standards in Asia. Although product quality was important, QCC was not a major quality initiative in India.

The functioning of the QCs in a number of countries other than Japan (continent-wise: Asia, Europe and America) have been touched upon in order to have an overall idea (globally speaking).
ASIA:

Republic of South Korea

Since the concept of QC has been introduced in South Korea in the early 1970s, the QCs have contributed significantly in the process of quality improvement, making the Korean products more competitive. The QC activities in South Korea are very much related to the Total Quality Control (TQC) activities and have been divided into four stages: Daybreak, Introductory, Development and Maturity.

Daybreak Stage (1960): The traditional industries of South Korea gradually started modernising in the 1960s, adopting and introducing modern management philosophy and techniques. It was a period of fostering the basic industries, ensuring growth of import-substitute industries for consumer products and increasing production of the light industries. The government started promoting awareness for quality control of industrial products which resulted in gradual introduction of Quality Control activities (such as inspection to eliminate/reduce non-conformance to specifications and utilisation of SQC techniques in plant control activities) in the secondary industries. As a result, the QC activities started getting recognition as an essential function.

Introductory Stage (1970s): The import-substitute industries gradually developed an export-orientation for intermediate and plant materials, giving emphasis on the heavy chemicals and other technology-intensive industries. Also, quantitative growth of the manufacturing activities, caused by severe international competition, necessitated Quality Control campaigns supported by strong government measures. The emphasis given by the QC Promotion Headquarters were on continuous innovations in the industrial organisations and development of new markets for the Korean industry.

QC activities expanded very fast (the number of registered QC was 1257 in 1975 which reached 56081 in 1980). The first National QCC Contest was held. Korean Standards Association (KSA) developed a consolidated training course for QCCs.

Development Stage (1980): The Korean economy achieved remarkable annual growth during this stage and was characterised by continuous growth and technological
innovations. Competitive advantages of the large industries necessitated protection of medium and small industries. Also, the government-oriented economy turned into a civic-oriented economy characterised by autonomous and self-regulated market system with much emphasis on Quality Control activities. It became necessary to develop an atmosphere of balancing between the large industries and the medium and small industries and to transfer the achievements in the Quality function of the advanced precision industry and the other hi-tech industries to the medium and small ones.

This kind of felt need could be realised through large industries’ efforts to activate the organisations and the man-power related to the Quality Control programmes. During this period, certain new dimensions of Quality Control such as stability, reliability, maintainability, economy, etc., started drawing attention of the industrial world. And, the QCs consolidated their position in the shop floor and started playing a key role in productivity improvement. Their activities also grew in terms of participation in (and organising) international conventions (covering, inter alia, finance, hotel and construction sectors). A QCC convention for the service industry was held in 1985.

Maturity Stage (1990s): In South Korea, the QCCs were initiated under the string leadership of the government through promotion of awareness in QCC and TQC. However, by the end of the 1980s, the QCs started broadening their horizon by not confining themselves only to the government-oriented activities and by ensuring professionalism for their qualitative improvement. Now, all the employees, from top to bottom, in an organisation are eager to participate in the QCC movement by integrating levels and departments in terms of functioning of the QCCs. The number of QCCs registered in March, 1993 was 87,985 (with 8,09,354 members) operating in 544 companies.

The QCCs in South Korea were initiated in the mid-seventies. Their activities are coordinated by the KSA. Vigorous activities in the wider field of Quality Management in South Korea have prompted in the KSA to promote expansion and development of the QCCs for bringing about competitiveness through continuous innovation and improvement by encouraging meaningful participation of all employees in an
organisation from top to bottom. The objective of forming the QCC is not merely introduction of any system or method but fostering quality consciousness of the members of an organisation and changing the direction of the organisation to customer-oriented activities. Keeping the enlarged role of the employees in mind, the National Quality Control Circle (NQCC) Contest is being organised to help grow nation-wide quality control.

An important award - Master Hand of Quality - was instituted in 1991. This award is given to the field employees who have contributed much towards quality and productivity improvement. This award is a reputed one and plays a key role in creating positive working environment in the South Korean organisations. This award has been won by many employees so far. A significant offshoot of this award, "Master Hand of Quality Control" was instituted with a view to encouraging the employees in the local areas to study and develop the methods used by the QCCs and to contribute to the activation of the QCCs. It is to be noted that the QCCs in South Korea have contributed significantly to the improvement of quality of the products to make them competitive in the foreign markets. The KSA has set the objective of strengthening quality.

At the end of 1993, there were 1,74,190 QCCs covering 3,500 companies (of which the manufacturing and the service sectors accounted for 69% and 49% respectively).

KSA (1998)

People’s Republic of China

The QCCs started in 1978 and the number of registered QCCs by the end of 1993 was 1.2 million. The QCCs are taking care of the activities relating to development of new product, cost reduction, transformation of technology, customer service, etc., in different industrial organisations all over the country. Achievements, in terms of the economic benefits, were to the tune of $20 million by the end of 1993. The reason for such fantastic achievements is the growth strategy adopted to tap the employees' potential and help them becoming creative by using a number of scientific methods. Gradual transformation of the traditional socialist economy and introduction of the
Law of Product Quality, along with adoption of the International Quality Assurance Management Standards, have resulted in a lot of change in the functioning and activities of the QCCs. This change is reflected in the adoption of the famous guidelines for the QCCs, i.e., everyone is responsible for making our country prosperous by quality. The objective is to improve the overall quality of the organisations and provide economic benefits to the masses. China Quality Control Management activities (including those of the QCCs) were directed towards continuous quality innovation in the 1990s. (Kim, 1993)

Republic of China (Taiwan)

As Taiwan is a neighbour to Japan, therefore, some enterprises began to introduce QCC activities following Japan very early. Under the leadership of the founder Chaw-Son Tsong, the of Pioneer Enterprise Think Tank was set up in 1970 and from then onwards QCC activities were actively promoted. The Pioneer Quality Control Research Association (PQCRA) was established in 1983, Chaw-Son Tsong served as the Chairman, and then each popularization activity started in the form of public services by PQCRA.

Ever since QCC activities were introduced in Taiwan in 1968, the business circles have known QCC to some extent and paid great attention. There was a development both in breadth and depth after promotion of QCC. The 1980s witnessed fantastic growth of the QCCs. PQCRA brings those together who are enthusiastic about QCC activities, and keep on promoting QCC activities by involving everyone. It holds various national QCC activities periodically so that it can boost each enterprise and plant to promote QCC activities and make those more successful and flourishing and can spread QCC activities all over the country. By QCC activities it is possible to improve the functioning of the entire industrial sector to boost the economy and bring about social satisfaction.

QCC activities are being promoted in Taiwan for nearly 40 years and have generated great benefits, which are undeniable. QCC activities occupy a big space in the process
of Taiwan’s economic development and contribute quite a lot to the promotion of QCCs at the international level.

Presently, many enterprises in Taiwan are conducting QCC activities with varied experiences and characteristics. To facilitate exchanges of experiences and easy study, the headquarters regularly hold conventions and has come up with the following outcome:

1. Exchange of skills
2. Promotion of working morale in the enterprises
3. Increase in the sense of members’ honour among members
4. Maintenance of high spirit
5. Learning from experience of others and ensuring effectiveness of exchange
6. Increase of mutual encouragement between QCCs

In Taiwan, the Nation-wide QCC Convention is held three to five times per year. In June 2007, the 182th session was held.

To encourage QCC’s activities and their participation, the headquarters give awards to QCCs with excellent performance in the Nation-wide QCC Convention. Besides, to assure effectiveness and mutual inspiration, promote the level of QCC functioning and make the enterprises profitable, priority is given to those QCCs for awards who are first-time participants in the convention. Those who are evaluated as the most qualified enterprise are awarded with the Ishikawa Award by the headquarters. There have been 167 enterprises being awarded so far.

The Nation-Wide QCC Grand Award was instituted in 1977 to encourage model QCCs, generalize QCC activities and elevate the standards of QCCs. The winner of this award represents Taiwan. Receiving the Grand Award is deemed as the highest honour to QCC in the nation. 2007 was the 30th year for this award.

In order to have opportunities for exchanging visions mutually, and offering opportunities for mutual inspiration, the national QCC Headquarters actively takes part in the international convention on QCC (ICQCC) held in various countries every
year. PQCRA already has 32 years of experience of this international convention. (PQCRA, 2007)

Philippines

Promotion of the QCs is spearheaded by the Philippines Productivity Centre. Initially, training for QCs in an organisation was given by the Quality Control department. As the introduction of the QCs created some misunderstanding, the QCs were promoted as Productivity Improvement Circles. Following the Government-led campaign for “increased productivity” from 1980, the number of QCs has increased. While the exact number of the QCs is not available, it is reported that several big companies and Philippino-Japanese joint venture companies are having many QCs which have generated positive results to a considerable extent. (Onglatco, 1985)

Singapore

The QC movement started in 1981. With the transformation from Quality Circles (QCs) to Innovation & Quality Circles (IQC) in 2000, the IQC movement has reached all sectors of the economy. IQCs are about teams of individuals working together to enhance innovation and quality in enterprises. They now have to increasingly focus on innovation as a key factor for business success. Organisations have to increase their innovation capacity and create value to remain competitive and sustain business growth. Various activities have been implemented to sustain the IQC Movement in Singapore, including the organising the National IQC Conventions and International QC Conventions and instituting National IQC Awards.

There are 14000 QCs (with 106000 members) registered with the National Productivity Board (NPB). This membership strength constitutes 6.9% of Singapore’s workforce and 4% of them belong to the private sector. The NPB is leading the QC movement at the national level through promotion of, and training and surveys on QCs. The promotional activities cover bringing out publications, newsletters, organising study clubs and study missions, preparing audio-visual materials, etc. National Conventions on QCCs have been a big success since 1982. These
conventions provide an excellent opportunity to the QCs to present their projects, share experiences and gain recognition at the national level. The savings reported as a result of operationalisation of the QCs have increased from $1.60 million in 1985 to $23 million in 1993, thus, establishing the fact that QCs can help reduce costs and enable the organisations to become more competitive. The attendance at these conventions has touched the figure of 3000 QCs and work-improvement teams.

The International Exposure of QCCs (IEQCC) is a unique event started in 1984 to enable the practitioners of the concept and the members of the QCs in Singapore to learn new ideas and techniques from their foreign counterparts. The popularity of these events can be seen by the impressive attendance of 20000 QC activists from 21 countries so far. The tenth anniversary of the IEQCC was celebrated in 1993. Awards were instituted in 1984 to give recognition to the QCs, facilitators, managers and organisations for outstanding achievements.

A QCC college was established by the NPB on 1st April, 1984. The college so far has trained more than 30,000 managers, supervisors and workers. Consultancy services are offered through the QCC Resource Centre (set up in April, 1993) which provides advice and diagnostic service to the companies which do not have QCs. Other initiatives taken for the promotion of QCs include:

i. involving productivity activists in the formation of QCs,

ii. educating the CEOs, senior-and middle-management executives and productivity experts on the functioning of the QCs and their benefits through visits to the companies having effective QCs, and

iii. selecting the member-companies which have experimented with QCs to coach and guide the other companies.

Malaysia

The National Productivity Center (NPC) and the National Institute of Public Administration have spearheaded the QC movement which is reinforced by the government measures. "Look East Policy" was formulated in 1981. This policy has encouraged Malaysia to examine the managerial practices and systems of Japan and South Korea. A directive from the Prime Minister's Office has made QCs compulsory in the public sector. The QCs started in 1971 in the Matshushita Electric Company Ltd. The first QCC Convention was organised by the Institute of Quality Control Malaysia (IQCM) in 1982. A full-fledged QCC secretariat was set up in 1983 and it became the secretariat for the TQC in 1987. The number of registered QCs was 1850 (with a membership of 14,788) up to September, 1993. The sector-wise break up of the QC is: manufacturing (40%), electric/electronics (45.5%) and services (14.4%). The number of participants at the national convention was 166 in 1984 which rose to 593 in 1993. The total number of conventions, seminars, etc., during the 10-year period (1983-1992) was 493 and the participants in those programmes totalled 27,273. The NPC organised the first Quality Management Seminar concurrently with the 9th National QCC Convention in 1992. The NPC has instituted the best QC Organisation award since 1985. The achievements are impressive and the concentration of the QCs is the highest in central Malaysia.

In many companies, the definition of QC has been modified participation is not "voluntary" there. A group of people, belonging to the same strata or having the same role, come together regularly and apply their technical knowledge to solve problems for improving upon the existing standards. If the participation does not remain voluntary, one cannot come and go at one's will and there comes a compulsion. Many organisations have made the "joining a QC" obligatory in their conditions of employment.

In Malaysia, the Japanese version (i.e., spontaneous participation; implementing the solution(s) by the QC) and the American version (voluntary participation; recommending the solution(s) to the management by the QC) co-exist. The NPC has adopted the Japanese version whereas the multinationals have adopted the American
version and this state of affairs has caused problems in the context of nation-wide contests. Two national organisations were designated by the government to monitor the development of QCC activities in the country NPC for the private sector and the National Institute of Public Administration (INTAN) for the public sector.

The first National QCC Convention was held in 1983 and 2007 marked the 24th anniversary of the ICC Movement. The Movement was an important initiative as the success of the economic strategy hinges on a skillful and co-operative workforce, and committed and progressive management. The Movement’s priorities were:

- upgrade skills of workforce,
- promote participation in QCC programmes,
- disseminate knowledge of QCC tools, techniques and practices, and
- encouraging the workers and employers to take ownership and make productivity/QCC habits part of the work ethic.

It also serves as important factor in fostering creativity and innovation to enhance the economy’s innovation capacity as the country’s national agenda for growth and development.

*Transformation of QCC to ICC*

Having successfully led the QCC movement over the last two decades, in 2004, NPC launched the Innovative and Creative Circle (ICC) with the aim to transform QCC into an innovation-driven circle.

Traditionally, QCC projects deal with problem-solving and quality issues. Since the transformation to ICC in 2004, the focus now has expanded to include innovative projects that will ensure enterprise competitiveness and enhanced business growth.

As a result of this change, ICC enhances the transformation of organisations to become more responsive and innovative towards improving quality, timeliness, excellent customer service and cost effectiveness. These innovative and creative
projects are testimony to the ability of Malaysian companies in applying their creativity and innovativeness while striving towards excellence.

*National ICC Conventions*

During the period of 2004 to 2007, 496 circles, involving 3651 participants from 291 organisations, participated in the annual National ICC Conventions. The number of circles that participated in the National ICC Convention this year has increased to 140 circles (with 1019 participants) as compared to 135 circles (957 participants) in 2006.

Throughout the year 2007, the circles showed progress problem-solving to generate more value creations and breakthroughs through various innovative and creative solutions. In 2007 National ICC Convention, the circles managed to achieve productivity improvement through:

- product and service quality improvement, i.e., continuous improvement in existing products and services that resulted in customer satisfaction in 44 projects;
- process efficiency, i.e., continuous improvement in work process to increase efficiency in 40 projects
- breakthrough in product innovations, i.e., new invention of products or services which met customers needs and expectation in 23 project; and
- reduction in machine downtime, i.e., new ways in reducing time due to wastage and delay to save cost in 9 projects.

The dynamic business changes and higher expectations of stakeholders and customers have brought about various productivity and quality improvement activities in the private sector and the public sector. It is in view of these changes that for the first time in 2007, NPC organised a separate stream specifically for the public sector. Of the 24 circles in government agencies, 13 projects were on improvement of service delivery systems, 5 projects were on improvement of service quality and 6 projects were on breakthrough programmes to meet the higher needs of the public. In the notable projects presented by the circles, there was use of customer-driven approach in
collecting and analysing information based on customers' needs. The information was used by the circles to provide better value and quality of products and services.

The circles that participated in this National ICC Convention also highlighted intangible benefits such as enhanced pride in their jobs, enhanced loyalty to their organizations (including team spirit in the workplace), and nurturing the competitive mindset among the circle members. Participation in the ICC activities cultivates strong commitment, greater responsibility and teamwork among the work groups and results in improved work coordination, speed in doing work and better performance. Evidence shows that the applications of improvement techniques and team discipline have enabled the members to become more innovative and creative. (NPC, 2007)

Thailand

The Technological Promotion Association (together with other associations in the private sector) has provided guidance to the QCs as part of the technology transfer movement. Today, the National Productivity Council (NPC) is taking care of this movement. During 1974-79, the progress was very slow and only a few companies were able to start the QCs of their own. The QC movement finally gained momentum after 1980. In 1985, it was estimated that there were more than 2,500 QCs with 17,500 members. Today, as a part of the TQC movement, the QCs are doing very well. Another major achievement is that the QCs have been introduced in the small-scale industries where as many as 2000 companies are having well-functioning QCs. An award - The President Medal - has been instituted which is given to the QCs based on their performance as well as on effective application of the PDCA cycle. The activities of the QCs are audited on the basis of the PDCA approach. Thailand is also working towards the introduction of the QCs in the educational sector.

The QC Headquarters of Thailand was established in 1985 with the following objectives:

i. to encourage co-operation among the institutions within the country and abroad,
ii. to extend support to the institutions to help organisations launch QCs as a part of the HRD function, and

iii. to develop a centre for dissemination of knowledge on QC.

Its activities cover holding of national QCC conventions, winter competitions for the members of the QCs, holding IEQCC meetings, publishing journal for the QCs, conducting training programmes for the QC institutes and offering advanced courses for the leaders, instructors and members of the QCs. (Tan and Torrington, 1998)

Indonesia

The Indonesian reports focus on the development of the QCs in the public sector. The QCs in Indonesia started in 1982 with the introduction of the concept to the senior public-sector executives. The first convention on QCC was organised in 1984 by the National Institute for Public Administration and since then it is held every year. The National Quality Exposition was organised in 1992. (Prajogo, 1999)

A very interesting development is the activity of the Productivity and Quality Club (P&Q Club). The P&Q Club's activities started in 1990 in one school which increased to 6 in 1992 with a membership of 489 students. The objectives of the P&Q Club are:

i. to generate awareness and communicate knowledge on the productivity and quality concepts,

ii. to cultivate a positive attitude towards excellence among the students,

iii. to help develop a sense of co-operation and responsibility, and

iv. to help develop leadership and pro-active qualities necessary for excellence.
The strategy adopted by the P&Q Club consists of the plan mentioned below.

<table>
<thead>
<tr>
<th>Programmes</th>
<th>Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Talks during lunch on P&amp;Q (School level)</td>
<td>to generate more awareness; to increase the students’ knowledge of managerial aspects</td>
</tr>
<tr>
<td>Workshops/Camps</td>
<td>orientation-building; management games; discussions; action learning</td>
</tr>
<tr>
<td>Competitions</td>
<td>to increase competitive ability among the students</td>
</tr>
</tbody>
</table>

**Sri Lanka**

The QCs are promoted by the Quality Circle Association of Sri Lanka (QCASL) which was established in 1989. Sri Lanka Association for the Advancement of Quality and Productivity (SLAAQP) was formed on 30 January 1996 as the successor to the former QCASL. The association is well recognised. The current membership (inclusive of the institutions) is quite impressive. The interest in QCs is steadily growing in Sri Lanka and it is estimated that there are nearly 1,200 QCs formed island-wide. It is the apex organisation promoting QCs in Sri Lanka and it also promotes other aspects of quality and productivity in addition to the promotion of QCs. SLAAQP engages in a variety of activities in promoting quality, productivity and QCs. Among these are:

- Seminars on Productivity, 5S, TPM
- Seminars/workshops on Quality Circles
- Radio and TV discussions on Quality, Productivity, QCs
- Assistance to companies holding company conventions on QCs by way of providing training inputs and judges
- Assistance to M.Sc. and MBA students from Universities by providing information on QCs, TQM, etc., for their dissertations
- Conducting national, regional and international conventions on Quality and productivity
❖ Assistance to schools for grooming QCs in schools
❖ Establishing the National Registration office for QCs
❖ Survey/research activities on quality management practices prevailing in the different economic sectors
❖ Representing the association at the National Productivity Steering Committee

It also co-ordinates participation in the IEQCC. The Chief Guest at the 1992 convention was no less than the Prime Minister of Sri Lanka. The Association was able to send a delegation comprising 54 members to the IEQCC in 1993. (SLAAQP, 2007)

EUROPE

Sweden

In 1966, special QCC session was organised at the 10th conference of European Organization for Quality Control held in Stockholm. [http://quality-circles-history.blogspot.com/]

The QCs first started in 1977 in Sweden. It took a long time before the attempt was made due to the belief that the QC is a product of the Japanese culture and the perceived absence of quality-related problems in Sweden. One of the problems encountered during introduction of the QCs was the managers’ and the supervisors’ perceptions that they are responsible for making the QCs work because they possess the authority. It has been suggested that the role of the middle-level managers and the supervisors should be well defined and they should be provided with the information regarding functioning of the QCs and decision taken in the meetings of the QCs.

The formation of the QCs in Sweden reflects the country’s thrust on industrial democracy. The QCs are formed based on voting. If the vote is for the QCs, participation is mandatory. Another interesting feature in the earmarking of a fund in the budget for the purpose of investigating into the consequence of the decisions the QCs take.
Finland

The Central organisation for the Finish Metal and Engineering industries took a leading role in the introduction of the QCs. The training programmes have been initiated by the Finish Society for Quality. Most of the QCs are in the metal and electronics industries. It was estimated some time back that there were around 1000 QCs in around 250 companies. Finland is the second in Europe (after Italy) in terms of time lost (4.2 hours per employee per year on an average) due to strike. About 90% of the country’s work is organised. The Federation of Blue-collar Workers’ Unions has stipulated a set of conditions (mentioned below) under which the unions would support the activities of the QCs.

1. Employees shall have the right to choose their own representatives for the QCs.
2. The QCs shall make their own choice of problems they want to solve.
3. The employees chosen as the members of the QCs are to given the necessary training.
4. Non-payment for QC activities outside the working hours shall not be accepted.
5. The employer is to guarantee the continued employment of the workers.
6. The activities of the QCs should also help improve the working conditions and job satisfaction of the employees.
7. A reasonable portion of the profits achieved through QC activities is to be distributed to the workers.
8. Such activities shall not ignore the stipulations of the collective agreements made by the trade unions.

The QCs have been mentioned as a form of co-operation (in the activities relating to rationalisation) in other central organisations’ agreements. The QCs have earned a status within the labour-management co-operation system in Finland.

It is interesting to note that, in more than one enterprise, the shop floor workers have asked the board of directors to start QCs.
Industries in which Hutchins introduced QCs span almost the entire spectrum of industry including telecommunications. Clients in telecommunications included British Telecom, Northern Telecom, NEC, Elcoteq Finland and in closely-related industries, ICL (now Fujitsu) and GEC Marconi [http://www.expertbase.org/697]. ESPOO, Finland - Elcoteq Bangalore received award for manufacturing quality at the Chapter Convention for QCs (CCQC), held September 19, 2010. CCQC is a platform for QCs and is organised by Quality Circles Forum of India (QCFI) Bangalore Chapter. [http://www.circuitnet.com/articles/article_75106.shtml]

The UK

The concept first came to the limelight in the conference on the 'Japanese Approach to Product Quality Management' at the Institute of Directors in London in 1979. Initially, there were doubts as to whether the Japanese concept could be applied in the UK (Hutchins, 1985). But the idea gradually gained ground. As back as in 1985, more than 1,500 QCs were operating in about 200 companies.

A survey covering 130 companies (Dale, 1984), revealed that certain positive results (like cost savings, coming out with the solutions to the manufacturing problems, greater job satisfaction and increased management commitment) flow as a result of functioning of the QCs. At the same time, the survey also indicated the difficulty of running the QCs in the UK where 80% of the companies experienced failure at the beginning.

In the companies where the QCs started well, the trade unions are generally in favour of the QCs and have not raised issues like payment for the QCs' achievements. This is due to the fear of generating inequity between the QCs' members and the non-members (Hutchins, 1985). The traditional emphasis on differences in terms of rank in the organisations has been identified as a major factor that impedes the smooth running of the QCs.
### Highlights relevant to the UK

<table>
<thead>
<tr>
<th>Month</th>
<th>Year</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>September</td>
<td>1979</td>
<td>First UK conference on QCs entitled 'The Japanese approach to Product Quality Management', attended by over 100 people, organised by David Hutchins and held at the Institute of Directors in London</td>
</tr>
<tr>
<td>February</td>
<td>1980</td>
<td>International Conference on QCs organised by David Hutchins at Cavendish Conference Centre</td>
</tr>
<tr>
<td>September</td>
<td>1980</td>
<td>World Convention on QCs organised by David Hutchins and held at the Waldorf Hotel, London. Speakers were from Japan, Norway, Sweden, Brazil, Germany, the USA, Australia and the UK</td>
</tr>
<tr>
<td>September</td>
<td>1981</td>
<td>Second International Convention on QCs, Tokyo</td>
</tr>
<tr>
<td>October</td>
<td>1981</td>
<td><em>Circle Review</em> published by DHA; the first regular newsletter specifically for QCs to be circulated in the UK</td>
</tr>
<tr>
<td>May</td>
<td>1982</td>
<td>Inauguration of the National Society of Quality Circles</td>
</tr>
<tr>
<td>June</td>
<td>1982</td>
<td>'If Japan can, so can we' - two-day conference with QCs making presentations, Cavendish Conference Centre, London</td>
</tr>
<tr>
<td>October</td>
<td>1982</td>
<td>First British/Japanese National Quality Circle Convention held at the Skyway Hotel, Heathrow, London</td>
</tr>
<tr>
<td>March</td>
<td>1983</td>
<td>First Northern Convention of Network Circle Members, Leaders and Facilitators in the UK held at the Post House, Manchester</td>
</tr>
<tr>
<td>March</td>
<td>1983</td>
<td>First Southern Convention of Network Circle Members, Leaders and Facilitators in the UK held at the Skyway Hotel, Heathrow, London</td>
</tr>
</tbody>
</table>

(contd.)
<table>
<thead>
<tr>
<th>Month</th>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>March</td>
<td>1984</td>
<td>First National Convention of Network Circle Members, Leaders and Facilitators in the UK held at Stratford-upon-Avon</td>
</tr>
<tr>
<td>June</td>
<td>1984</td>
<td>World Quality Congress, Brighton</td>
</tr>
<tr>
<td>September</td>
<td>1984</td>
<td>First European Seminar on Quality Circles, Helsinki, Finland</td>
</tr>
</tbody>
</table>

*Source: Hutchins (1992)*

**Italy**

Originated in the United States as part of the 'human relations' philosophy of the 1950s, the concept of QCs was subsequently developed in Japanese enterprises in their particular socio-economic-cultural and 'company-oriented' industrial relations context. It was there also that QCs took their present form of small groups of about ten persons from the same department who meet regularly on a voluntary basis, under the leadership of a superior, to identify and discuss the key aspects of work performance, with the aim of solving problems by experimentation or applying and trying out alternative approaches. In Italy, these experiments have been imported since 1980 onwards, in particular by certain foreign multinationals who have applied the practices of the country of origin, e.g., Thompson, 3M, Philips, etc. A survey has indicated that around 40 companies, mostly large-scale manufacturing ones, have introduced 325 QCs. The slow growth of the QCs in big companies has largely been due to labour-management conflict and high-degree of industrial disputes, and the erosion of and low status at the position of middle-level executives due to the presence of powerful unions. Other factors that impede the development of the QCs include, personnel reduction plans in many companies and the resistance of the unions due to the fear of losing power.

[http://www.eurofound.europa.eu/EMPL/ITALY/QUALITYCIRCLESQC-IT.htm]
Germany

The Association of German Engineers in Stuttgart started the training of the leaders and the members of the QCs. More than 350 firms have started QCs. As back as in 1985, there were 2,300-2,500 workers’ teams comprising about 12,000 workers.

Problems encountered in running the QCs include high expectation of the managerial people regarding the tangible outcomes in terms of efficiency and cost reduction, a time gap before the QCs take root and come up with substantial contributions, inadequate support from middle-level executives and decline in interest after some years.

QCs (peer groups) in Germany were given a significant boost by legislation in the early 1990s. Many of the early QCs were new groupings formed spontaneously by physicians, but others built on the work of existing groups. Development of QCs was led initially by general practitioners but now most ambulatory care specialities participate in QCs. The QCs met monthly and sessions lasted for about two hours. About 70% of members attended each session. Most of the time was devoted to work on a chosen clinical topic. Other issues tackled included, methodology for peer review and quality improvement; general discussion about ambulatory care and formalities. [Table 1] Time spent on clinical topics increased as groups became more established. Most of the work was about clinical care and co-operation between physicians. Issues such as remuneration were given less attention, although some financial issues such as concern about sickness fund payments were discussed.
Table 1 Topics of discussion at Quality Circles

<table>
<thead>
<tr>
<th>Topics</th>
<th>Proportion of time (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>General professional issues like doctor-patient relationships, co-operation across the health care team</td>
<td>3</td>
</tr>
<tr>
<td>Medical problems like diabetes, diagnostic techniques or complex problems of care, psychosocial problems or patient complaints</td>
<td>78</td>
</tr>
<tr>
<td>Contractual problems like legal and economic problems - who pays?, as well as professional politics</td>
<td>16</td>
</tr>
<tr>
<td>Other issues</td>
<td>3</td>
</tr>
</tbody>
</table>

Most of the sessions used case reports as the basis for their discussion. Others used summarised quantitative data. More objective methods, such as the presentation of computer-based practice data, were used less often but an increasing use of the collected routine data was observed. Most new QCs started by exchanging experiences without documentary evidence but gradually moved to include objective data collection and analysis. For many German primary care physicians, work in QCs may be their first experience of quality-improvement methods. Courses have since been established for new moderators on methods of quality improvement.

[http://www.medicine.ox.ac.uk/bandolier/booth/mgmt/qualcirc.html]

AMERICA

The USA

QC Progress in the USA

Debate over the use of QCs in the US industries focuses primarily on the extent to which QCs allow management to attain the goals of higher productivity and better quality, and secondarily on how this type of participative management approach increases worker skills, satisfaction, and participation. Although analytical studies
(Metz, 1980; Wood, et al., 1983) raise serious questions about the efficacy of QCs in attaining any of these goals, the QC trend does not seem to be diminishing. Instead, references are made to the ‘QC movement’ sweeping the US industry (Rowland, 1984; Landon and Moulton, 1986). The AFL-CIO conservatively reported about functioning of more than 3000 QCs in the US (AFL-CIO, 1981) and other estimates were as high as one million (Hoyt, 1984). Estimates on the number of organisations using QCs hovered around 1000 (Greenberg, 1981), including more than 100 major corporations such as Lockheed, Honeywell, American Airlines, General Electric, General Motors, 3-M, and Ford. Murrin, president of Westinghouse Electric’s Public Systems Co., has stated that the use of QCs is the ‘single most significant explanation for the truly outstanding quality of goods and services’ produced in Japan, the home of QCs (Zuker, et al., 1982; Ishikawa, 1985). The spread of QCs into the service sector attests to the almost super-organisational qualities ascribed to the technique (Masser and Randall, 1981; Elvins, 1985). One of the interesting facts about QC is that although the basic idea originated in the United States, the right combination of factors existed only in Japan. The seeds planted by the Americans were accepted by the Japanese and nourished to the fullest extent.

The USA remained the leader among the industrialised nations for a long time. In 1960s, the USA accounted for more than 25% of the total manufacturing exports of the industrial countries and had a market share of 98% of its total domestic market. However, with the turn around of Japan in the field of export, the USA had been losing its market shares both at home and abroad. In fact, the average annual productivity growth rate in the USA has been surpassed by 19 nations. Japan led with an annual increase of nearly 10%. The output per hour in the USA is also as low as 1.5 units of production compared to Japan’s output of 8.3 units, which is also one of the world’s highest. Until the World War II, England and Germany were considered leaders in the quality of manufactured products. But due to technological superiority as well as advancement in management techniques, the Americans gradually stole the pride of place. By the end of 1970, however they began losing this leadership to Japan, which undoubtedly occupies the leading position in the world in quality workmanship.
Some typical instances of the fall in quality and reliability standards of the USA’s products are as follows:

i. Total failure rate of a common-user item like air-conditioner of the poorest (in terms of quality) Japanese company is less than that of the best manufacturer in America.

ii. The internal failure rates per 1000 units for the USA and Japan, respectively were: Coil leaks: 4.4 and 0.1; Assembly line defects: 6.35 and 0.95 and electrical defects: 3.3 and 0.12.

iii. External failure rates per 1000 units under first warranty coverage in the USA and Japan respectively were: compressors: 1.0 and 0.05, thermostats: 1.4 and 0.002, fan motors: 0.5 and 0.28 and others: 10.5 and 0.6.

iv. The ailing General Motors unit in the USA, taken over by Toyota, became the best one in the group, given the same American labour and equipment. The difference was due to the transformation of the organisational culture.

As a result, while many companies in the USA, which were once leading in their respective fields, are laying off their employees, the manufacturers in Japan are ever increasing their production and, in fact, some are working overtime to satisfy demands. Apart from television sets and cars, more and more Japanese items such as cameras, watches, steel, etc., are slowly dominating the world market. In short, position of world leadership held by the USA became questionable, while Japan continued to manufacture a variety of high quality products at reasonable costs which could compete with other countries’ products anywhere in the world. As the situation worsened, The Americans decided to learn from the Japanese the secret of their miraculous industrial growth. It speaks about a great deal of receptivity of the Americans that they did not hesitate to learn from those to whom they had earlier been rendering advice and guidance.

In 1956, Juran visited Japan and was impressed by the work carried on by the QCCs. Juran (1967) described his feelings, impressions and predictions regarding QC programmes. Soon after, many companies like Honeywell and Lockheed launched pilot programmes in their organisations. Active American interest in the Japanese
quality control began in the early 1970s, when the US aerospace manufacturer, Lockheed, organised a tour to some Japanese industrial plants. This trip marked a turning point in the existing pattern, i.e., the Japanese managers making educational tours to the industrial plants in the USA. Lockheed's visit resulted in the gradual establishment of QCs in its factories in 1974. Within two years, Lockheed estimated that its 15 QCs had saved nearly $3 million, with a savings–cost ratio of 6:1. However, the Lockheed programme was a setback because of unforeseen difficulties in the company. During the past five years, companies like Babcox & Wilcox, Mercury Marines, Hughes Aircraft, Ford, Chrysler, Solar Turbines, General Motors, Westinghouse, Xerox, etc., have been operating QCs and have developed Quality Teams in the management cadre and many of those have reported tremendous success.

A society called the International Association of QCs (IAQC) was formed in 1977, which publishes a quarterly magazine, *Quality Circle*. The magazine publishes many articles on QCs and reviews recent developments in the field. IAQC also offers training courses and materials. The society is growing and many companies are getting involved in implementing QC programmes. In tune with the present day needs and in order to broaden the activities, the name of the IAQC has been changed recently to "Association for Quality and Participation" (AQP) and its monthly publication is now called *The Journal for Quality & Participation*.

The American Society for Quality Control (ASQC) has created a separate subsection on QCs and a panel has been formed to collect more details on the subject. The success and growth so far has been impressive and future progress will depend on the cooperation between management and the workers.

QCs in the USA have a bigger impact on management styles. Generally, companies are used to Taylorism-oriented type managements, in which top management makes the decisions and passes them to the middle-and lower-management levels. The participative management styles in Japan are unfamiliar in the USA. A large section of Americans had misgivings over the applicability of the Japanese concept (which
has taken a deep root in Japan) in the American society, which, being more merit-based and individualism-oriented is very different from the one in Japan.

The Japanese cash in on satisfaction of motivational needs such as opportunities for creativity, social recognition, status, self-development, etc., which help to build relationship with superiors on a basis of mutual respect and with equal rights to express one's ideas freely. The Japanese believe that the potential for improved quality lies equally with plant workers, whereas the Americans believe that engineers and managers account for 90% of quality achievements. It is also felt in the West that increased efficiency does not depend that much on the workers' initiatives, rather on the guidance given by educated management and provision for better technology. Such a line of thinking naturally gives rise to a bitter relationship between workers and the management staff in the West. This is generally not the case in Japan.

Though the Americans feared that such widely divergent conditions prevailing in Japan and the USA would inhibit the successful implementation of the basic idea of workers' participation in the USA, though, in fact, the idea had been effectively preached by many people even during the 1940s. It has not been easy for the Americans to adopt the QC philosophy in their organisations since they have been oriented to Taylorism (i.e., "scientific management"). Forced by the intense competition offered by the Japanese companies, an increasing number of US firms started evincing keen and serious interest in QCs.

The Quality Renaissance in USA

Juran (1980) mentions that the USA appears to have turned the corner and some companies there have been able to reach a level of world-class quality. The stunning results of these organisations were due to participation at the workers' level to put them in a state of self-control and make them actively involved in quality-improvement teams, apart from developing customer focus, and TQM (including suppliers participation in quality efforts), extensive training to all in quality planning, quality control and quality improvement, etc. It took nearly six years for these companies to achieve quality resurgence and for evolving the idea of putting quality
goals into business plan. As such, it is expected that if the number of such companies is scaled up in order of magnitude, Americans will overtake Japanese in terms of quality by the year 2000. In order to achieve a national focus on the subject, the “Malcolm Baldrige National Quality Award” was established in 1987 in the USA, similar to the “Deming Award” in vogue in Japan.

Awareness of the impact of QCs in improving the total performance of any organisation has been growing in the rest of the world too. Countries which are close to Japan like Taiwan and Korea were the first to follow the Japanese example in practising this philosophy and reaping rich benefits. QCs soon spread to many other countries such as Norway, Sweden, Brazil, Canada, France, the UK, Singapore, Malaysia, Argentina and the Netherlands in the 1970s. Of late a number of countries the world over are showing keen interest in this philosophy and it is a pleasant surprise to see the anticipation of delegates from the erstwhile USSR and China at the International Convention on Quality Control Circles in Tokyo, 1985. When asked whether such a participative concept would work in a regulated society like China, they were emphatic that it would. Mr. Pu Lingchang of the China Quality Control Association claims in his article, published in the Journal of Quality and Participation, USA, that the number of QCCs in China stood at 2.26 million in 1989. QCs have been initiated in China only in 1987.
**Highlights relevant to the USA**

| June 1966 | Juran addressed at the European Organisation for Quality control (EOQC) Seminar in Stockholm, Sweden and attributed Japanese success to QCCs |
| October 1974 | First US QCs established at Lockheed Space Missile factory in California |
| Late 1977 | International Association of Quality Circles (IAQC) founded |
| Late 1980 | IAQC membership exceeds 1000 |
| March 1982 | International Resource Development Incorporation report indicates 12,424 QCs in the US companies |
| March 1982 | IAQC National Conference attracts over 2000 QCs |
| October 1982 | IAQC holds first Regional Conference in Memphis |
| October 1982 | New York Stock Exchange Survey shows that 75% of the large manufacturing companies (with over 10000 employees) have QCs. 44% of the total companies (with over 500 employees) are using QCs |
| April 1983 | IAQC National Convention attracts over 2000 participants |
| April 1984 | Membership of IAQC exceeds 6000 with more than 70 Chapters in the USA |

**Source:** Hutchins (1992)

In recent times, a good number of companies in the USA have been plagued with the problems of stagnating productivity, unemployment and job insecurity, consumer dissatisfaction, workers' alienation and loss of morale. At the surface level, none of these problems seem to be directly related to the product quality.

The 'catching up with the Japanese' syndrome serves as one of the major catalysts to the QC movement. As the US industries lag in productivity (especially in the automobile industry), the US managers have started to search for reasons by trying to understand the techniques used by their Japanese competitors. The Japanese organisations with their stable labour-management relations, high labour productivity
and superb quality control system, have drawn the attention of the US managers. In this sense, the US managers have recognised the underlying benefits of involving the blue-collar employees in the workplace and the implications of such involvement for motivation. For them, it becomes sensible to follow Japan for productivity improvement. Many US observers are still sceptical about the practicability of the QCs in the US industries. Many of them think that the QC movement is another fad. As Schein (1981), a leading organisation scientist, explains: ‘One of the greatest strengths of the US society is our flexibility, our ability to learn. When we see a problem, we think about it until we have it solved, and we seem to be willing to try anything and everything. One of our greatest weaknesses, on the other hand, is our impatience and short-run orientation. This leads to fads, a pre-occupation with instant solutions, a blind faith that if we put in enough effort and money, anything is possible.’

Institutionalisation of QCs requires long-term commitment, sincere implementation and patience. Although the QCs are rapidly gaining momentum in the US industries, literature regarding the concept is more available than documents relating to real functioning of the QCs. The first US firms to adopt the QC concept fully were Lockheed Missile & Space Co., Inc., California division of the Lockheed Aircraft Corporation and Honeywell Corporation.

In the Lockheed Missile & Space Co., Inc., after learning about the concept from a visiting Japanese team and consulting with Juran, the Missile System Division’s Manufacturing Manager, Wayne Ricker, arranged for a tour to eight Japanese firms by a number of employees. They were impressed and reported that the QCs are effective in motivating the workers by enriching their jobs and increasing their sense of participation. The report also noted a strong support which the senior managerial people gave to the programme and the involvement and commitment of the workers in the plants. As a result, Lockheed formed the first QC in October, 1974. By the end of 1975, there were 15 QCs and, by 1977, 30 QCs were there in production, research and development, and the machine, electronic and composite shops.
Although some managers and workers were reluctant to participate, those who did were generally enthusiastic. The results were quite impressive. By 1977, the Lockheed estimated that the functioning of the QCs had resulted in a saving to the tune of $3 million. The number of defects per 1000 hours caused by the manufacturing process declined by two-thirds. In late 1976, the firm conducted a survey covering the members of 2 QCs. They found that morale and job satisfaction had improved.

The Honeywell too established its first QC in 1974. Since 1974, about 400 such are operating mostly in an effort to improve that quality of working life (QWL). The results have indicated that both financial and non-financial gains have taken place (Zemke, 1980). An extensive study in 1982 of seven divisions of the company has revealed that improvement in communication between the workers and the supervisors, interest in working towards the organisation goals, commitment towards the organisation, and sense of the individuals’ self worth have taken place. The study has also suggested that the professional QCs tend to be less successful and that the participants who have experienced failure tend to be more reluctant to participate even in other QCs. On the whole, the QCS at the Honeywell have worked well.

Since then many other companies of different sizes, belonging to different industries and using different technologies, have accepted the idea. Among the early starters were Metaframe Corporation, Smithline Instruments, Inc., and the United States Envelope. Growth of the QC movement in the USA was slow in the seventies and only about twenty five companies were found to be involved in 1978. The rate of growth in QCs increased and the number of organisations that started running the QCs also increased. By 1980, there were at least 6,000 QCs in the USA and there were indications that many people were viewing the QCs as necessary.

The American Society of Quality Circles (ASQC) and the Technology Transfer Institute (TTI) are also increasingly supporting the QC movement. In particular, the TTI serves to facilitate the exchange of technical information and professional skills between the Japanese and the US business organisations and also sponsors international study missions to Japan to provide the US companies with first hand
information on Quality Control activities and QCCs in Japan. The publicity
campaigns that promote QCs are gaining momentum.

Although more than 90% of the top companies, listed with the New York Stock
Exchange, have started QCs, many experts do not consider that the QCs in the USA
have become successful (Lawler and Mohrman, 1985; Cole, 1980 a).

That apart, the unions, with a few exceptions, are suspicious about the role of QCs.
They consider QCs and other SGAs as management devices to get more production
from the workers without sharing the increase in economic gains, to do work faster
and to reduce human resource requirements. Unions also fear that running of the QCs
might lead to allowing concessions during collective bargaining and the unionisation
process will eventually be weakened as loyalty of the workers to the management
may develop. However, recently, due to competition from the Japanese organisations,
managements and unions are showing interest in QC and other types of SGA. This
trend is particularly strong in the automobile and electronic industries which are
having cost and quality problems for long.

Canada

In Canada, the QC movement is a slow one. Many management consultants have
come to the scene to implement the idea and discussion on the QC philosophy has
now become a regular feature of seminars offered by the leading management bodies.
The International Association of Quality Circles was set up exclusively to promote the
concept of QC. It has been recently restructured to help carry out the QC activities in
a more professional manner with a board of directors comprising primarily the
representatives from the user organisations. As back as in 1982, the said Association
had about 5,400 members who represented individual member-companies and seventy
three chapters. Its various training programmes, conferences, and publications have
provided a major source of information to those who want to learn about QC.

A survey on 20 Canadian organisations was conducted to assess the functioning of the
QCs in those companies. The results have revealed that the QCs had to make many
changes in the bottle and even in the label to get their programmes implemented and accepted by the managements and employees and implemented. These organisations had given considerable efforts (both by the management and the employees) to get these programmes in place and keep them running. Most of the companies surveyed had favourable sales and employment trends and could provide time and money required for running the QCs there. Some companies later discontinued their QCs because of economic difficulties usually unrelated to the programmes. There were also examples of companies that attracted more business or added new product lines because of improved productivity and quality. Data collected, from the 20 companies surveyed, have shown that preparations for the QCs were really made at the local levels (i.e., the plant or office). Although the plant or office might have been requested by a corporate group to consider the idea of QC, nothing was accomplished until a local planning group was set up. Quite often the guiding force was the plant manager or the general manager of the office who was active in forming the planning committee and setting objectives for the programme. (Portis et al., 1986)

QCs- The Indian Scenario

In India there are ample natural resources unlike Japan which can boast of only human potential and has to import most of the industrial inputs it requires. It is claimed that India has the third largest technical manpower in the world. If that is the case, the question is why has India not been able to attain the stature of many countries who have advanced much more than us in the industrial, economic and other fields? Perhaps, Indians lack the capability to work together as a cohesive group and a team spirit so necessary to achieve organisational objectives.

No doubt this is an extreme view but the Indians need to introspect to know whether there is indeed some serious inadequacy in them, preventing them from attaining greater heights. Time and again, one observes that wherever people have developed a sense of team spirit, irrespective of the field of activity, they have met with great success in their endeavours.

It, therefore, goes without saying that anything that Indians can do to bring about greater group cohesiveness among all sections of employees would go a long way in improving the prosperity of any organisation and its employees. And the operation of
QCs can result in such a healthy outcome. Generation of team spirit is one of the tangible spin-off benefits arising out of the application of a participative philosophy, and that is imperative for the growth of any nation.

Pandit Jawaharlal Nehru has said “Nothing is more advantageous and more creditable than a rich heritage, but nothing is more dangerous for a nation than to sit back and live on that heritage. A nation cannot progress if it merely imitates its ancestors. What builds a nation is creative, inventive and vital activity. I seek the creative mind”. (Udpa, 1992)

There is an often-asked question: “Do we, in India, have to adopt the concept of Quality Circles just because the miraculous industrial recovery of Japan is attributed largely to this participative philosophy?” “Are not QCs just another management gimmick which, after remaining the rage for a while, will also be forgotten in due course, like many other fads, such as Management by Objectives or the Zero-defect Programme?” “What is the need for us to think of any such technique now when we are not doing too badly as it is?”

These and many other related issues must be clarified and understood before any attempt is made to study the operational details of QCs. It is a common phenomenon that many organisations, out of a sense of complacency, did not make any serious efforts either to maintain the supremacy they enjoyed or search for any innovative ways to achieve excellence. Prudence, therefore, calls for learning lessons from the experience of others and taking timely steps to obviate unfavourable situations in future.

The Managing Director of a multinational company in Madras was doubtful of the relevance of QCs to his company. He felt his company was already doing well in terms of profitability and labour relations. He had to be reminded that Nippon Steel or Toyota in Japan, Westinghouse of General Motors in the USA and for that matter SAIL, TISCO, Modi Rubber Ltd., BHEL, J.K Group or Shri Ram Fibres in India are not bad companies and yet all are operating QCs. In other words, the implementation of this concept in a healthy organisation would make it even better. But if, out of complacency, no steps are taken to successfully face future challenges of ever increasing competitiveness in domestic and international markets, which can be done
only by maintaining a high reputation for quality and productivity, the future is bound
to pose serious problems for such organisations.

In his famous book, *The Third Wave*, Alvin Toffler has warned that in the years to
come, workers, all over the world, are not going to remain satisfied with only
monetary incentives. Their aspirations are ever on the rise and they will soon be
demanding satisfaction of the higher human needs (like a sense of achievement, and
self-esteem) and having a say in decisions affecting them. If we are not enlightened
enough now to prepare them to face such an eventuality in future, they have only
ourselves to blame. Only through a sincere implementation of the concept of QCs can
they be ready to motivate and draw help employees at the grass-root levels to realise
their immense potential.

As such, the relevance or the feasibility of the concept of QC in India is now beyond
dispute. What remains to be seen is with what seriousness and sincerity of purpose,
the organisations adapt to the philosophy of QC, while keeping it in tune with the
Indian culture and conditions.

A study of the organisations around the world and in India which have been making
rapid progress and have reached a relatively high standard of excellence has revealed
that there are certain factors that are common in the management cultures of all of
them, viz.,

- Participative style
- Open management
- Concern for the people
- Thrust on continuous improvement of Quality
- Sharing gains of improved productivity
- Mutual trust between management and labour
- Human Resource Development programmes

In *Search of Excellence*, Tom Peters also brings out these crucial facts that have
enabled reputed companies in the USA, such as Zerox, Ford, Westinghouse, etc.,
which were once in serious difficulties and ailing due to severe Japanese competition
to turn the corner and re-establish themselves as leaders in their respective fields in
the recent past. In India too, successful organisations, in the public sector and the
private sector, have all the above “Keys to Excellence” ingrained in their organisational culture.

In other words, every organisation aspiring to achieve and also sustain excellence, without which its very survival in the future would be at stake, has to ensure:

- High performance – to be able to compete in domestic and global markets
- High flexibility – to be able to meet the ever changing market challenges
- High commitment – of all employees for continuous improvement

Source: Udpa (1992)

Initiation and Progress

There is a great deal in common between the Japanese and Indians. As such, it stands to reason that any concept or philosophy that takes birth in Japan has much greater chance of being more easily adopted in India than in any other western country. Belonging to the same continent and being oriental, having similar traditional values (such as respect for elders and affinity amongst family members), similar religious backgrounds and other common traits, it is easier for the people of Japan and people of India to understand one other. If that be so, why has it taken the concept of QC nearly twenty years to reach India after its birth in Japan in 1962? It is not that people in India were not aware of this concept or of its contribution to the remarkable industrial growth in Japan. Many Indians, during their visits to Japan has the opportunity of discussing with the representatives of the JUSE, Asian Productivity Council and other concerned agencies, the problems that the people of Japan were confronted with while they were struggling to recover from the ravages of the World War II and the methods they used for tackling them. But, for various reasons, Japanese experiences could not be translated into reality in this country. It is possible that the prevalent economic situation had something to do with the lethargy that the Indians demonstrated in not utilising the experience gained by the Japanese. The sense of complacency in India, perhaps, was due to the fact that India always had a sellers’ market and there was no need for the industrialists to think either in terms of better productivity or improved quality. In the vast protected domestic market in India, anything could be sold and there was no compulsion to export as was the case of Japan. The time it took for the concept to reach India, after it was first evolved in
Japan about two decades earlier, is all the more surprising because the concept of participative management which is embodied in it (i.e., threadbare consultations and cooperation and the consensus approach among the decision makers and those who implement them is not entirely new the Indians. It has been a part of the Indian ethos which looks upon the entire universe as one big family Vasudaiva Kutumbakam wherein respect for the human dignity and concern for others are there, i.e., where egalitarianism is a living reality, as commented on by Sri Sivaswamy, the First Secretary of the Indian Embassy in Tokyo, in one of his letters to Udpa. But there has not been any organised movement as such to institutionalise the concept so that it could become a way of life and be propagated among all other interested organisations. In India, The Bharat Heavy Electricals Limited (BHEL) was the first to launch QCs in 1980 at its Hyderabad plant, under the leadership of Mr. S.R. Udpa, who was then the General Manager (Operations) there. (Udpa, 1992)

It has been acknowledged that the first publicly-announced successful programme of QCs was in BHEL, which is one of the largest engineering and manufacturing organisations in India, employing over 75,000 persons with an annual turnover of nearly $1650 million (1989-90). It ranks among the top ten organisations of international repute in the field of power generation, transmission, distribution and utilisation equipment. It has nine manufacturing plants and ten service divisions providing total service to customers from concept to commissioning. The Hyderabad unit of BHEL, where the QC concept in India took birth and where institutionalisation of QCs was pioneered, has nearly 10,000 employees and is engaged in the manufacture of diverse equipment such as 60MW, 110MW utility turbines and generators, and other assorted pumps for thermal power stations, industrial turbo sets and centrifugal compressors, oil field equipment, switchgears, bowl mills for power and industrial boilers, synchronous condensers, all of which meet the requirements of international standards. It also has captive auxiliary shops, such as foundries, forge shop, heat treatment units, tool rooms, etc. Apart from meeting the indigenous demand, of its capacity is utilised for exports as well.
Udpa, during one of his short business visits to Japan in 1980, happened to meet Sri Sivaswamy, First Secretary of the Indian Embassy at Tokyo, and learned from him the role that the QC's have been playing in the economic rejuvenation of Japan. Udpa had discussions with Prof. Shin Miura, Tamagawa University, on the subject, which helped him to get a general insight into the philosophy and working of QC's in Japan. “QCC Koryo”, the booklet on QC's that Prof. Miura gave to Udpa, was the basic document on which further experiments in launching QC's in BHEL were based. (Udpa, 1992)

Although the proposition to try out the concept in the Indian environment was attractive, there were many doubts and misgivings, initially, about the feasibility of its application in the Indian context.

⇒ Firstly, there was no published experience of the operation of QC's in India, which could be banked upon and, therefore, the methodology for the successful implementation to suit the Indian conditions had to be evolved for the first time.

⇒ Secondly, being a multi-lingual society, the managers were afraid that the absence of a common language would pose problems of communication.

⇒ Thirdly, the general level of education of our workers in India is not high although it is certainly better now than that it was many years ago and, therefore, there were apprehensions that it would be difficult for them to assimilate and implement the concept.

⇒ Fourthly, it was feared that the powerful trade unions may look upon the launching of the QC's with suspicion and may object to those due to a fear of losing their own hold over the workers. Moreover, it was foreseen that this concept, being altogether new and different from those so far been used to, would not be readily accepted by the supervisory and middle-level executives due to the likely misconceptions in their minds on various counts.
Despite these doubts, managers were also aware of their advantages. If there was any organisation in India which had a conducive climate for experimenting with the QCs concept, it was BHEL. The style of participative management had been in operation in the company for long. Quality awareness had been there for many years at all levels in the organisation. The company has had an enlightened and progressive top management. It was decided that while launching QCs, there would not be any undue publicity or fanfare. It was also decided that only if a favourable consensus among different sections of executives and workers emerged and if the majority of the employees were found to be in favour of trying out the experiment, only then there would be a very modest beginning in certain identified areas. With this cautious approach in mind, there were preliminary discussions with the top-level executives of the division, when the QC concept was presented with as many details as were available at that time. The discussions ended with the general agreement that certain sections of workers in the identified areas enjoy the conducive environment for initiating the concept. For the purpose, two work areas, with dissimilar activities were initially selected for launching the experiment – one in the pump manufacturing shop and the other in the purchase department. The executives and workers of these two sections were then presented with an exposure to the concept of QC and naturally, as expected, there were a number of clarifications that were sought on the concept and working of QCs. It was not unexpected that, at the meeting, some employees thumped the table and demanded to know how the QCs would help when all the suggestions that they had been giving for over fifteen years had not been paid heed to by the management. A patient and detailed explanation was given that one of the objectives of the QC concept was to remove this very deeply ingrained sense of frustration which had arisen primarily due to the non-recognition of workers’ creativity and capabilities. After a couple of hours of frank discussions, when they understood the philosophy in detail and were convinced of the sincerity of purpose of the management, workers in both the sections voluntarily came forward to form five QCs. The QC members chose their leaders and, with the help of the Statistical Quality Control Division of ISI, Hyderabad, the QC members and their leaders were given training on the various facets of QC operation, including simple SQC techniques to be used for problem solving.
There were protracted discussions on whether or not the trade unions have to be officially involved prior to the formal launching of QCs. It was finally decided that no trade union representatives would be associated in their official capacity in discussions pertaining to QCs but, at the same time, no member or any other office bearer of trade unions would be barred from becoming QC members. They would be exposed to the concept just as any other employee of the organisation. BHEL, Hyderabad, had one recognised trade union and a few other groups, which formed registered rival unions. From the hindsight, it may be said that this decision was correct because, in the last four years of the operation of the QCs in India, there has been no problem with any of the trade unions as such. Perhaps, the efforts that were made to explain in depth the total philosophy of QCs, which is directed towards the wellbeing of employees themselves, helped dispel suspicions in the minds of the union officials.

It was immensely gratifying to note the keen interest that the workers started taking in the working of the QCs. Although the concept was new to them, they followed the principles without difficulty and, as a result of their enthusiasm and interest in the novel and innovative experiment, they were able to make a presentation before the top management within three months of the formation of the first five QCs (which were formed in November, 1980 and formally inaugurated on January 5, 1981). When word spread about the QCs in these two areas, spontaneous enthusiasm started growing in other areas as well. Another twelve QCs were launched in the next five months. The year 1981 ended with 33 QCs in Hyderabad. During the period, the experiment got the necessary boost by way of the company’s Chairman, Sri K.L. Puri’s meeting with the QC Leaders and appreciating their laudable efforts. With the support of the top management and understanding, thus, visibly demonstrated, the tempo of QCs activities accelerated. In the first eighteen months of the operation of the QCs, there were three presentations of case studies to the top management and the number of QCs rose to 51 in the Hyderabad Unit of BHEL alone.

The areas covered by these QCs were diverse. Apart from different manufacturing shops, new QCs were voluntarily formed in the personnel, training, medical and engineering departments. Perhaps, the unique feature of the Hyderabad experiment was that the Quality Control Department itself had QCs.
The initial operation of QCs revealed a few lacunae and it was realised that the basic concept need to be suitably modified in certain respects to suit the Indian environment. When it was seen that the initially-launched QCs had to a good start, the need for a newsletter was felt to give publicity to the activities of the QCs and also to provide recognition to their efforts. Accordingly, the *Quality Circle Forum*, a quarterly newsletter, was launched with the first publication in January, 1982. One of the features of this newsletter is narration by the Leaders of the QCs activities followed up by some case studies based on the problems as tackled by their QCs.

During one of routine visits to the plant, the Chairman and Managing Director of BHEL, Mr. K.L. Puri, spared some time to meet the members of the QCs and listen to their case study presentations. Impressed by the enthusiasm and pride with the QC members were participating in the QC activities, the Chairman expressed his desire that this concept should gradually be introduced in the other divisions of BHEL as well. The Chairman’s public demonstration of faith in the QC philosophy and his recognition of the QCs’ efforts brought about initiation of QCs progressively in seven other manufacturing plants at Haridwar, Bhopal, Trichy, Jhansi, Ranipet and Bangalore and in the various service divisions of the organisation.

In every case, prior to the launching, adequate preparations were made, such as presentation of the concept to the senior members of the management and to the concerned groups of workers; their voluntary enlistment as members and subsequently training. Finally, a formal inauguration was organised in which the QC badges were presented to the members by the chief executive. Thanks to the correct methodology adopted for starting the QCs, no resistance was encountered from either the workers or from their trade unions. However, it was observed that the middle-level executives, who could make or mar the movement, needed a more detailed exposure to the philosophy, lest they may pose hurdles to its successful operation.

Thus, in about thirty nine months, the number of QCs in BHEL rose from the initial 5 to 860 with nearly 8000 members in different divisions all over the country. In 1989, there were in all over 1600 QCs in different divisions of the company. The areas covered by teams were also diverse, apart from the manufacturing areas, workers in other peripheral departments, such as medical, personnel, engineering, purchase
training, township administration and even Quality Control, came forward voluntarily to start QCs.

QCs have been implemented in a large number of organisations in India and the QCFI is promoting in a big way the growth of QCs in India. QCFI was founded in April 1982, as a non-political and non-profit organisation, to promote the QC concept in India. Due to QCFI's existence, many organisations in India have benefited in terms of QC education and training and establishing QCs in their organisations. QCFI has 20 Chapters spread across the country catering to the needs promotion of QCs and training of people in their respective areas. In the recently held International Convention on Quality Control Circles (ICQCC-2009) in Philippines, QCFI organised the participation tour from India. Nearly 57 QCs participated from India in the competitive stream. India bagged 21 gold, 16 silver and 20 bronze medals and topped among all the contestants from other countries. (Quality Circle India, 2009).
The following is the list of some of the reputed QCs and the organisations in which those are operating in India.

<table>
<thead>
<tr>
<th>Name of the QC</th>
<th>Name of the Organisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vikas</td>
<td>Apollo Tyres Ltd., Vadodara</td>
</tr>
<tr>
<td>Polevault</td>
<td>Ashok Leyland Ltd., Ennore</td>
</tr>
<tr>
<td>Unique</td>
<td>Bharat Petroleum Corporation Ltd., Mumbai</td>
</tr>
<tr>
<td>Aakash QC 54</td>
<td>BHEL-EDN, Bengaluru</td>
</tr>
<tr>
<td>QC-104</td>
<td>BHEL, Trichy</td>
</tr>
<tr>
<td>Prahari</td>
<td>Exide Industries Limited, Haldia</td>
</tr>
<tr>
<td>Lakshya</td>
<td>HAL (Engine Division), Bengaluru</td>
</tr>
<tr>
<td>Novel</td>
<td>HAL, Hyderabad</td>
</tr>
<tr>
<td>Prerna</td>
<td>Hero Honda Motors Ltd., Dharuhera</td>
</tr>
<tr>
<td>Samanvay</td>
<td>Kirloskar Oil Engines Ltd., Pune</td>
</tr>
<tr>
<td>Scavenger</td>
<td>Nicco Parks &amp; Resorts Ltd., Kolkata</td>
</tr>
<tr>
<td>Superhunter</td>
<td>NTPC Ltd., TSTPS, Kaniha</td>
</tr>
<tr>
<td>Flora</td>
<td>Titan Industries Ltd. (Watch Division), Hosur</td>
</tr>
<tr>
<td>Pragati</td>
<td>Godrej Consumer Products Ltd., Malanpur</td>
</tr>
<tr>
<td>Friends</td>
<td>Hindustan Zinc Ltd., Agucha</td>
</tr>
<tr>
<td>Himalaya</td>
<td>Lucas-TVS Ltd., Puducherry</td>
</tr>
<tr>
<td>Gladiator</td>
<td>Reliance Industries Ltd., Hazira</td>
</tr>
<tr>
<td>Adarsh</td>
<td>Tata Motors Ltd., Mumbai</td>
</tr>
<tr>
<td>Udaan</td>
<td>Tata Power Company Ltd., Mumbai</td>
</tr>
<tr>
<td>Iris</td>
<td>Indira Gandhi Centre for Atomic Research, Kalpakkam</td>
</tr>
</tbody>
</table>

Source: *Quality Circle India, Volume 27(4), Oct-Dec 2009*

However, in the educational sector, being one of important social sectors, the researcher has found very little mention of QC. It could be mentioned here that, in India, the credit for introducing QC in educational institutions goes to the students of
City Montessori School (CMS), Lucknow, who were the pioneers in setting up, in 1993, Students Quality Circle (SQC), Jai Jagat, world’s first QC run by the school children. The concept was pioneered by Mr. J. Gandhi in 1993. [www.cmseducation.org]