QUALITY CIRCLES- THE GLOBAL SCENARIO

5.1 Introduction:

The quality management movement with the primary goal of continuous improvement, developed initially after World War II in Japanese manufacturing organisations as a result of the work of Deming and Juran. By the early 70s, this had begun to have a major impact on all sectors of different countries across Asia, Europe and America (lately in Africa). By 1981, there were QCs/QCCs in 14 countries of the world. By 1987, the QCs activities and the QC movement spread to more than 50 countries and by 2009, 72 countries had introduced the QC philosophy.

5.2 Initiation and Growth in Asia:

In Asia, the first QC (more popularly known as QCC in Japan and neighbouring countries) originated in 1962 in Japan, and, from then on, the QC movement grew, slowly at first, then with increasing speed. The QC philosophy spread first to Japan’s neighbours, South Korea and Taiwan, later to Singapore, Malaysia, Philippines and Hong Kong (HK), and, then to India, Indonesia, Thailand, Sri Lanka, Pakistan and Vietnam, all members of the Asian Productivity Organisation (APO), an inter-governmental regional organisation with its headquarters in Tokyo, established in 1961.
The QC initiation and growth in different Asian countries has been discussed as follows;

5.2.1 Australia:

In Australia, starting from 1981, there was considerable experimentation with QC initiatives as managers had sought to learn from the successes of Japanese management techniques. The use of QCs as a catalyst for improving workplace relations was significant in the light of the Hancock Report’s (1985) emphasis on the relative strengths and weaknesses of Australian IR. However, the QC movement started declining in Australia in mid-1990s. The ostensible reasons for the decline were redundancies or company restructuring. A notable illustration was the suspension of the well-known QC programme at Repco Bearings. Then, many Australian firms relied on non-financial incentives to encourage participation. The result was a higher participation rate [75-80%] in QCs/teams among the Australian employees after that (Yukongdi, 2001).

5.2.2 Bangladesh:

In Bangladesh, quality improvement was not a major consideration for the industrial sector as quality improvement initiatives were seen to increase cost and decrease productivity. Hence, there were no early nation-wide QCs activities or movement recorded in Bangladesh until 2000. However, presently the Bangladesh Society for Total Quality Management (BSTQM) has been looking after the promotion and growth of QCs activities and movement. The BSTQM organised International Convention on Quality Control Circles (ICQCC) in Dhaka in 2008, which gave a boost to QCs activities in the country. 232 QCs participants (from 29 QCs) and 250 general delegates participated in the Convention from organisations all over Bangladesh.
5.2.3 China:

In China, the QC movement has been institutionalised with state support. The China Association for Quality (CAQ) has looked after the promotion and growth of QCCs (popular term in China) activities in different organisations throughout the country under the guidance of General Administration of Quality Supervision, Inspection and Quarantine and with cooperation and support from All China Federation of Trade Unions, Chinese Communist Youths League, China Association for Science and Technology (CAST). In 1987, it was estimated that China had about 4,50,000 QCCs, having grown significantly from 1979. By 1989, the number of QCCs reached 2.26 million and by 2009, more than 10 millions QCCs had been registered and were working.

QCCs activities in China have paralleled the rapid development of the Chinese economy. Organisations practicing QCCs have made visible development through improved quality of product, operation and service, and, innovations in decreasing wastes and losses, saving energy and cost, and, enhancing safety and environment protection.

5.2.4 Hong Kong (HK):

The concept of QC was first formally and institutionally introduced in HK in 1981 when the Hong Kong Productivity Council (HKPC) organised a study mission to attend the ICQCC in Tokyo, Japan.

In 1983, the Hong Kong Quality Circle Association (HKQCA) was formed and in 1985 began to hold annual QCs Conventions. By 1986, a HKPC Survey revealed that at least twenty companies had set up QC programmes and that ten of these firms were in the electronics sector, while twelve were foreign-owned. The publication of case-
studies (HKPC, 1985) also revealed an interesting phenomenon, with the early 'adopters' being either the larger local companies, such as, the Hong Kong Bank, the Mass Transit Railway Corporation and Shui On Construction, or, subsidiaries of Multinational Companies (MNCs), such as, IBM (HK) Ltd. By 1987, Hsia, the chairperson of the HKQCA, was able to report that thirty companies had implemented QCs and there were a total of over 400 QCs in operation. By 1988, QCs had apparently spread to a total of fifty companies. These included some of the largest and best-known local and foreign companies such as the Kowloon-Canton Railway Corporation (KCRC), Hong Kong Soya Bean Products, Outboard Marine Asia and Motorola Semi-conductor (HK) in addition to those already mentioned.

5.2.5 Indonesia:

In Indonesia, the first National Convention of QCCs (the popular term) was held in 1985. By 1991, there were 425 companies involved in QCCs. Since then, the Indonesia Quality Management Association (IQMA) has been looking after the promotion and growth of QCCs activities throughout the country and in 2006, organised the ICQCC at Bali, which gave a further boost to QCCs activities.

In the 2009 ICQCC at Cebu, Philippines, 8 QCCs from Indonesia participated and won 4 Gold Medals, 3 Silver Medals and 1 Bronze Medal. This was a continuation of similar efforts in ICQCC, 2008 at Dhaka, Bangladesh and ICQCC, 2007 at Beijing, China.

5.2.6 Japan:

The devastation of World War II forced Japan to develop creative strategies to maximise their use of resources, including HR, in order to rebuild their industrial capacity and compete in world markets. Out of these pressures grew the QCC (this name originated in Japan in 1962) movement, which makes maximum use of scarce
HR skills. The QCC movement helped move Japan from an economic reliance on cheap labour and low-quality products in the 1950s and 1960s to a fuller utilisation of highly skilled labour and an enviable world market position in the 1980s.

QCCs were first developed and formalised in Japan in the early 1960s. In May, 1962, the first QCC was registered with the QCC headquarters. Dr Ishikawa of the University of Tokyo introduced the QCC philosophy/concept in Japanese industry. In April, 1962, a magazine called ‘Gemba-to-QC’ or ‘FQC’ (QC for the Foremen), designed for employees in workshops, was launched which was the beginning of SGAs in Japan. Union of Japanese Scientists and Engineers (JUSE) organised the first ‘QC Conference for Foremen’ in November, 1962. Thereafter, JUSE has been looking after the promotion, registration and growth of QCCs activities in different organisations throughout the country.

In order to afford an opportunity for QCC participants to share their experiences in the operation of the philosophy, the first QCCs Conference was held in May, 1963, at Sendai (Northern Japan). Attended by 149 people, 22 cases were presented. By June, 1967, the number of registered QCCs grew to 10,000 in Japan. In November, 1972, the registered QCCs grew to 50,000 in Japan. In October, 1978, the first ICQCC was held in Japan when an estimated 4 million Japanese employees were involved in QCCs, i.e., 12.5 per cent of the working population (Cole, 1979b). In June, 1979, the registered QCCs achieved the 1,00,000 mark. Shiba (1989) reported that QCCs had been introduced in 26.3 per cent of the 2,20,000 companies employing thirty or more people in Japan and that their membership stood at 5.53 million. By 1992, there were more than one million registered QCCs with over ten million members operating in Japan. From October 1, 2006, JUSE changed to the online registration system.

Some notable prize-winning organisations practicing QCCs activities in Japan are- Aisin Keikinzoku Co. Ltd., Kose Corporation, Daihatsu Motor Co. Ltd., Mazda Motor Corporation, Denso Corporation, Mihagino Hospital, Hitachi Ltd., Nissan

5.2.7 Malaysia:

Matsushita introduced QCCs in Malaysia as early as 1971. Thereafter, the National Productivity Corporation (NPC) started the promotion of QCCs activities in 1982 to support the ‘Look East Policy’ phase of Malaysian economic development. By 1983, a total of 129 QCCs had been formed involving 961 employees out of 1,028 employees. However, there is not a single academic publication of international standing that examines the suitability and success of QCCs in the Malaysian context.

In 2004, the NPC launched the Innovative and Creative Circle (ICC) philosophy with the aim of transforming erstwhile QCCs into innovation driven Circles. It aimed to promote knowledge-sharing, creative thinking, innovation for value creation and cost optimisation. By 2007, 496 ICCs involving 3,651 participants from 291 organisations were working in product and service quality improvement, process efficiency, product innovations, and reduction in machine downtime. In 2007, a total savings of RM 62.3 million was recorded from 140 ICCs. Thus, Malaysia had successfully handled QCCs and then transformed to ICCs, managing to move on to the equivalent of Malcolm Baldrige Standards. However, in recent years, there seems to be some decline.

5.2.8 Philippines:

In Philippines, Productivity Improvement Circles Association of the Philippines (PICAP) has been looking after the promotion and growth of QCCs activities across
the country. But, during the mid-2000s, it was found at the Annual Productivity Improvement Circles and National Conventions (PICNC) that number of competing QCCs was declining at an alarming rate. The PICAP adopted a two-pronged strategy to recreate the past momentum of the QCC movement in the country. On the one hand this was to get the Small, Medium Enterprises (SMEs) to join the QCC movement with the focus on productivity improvement and on the other to integrate quality and productivity in the educational curriculum. The strategy bore fruit, when 18 QCCs participated in the ICQCC, 2009 at Cebu, Philippines, 15 winning Gold Medals and 3 QCCs won Silver and Bronze Medals.

5.2.9 Singapore:

In Singapore, Bridgestone (S) Pte Ltd. became the first company to start QCCs in 1973. By 1981, the National Productivity Board (NPB) launched the productivity movement to promote QCCs at a national level. 2,534 QCCs with 18,525 members were recorded in 1984. The NPB metamorphosed into Standards, Productivity and Innovation Board (SPRING), which started promoting QCCs thereafter.

Since 1981, some 1,81,000 QCcs from 400 organisations in the public and private sectors have been formed. In 1996, there were more than 19,000 QCCs and WITs. They were found in some 386 organisations and about 1,40,000 workers were involved, representing nearly 9 percent of the total workforce. In the National Quality Circles Convention, 1999 of Singapore, 480 QCCs participated with total reported savings of $68 million to their organisations. From 1985 to 1999, the QCcs saved their companies more than $400 million.

By 2001, the QCC movement had spread among 2,21,000 workers [12.3 percent of the workforce]. More than 27,000 QCCs from 410 organisations were registered with the SPRING, Singapore. This was seen in the savings of some $618 million reported by the participating QCCs (comprising of 86,300 QCCs’ members) in that year’s
National Quality Circles Convention. Over 490 organisations, individuals and QCCs had received the National QC Awards.

By 2002, Singapore was proud to note that its QCC Movement had truly become a mass movement, with over 30,000 QCCs from 520 organisations registered with SPRING involving 13 percent of the total workforce. The cumulative savings reported at national QCs Conventions since 1982 had exceeded one billion dollars. They were found in all sectors of the economy, including schools, hospitals, government departments, the armed forces and even golf-clubs. By the end of 2008, SPRING entrusted the responsibility to look after the IQCs activities to the Singapore Productivity Association (SPA).

Some notable prize-winning organisations practicing QCCs/IQCs activities in Singapore are- Singapore Housing Development Board (HDB), Singapore Land Authority, Singapore Police Coast Guard, Land Transport Authority (LTA), Queenstown Neighbourhood Police Centre (NPC1), Ministry of Defence, Singapore (MINDEF), Motorola Electronics Pte Ltd. (APPSD), Port of Singapore Authority, Singapore General Hospital Pte Ltd., Hewlett-Packard (S) Pte Ltd., Overseas Union Bank Ltd., Matsushita Electronics (S) Pte Ltd., Matsushita Denshi (S) Pte Ltd., Texas Instruments (S) Pte Ltd., Ministry of Defence, Seagate Technology International (Senoko), Ministry of Labour, POS Bank, etc. In ICQCC, 2009 at Cebu, Philippines, 16 QCCs participated and won 5 Gold Medals, 2 Silver Medals and 9 Bronze Medals.

5.2.10 Sri Lanka:

Sri Lanka Association for the Advancement of Quality and Productivity (SLAAQP) was formed on 30th January, 1996 as the successor to the former Quality Circle Association of Sri Lanka (QCASL). 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 also functions as the National Registration Office.
for QCs. The interest in QCs has been steadily growing in Sri Lanka and it was estimated that there were nearly 1,200 QCs formed island-wide by 2007. The rising interest was evident in ICQCC, 2008 at Dhaka, Bangladesh, when 11 delegates from 3 QCCs participated from Sri Lankan organisations and in ICQCC, 2007 at Beijing, China, 2 QCCs from the country participated in the ‘Non-Competition Stream’.

5.2.11 South Korea:

South Korea initiated QCCs in 1974, and, by 1981, QCCs were found to be increasing in the country with 53,228 registered QCCs. In South Korea, Korean Standard Association (KSA) has been looking after the promotion and growth of QCCs activities. The first QCCs Convention was held in support of the KSA’s promotion of quality. Only 1,257 QCCs participated (KSA, 1998), but, by 1997, more than 1,22,289 QCCs were active. In 2007, there were a total of 49,510 QCCs from 7,016 companies with 4,81,322 QCCs members registered.

5.2.12 Taiwan:

Under the leadership of the founder Chaw-Son Tsong, the organisation of Pioneer Enterprise Think Thank was set up in 1970 and from then QCCs activities had been actively promoted. Since 1983, the Association of Pioneer Quality Control Research (PQCRA) has been looking after the promotion and growth of the QCCs activities. These activities have brought economic prosperity and social happiness to the country, and, under the able leadership of Yeh Shih Shui, have been growing manifold.

5.2.13 Thailand:

Thailand started QCCs in 1974-75, first in the industrial sector and then in 1981, in the services sector. By 1987, there were 6,400 QCCs. In 1989, the Ministry of
Industry in cooperation with concerned experts and public and private sector organisations, agreed to establish The Association of QC Headquarters of Thailand (QCHQ) as a non-profit organisation responsible for promoting QCCs activities to strengthen the progressive development of QCCs in Thailand. By 2007, more than 100 organisations with more than 5,000 QCCs members were performing QCCs activities in the country.


The success of QCCs activities in Thailand have been evident from the fact that at the ICQCC, 2008 at Dhaka, Bangladesh, 39 delegates from 6 QCCs participated from Thailand, and, at the ICQCC, 2007 at Beijing, China 21 QCCs (including 16 QCCs for 'Non-Competition Stream') participated, and, won Gold, Silver and Bronze Medals.

Other Asian countries involved in QC movements are Brunei, which introduced QCCs in the Civil Service in 1984 and Qatar.

5.3 Initiation and Growth in America:

In 1977, the International Association of Quality Circles (IAQC) was established in Midwest City, Oklahoma. In the Continent of America, the QC movement has a long history. Although, QCs are thought by many to be a Japanese invention in 1962, in fact, QCs were originally developed in the U.S.A. in the late 1940s as a practical form
of autonomous workgroup. But, growth of QCs in the U.S.A. was slow. As compared to only about 1,00,000 QCs in the U.S.A. by 1992, Japan already had over a million.

The QC initiation and growth in different American countries has been discussed as follows;

5.3.1 Brazil:

In Latin America, the pioneers of QCC philosophy are the Brazilians, in VW, which in 1971 established a Japanese type QCC. By 1981, QCCs were found in large numbers in Brazil and by 1985, nearly 1,000 QCC teams had developed.

5.3.2 Canada:

In Canada, the QC movement started spreading in the 1970s and by 1981, emerged in significant numbers. However, Jain (1990) observed that QCs did not work in Canada.

5.3.3 Mexico:

In Mexico, QCCs began around 1973 in the Northeast of the country. The ITESM (Instituto Tecnológico de Estudios Superiores de Monterrey), in a research study of 1982, found that 3,442 people were working in 362 QCCs in 21 companies in the private sector in several Mexican cities. While there is little or no statistics on Mexican QCCs, a combination of misinformation, lack of support from the top, high dependence on external consultants and reduced promotion in the U.S.A., led many companies to stop QCCs, and by 1989, only a few survived. The Mexican QCC movement thus simply disappeared.
But in 1990, Dr. Yuzuru Itoh (former QA responsible in Matsushita Electric, Advisor for United Technologies, Otis elevators and international consultant) proposed the promotion of QCCs through a forum where success stories of improvements could be presented and recognised. With the support of JETRO (Japan External Trade Organisation office in Mexico) and other institutions like the CANACINTRA (Mexican Chamber of Manufacturing Industries), BANCOMEXT (National Bank for External Commerce), the ITESM, private companies like Mitutoyo and many Mexican experts (called the technical committee), Mexican Association of Teamwork (AMTE) organised the First National Contest of QCCs in December. While this led to some growth in team activities in the second half of 1990's there was a decrease during 2001-03, because of other programmes that were important to organisations (cost reduction, delivery time’s reduction, effects of globalisation, ISO 9000: 2000, etc.). 78 percent of the Mexican teams solved on average one case per year and the rest solved 2 or more. By analysing 2002 finalist teams it was found that a team saved on an average US$ 35,000/year (minimum US$7,000 and maximum US$30,00,000 per year). It was difficult to get precise data, but AMTE estimated the existence of more than 12,000 teams (including QCCs) nationwide (in 2003) and predicted a growth in the next few years up to 50,000 teams by 2010 (Okamoto, 2003).

5.3.4 United States of America (U.S.A.):

In the U.S.A., QCs were not alien because the QC philosophy is based on the concepts of group dynamics and workers' participation that American behavioural scientists and SQC experts had advocated for decades. QCs have had an interesting history in the U.S.A. The SQC concepts leading to QCs had been initially introduced in the 1950s by W. Edwards Deming. The reception was less than gratifying. However, major environmental changes in the 1970s encouraged many American organisations to explore and experiment with work innovations in order to improve productivity and quality as well as to satisfy the psychological needs of people. The

The first QCC was introduced by Lockheed Missiles and Space Company in 1974 after Lockheed managers had toured Japan and was astounded to find that Japanese QCCs solved problems that had baffled professional engineers for years. Blocker and Overgaard (1982) reported on the use of QCs in 21 organisations in the U.S.A. These included Lockheed and Westinghouse’s Defence and Electronic Systems Corporation. In 1975, Lockheed was reported to have 15 QCs with savings of $28,44,000 over a two year (1975-77) period. In one operation, the number of rejects per 1,000 hours was reduced from 25-30 to less than 6. By 1977, the number had grown to about 30 documenting three million dollars of savings with a ratio of savings-to-cost in operating QCs of six-to-one.

Following Lockheed’s success, other organisations successfully experimented with QCs in the late 1970s. About 25 companies were involved by 1978, although growth was slow. The QC philosophy did not receive widespread attention until the turn of the decade, most notably at the Norfolk Naval Shipyards and had not been installed in many places until the early 1980s, growing to 750 American Corporations and Government agencies and by 1986 to about 1,000 US companies.

However other estimates placed the number of private organisations sponsoring QC programmes in excess of 6,000 by the end of 1982 (Seelye and Sween, 1982). Another estimate put the number at well over 25,000 (Barra, 1983). Honeywell for instance was said to have 551 QCs in operation in 1983 - more than in any one Japanese Corporation. Many QCs observers from the U.S.A. (e.g., Denhardt and Pyle, 1985; IAQC, 1984; Lewis, 1985; Thomas, 1986; etc.) identified about 2,500 QCs in the Federal Government including state projects in Missouri, California and Florida and numerous QCs were implemented in different counties and municipalities.
throughout the U.S.A. Apart from this, Agencies in the Federal sector (including banks and hospitals), state and local Governments’ Agencies and many schools had also incorporated QCs during that time. This identification excludes military applications and the military constituted the major Governmental patron of QC programmes. So, it has been quite clear that the spread of QC movement was very fast in the U.S.A. during early and mid-1980s.

Many large and small organisations, irrespective of white or blue-collar, had joined the ranks of QC advocates by that time including Babcox & Wilcox, Mercury Marines, Solar Turbines, IBM, TRW, Digital Equipment, Xerox, McDonnell Douglas, General Motors (GM), Norfolk Naval Ship Yards, American Airlines, 3M, DEC, General Electric, Hewlett Packard (HP), Texas Instruments, Inland Steel, Eastman Kodak, Procter & Gamble, Polaroid, General Foods, Control Data, Ford, Martin Marietta, Motorola, Prefix, Norcliffe-Thayer, etc. One of the later entrants using QC philosophy was data processing organisations like the US Army DARCOM Automated Logistics Management Systems Activity, the Federal Systems Division of IBM and McDonnell Douglas Automation.

Lawler and Mohrman (1985) and Lawler (1986) estimated that over 90 percent of the Fortune 500 largest US non-financial firms had QCs by 1985 and over 2,00,000 workers in the U.S.A. had been involved in those programmes.

However, the importance of QCs as an HR intervention had declined during the 1990s. After a few successes, most organisations were willing to declare victory, abandon the QCs and then wait for the next stage of development - an organisationally comprehensive approach to quality under the banner of TQM. Ultimately by the late 1990s, it had mostly faded away. Some organisations, in which QCs are still functioning include Winnebago Industries [Recreation Vehicle (RV) manufacturer] which received the ‘Quality Circle Award’ for 12 consecutive years up to 2007. Another US organisation Audi, identified and fixed problems within weeks-
such as wheel alignment and power-seat defects that surfaced on the Q7 SUV when it was launched in 2006 because of active QC programmes (Trahan, 2007).

QCs also spread to Argentina in the 1970s.

5.4 Initiation and Growth in Europe:

In Europe, by the late 1970s, the QCC movement had spread to Great Britain (or the U.K.), Sweden and Denmark. By 1987, Germany (erstwhile East Germany) and Russia (erstwhile USSR) were running QCs on experimental basis (Dwivedi, 1987). Dwivedi (1987) also pointed out that Austria, Bulgaria, Finland, Holland, Hungary, Ireland, Italy, Norway, Spain and Switzerland had also successfully launched QCs in their industries. It may be remembered that most of these European countries were pioneers in workers' participation schemes after both the great wars.

5.4.1 France:

By 1981, QCs were found in France. Dwivedi (1987) found that most of the countries in Europe have organisations with a QC programme or more, with France having the greatest number of QCs. France had 10,000 active QCs by that time. However, the Ministry of Labour Survey of Workplace Employment Relations, REPONSE, indicated that only 14 percent of the establishments in France involved more than half of their employees in autonomous teams and the adoption rates of QCs was only 11 percent by 2000.

5.4.2 Greece:

In Greece, the first few QC programmes were initiated in 1987 in the “Alloy” factory, located in the outer-Athens area and in 1988 in the “Motors” car factory, located in central Greece, in the context of a coordinated plan to introduce TQM. Stavroulakis
(1997) pointed out during his study that there existed 25 QCs having 250 members (14 percent of the total workforce) and 20 QCs having 135 members (27 percent of the total workforce) respectively in the above two companies. In both firms, health and safety topics were preferred most by the QC members. After several years’ of mediocre economic results, the companies returned to rampant profit, favoured by market conditions and successful QCs’ efforts.

5.4.3 Sweden:

In Sweden, the QC movement started spreading in the 1970s. By 1981, QCs were found in significant numbers. In Sweden, as in Japan, QCs had gained legitimacy through the Professional Associations, with production engineers having a direct link to key corporate decision-makers. The Technical Department of the Swedish Employers Federation (SEF) had been a principal locus of resources for the promotion of QCs. However, by mid-1980s, the QC movement was over in the country.

5.4.4 United Kingdom (U.K.):

QCs arrived in the U.K./Great Britain/England via the U.S.A. from Japan in the late 1970s, and, over the next decade, had been adopted by a significant number of organisations. Rolls Royce (Derby) was the first UK organisation to implement QCs in February, 1978. Encouraged by the participative nature of the idea and the cost-savings that resulted, Rolls-Royce, by December, 1979, had 23 QC groups operating at Derby (involving more than 200 employees) and four QC groups had been set up in other divisions. By 1981, QCs had been implemented by 100 companies in the U.K. Incomes Data Services (1985) had reported a Survey evidence to show that around 400 British companies, such as, Jaguar, Wedgewood, ICL, Mullard, etc., had operated QC programmes in 1985, as part of planned organisational change initiatives. In 1990, 150 organisations were also registered with the NSQC.
QCs' success had been a commonplace topic in the academic literature of UK during the 1980s, but, their popularity dropped by the second half of the 1990s. Many QC programmes had been disbanded within a few years of being launched and generally it was concluded that the QCs' implementation had failed in the UK companies.

5.5 Conclusion:

It is clear that the QC philosophy and QC movement has invaded most of the countries all over the world with its voluntary participative essence and true spirit of 'People Building'. However, it has been pointed out in the above discussions that the Asian countries under the able leadership of Japan have been more successful than their European and American counterparts. Also, in most of the Asian countries including India the QC philosophy appears to have flourished. Some of these countries have innovated some advanced quality practices interwoven with the QC philosophy. In comparison to this, the QC philosophy appears to have long died down in all other American and in all European countries except the USA.