PERFORMANCE EVALUATION OF QUALITY CIRCLES IN INDIAN COMPANIES

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ABSTRACT

Quality Circle is modern management concept designed to bring together all level of workforce in an organization for setting standards of excellence and achieving better results. Developing in post war Japan, quality circles was largely responsible for rebuilding and stabilizing the shattered economy of the country. This concept has since gained wide acceptance. Quality circles are a positive and humanistic approach to productive management. Quality circles which have been popularized by Japanese firms are being used all over the world because of the benefits that accrue to the firm. A quality circle involves participation from a small group of employees doing the same type of work. They meet regularly to identify, analyze and solve the problems that arise during the course of their work and their association with the organization. Now the market place is highly competitive and it becoming tougher every minute.

Quality Circle concept has three major attributes - Participation Management, Human Resource Development Technique, and Problem Solving Technique. It has also been included the study of the different personalities of people involved in a quality circle and how does quality circles helps in changing the behavior of the people. The circle encourages each people to develop the best of his ability. It offers a cooperative group for the individual to belong to. It satisfies the requirement of self-esteem of an en employee and satisfies his ego with well-earned recognition.

In this research study the author has tried to analyze the performance of quality circles in five Indian companies as BHEL (Bharat Heavy Electricals Ltd.), SM Creative Electronics Limited (SMCEL), Bharat Electronic Limited (BEL), BSNL (Bharat Sanchar Nigam Limited) and Amul (Anand Milk Union Limited) have been considered for the study and data were collected through a questionnaire to employees in these and asked them to fill up the questionnaire accurately as possible. Data have been analysed and interpretation and suggestions have been presented in the preceding section. This study is of the great significance and relevance because Quality Circles is a people – building philosophy, providing self-motivation and happiness in improving environment without any compulsion or monetary benefits. It represents a philosophy of managing people specially those at the grass root level as well as a clearly defined mechanism and methodology for translating this philosophy into practice and a required structure to make it a way of life. It is bound to succeed where people are respected and are involved in decisions, concerning their work life, and in environments where peoples' capabilities are looked upon as assets to solve work-area problems. The underlying premise is that productivity will increase for two reasons: because the person best able to decide the most efficient way to do a job is the person who does it for a living and because employees who have greater control over the product will be more committed and effective workers.

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1. AN INTRODUCTION AND LITERATURE REVIEW OF QUALITY CIRCLE PROGRESS

Quality Circles is a term used in human resources management that refers to the technique of motivating workers by allowing them input into decisions concerning the production process, thereby increasing productivity and profits. A quality circle is a participatory management technique that enlists the help of employees in solving problems related to their own jobs. Joel E. Ross and William C. Ross(1982) define a quality circle as "a small group of employees doing similar or related work who meet regularly to identify, analyze, and solve product-quality and production problems and to improve general operations. The circle is a relatively autonomous unit (ideally about ten workers), usually led by a supervisor or a senior worker and organized as a work unit." The basic idea of worker participation was effectively used by many people in America in 1940s and one of the most famous users was Walt Disney. Peter Drucker(1974), in his book Management, has also reported group activities that took place in Germany during 1980. The growth of participatory and work innovative programs such as quality circles, participative management, and employee involvement has taken place in America since the early 1970s. Frank Squires (1981), reviewed in Quality magazine, the origin of statistical quality control techniques that were achieved through group participation. In 1925 in New Jersey AT &T had just acquired Bell Laboratories, Dr. Shewhart, Dr. Dodge, Dr. Roming & others share the honor for developing statistical quality control and the classic work was done on this subject "***The Control of Quality of the Manufactured Products***" was appeared in 1931 by W.A. Shewhart. In late 1950s, Sidney Rubenstein started a program called Participative Management system and basic was the same as of Quality Circles. Carl Harshman (1982) expressed his view that the United States may experience the most significant change in the work place since the Industrial Revolution and the movement may involve a transformation from the traditional, bureaucratic style of management to a more participatory relationship. This new philosophy, known as participative management, attempts to improve the utilization of human resources by involving individual workers in decisions affecting their work. As described above, quality circle is being one of the employee participation methods, it implies the development of skills, capabilities, confidence and creativity of the people through cumulative progress of education, training and work experience and participation.

Participative methods in the workplace are one way to improve both work environment for employees and productivity and quality of the company (Jacob Mankidy, 1989). A Quality Circle is a Volunteer group composed of workers who meet to talk about workplace improvement, and make presentations to management with their ideas, especially relating to quality of output in order to improve the performance of the organization, and motivate and enrich the work of employees. It also provides the creation of facilitative condition and environment of work, which creates and sustains their motivation and commitment towards work excellence. Howard J. Weiss and Mark E. Gershon (1989) also describe quality circles as "the best means today for meeting the goal of designing quality into a product." Employees who participate in quality circles usually receive training in formal problem-solving methods such as, brainstorming, Pareto analysis, and cause-and-effect diagrams and then are

encouraged to apply these methods to either specific or general company problems. Brainstorming is a group creativity technique to generate a large number of ideas for the solution to a problem. People, and their brains, are the most prestigious recourses and greatest assets of an organization, because through people all other resources are converted into utilities. Productivity can not be improved not at the expense of people, but at the expense of wasted time, lost motion, unnecessary work, and product of poor quality. So the most valuable partner in cutting waste is people on the production floor who know their jobs better than any one else. The involvements of people minds as well as hands are the most important segment of any production process. Nobody in the world uses the full capacity of people. There also many times when people waste time and the point is that everyone has great reserve of capabilities and time. If a person perceives that working harder is a threat to him, he works less, thus using less of his brainpowers. On the other hand, if a person sees cooperatively can improve communication and quality, cut waste, and also eventually give more job satisfaction and enjoyment, he works more effectively and use more of his untapped brainpower. This is not just a theory to many of us but it has been a reality that has profited both the company and its people. However, management of "People Resources" has always been a vexed problem over since the beginning of organized human activities. A number of managerial responses have been developed to answer this question. The method was first popularized in the late 1930s proposed that groups could double their creative output by using the method of brainstorming (Osborn Alex Faickney, 1963). Although most commonly found in manufacturing environments, quality circles are applicable to a wide variety of business situations and problems and these are based on two ideas:

(i) First is that employees can often make better suggestions for improving work processes than management , and

(ii) Second those employees are motivated by their participation in making such improvements.

After World War II, when many industries in Japan had been destroyed, there was no production as such, people were trying to survive the calamity. At that it was the need and requirement of mass production with much faster rate. Thus the quality circles have been emerged as a mechanism to develop and utilize the tremendous potential of people for improvement in product quality and productivity (Roger W. Berger and David L. Shores, 1986). Unfortunately, communications and closeness of management and workers were lost, the quality of goods built was known to be shabby, the product seldom lasted for more than a year or so. The people were not trained to build quality and the nation was without guidance. At that time Japanese Government asked US Government to send someone to teach better quality control methods and Dr. Edward Deming, a statistician for the government was sent to train management people in Japan during 1948. The end of World War II compelled Japan to change its focus from becoming a military power to becoming an economic one. Despite Japan's ability to compete on price, its consumer goods manufacturers suffered from a long-established reputation of poor quality. The first edition of Juran's Quality Control Handbook in 1951 attracted the attention of the JUSE (Japanese Union of Scientists and Engineers) which invited Juran to Japan in 1952. Juran arrived in Japan in 1954 he met with ten manufacturing companies, notably Showa Denko, Nippon Kogaku,

Noritake, and Takeda Pharmaceutical Company and he also delivered many lectured at Hakone, Waseda University, Osaka, and Koysan. Dr. Juran another consultant from US and Dr. Deming gave lecture series on SQC for JUSE (Japanese Union of Scientists and Engineers). This is how the movement in Japan was coordinated by JUSE and the Quality Circles were first developed, formalized, and established in Japan in 1962, and Karou Ishikawa has been credited with their creation.

The emphasis of Japanese quality circles was on preventing defects from occurring rather than inspecting products for defects following a manufacturing process. Japanese quality circles also attempted to minimize the scrap and downtime that resulted from part and product defects. In the United States, the quality circle movement evolved to encompass the broader goals of cost reduction, productivity improvement, employee involvement, and problem-solving activities. The Japanese firms then felt that QCs would provide structural opportunities for employees to become actively involved in an interpersonal process of joint problem solving. Their success I Japan is shown by the strong presence of over a million QCs, compared to about 1,00,000 in the U.S.A. and where the rate of success has not been consistent and the results of such programs are reported to be mixed . it has been also found that it is the training of participants, apart from management support, that is crucial to the QC process. David Hutchins (1995) has defined quality circle as ***"A small group of between three and twelve people who do the same or similar work, voluntarily meeting together regularly for about an hour per week in paid time, usually under the leadership of of their own supervisor, and trained to identify, analyse and solve of the problems in their work, presenting solutions to the management, and where possible, implementing the solutions themselves."***

The above definition throws up a few principles regarding quality circles:

1. ***Voluntaries*** : It is a voluntary process and no one is forced to join it. The management only prepares the necessary ground-work by making the organization ready as well as providing awareness of the process to all concerned. The members make their own decisions to join or not join the circles.
2. ***Regularly*** : The member must meet on a regular basis. They must adhere to the mutually agreed decisions about the frequency of the meetings. Then only can really understand the seriousness of the quality circle.
3. ***Four Dimensions*** : Quality Circle is for dimensional process involving
   (i) Problem Identification (What are the problems?).
   (ii) Problem Selection (Selection of a problem).
   (iii) Problem Analysis (What are the factors can be involved and what can be done?).
   (iv) Problem Solution (These are the possible solution of the problem).

   This enables people who are involved in quality circles to have a positive line of thinking. This system certainly takes the workers away from 'complaints' and 'pointing to some else' syndrome and brings them to a 'what can we do about it?' frame of mind.
4. ***Self-improvement*** : Quality Circles members come from the same work area. The problem identified relates to their area of work. They would think on

what to improve in their area of work rather than waiting for someone else to bring improvements.

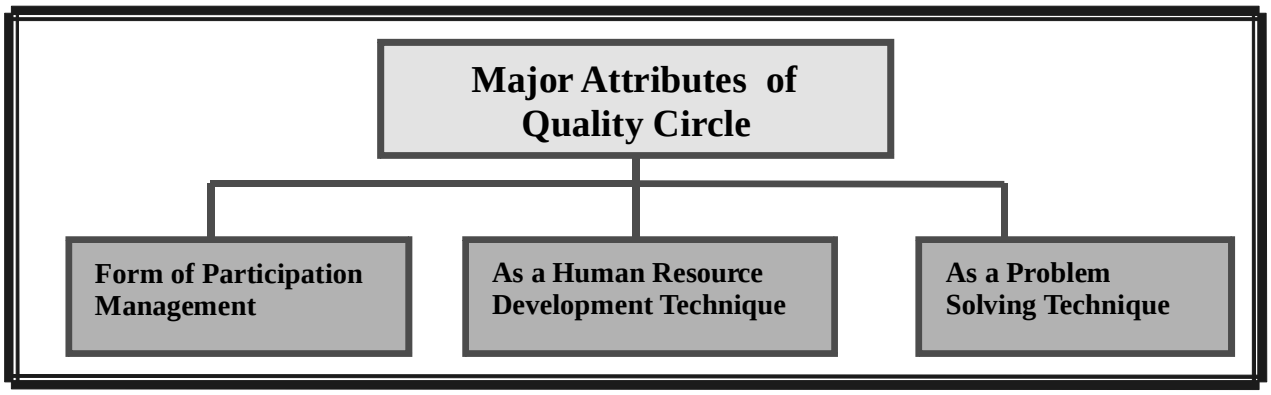
5. ***Work-life Improvement*** : Workers do not become affective members of an organization unless they are able to use some there discretion & freedom at there work place also. Quality circle provides a more humanistic approach to the work relation and people are treated in human beings who are engaged in thinking and activities simultaneously.
6. ***Synergy*** : According to principle of synergy, the sum total of the elements is greater than the mere arithmetical addition of the element. synergy of the individual can be unleashed by the group thinking process and quality circle performs this function
7. ***Sincerity of Purpose*** : Quality circle assures personal that the management is genuinely interested in the development of its people and in their contribution through their thinking power. These circle help re-establish the sincerity of the management towards employees.
8. ***General Application*** : This concept is not area or organization specific. it is a general concept that can be applied in many situation.
9. ***Simplicity*** : The entire process is made simple enough to be understandable by any ordinary workman. Complicated operations will only being frustrations and failure to the members of the circle's operations.
10. ***Social Responsibility*** : Quality Circle provides opportunities and positive orientations of the individual and hence it also tends to satisfy social responsibility in the long term.

Hence quality circle can not be considered as "just another management technique" it has deeper undertones and potentials for both the employees and organization, if serious, can benefit from it immensely.

2. BASIC NOMENCLATURES AND GOALS OF QUALITY CIRCLES:

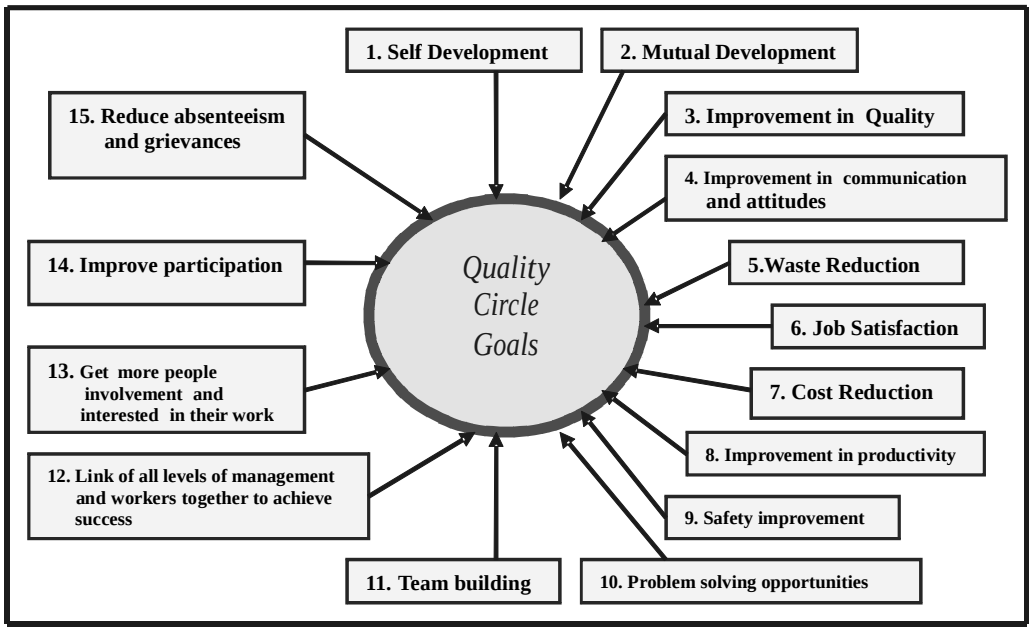
The concept of Quality Circle is primarily based upon recognition of the value of the worker as a human being, as someone who willingly activists on his job with his wisdom, intelligence, experience,

Figure-I: Three Major Attributes of Quality Circle Concept



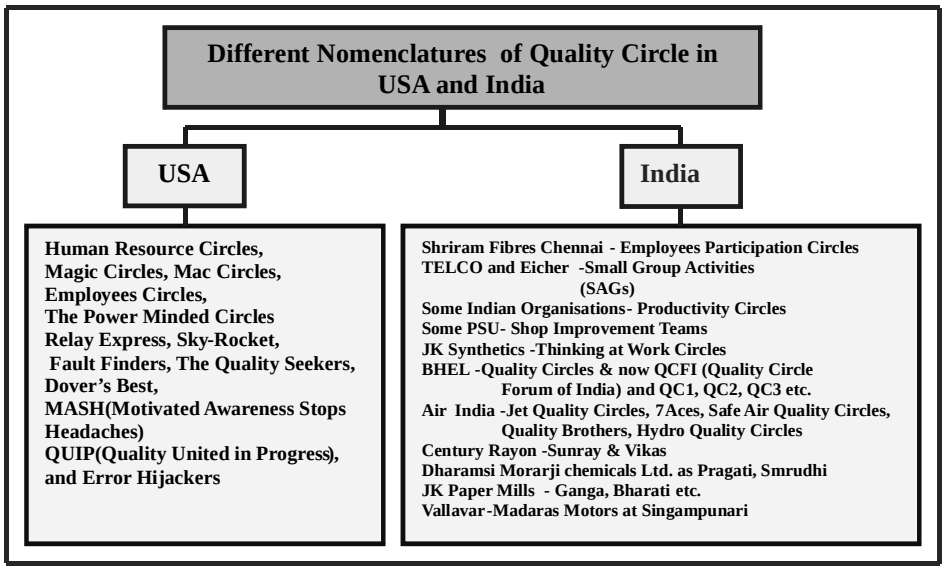
attitude and feelings. It is based upon the human resource management considered as one of the key factors in the improvement of product quality & productivity. Quality Circle concept has three major attributes presented in ***Figure I.*** In order to achieve success in the Quality Circle program it is extremely to lay down objectives or goals. There are a number of goals that can be accomplished in Quality Circle program and outlines by the ***Figure II.***

Figure-II: Quality Circle Goals



The following ***Figure- III*** describes the different nomenclature used by various people/ organizations for Quality Circles in USA and India (Sharma D.D., 2001).

Figure- III : Different Nomenclatures of Quality Circles



Peter Drucker, in his book on Management, has described the Japanese decision making is very systematic and standardized approach to decision making process. However Drucker, points out the following key advantages in this method:

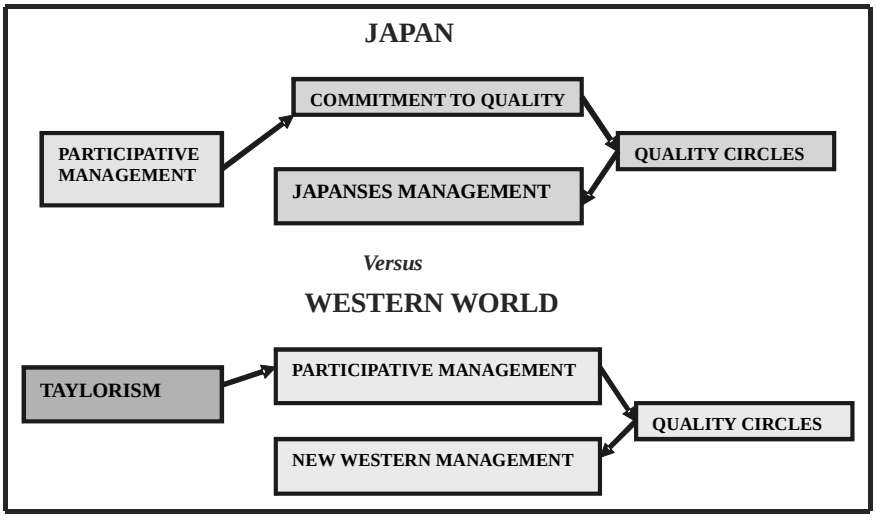
1. The focus is on deciding what the decision is all about.
2. The Japanese bring about dissenting opinion. There is no discussion on answer until there is a consensus. Many approaches to a problem are explored.
3. The focus is on alternatives rather than on the "right solution".
4. It eliminates selling a decision. It builds effective execution into the decision making process.

Two key features of the Japanese management system (participation and decision making from the bottom up) are also predominated in an Quality Circles operations. Quality circles, which are known as "small group" activities in Japan, are generally an inherent part of the company and there is no separate organization that exists for this work. Most of the work is shared by a number of different departments and committees are formed to carry out the decisions that are approved at different levels.

3. A KEY NOTE ON QUALITY CIRCLE MODEL IN JAPAN AND USA

Before discussing about the Quality Circles models developed in Japan and America, let us first briefly demonstrate the two management styles, Japanese and Western, which are presented by ***Figure-IV*** (Ingle Sud 1988). The key difference in Japanese and American model is the role that the facilitator plays in promoting the Quality Circle program and training requirements needed for its implantation described by ***Figure-V***. This figure explains the commitment and participation flows right from the top down to all levels in the company and there are company-wide quality circles committees and plant-wide quality circles promotional committees. The Facilitator's role in American industry is critical. Facilitators, mini-coordinators, or program chairmen must work hard to convince both management and workers of the long range benefits of Quality Circles. People resist change and these changes in style poses many problems and erect many hurdles.

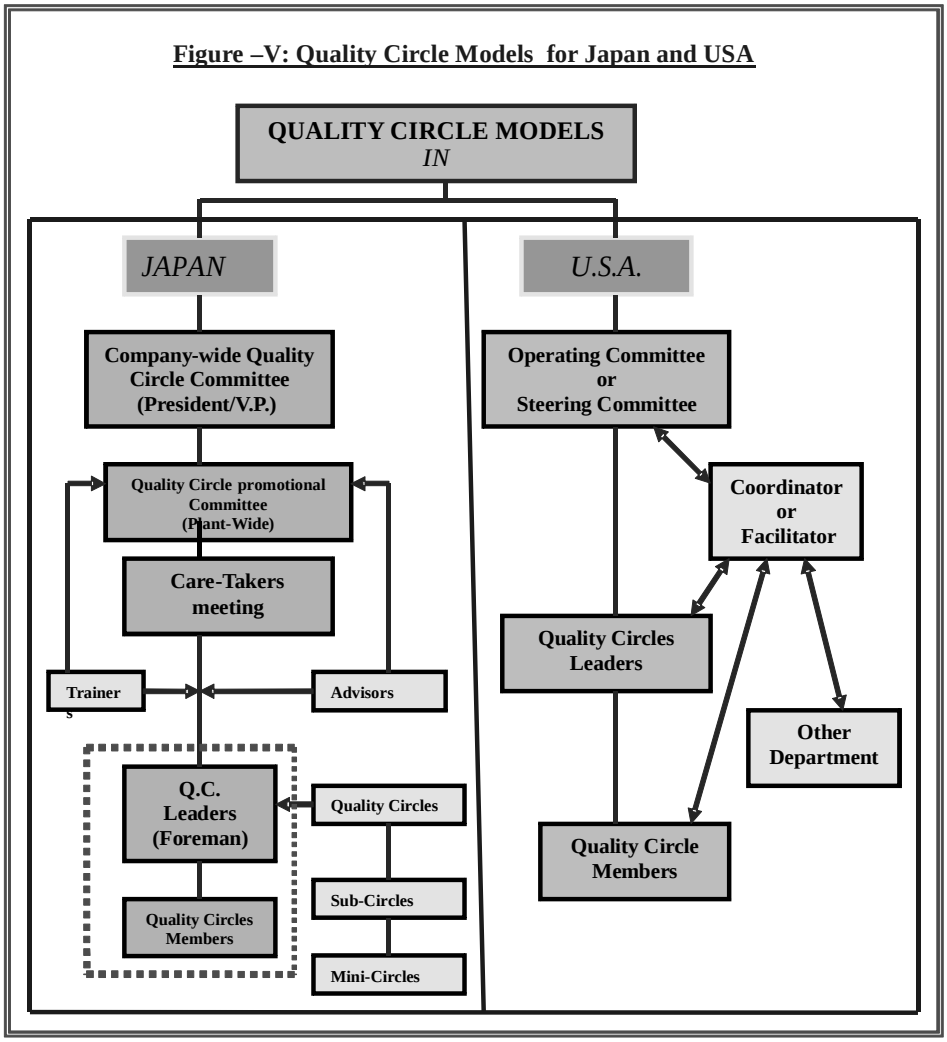
Figure-IV: Japanese versus Western Management Styles



4. MOTIVATIONAL ASPECT OF QUALITY CIRCLES

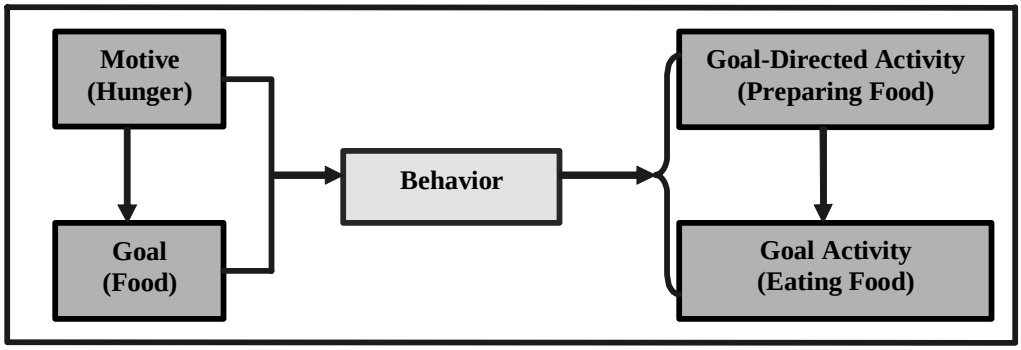
It is very much true and well known fact that the people differ not only in their ability to do the work but also in will to do the work. The motivation of people depends on strength of their motives. Motives can be needs, wants, drives, or impulses within individuals. Most people work to satisfy individual, family and also to meet group and social needs. Men and women are social animals and like to work with each other in the society. However, keen competition and pressure makes people work harder. Motivational needs vary from person to person, and company to company needs to understand the types of people that are employed and the try implement motivational programs that will fulfill the company's need as well as society's. There are a number of motivational theories, but some major theories that have a profound influence on Quality Circles activities. Hersey Paul and Bancard Kennet (1977) have discussed thoroughly various types of motivational theories. The relationship between motives, goals and activity has been described in ***Figure-VI.*** This figure explains that the strongest motive produces behavior that is either goal directed or goal activity. With broad goal such as food, it

Figure –V: Quality Circle Models for Japan and USA



should be recognized that the type of food that satisfies the hunger varies from situation to situation. A similar example could be given for an intangible goal. If individuals have a need for recognition-a need to be viewed as contributing, producing people-praise is one incentive that will help satisfy this need. In work situations, if the employee's need for recognition is strong enough, being praised by superior may be an incentive to influence them to continue to do good work.

Figure-VI: The relationship between motives, goals and activity



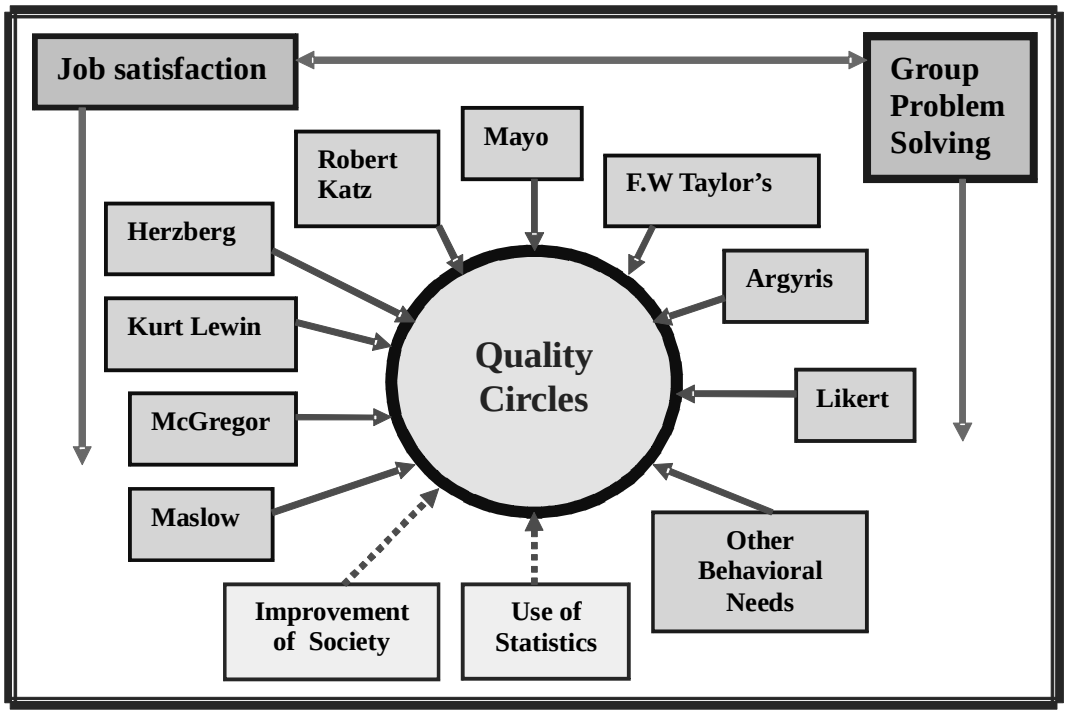
Quality circle concept does have a substantial degree support from behavioral science discipline. The concept may be relatively new, but the idea isn't. The work of several scientists spread over many years has cumulatively contributed to this idea and hence it enjoys a wide variety of support. Most of their activities take place in groups, and it is essential that these groups be motivated properly to reach high achievements. A number of needs discussed in motivation theories given by following behavioral scientists:

- ***Robert Katz skills*** : for effective management in organizations, one needs to have three inter-related but distinct skills- namely conceptual, HR Management and Technical Skill.
- ***F.W Taylor's Scientific Management Theory*** : Taylor considers an organization to be an economic unit and management to be an economic process and people are driven by hunger, security and profitability. If these needs are taken care of, the people can work in unison with machines.
- ***Elton Mayo's Hawthrone Studies*** : This theory reveals that for given certain basic condition job performance, can be influenced by external factors such as work-group satisfaction and satisfaction from socialization. He explains that in a group, person develops certain norms and contains to perform at the level even if they are not in conductive conditions.
- ***Kurt Lewin's Group Dynamics*** : New studies began considering man as member of the group and not as an individual.
- ***Abraham Maslow's Need Hierarchy Theory*** : The five levels need satisfaction are Physiological, Safety, Social, Ego, Autonomy, Self-fulfillment needs.
- ***Douglas Mc Gregor Theory X and Theory Y*** : Traditional theory of what people

and what must be done to manage them is ***Theory X*** where as Mc Gregor contended that ***Theory X*** assumption are outdated and that employee would contribute for more organization if an opposite set of assumptions ***Theory Y*** are to be the guiding force behind managerial leadership.

- ***Frederick Herzberg Two-factor theory*** : This theory was designed to test the concept that management has two-sets of needs. His need as an animal to avoid pain and his need as human to grow physiologically. He has developed hygiene or dissatisfiers or maintenance factors -company polices and administration, supervision, working conditions, interpersonal relations, wages, status, security that are responsible for negative feelings and he also determines five factors that stand out as strong determinants of job satisfaction and these are called motivational factors or satisfiers factors- achievement, recognition, advancement, the work itself, the possibility of personal growth and responsibility.
- ***Chris Argyris Theory*** : According to him human nature is at least partially a function of maturation and immature people are passive, dependent, have erratic shallow interest, have short time perspectives, are in a subordinate position, and lack awareness itself. He explains the characteristics of mature people are increased activity, independence, deeper and stronger interest, long-time perspective, equal or subordinate positions, and awareness and control of self..
- ***Rensis Linkert Theory*** : He has developed four different systems of management. In system one,

Figure- VII: A Combined Theory Comprehensive Model of Quality Circles



management has no confidence and trust in the subordinates and subordinates are not involved in any decision making. In system two, management has some confidence and trust in the subordinates, but still most of the decisions are made at the top and few by subordinates and subordinates are not involved in any decision making. In system three, the management has substantial but not total confidence and trust in subordinate. Broad and general decisions are made by the top but specific decisions are permitted to be taken at lower levels. In system four, the management has complete confidence and trust in subordinates and workers participation is encouraged.

All the above theories are combined in Quality Circles philosophy and is shown in ***Figure VII***, but the job satisfaction and teamwork are the two main driving forces behind all motivational activities.

5. PERFORMANCE EVALUATION METHODOLOGY FOR QUALITY CIRCLES IN INDIA

In India many companies, banks, insurance corporations and government departments have implemented quality circles concepts. Many Indian companies initially adopted quality circles because it made them look "modern". Companies like BHEL, Jyoti, HAL, Kirloskars, Allwyns, Shri Ram Fibers, TELCO, TISCO, BEL, Jai Engineering have already operationlised quality circles. All these companies aim at solving the quality problems with quality circles However they have also attempted the use of quality circles in other areas as cost reduction, safety, purchase of materials, design, general improvement etc (Sharma D.D.2001). Five Indian companies BHEL (Bharat Heavy Electricals Limited), SM Creative Electronics Limited(SMCEL), Bharat Electronic Limited (BEL), BSNL (Bharat Sanchar Nigam Limited) and Amul(Anand Milk Union Limited) have been considered for the study and data were collected through a questionnaire to employees in these and asked them to fill up the questionnaire accurately as possible. Since it was the request of researcher to the respondent that their answers may generate the opportunity for the improvement of quality circle working and overall performance of the companies and being this as an motivational appeal the employees responded very honestly with possible accuracy and fairness.

5.1. Techniques used for evaluation of quality circles:

The quantitative measurement has been measured in terms of saving-cost ratio, a ratio defined to actually measure the impact that the QC has had on the company or branch as a whole. This is the ratio in between cost of saving of the company because of QC program implemented and their contribution to the profits as opposed to the cost of running of quality circle. Unless they can demonstrate that they are contributing more to the profits than to the cost, they stand a good chance of being axed. Evaluation parameters are present to see if the objective of the quality circles is being fulfilled or not.

$$\textbf{Saving-cost Ratio} = \frac{\text{Cost of saving of the company because of the QC program}}{\text{Cost of running of quality circle program}}$$

This saving-cost ratio provides the following informations:

(i) The indication of the more profitable is the running of the quality circles in a company, if the saving-cost ratio is high.

(ii) Sign of good performance of QC, if the ratio is above 2:1.

(iii) Very good performance of QC of the company, if the A ratio more than 5:1.

(iv) Best working performance for the Quality Circle and company if the ratio is above 10:1.

The introduction of an employee to a quality circle by the company plays the initial crucial factor in the development of quality circles in the organistions and their proper sustenance. If the employee is properly introduced to the concept of a QC, one can expect that he will be the part of the QC for a longer time, so the induction plays a major role in reducing the employee turnover.

6. ANALYSIS OF PERFORMANCE INDICATORS OF QUALITY CIRCLES FOR SELECTED COMPANIES

Five Indian companies BHEL (Bharat Heavy Electricals Limited), SM Creative Electronics Limited(SMCEL), Bharat Electronic Limited (BEL), BSNL (Bharat Sanchar Nigam Limited) and Amul(Anand Milk Union Limited) ***have been selected for the appraisal of their quality circles performances on the basis of data collected through questionnaires and process of evaluation adopted as described above. A conclusive summary is being presented in the following section of their respective company wise. Initially, QC's were adopted by Indian company just look "modern" but after a while they become more of liability than an asset. if not properly maintain and***

Table-I: Summarised results of various performance indicators

Sl. No	Performance Indictors	COMPANIES				
		BHEL	SMCEL	BEL	BSNL	AMUL
1.	Establishment Year	1950	1991	1954	2000	1964
2.	Starting number of QC	5	5	3	01	05
3	Number of active QC	1700	15	25	02	02
4.	Average member size in QC	10	4	6-7	35	10
5.	Percentage of employees who attend the introductory presentation actually end up joining the QC programme	80%	70%	20%	10%	NA
6.	Effect on the behavior of the employees in term of absenteeism	Decreased	Decreased	Decreased	Decreased	No change
7	Average proposal made of QC	15	10	8	8	10
8.	Percentage of Proposal put forward	70%	60%	25%	50%	20%
9.	Saving-cost ratio	Between 5:1 to 10:1	Between 5:1 to 10:1	Between 2:1 to 10:1	Between 5:1 to 10:1	No idea
10	Effect of QC	Very effective	Moderately effective	Moderately effective	Moderately effective	Not much effective

used , then tend to deteriorate a poor acceptance rate 20% by top , brass also indicates lack of interest on their parts, so the management plays crucial roles development and sustains a QC in a company. A summarized description of important performance indicators are also provided with their qualitative and quantitative measurement values in the following Table-I and the figures of the tables are self explanatory about the Quality Circles performance of the Indian companies included for the study.

6.1. Quality Circles at BHEL(Bharat Heavy Electricals Limited):

BHEL is the largest engineering and manufacturing enterprise in India in the energy-related/infrastructure sector. BHEL was founded in 1950s. Its operations are organised around three business sectors: Power, Industry - including Transmission, Transportation, Telecommunication & Renewable Energy - and Overseas Business. Today, BHEL has a wide-spread network comprising 14 manufacturing divisions, 8 service centres, 4 power sector regional centres, 18 regional offices, and a large number of project sites spread all over India and abroad. BHEL is one of the nine large Public Sector Undertakings known as ***Navratnas or Nine Jewels*** of Indian companies. BHEL offers over 180 products and provides systems and services to meet the needs of core sectors like: power, transmission, industry, transportation, oil & gas, non-conventional energy sources and telecommunication. BHEL is very rich in its history of and perhaps is the best example of an Indian organization in harnessing and utilizing human potential as actually implementing the concept of worker's participation in management in its manufacturing plants throughout the country. Ramchandrapuram, Hyderabad unit of BHEL was the initiator of incorporating quality circle to the Indian corporate sector and also taken lead of this movement in India. The chief architect of this movement was started in year 1980 by Mr. S. R. Udpa, the General Manager, with 5 quality circles in that Hyderabad unit of BHEL.

This concept was first sold to the company's top level executives, but later it was felt that this movement will not gain momentum without the support of middle level management. Middle level management was known for using devious means to scuttle quality circles because it did not like these circles coming up with problems about which it had earlier told the top management that they simply did not exist, or with solutions, which it had always impossible. So, the middle managers were also exposed to the new philosophy and were made to realize that the could 'make or mar' the movement. Meetings were also organized to convince workers of the sincerity of purpose and procedures for functioning were outlined and remedies were suggested for various pitfalls. While initially in Japan, the focus of Quality Circles was on improving quality, in BHEL, the managers realized that such small group activities can also results in:

(a) Improving human relations

(b) Promoting participative culture

(c) Improving productivity

(d) Promoting jog interest

(e) Inspiring more effective team work

(f) Improving communication

(g) Promoting leadership development

(h) Catalysing attitudinal change

The concept has now become very popular in all the units of BHEL and by the year 1998 there were over 1600 quality circles. Today, BHEL has more than 1700

quality circles in all BHEL plants involving about 17000 workers who have tackled over 600 problems. Over two decades, the number of Quality Circles in BHEL has grown to members account for 27.4 per cent of the company's workforce.

In 2005, BHEL notched up its highest-over turnover of Rs.105.20 billions, crossing Rs. 100 millions mark for the first time, compared to Rs.88.62 billions of the pervious years. The turnover growth of over 21% has been achieved on top of 16% achieved in 2003-2004. Further, this is highest growth rate archived in last two decades. According to the reference of quality circle programmes of BHEL "Sustained performance by the company became possible as a result of strategic management with a blend of appropriate measures including improvements in operational efficiencies, benchmarking against international standards, prudent financial management, upgrading manufacturing facilities, and dynamic HRM policies".

According to Public Relation Officer of Hardwar BHEL plant, Quality Circles have contributed a saving of Rs.20 millions to the organization. BHEL Trichurapalli an ISO 9001 company also constituted 60 odd inter-functional task-force to solve the problems, each with time bound plans in the early nineties. Besides this, there were award for zero-defect performance and housekeeping. These tasks forces saved 40% time for executing orders and better control resulted in 25% reduction in inventories, improved manufacturing practices as reduction in complaints by 50% and as much as 20% in energy cost was achieved by effective management of finance. But inspite of all these, in view of the employees of this organization the Quality Circles have developed the sense of achievement, a sense of responsibility towards improving the quality of performance, by establishing the consistent goals with the company larger objectives. According to employees opinions, this provides opportunity for self development in employees, bring about a participative culture in work areas and feeling of full involvement towards enhancing the total quality and productivity in company. Today, employees of this company feel that productivity is only the way of their life. Delivering the keynote address on the convention occasion, the Executive Director of BHEL, Tiruchi Complex, Mr R.N. Misra, said that the Rs 800 billions order book of BHEL, to which a new order gets added every week, reflects the high confidence that customers repose in the company. In the open economy, BHEL could ally misgivings by prevailing over multi-national companies in wresting projects and subsequently turning out to be the lone bidder in tenders. The BHEL is now into the new phenomenon of negotiating rates. The company is living up to the nation's faith, Mr Misra said, emphasizing that power projects should be commissioned in time to meet customer expectations.

The performance of the company shown upward trend since the inception of quality circles and saving-cost ratio was between 5:1 to 10:1, which shows very good performance of QC of the company. Some groups of the Company also awarded financial incentives for putting forward very excellent cost-saving proposals. QCs decreased the number of absentees in the last five years and employee turnover rate is very good. Hyderabad BHEL plant was adjudged the '***Best Organisation in promoting Quality Circles'***, for the second consecutive year by QCFI Chapter Convention. In addition among Public and Private sector companies, the highest number (eight) of ***Prime Minister's Shram Awards*** has been won by 14 BHEL

employees. This includes the solitary ***Shram Bhushan*** awarded in year 2005, which was also the highest award in the series declared that year.

6.2. Quality Circles at SM Creative Electronics Limited (SMCEL)

S M Creative Electronics Ltd (SMCEL), an ISO (9001:2000) certified company, with its head quarters at Gurgaon (Haryana), was established in December, 1991 and the Company is currently engaged in the following major activities:

i) Design, manufacture and marketing of all important constituents of DC Power Plants used in telecom installations, such as–Switch Mode Power Supplies (SMPS), Telecom DC Power System, Battery Chargers, Inverters, DC-DC Converters, Auto-Phase Selectors, Integrated Power Supply and Site Infrastructure Management Systems (SIMS) etc. All these activities, come under the purview of Telecom Power Division (TPD).

ii) Strategic Electronic Division (SED) is another important division which, along with its Power Technology Group (PTG) is specially organised to cater to strategic needs, in terms of a whole range of electronic components and complex turnkey Power Solutions, for organisation like Defense, Satellite applications both for ground and space segment, Nuclear Power Plants, Traction, Avionics and Telecom industry.

iii) Telecom & Networking Division has been recently invigorator by appointment of a highly qualified and experienced Head of the Division. The division is organised to support varying needs of Telecom Operator and Enterprises through supply, installation and maintenance of Telecom and IT systems. It excels in providing innovative solutions making use of latest technology. Another important role of this division is to supply and execute Lighting and Earthing projects. Supply of Timing & frequency standards is another role that the division is equipped to undertake. Elements of Telecom infrastructure, Such as B-TS shelters, Outdoor Cabinets, precision Air conditioner etc are also within the scope of this division.

iv) SMCEL has an all India presence through its branch offices and service cells at all important cities, it is equally well represented abroad with subsidiaries/ brunches in Singapore, Srilanka, Bangladesh, Afghanistan, Africa, France etc. Export to some of these countries constitutes a significant segment of company's turnover.

v) The company has a strong R&D department recognized by Govt. of India. The R&D team is composed of highly qualified and experienced Engineers and supported by the latest design and development tools. The factory at Baddi is equipped a whole range of production machinery and test equipments to maintain the highest standards of product quality. An after-sales service department (CSD) is equipped and staffed to render prompt support to customers spread all over India and abroad. First the quality and then the prompt and effective after-sales support is what hinds SMCEL and a wide spectrum of its satisfied customers.

Not only does the company concentrate at caring for its customers, it is equally concerned in ensuring a highly conducive work environment for its workforce promotion and retention of talent is a prime concern of the

management. The number of Quality Circles has tripled in the last six years of the inception of the programme. The average number of members is quite low, but it has a positive effect on the saving-to-cost ratio of the QC as less numbers means lesser maintenance charges. As shown in Table-I, the saving-cost ratio is between 5:1 and 10:1, which indicates very good performance of this company. The percentage of employees who attend the introductory psentation The percentage of employees who attend the introductory presentation actually end up joining the QC programme actually end up joining the QC programme is 70%. The percentage accepted proposals is 60% reflects upon the quality of output of the circles, which is not that much upto the mark. But this could have also been due to the unrealistic expectation of the management from the QC. As mentioned by the respondent, this was one of the main problems of QC in this company.

6.3. Quality Circles at Bharat Electronic Limited (BEL)

Bharat Electronic Limited (BEL) was established at Bangalore, India, by the Government of India under the ministry of Defence in the year 1954 to meet the specialized electronic needs of the Indian Defense Services. Over the years, it has grown into a multi-product, multi-technology, multi-unit company serving the needs of customers in diverse fields in India and abroad. BEL offers products and services in a wide spectrum of technology like Radars, Military Communications, Naval Systems, Electronic Warfare Systems, Telecommunications, Sound and Vision Broadcasting, Opto-Electronics, Tank Electronics, Solar Photovoltaic Systems, Embedded Software and Electronic Components. With its expertise developed over the years, the company also provides turnkey systems solutions. Defence continues to be BEL's prime focus but the Company has also diversified into civilian areas. Some of the successful civilian products include the Electronic Voting Machines, Solar Powered LED-Based Traffic Signal Lights, Simputers and Set Top Boxes. Bharat Electronics Limited has nine units located at Bangalore(Corporate Head Office), Panchkula, Kotdwara, Ghaziabad, Pune, Hyderabad, Taloja, Machlipattam and Chennai and in addition to these manufacturing units, four regional offices in Delhi, Mumbai, Vishakhapatnam and Kolkata and three laisoning offices in agra, New York and Sigapore. It is engaged in the design development and manufacturing of sophisticated sate-of-the-art electronic equipments/components for the use of defense services, Para-military organizations and other governmental users like All India Radio, Doordarashan, Department of Telecommunications, Police Wireless, Metrological Department etc.

The company introduced Quality Control Circles (QCCs) at the corporate level in a significant way since 1981 (Monappa Arun, 1990). Before introducing QCCs, the reasons for the failure of the Zero Defect (ZD) movement initiated in the Bangalore unit were carefully analysed and the process pitfalls were identified. Around 3,000 employees were soon involved in 500QCCs with each QCC having membership ranging from three to twelve. Grievance procedures were introduced through which individuals themselves could take up their grievances to their respective section/department heads and, if these were not resolved, the representatives of the trade unions could take up the matter with the concerned Divisional Heads. Trade unions were advised that this would enable them to concentrate on larger issues. Even if they wished to take up matters relating to the

shop floor, they could do so with the Divisional Heads without affecting production activities on the shop floor. The general grievance regarding the canteen was taken care of with the provision of new equipment and better dining halls. The Annual New Year gifts were given on time without the usual delay. The procedure for payment of festival advance was streamlined and payments made in time. The management constituted the following bipartite committees (both statutory and non-statutory) where representatives nominated by management and those elected by the employees were members:

(1) Works Committee

(2) Canteen Management Committee

(3) Labour Welfare Fund Committee

(4) Death Relief Fund Committee

BEL has gained the following achievements and awards :

- Conferred with Navratna status on June 22, 2007.
- BEL was ranked 58th among the top 100 defence companies worldwide for the year 2006 by Defence News journal.
- Prime Minister's Shram award for 4 employees of BEL for the year 2005.
- SODET (Society for Defence Technologists) Gold Award for Innovation and SODET Silver Award for Technology Development for two BEL engineers.
- IETE award for Performance Excellence in the development of Software.
- Six Sigma team from Bangalore stood first at the 4th CII National Convention on Six Sigma.
- PV SEC Award for Applications by Solar Energy Society of India (SESI) in recognition of BEL's contribution in promoting the use of solar energy in the country.

Having been on the path of growth over the last 10 years, BEL is in the process of consolidation so as to take off on the path of intensive and integrative growth, aiming at a turnover of US $ 2 to 2.5 billion by the year 2011-12. With a strong focus on R&D, strategic tie-ups with its partners to enhance business, benchmarking through adoption of CII-EXIM Bank Business Excellence Model to gear up for competition and continuously enhancing its infrastructure through upgradation and modernisation, BEL plans to stay ahead.

The data collected in the survey of Ghaziabad Unit of BEL. The analysis shows that in last three years quality circles has increased from 15 to 25, which is a good indication quality movement. The employees participation average as compared to SMCEL is good. Numbers of proposals accepted were quite less around 25% inspite of very supportive management and this reflects on the output of the QC not being upto mark. But since saving-cost ratio is also (between 2:1 and 5:1), the only reason may be that all the accepted proposals had a great impact on the savings of the organization.

6.4. Quality Circles at BSNL (Bharat Sanchar Nigam Limited)

BSNL needs no instruction- formed in October, 2000 from the erstwhile DOT, it is world's seventh largest Telecommunication Communication providing comprehensive range of telecom services in India. Within a span of five years it has become one of the largest public sector unit in India. BSNL has installed Quality Telecom Network in the country and now focusing on improving it, expanding the network, introducing new telecom services with ICT application in villages and winning customer's confidence. BSNL is the only service provider, making focused efforts and planned initiatives to bridge the Rural-

Urban Digital Divide ICT sector. BSNL is numero-uno operator of India in all services in its license area. This company offers vide ranging & most transparent tariff schemes designed to suite every customer.

In BSNL, a new trend was seen in quality circle programme – lesser number of circles with same number of total members. The branch has only two circles, with an average of around 35 members each. Also, a circular calling for volunteers was good enough to generate interest among the employees as many participated in the programme. The absenteeism and grievances, though reduced, were not fully attributed to the programme perhaps due to fact that the programme was not properly supported by the management as mentioned in one of the problem faced. The turnover-rate of employees was also attributed to the fact that a BSNL job was more secure and hence, people were not that inclined to leave the job that easily as in case of other private-sector companies. The QC drop-out rate was attributed to transfer and promotions, which can not be avoided. As in the case of BSNL the saving-cost ratio was in between 5:1 to 10:1which is high inspite of less number of proposals being accepted and also higher number of employees per circle. But the number of circles was also less and so it can be testified that the suggestions that were accepted very effective and caused significant cost reduction.

6.5. Quality Circles at Amul (Anand Milk Union Limited)

Amul (Anand Milk Union Limited) was formed in 1964, is a dairy cooperative movement in India. It is a brand name managed by apex cooperative organization, Gujarat Cooperative Milk Marketing Federation Ltg., (GCMMF), which today jointly owned by 2.41 millions milk producers in Gujarat. It is based in Anand town in Gujarat and has been a sterling example of a cooperative organizations success in the long term. The Amul pattern has established itself as a uniquely appropriate model for rural development. Amul has spurred the White Revolution of India, which has made India the largest producer of milk and milk products in the world. It is the world's biggest vegetarian cheese brand, and this credit goes to Mr. kurien, who spearheaded the Green Revolution in India. AMUL is evident event from the performance of Quality Circle program .the number Quality Circles has been decreasing by the years and inspite of good number of employees being involved in the program the QC has not been effective at all the entire blame has been put on the management, which lacked proper communication and middle management support. The response was cold and the management never bothered about the program.

7. CONCLUSIONS AND RECOMMENDATIONS

The main objective of the study was to find out how the behaviour of a person can affect the performance of QC in India. The study was based on some questions on this aspect and an attempt has been incorporated to analyze the effect that the QC has had on behaviour vise-versa. It was found that quality circles have had a significant impact on the reduction in the absenteeism and grievances but have a minimal impact on the reduction of turnover-rate of the employees. This because of the fact that the percentage of employees involved in the programme were very less in number. This gives no relation between the turnover-rate and the effect that the quality circles have had on them.

The researcher also asked the respondents to rate the problem faced with Quality Circles programme in the company

and thus the identified main problem areas and their suggested solutions for these companies are as follows:

1. ***Lack of Middle Management support*** : This is one of the greatest pitfalls in an evolving Quality Circle programme. Many middle managers often remain silent on the issue of QCs (as seen in the case of BHEL) and are either indifferent or hostile. It should be attempt to convert the hostile managers into indifferent managers and indifferent managers into enthusiastic supporters of the program for being success of QCs. This can done by getting the top managers to include support for the circles as a part of the evaluation process for the managers. One can also provide proper training and orientation for the uninvolved managers and present them with the advantages of the programme to entire them into joining one. Outsider may also be invited to share their experiences of being part of a quality circle. Financial rewards for better quality circle performance can also get many to join the circles.
2. ***Poor Communication*** : This factor arises because of incorrect and incomplete regarding the working of quality circles. The reports that are circulated must give due credit to the members of the quality circles who assist in problem-solving as a QC depends heavily on open and consistent recognition of achievement. They must also not give any undue credit to those not involved in the programme at all.

The credit must also be timely and not too early or too late.

3. ***Unrealistic Expectations*** : If the management expectations become too high then the facilitator of the QC must make him understand that quick, dramatic results were not promised that they should not be demanded by the management. The top-boss always wants quick and great results as such results give a huge boost to the programme. But such results are very rare and a QC requires time to come up with productive results.
4. ***Conflict with other programs*** : Some companies organize many programmes, which run well for a while, but are later disbanded. Such programmes may result is reduction of employees for participation in a QC programme as QCs are not as attractive and showy as other programmes. They depend on long-term trust and voluntary cooperation.
5. ***Transfers and excessive turnovers*** : A transfer of the key leader in a circle may shunt the growth of the QC and it may kill the circle permanently, specially if the successor to that job was opposed to the concept from the very beginning.

Quality Circles are not limited to manufacturing firms only. They are also applicable for variety of organisations where there is scope for group based solution of work related problems. Quality Circles are relevant for factories, firms, schools, hospitals, universities, research institutes, banks, government offices etc. The results of the experiment of Quality Circles in Indian industries are encouraging. The reasons for this, it has been said, can be seen in the firm commitment and continual supportive guidance by the top and senior managers to the Quality Circles Program. A word of caution: Indian industries have still a long way to go before catching up with world class quality. As our organizations are improving the quality of our products, the foreign competitors are also continuing to improve their product quality.

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