CHAPTER V

SUMMARY OF FINDINGS AND CONCLUSION

The present study was undertaken to find out the impact of quality circle in employee motivation at Hi-Tech Arai Limited. If employees are motivated through some mechanisms, it not only helps to improve the quality but also increases the productivity resulting in good profit for the organization. The good profit in the organization may help the employees to be secure, and progress in their social life. In this context, the researcher framed the following objectives:

The objectives restated:

1. To study the working of QC in Hi Tech Aray Ltd.,
2. To study the respondents’ profile in detail.
3. To evaluate the working of some motivational factors in productivity due to Q.C.
4. To analyse whether the Q.Cs. improve the efficiency and various skills of workers.
5. To study how far Q.C. serves the purpose of the employees.
6. To study how far Q.C. enhances the attitude of job satisfaction.
7. To study the Q.C’s role in shaping the employees more involved with organisation.
8. To study the employees contribution to Q.C.
9. To study how far the employees are involved in Q.C. activities.
10. To suggest uniform procedure, so as to eliminate disparities, and favouritism among and towards employees.
11. To study whether there is increase in productivity due to establishment of Q.Cs.
12. To investigate financial progress in the organisation due to Q.Cs activities.
13. To make useful suggestions on the basis of findings.

The questionnaire was prepared in English and then translated into the vernacular of the employee for the convenience of the employee to collect correct and accurate information from them. The collected raw data were edited, coded and classified into information catalogues to understand the response of the employees. Various models of statistical tools were used on the data to arrive at required results for the purpose of analysis. The findings were arranged in a pattern, the profile of the respondents, and agreeableness of the respondents to the close-ended statements/questions. After that the findings were presented factor-wise and according to the objectives of the study. Wherever necessary, comparative relationship and correlation studies were carried out and suitably, interpreted.
The total number of respondents who participated in this study was 300 employees of the Hi-Tech Arai Limited. Out of 300 respondents, the male and female accounted for 170 (56.70 per cent) and 130 (43.30 per cent) respectively. Out of which 117 (39.00 per cent) were below 25 years, 113 (37.70 per cent) were between 26-35 years. 55 (18.30 per cent) respondents were between 36 and 45 years of age; and 15 (5.00 per cent) were above 46 years. The respondents were classified according to educational qualification in five groups. There were 176 (58.70 per cent) who had completed high school studies and 74 (24.70 per cent) had completed plus two. Graduates were 20 (6.70 per cent) and the post-graduates were 10 (3.30 per cent). 20 respondents were professionally qualified.

According to area-wise classification of the respondents, 160 (53.30 per cent) were from the rural area and 62 (20.70 per cent) were from semi-urban and 78 (26.00 per cent) respondents were from urban. With regard to the marital status of the respondents, 143 (47.70 per cent) were single and 157 (52.30 per cent) were married. The respondents were also grouped under various years of work experience. There were 233 (77.70 per cent) respondents who had upto 5 years experience and those with 6-10 years experience were 13 (4.30 per cent). 23 (7.70 per cent) respondents came under the category of 11-15 years of experience and 27 (9.00 per cent) had put in 16-20 years of experience. 2 respondents each in the category of 21-25 years and above 26 years respectively. In cadre-wise classification, 132 (44.00 per cent) constituted the category of
production workers and 46 (15.30 per cent) were office workers that is administrative staff. There were 19 (6.30 per cent) supervisors and 103 (34.30 per cent), technical assistants in the population of respondents.

The respondents were asked to answer ten close-ended statements / questions on the activities of Q.C. and its impact. The response given was ‘yes’ or ‘no’. 248 (82.70 per cent) respondents agreed that Q.C. tackles absenteeism in the factory and 241 (80.30 per cent) agreed that the purpose of Q.C. is to motivate the employees. So it is inferred the Q.C. and the motivation are interrelated according to them. 261 (87.00 per cent) respondents replied that the Q.C. develops the skills of the employee. For the statement ‘to solve problem easily’, 251 (83.70 per cent) had replied positively that Q.C. solves the problem easily. Also 277 (92.30 per cent) respondents replied that the Q.C. enhances relationship between employees and management. 275 (91.66 per cent) respondents agreed that the Q.C. improves quality and increases productivity. The steady increase in production is dealt with in the latter part of this chapter. 282 (94.00 per cent) respondents were of the opinion that the Q.C. should be established in other organisations also. To the question ‘does your organisation adapt any motivational techniques’, 238 (79.30 per cent) had replied affirmatively and 168 (56.00 per cent) respondents were satisfied with the existing motivation technique used in the organization.
There are nine question/statements in the close ended format giving the response as ‘yes’ or ‘no’, under the critical factor members involvement in Q.C. There were 250 members in Q.C. and 50 were non-members. 282 (94.40 per cent) respondents replied that they were satisfied with the present quality circles in the organisation and 266 (88.66 per cent) were participating enthusiastically in the Q.C. activities and 272 (90.66 per cent) replied that they attended the Q.C. meeting regularly. 216 (72.00 per cent) respondents agreed that membership in the Q.C. helped them to work with more involvement and commitment in the organization. 221 (73.70 per cent) respondents felt self-confident in performing the task assigned to them. 213 (71.00 per cent) respondents felt that the management recognised their work. With regard to discussion of individual’s problems in the Q.C. 188 (62.70 per cent) agreed with the statement. 205 (68.30 per cent) agreed that the presence of Q.Cs in the organization improved the working conditions of the organisation.

With regard to the critical factor, ‘the motivating variables’, both male and female perceived highly the variables ‘rewards and appreciation’ while male workers perceived the variable ‘providing opportunity for growth, the perception of female is on participation of employees’ and ‘recognition for achievement’. The significant difference of perception could be seen in the variable responsibility, participation of employees and providing opportunities and growth. The employees below the age group of 25 years and 25 to 35 years perceived
highly the variable ‘participation of employees’. The variable ‘recognition for
achievement’ is perceived highly by three age groups of employees namely below
25 years, 25-36 years and 35 to 45 years. The variable ‘rewards and appreciation’
was highly perceived by the employees of 25 to 35 years, 35 to 45 years and 45 to
65 years. ‘Providing opportunities for growth’ was perceived highly by the
employees of 25 to 35 years and 35 to 45 years. The factor responsibility was
highly perceived by graduates. The below school level employees have perceived
‘participation of employees’ highly. The variable ‘providing opportunities for
growth’ was perceived highly by the employees of below school level, graduates
and professionals. The variables ‘recognition’ and ‘rewards and appreciation’
were highly perceived by all groups except post-graduates. The professionals
perceived all the four factors very highly and important.

The employees belong to rural are perceived high in all the factors except
understanding effort and performance level. Employees perceived from semi-
urban and urban, perceived high all the variables except two namely responsibility
and participation of employees. The unmarried gave given importance to the
variables ‘participation of employees’, ‘recognition for achievement’ and
‘rewards and appreciation’. The married employees perceived, both of the above
and in addition the variable ‘providing opportunities for growth’. Significant
difference of opinion was noted in the perception of these two groups with regard
to the variable ‘responsibility’. 
According to mean scores of the various cadres of the employees, the perception of production worker and office workers was very high on the variables ‘participation of employees’, ‘providing opportunities for growth’, ‘recognition for achievement’ and ‘rewards and appreciation’. The supervisors perceived very high on all the variables except ‘participation of employees’. The high perception of technical assistants were on ‘providing opportunities for growth and rewards and appreciation’. Significant difference were found among the perceptions of the various cadres on the factors ‘responsibility’, ‘participation of employees’ and ‘providing opportunities for growth’.

Out of the five variables identified in influencing characteristics of motivation, the perception of employees with different years of experience were measured according to mean scores. The three variables namely ‘providing opportunities for growth’, ‘recognition for achievement’ and ‘rewards and appreciation’ were perceived high by the respondents of having experience below five years, 11 to 15 years, 16 to 20 years and above 21 years. Also the variable participation of employees was perceived high by employees having experience below five years and above 21 years. The employees with above 21 years experience gave high score to the variable ‘responsibility’. The employees with 6 to 10 years experience gave importance to ‘rewards and appreciation’.
To find out the perception of workers on job satisfaction due to the formation of Q.C., the mean scores of various groups of respondents on the ten factors were measured. It was found that the mean scores of the respondents namely, production worker, office worker, supervisor and technical assistants with regard to all the ten factors were perceived moderately. But the supervisors gave less importance to the variable ‘conducive working environment’ and ‘more importance to present job’. Significant differences were found in the perception among the various cadres with regard to the variables, wages, conducive working environment, recognition of the skill, participation in decision making, policies and administration, career development and awards.

While reviewing the mean scores of the perception of different groups of respondents according to age, all the five groups perceived all the ten variables moderately. But significant difference of perception was found among the groups with regard to the variables namely, ‘wages’, ‘recognition of skill’, ‘participation in decision making’, ‘policies and administration’ and ‘career development’.

The result obtained from the Factor Analysis on the critical factor, ‘influencing variables towards satisfaction of Q.C., following three factors namely, ‘policies and strategies’, ‘monetary benefits’ and ‘present job’ were extracted.
The respondents might have been lacking in some skills. Some factors might have influenced them to join the Q.C. So to improve those skills they might have joined the Q.C. Some eleven factors were considered and the respondents were asked to give their perception on the factors to know whether those factor actually loaded in them and considered those factors as important. From the one way Anova test, their perceptions were measured according to the mean scores and the important factors on skills they had before joining the Q.C.

The perception of various categories of employees namely production worker, office worker/administrative staff, supervisors and technical assistants was obtained and the mean scores and ‘F’ value of the factors were calculated. The ‘F’ value of all the factors were found to be statistically significant except for one factor ‘team and interpersonal interaction’. Hence significant difference of perception was noted among the employees with regard to those ten factors. All the categories of employees rated all the factors moderate to high. While observing the perception of the employees with different years of experience, the employees with upto 20 years have rated all the eleven factors moderate to high. But the employees with more than 21 years of experience rated, all the factors low. Because they had been serving in the Q.C. for a long time and they were on the verge of retirement. Also at the time of joining the Q.C., they would not have come across any such Q.C. experience and so they had no knowledge about it.
The result of Factor Analysis shows that three critical factors could be extracted from the factors on the skill they had before joining Q.C. The three critical factors are ‘employee skills’, ‘skills on creativity’ and ‘leadership quality’.

The same two groups were again asked to reply, whether they had acquired the skills stated as eleven factors. Both groups rated all the eleven factors namely, ‘decision making’, ‘problem solving techniques’, ‘motivation skill’, ‘conducting a meeting’, ‘team and interpersonal interaction’, ‘communication skills’, ‘creativity’, ‘writing a report’, ‘making oral presentation’, ‘leadership quality’ and ‘goal setting process’ very high to low.

The result was obtained from the Factor Analysis on the critical factor ‘whether Q.C. helped to acquire skills’ following three important and dominant factors namely ‘improvement of skills of employees’, ‘motivation’ and ‘acquired the skill of making oral presentation’.

All the eleven variables, namely ‘commitment and participation’, ‘ability and commitment of facilitator’, ‘knowledge of the job’, ‘effort of member and leader’, ‘co-operation’, ‘training’, ‘managerial attitude’, ‘managerial recognition’ and ‘feed back’ provided were rated very high by the two groups of respondents namely various cadres of employees and employees with different years of experience. Therefore the respondents felt that the Q.C. is able to solve any problem either technical or non-technical. The four important and dominant
factors extracted through Factor Analysis are ‘members co-operation’, ‘managerial attitude’, ‘members ability’ and ‘managerial recognition’.

Six factors were identified as influencing the purpose of the Q.C. namely to increase quality, to increase communication between workers and management, to become competitive in National and International markets, to improve quality of work life of the employees, and to increase employees’ expertise, innovative skill, knowledge and ability. The mean scores of the responses from the four groups of the different cadres of employees and the employees with different years of experience, on the six factors show both the groups of workers rated all the factors high and positive. While noting the ‘F’ values of different cadres of employees, significant difference of perception was found with regard to three factors that are, to increase productivity, to become competitive in national and international markets, and to increase employees’ expertise, innovative skill, knowledge and ability.

The opinion of respondents on employees contribution to Q.C. was analysed. Nine factors were identified by the researcher, which contribute to better functioning of Q.C. The nine factors are, the member himself, other circle members, circle leader, facilitator, steering committee, unit supervisor, plant management, corporate management and union/union executive. Both the groups of employees rated high to very high all the factors except the factor union/union
executive. However the evaluation of employees with having 6-10 years experience was uniformly high. The respondents perceived negatively the factor union / union executive.

Three dominant and important factors were extracted by grouping the above factors, by fitting the statistical tool Factor Analysis. The three factors are ‘other circle members and leaders’, ‘self contribution’ and ‘contribution on union’ and corporate management’.

The perception of the respondents who belong to the two groups with regard to their experience as member in the Q.C. was evaluated by obtaining the mean scores from Anova. The various cadres of respondents rated moderate to high all the eight variables. Interestingly, the variable ‘my experience with the circle have been unpleasant and frustrating was rated very low and perceived negatively. The same is true in the case of respondents with different years of experience. So it is very clear from their view, that the employees have in good faith in Q.C. and they are very affirmative about Q.C.

From the results obtained from the Factor Analysis on the member’s opinion on Q.C., the rotated factor matrix extracted the following three important and dominant factors such as (1) Members self containment, (2) the kind of experience, (3) appreciation by management.
The perception on employees belongingness to their organization was measured from the mean scores. Both the groups of respondents agreed with all the factors except the three factors namely, ‘I would quit my job if I could get equal or better job outside’, ‘I disagree with the company’s policies and regulations’ and ‘I will not work for the company’. All the workers unanimously agreed to do any type of work given by the management. They accepted most of the factors to show their belongingness to the organization.

From the result of the factor analysis on the critical factor ‘belongingness’ the rotated factor matrix extracted the following three important and dominant factors namely, (1) organisational citizenship, (2) workers and with organization and (3) workers belongingness.

From comparative analysis, using ‘t’-test, the difference of opinions of the respondents on different critical factors or the critical factors on different situation were ascertained. When various skills of the employees were compared before and after joining the Q.C. it was found that the various skills were developed after joining the Q.C., because the ‘t’ values of all the factors are statistically significant at 0.05 per cent level.
Trend Analysis on Income and Expenditure

The trend and growth of income, and expenditure calculated were 18.92 per cent (CGR = 18.92, 3.07 per cent) (CGR = 3.07 per cent) and 29.89 per cent (CGR = 29.89 per cent) for income, expenditure and profit respectively. All the above three have shown the increasing attitude over the period. 98 per cent and 79 per cent variations on income and profit were noticed. The variation for expenditure is very little that is, 16 per cent only. It shows if the organisation spends further on purchasing of raw materials and appoint more workers then there is a likelihood to increase the profit. The bargaining/reward system needs further refining. If steps are taken to reduce the variations, certainly there will be more financial gain in future.

The Trend and growth of sub-items in the expenditure calculated were purchase of materials 17.81 per cent (CGR = 17.81 per cent), employees cost 18.57 per cent (CGR = 18.57), manufacturing cost 11.51 per cent (CGR = 11.51), administration 21.18 per cent (CGR = 21.18) and sales expenditure 30.17 per cent (CGR = 30.17). All expenditure heads have shown an increasing trend over the period of study. 93 per cent, 97 per cent, 96 per cent and 94 per cent variations in the growth trend with regard to purchase of materials, employees cost, manufacturing expenses, administrative expenditure and sales expenditure respectively were noticed. The growth rate of interest paid/finance is –11.16 per
cent. Since it shows a negative trend, the organisation had minimised the financial liabilities. The variation for this head is only 32 per cent.

**Production Trend**

The company mainly makes three components namely Oil Seeds, O Rings and MRP and Reed Assemblies. The volume of production showed considerable increase in all the three products during the period of study. A slight variation could be noticed during the period with regard to Reed valve assemblies. This may be due to scarcity of raw materials. Sometimes due to problems in the machinery and also the non-availability of experts.

The trend and growth of production of the three components calculated were Oil seals 22.09 per cent (CGR = 22.09), O’rings 25.90 per cent (CGR = 25.90) and Reed Valve Assemblies 8.82 per cent (CGR = 8.82). The CGR of total production is 22.82 per cent.

It is ascertained from the Regression analysis, that if one unit of production is increased, there will be 7.8 unit of income per year. In the same manner, while the expenditure is compared with production, through the value of ‘b’, it is noticed that if one unit of expenditure is increased, then there will be an increase in production to the tune of 3.67 per cent.
Factors Correlation

When financial motivational factors were correlated with environmental motivational factors, the ‘r’ value obtained is 0.2957 which shows the low correlation, and hence the relationship between the two factors is very low according to the perception of the workers. Hence no correlation between environmental and motivational factors was noticed.

The ‘r’ value of the correlation between financial motivation and increase of production, that is, row three and column three is found to be 0.6097. So the relationship is substantial or moderate. So it is inferred that there seems to be a good relationship between the financial motivation and the increase of production.

The investigator attempted to find out the relationship between environmental motivational factors that is column two with row three that is increase of production. The ‘r’ value obtained from this correlation is 0.4175. This also seemed to be a moderate relationship from this ‘r’ value, it is concluded that there is also moderate relationship between environmental motivational factors with increase of production. But the intensity is not more than that of financial motivators.

Row four with column three, that is experience as Q.C. members was compared with the increase of production. The ‘r’ value obtained is 0.8751. This
shows the high to very high relationship between these two critical factors. Hence it is inferred that more experienced workers play a key role in increasing the production.

The investigators wanted to know how the critical factor belongingness is important to production. The comparison of the factors belongingness to organisation with increase of production results that the ‘r’ is found to be 0.7981, which shows high to very high relationship between the above two. So it is inferred, the belongingness to organization is considered to be one of the motivational factors in increasing productivity.

**Conclusion**

The study reveals that the Q.C. plays a important role in the organisational development. Further the Q.C. activities influenced the workers towards quality work. The implementation of Q.C. leads to quality management. Except the workers in the group between 6 and 10 years experience, all workers perceived all the factors namely cash awards, appraisal system, giving certificates and medals, recognition of workers and their skills by employees and other bargaining and rewards systems as favoured ones. The workers feel that some of their skills namely decision-making, communications, creativity, report writing and goal-setting process improved after their joining the Q.C. Organisational citizenship and belongingness were implanted in them through the Q.C. activities. The
leadership quality also increased considerably. Even temporary workers contributed the same as the permanent workers. The strong opinion is that the leadership should be rotated among the Q.C. members, and they wanted to conduct Q.C. meetings during office hours. The management supports the Q.C. to the fullest extent possible and gives much importance.

Most of the workers suggest that the Q.C. is started in other organizations also. The Q.C. members are least bothered about the unions’ interference, because most of the problems were solved at the Q.C. meetings. The organizational changes were discussed in the Q.C. meeting and decisions were taken. There was a very smooth and successful implementation of the changes in the organisation without any problem.

Through the Q.C., the organisation utilized to the fullest the expertise and the skills of the workers. The workers’ participation is considered to be very important for the growth of the organization.

**Recommendations and Suggestions**

The feelings of the workers with regard to favouritism by management towards interested workers should be considered. Steps should be taken to conduct Q.C. meetings at least twice in a month in the working hours. If the meetings conducted after working hours, the management can provide
transportation to the Q.C. members who attend the meeting. Since the workers are very well satisfied with the Q.C. in terms of their welfare and also the welfare of the organisation, the organisation should take strategic decisions steps to keep up the spirit. Also they can be given further refresher training as and when required. Some members who are not interested in attending the Q.C. meetings should be persuaded and counselled to attend the meetings. The management may consider it to further increase productivity in terms of quality and quantity. Further financial and non-financial motivators be considered to sustain the improvements. The management can take efforts to amplify the Q.C. activities in their organisation and also to introduce the some in other organisations. Quality circles can also been form the higher educational institutions offering professional courses like M.B.A., M.C.A. and B.E.

**Scope for Further Research**

Usually one investigation will lead to another. The researcher has taken up this study in one organisation. This study can be extend to the following:

1. To study and compare the impact of Q.C. in any two production organisations.
2. The need for the Q.C. in big industries can be studied.
3. The impact of Q.C. in public sector companies can be taken up.
4. A comparative study can be undertaken between organisations with Q.C.s and without Q.Cs. with reference to production and quality management.