CHAPTER 7

CONCLUSION

7.1 INTRODUCTION

The present day consumers are highly quality conscious. The market is consumer driven. The present day consumer demands quality products at very competitive prices (Inman et al. 2011). During the recent years, only the tea manufacturing companies which have been able to produce high quality tea have emerged as winners in the competitive market (Bhattacharyya, 2007). In order to keep pace with the demand of the consumer, the tea manufacturing companies are striving to produce high quality tea at the most competitive price (Bhattacharyya, 2007). Even though efforts are being taken to improve the quality, the results of the literature survey conducted during the beginning of the doctoral work being reported in this thesis has revealed that tea manufacturing companies have failed to use globally accepted and proven models such as TQM for exercising continuous quality improvement. In order to bridge this research and practice gap, during the doctoral work reported in this thesis, the practicality of TFMEA was investigated to validate its application in the tea industry. The hallmark of the doctoral work reported in the thesis was the conduct of the implementation studies on the TFMEA technique at Pandian tea industry and Highfield tea industry. After reporting the investigations carried out in the doctoral work in the previous chapters of this thesis, the contributions and limitations of this doctoral work are presented in this chapter. The avenues for pursuing future research in this direction have also been earmarked in this chapter.
7.2 CONTRIBUTIONS

The contributions of the doctoral work reported in this thesis are highlighted below:

- The literature was surveyed in the domains of tea manufacture, TQM and FMEA. The results of this literature survey indicated that, TQM and FMEA have not been employed in tea industry for achieving continuous quality improvement.

- Through the conduct of literature survey, the knowledge required to exercise continuous quality improvement in the tea industry was gathered. This knowledge was used to adopt the TFMEA technique for exercising continuous quality improvement in the tea industry.

- During this doctoral work, 13 distinct implementation steps of TFMEA were evolved. These steps would be useful to the practitioners for implementing TFMEA technique in tea manufacturing companies for exercising continuous quality improvement.

- Implementation studies on TFMEA were conducted in two companies manufacturing black tea. The experiences of conducting these implementation studies indicated that TFMEA could be implemented by employing the 13 steps evolved during this doctoral work. These experiences also revealed the steps in which hurdles of implementing TFMEA technique would be encountered.

On the whole, the doctoral work reported in this thesis has contributed the 13 steps of implementing TFMEA technique for implementing it in the tea manufacturing companies.

7.3 LIMITATION

Although the implementation studies on TFMEA technique could be conducted smoothly in Pandian tea industry and Highfield tea industry, a limitation
prevented the complete checking of the validation of the 13 steps of TFMEA technique. This limitation is described in this section.

In the case of conducting the implementation study at both Pandian tea industry and Highfield tea industry, out of the 13 distinct steps required for the implementation of the TFMEA technique, the first nine steps could be conducted smoothly and completely. However, some hurdles were faced during the remaining steps. The major hurdle faced was that the top managements did not grant the necessary permission for implementing the suggested actions of the TFMEA team for overcoming failures in their tea manufacturing companies. Under these circumstances, in both Pandian tea industry and Highfield tea industry, it was possible to assess the practicality of the TFMEA programme only by getting the responses from the experienced personnel of these companies regarding the remedial actions suggested for overcoming failures using a questionnaire. Since only human judgment could be used in this activity, it is considered as a major limitation in validating the application of the TFMEA technique in the tea industry.

Despite the above limitation, because of the prowess experienced during its implementation at both Pandian tea industry and Highfield tea industry, it is inferred that, the TFMEA technique can be employed to achieve continuous quality improvement in the tea industry and thereby enhance the quality of tea manufactured.

7.4 SCOPE FOR FUTURE WORK

As mentioned earlier in several sections of this thesis, on the whole, through the implementation studies carried out during the doctoral work reported in this thesis the practical compatibility of TFMEA technique in implementing it in the tea industry has been revealed. Future researchers can overcome the major hurdle of obtaining the management approval for the implementation of the TFMEA
technique by taking steps to educate the personnel of the tea industry about the benefits of employing TFMEA technique. In this regard, major tea manufacturing associations such as United Planters Association of South India (UPASI), Nilgiri Planters Association (NPA) and other planters associations can be approached and they can be apprised of the salient features of the TFMEA technique. These associations can be requested to disseminate this information to their members and also recommend the TFMEA program for enhancing the quality of tea in the member tea manufacturing companies. This will motivate the tea industry to accept the implementation of TFMEA technique. Moreover, it is suggested that, future researchers can take steps to enhance practical validity of the TFMEA technique by considering the field practices while conducting their investigations which will contribute towards getting better quality tea shoots for carrying out the manufacturing process. This suggestion is recommended as the quality of raw material plays a vital role in the quality of the tea produced.

In order to validate the findings and to confirm the suitability of TFMEA technique for its application in tea industry, it is imperative to conduct more real time case studies in other tea manufacturing companies. Researches may also be conducted in future involving the case studies on several other companies belonging to varied sectors to investigate the practical capability of TFMEA in exercising continuous quality improvement in their respective sectors. The findings of these researches may be used to either affirm or disaffirm the practicality of the TFMEA technique. Alternatively, these results may be used to refine and improve the TFMEA technique to make it more user friendly and effective in enabling the organizations to exercise continuous quality improvement.

7.5 CONCLUSION

As the globalization of economy is rapidly taking place, there is stiff competition among various tea manufacturing companies to conquer the global tea market (Bhattacharyya, 2007). Quality of the tea manufactured and the selling price
of the tea are the two major factors that determine the share of each player in the
global tea market. Of late, the tea manufacturing companies have been exerting
concerted efforts to improve the quality and also reduce the price of tea. Even
though the tea manufacturing companies have been striving hard in this direction,
they have not been very successful towards reaching their goal of improving the
quality of tea and reducing the cost of production. Under these circumstances, the
literature survey conducted during the beginning phase of the doctoral work
reported in this thesis has revealed that, the tea industry has not been nourishing the
benefits of applying TQM and failure analysis, for exercising continuous quality
improvement.

A brief review of the literature indicated that, FMEA technique is a
powerful tool for achieving failure prevention. This literature review has also
revealed that, though FMEA is a very powerful technique, it suffers from certain
deficiencies (Chin et al. 2009). Particularly, it was discernable that, the traditional
FMEA process is not exhaustive and hence, does not contribute towards failure
prevention holistically. Under these circumstances, various advanced models of
FMEA have been brought out by the researchers (Pilley and Wang 2003). A brief
study of these advanced models showed that, a few new techniques have been
adopted by the researchers to overcome the deficiencies of the traditional FMEA.
Under these circumstances it became a challenge to choose any of these advanced
techniques which would be suitable for implementing in the tea industry. A detailed
analysis was made to find out the most suited technique and the results of this
analysis indicated that the TFMEA technique is practically implementable in the tea
industry.

The TFMEA programme with 13 distinct implementation steps was
designed for implementing it in the tea manufacturing companies. Followed by this
exercise, the practicality of TFMEA technique was investigated in Pandian tea
industry and Highfield tea industry. Most of these 13 implementation steps could be
implemented in both Pandian tea industry and Highfield tea industry. The
management and employees were exposed to team building and brainstorming tool, which are needed to enhance quality and exercise continuous quality improvement in the tea industry. In the beginning, it was apparent that the enthusiasm and cooperation of the employees and laborers would be the foundation for the successful implementation of TFMEA technique in the tea manufacturing companies. However, during the course of implementation, it was discernable that the management support would be the key for successfully implementing the TFMEA technique in the tea manufacturing companies to achieve continuous quality improvement. In conclusion, it can be stated that the experience of conducting implementation studies at Pandian tea industry and Highfield tea industry has indicated that the TFMEA technique is practically implementable in companies manufacturing black tea. It is also established that, the implementation of TFMEA will aid to improve the quality of black tea and enhance the productivity of the tea industry.