Chapter II

Review of Studies on Total Quality Management and Indian Tea Industry
2.1 An Overview of Total Quality Management

Total Quality Management has been adapted by some companies in India, though the number of such companies is small compared to the number of companies that have obtained ISO9000 certification. This section discusses an overview of Total Quality Management, the status of TQM in industries and the reasons for its debacle, based on literature scanning.

2.1.1 Introduction

As conceived by Aristotle, achieving a good and happy life is Ethics. Management ethics is concerned with creating good organizations to achieve excellent quality in the production of goods and services. Thus, Ethics and Quality are integral part of management. Peter Drucker (1977) pointed out that ethics and quality are the core areas in management of an enterprise. He believed that ethical and socially responsible management provides continuity for the organization. One important dimension of socially responsible management is responsibility or accountability for the social consequences of products and processes. “One is responsible for one’s impacts, whether they are intended or not” (Drucker, 1977). This involves taking action to address problems, even before society might force business to regulate or change behaviour. This is in contrast to the more limited view (Friedman, 1970) that business only has a responsibility to comply with legal requirements and basic norms, i.e. a more community-based and long-term perspective needs to be accounted.

Ethics (doing right things) and quality (doing things right) represent complementary dimensions - the soft and hard sides - of management. Further, both are a philosophy as well as a process, each seeking to optimize organizational behaviour by clarifying the purpose and nature of work.

The Scope of business has been extending dramatically from a mere “an organization for profit” to “serving the society and its implications in the longer run”. This concept is represented in Figure 2.1. Thus an organization has a multi-dimensional focus such as, coping with market dynamics, stakeholder focus, customer focus, government regulations and social/ethical issues. Hence the holistic approach to the organization is the need of the hour. In the process of catering to the changes of the society, organization too needs to change the strategies.
The organization caters to these varying requirements of customer demand meeting the social obligations. The stakes for society is quite large enough to encompass the various dimensions. To answer the question of how to encompass these dimensions, many paradigms have come and gone. But the one that accounts all these dimensions is answered by "TOTAL QUALITY MANAGEMENT" (TQM). And TQM has rapidly become the business philosophy of the day. TQM has been acclaimed as process-oriented organizational philosophy to improve business activity, which enhances the global competitiveness and customer satisfaction through the production of high quality goods and services.

2.1.2 The Development of Quality Management

2.1.2.1 A Brief History of Industrial Total Quality Management
Development of TQM in the industrial setting has spanned virtually throughout the twentieth century. TQM had its rudimentary beginnings in the work of Frederick Taylor...
and his theories on scientific management. Simultaneously, Japanese managers at Toyota Motors, Dr. Walter Shewhart's work at Bell Laboratories, Deming's PDCA cycle, Juran's Total quality control, Dr. Armand Feigenbaum use of the concept of "cost of quality" and Crosby's "zero defects" program and many similar works have carried the "QUALITY" down the decade with varying definitions, meanings and understanding. TQM has been used as a strategic weapon by majority of the industries worldwide to meet the dynamic environment and changing needs of the customers, leading to both success to some extent and failure to a greater extent. Thus looking at TQM as a "FAD", the theoretical foundations for TQM came from several people, including Deming, Juran, Crosby, Taguchi, Ishikawa. TQM has evolved to mean many different things. Collin's "Dictionary of Sociology" describes Total Quality Management as: "Managerial technique in pursuit of continuous improvement through strategic, procedural and cultural change in organizations" (David and Julia 1995).

Nonaka and Takeuchi (1995) emphasized TQM as a management system theory that is a blend of American scientific approach with Japanese holistic traditions of the oneness of humanity and nature. Oneness of body and mind and the value of interaction between self and others are instrumental in the economic success of Japanese after the World War-II.

Deming, Juran and Ishikawa agree on the importance of scientific methods (a constantly evolving theory interacting with empirical data), for controlling processes and quality. They strongly emphasized the importance of statistical method to monitor process performance and identify areas of improvement (Deming 1986).

W. Edwards Deming, credited with the Japanese 'Quality Revolution' of the post war era, quoted "We have learned to live in a world of mistakes and defective products as if they were necessary to life. It is time to adopt a new philosophy in America". And "Our aim in production should be to improve the process to the point where its distribution is so narrow, the specifications are lost beyond the horizon." That is, we should learn enough about our processes to be able to set process target nominal such that the variation around those nominal is minimal. (Deming website)
2.1.2.2 Perception of TQM: Theory and Practice

TQM's view of processes is seen as an interaction of five generic types of resources: people, method, material, equipment and environment. This resembles the ideas of socio-technical theory developed at the Tavistock Institute. (Deming 1986, Burrell and Morgan 1979). Figure 2.2 shows the parameters of TQM.

![Diagram of TQM Parameters](image)

Figure 2.2: Perceptions of TQM Philosophy

The approach of TQM concept is systemic in nature. It encompasses both the Socio-technical and Contingent theories, integrating every facet of organization (Business/Service). Such an overall system improvement leads to high quality product and cost reduction, that gives an organization/firm a competitive advantage in improving the total efficiency, effectiveness and its adaptability.

2.1.3 Status of TQM in Industries

Although ISO 9000 certification became the symbol of quality-oriented company, a mere certification does not guarantee quality. Adopting TQM would ensure a company
to achieve the desired quality. Many companies went beyond ISO 9000 towards TQM, hence there was a wide spread acceptance of TQM in several countries. TQM was embraced in the developed countries first. India made a late entry into both ISO 9000 and TQM.

2.1.3.1 Incidences of Successful Implementation of TQM

- Robinson, et al. (1991) pointed out that American Express, Ford, IBM, Motorola, Procter & Gamble, and Xerox have halved the product development cycle, 75 per cent improvement in “things gone wrong” in shipped products, and to a US $1.5 billion savings in scrap and rework over a five-year period.

- Over the nine-year history of the Baldrige award (Malcolm Baldrige National Quality Award is a US federally administered award program which tries to identify companies who are practicing TQM), winners have outperformed the S&P 500 by almost 3:1. Even companies who did not win the award, but who received site visits from Baldrige examiners, outperformed the S&P 500 by more than 2:1. (skymarkwebsite)

- Evans (1995) listed the following TQM successes:
  
  > Nestlé Chocolate and Confections, a division of Nestlé Food Company, reported in the mid of 1990’s that their total quality efforts saved £4.1 million in the first year, £11 million in the second and £20 million in the third. Return on investment grew from 15 per cent to 22 percent.

  > ABB Zamech of Poland, heavy power generation equipment makers, recorded annual turnover rise from $80 million to $150 million in about three years after the introduction of TQM in 1990.

  > San Diego-based biotechnology firm, Hybritech’s turnover had grown from $50 million to $145 million, and a $20 million loss transformed into a $36 million profit, in a span of four years after the introduction of TQM.

2.1.3.2 Incidences of Failures of TQM Implementation

However, it is reported that many companies could not adopt TQM successfully and therefore, could not gain the benefits out of it. Reports of the failure of TQM implementation are presented below.
• KPMG (1989) productivity survey conducted among electronics manufacturers in USA indicates that over 90 per cent of the respondents claim TQM as a competitive tool, but only 15-20 per cent say that they have implemented TQM.

• Wright (1993) reported that TQM success rate in USA is 25% and that in UK is only 20%.

• Eskildson (1994) found that the American Electronic Association's quality programmes dropped from 86% in 1988 to 73% in 1991. Of these, around 63% failed to reduce internal defects even by around 10% in spite of TQM programs being in use for 2-3 years. He also found that in Britain, only 20% believed that their quality programmes had a significant impact on their organization.

• Fisher (1994) and Brown (1993) also reported about 80% failures in implementation of TQM in American Companies

• Paton (1994) stated that a study of 30 quality programs by McKinsey & Company found that two-third of the quality programs failed to yield real improvements. A study by Rath et al. reported that only 20% of Fortune 500 companies were satisfied with the results of their TQM activities.

• Gatchalian (1997) generalized, from his surveys, that the proportion of successes in TQM implementation was only within the range of 20 to 35 per cent of those who have initiated the practice.

• Singh (1991), in his survey, revealed that only 39 companies out of 1000 surveyed are practicing TQM to some extent in India. Moreover, he concluded that these 39 organizations were also not able to distinguish between TQM and quality control.

If one could see completely across the global corporate horizon, there are possibly many TQM implementation disaster stories than that of TQM successes. Failing to capture the full potential of TQM and improper implementation have led some managers to dub TQM as a fad.
2.1.4 Reasons for Failure of TQM

Some of the reasons of failure of TQM as attributed by various quality professionals are:

- **Culture Change**: Develin and Partners (1989), Dale, et al. (1997), have stated that the key factor to obtain a successful implementation of TQM is change of organizational culture and emphasized that a structured approach is required. However, they feel that the approach to change organizational culture remains largely unclear in most cases, and therefore full potential of TQM is not achieved.

- **Quality Policy Communication**: Crosby (1979) emphasized quality policy as a standard practice, which sets priorities by influencing the entire organization on what to do and what not to do and provides the launching platform for the implementation of TQM. Failure to communicate this quality policy actually defeats the purpose of having the policy in the first place followed by a failure of TQM.

- **Top Management Commitment**: Bertram (1991), Juran (1993), and Easton (1993) have all attributed the lack of “Top Management commitment” for the failure of TQM or quality initiatives.

- **Leadership**: Zairi (1994) pointed out that the lack of enough know-how and capability of the leadership to properly implement the quality programmes, inhibits the momentum of TQM implementation.

- **Delegation and Involvement**: Corrigan (1995) recognized that the debacle of TQM quite often comes forth because of too much delegation of TQM responsibility without personal involvement of the Top Management in TQM efforts.

- **Poor Strategic Vision**: Gatchalin (1997) indicated the following for failure of TQM:
  - The absence of strategic communication and teamwork for quality improvement from the Top Management.
  - High emphasis on short-term strategic goals that are financial in nature, i.e., expectation of immediate monetary benefits

The common reasons for failure of TQM implementation are represented in Figure 2.3
Figure 2.3: Common Reasons for Failure of TQM Implementation

To summarize, the Company's existing culture, lack of top management commitment, non-communication of quality policy, diluted responsibilities, absence of
strategic communication, lack of team work, higher emphasis on short term monetary goals, lack of knowledge and leadership capability are the reasons found by several authors for failure of TQM implementation.

The approach to TQM implementation, therefore, needs to be developed deeper in order to come out with a more rational understanding of the concept and to formulate a strategy to work towards a more effective implementation of TQM (operational reality), to truly fit their company's requirements and foster the success of TQM journey.

2.1.5 Summary of TQM Practices

TQM has been partially successful as a paradigm for most organizations in gaining the competitive advantage or in enhancing the overall quality of the organization, due to lack of a holistic approach during its implementation or due to improper strategic thinking. Again the impatience, improper platform akin to that in ISO certification played part in damaging the basic purpose of TQM.

TQM will be successful if some of the cautions mentioned below are adhered to:

- The drive for improvement for an organization should not be a problem driven improvement process. First, assess the preconditions and the current state of the organization to make sure that there is a need for change and that TQM is an appropriate strategy.
- The Approach should be humanistic. TQM does not fail or succeed because of techniques. TQM fails or succeeds because of people. If TQM is to become an operational reality within organization then it is a fundamental requirement that human dimension be meticulously taken care of in terms of gaining their trust, imparting training, keeping/maintaining their enthusiasm, long term security and interest.
- Improvement of the process is on a continual basis.
- Account all the intangible benefits accrued in the initial phases to the people at all levels so that the faith in the quality management is not lost.
- Develop an in-house strategy for implementation of TQM; though initial stages can take assistance of the agents, and gradually develop its own internal team to manage the same, i.e. it should not be sold to consultants solely.
• The gestation period should be assessed so that programs are not shelved down/negated before the period.

Drucker(1989) has aptly commented that TQM is a good idea. Like many good Management ideas, it has the unfortunate tendency to degenerate, into hard work. TQM is hard work, it is not hard physical work, but it is hard emotional and mental work. The successful implementation of TQM is hard work because it requires many people and managers in particular, to change beliefs and attitudes that have proved relatively successful in the past, to think more effectively and most importantly to change what they do in the contexts of their working lives. TQM should become a way of life and a long-term perpetual improvement process.

The challenge of TQM is, first and last a human challenge. It is not simply about techniques, systems and procedures, but primarily about values and attitudes and ultimately business ethics.

2.2 A Resume of Reported Studies on Indian Tea Industry

Tea industry receives wide coverage in the daily newspapers and the economic weeklies of India. The large number of studies reported on various aspects of tea industry truly reflects the role of this industry in the national economy. These reports comprise views of the planters, researchers, social scientists, economists, and experts in committees formed by the government and the planter’s associations. They mainly touch upon agro-botanical, marketing, manufacturing, and economic aspects of the industry. The first two aspects, however, have received higher priorities primarily through the activities of the research organization at Tocklai, Jorhat and through the concern expressed by the government and planters from time to time, as evidenced by large number of seminars and committees etc., respectively.

No attempt is made here to discuss the reports of the agro-botanical studies on tea plants. Other important studies directly related to the present investigation are highlighted below to form a backdrop against which the results of the present investigation could be debated.
Most of the studies reported during 1950-1980 indicate a close similarity among recommendations made. Almost all of them visualize a very rosy picture so far as the demand for tea around the turn of the century was concerned. Hence, the concern was invariably in planning for long term production and selling tea profitably. Various suggested schemes for planning for long term production include extension planting, replanting, modernization of factories, building up a trained labour and managerial force and augmenting R&D activities and implementing its results etc. No serious suggestions regarding ways for increasing profitability have been put forward by any study except reaffirming faith on the distribution system through auction, emphasizing on intensive market research, particularly in foreign markets. Most of the reports on Tea industry till date are quantitative in their approach and recommendations. However, certain studies significant for their innovative views are discussed below.

Roy (1980) is of the view that a limited cobweb type phenomenon is responsible for a long term price fluctuation of tea, and that the short-term price instability is largely due to real or assumed over/under production. Analyzing the adverse impact of the International Tea Agreements of 1933 through 1955 on the growth of tea industry, Roy suggests that India should refrain from signing such agreements in the future. He also suggested that the tea trade be fully taken over by the government with controlled flow to auction after fulfilling the demand for the foreign market with a view to creating an excess of demand over supply to stabilize price.

Jain(1989) has indicated various potential areas towards which the Research and Development activities should be oriented for long term improvement in productivity and reduction in cost of production.

Sahu (1979) has indicated various potential areas of the industry such as general management, management of production in field and factory, capital investment, cost reduction, financial management, marketing management, etc., wherein the popular techniques of Industrial Engineering could be fully employed.

On the basis of an analysis of strength, weaknesses, opportunity and threat to the industry, Garodia (1979) argues that doubling of tea production is possible with the existing production area itself if research activities can be furthered and are result oriented. Emphasis has been given on proper bush density, replanting, and on rearing the tea bushes with utmost care in order to obtain the best results. Garodia has put forward a
new idea of visualizing the future requirement in terms of number of cups of liquid tea rather than in terms of dry leaf, as the different types of dry leaf manufactured by different processes (CTC, Orthodox etc) produce different number of cups of liquid tea per unit of dry leaf.

Baruah, P.C. (1984) discussed some of the productivity techniques like manpower planning, job evaluation, work study, material management, maintenance management, production planning and control, operations research techniques etc. Baruah points out the possibility of applying those techniques in tea industry.

Bhagat, K.R., (1998) points out that the output at the end of a day in a tea garden has got direct bearing to the quality of work performed in various sectors by the garden workers engaged in various stages of field and operations. He has shown that the yield from land, and labour productivity, have been showing a downward trend (Fig. 2.4 and Fig. 2.5). Bhagat has suggested some measures related to labour and plantation operations for improved productivity of a garden.

![Graph](image)

**Fig 2.4**  
Yield per Hectare of Assam Tea Gardens
Sarronwala (1995) tried to put up a convenient organization and management structure of a tea garden for better output in terms of productivity. He also discussed the objectives, duties and responsibilities of persons under each designation of the management structure.

To improve tea quality, Dhan (1995), suggested for putting more importance on management front rather than putting isolated effort to bring out the cup characteristics of tea. He advocated the implementation of TQM in estate management covering all aspects of agriculture, manufacture and administration including human resources development.

Baruah, T.C., (1984) illustrates briefly the work done in Tocklai Experimental Station mainly on development of newer tea machineries which are of continuous type, more efficient, compact, cheaper and easy to install and operate.

Gupta (1999) critically analyzes the weaknesses of conventional CTC machines and the necessity of further research in this direction. He proposed to apply the ‘concept of product development’ for development of improved tea machineries as followed by other industries. He stressed on development of machines for higher accuracy and productivity enabling them to produce leaf style (Grade mix, density and bloom) and liquors (thick, bright with cuppgae).

Khanna (1999) describes the importance of withering process of tea manufacture stressing on physical and chemical aspects. He probes into the different existing
withering methods and their relative advantages and disadvantages. Khanna stressed on the need for improvement of the trough system for meeting the challenge for future.

Arora (1995) discusses the new concepts of tea drying and presents a comparative analysis of VFBD (Vibratory Fluidized Bed Dryer), microwave heating, heat pump, flash cum fluidized bed drying.

Das (1997) points out the fact that major savings can be achieved by switching over from oil to coal firing. He also suggests that the performance of coal fired tea dryer can be improved by switching from manual firing to use of mechanical strokers.

Sooriamothi, et al., (1993) classifies the energy consumption in tea manufacturing into three groups, viz. thermal, electrical and human. The deviation from the standard is used as an indicator to reflect the waste in the production process.

Desilva (1994), critically analyses the energy requirements of various drying processes. The various points of wastes in tea drying process have been mentioned. It has been commented here that if there is any scope of further reduction in consumption of energy, it lies in cutting down the exhaust air losses. But there is a constraint in reducing these losses below a particular value as the made tea has to be discharged at a moisture content not exceeding 3%.

It can be noted here that ECP (Endless Chain Pulley) traditional dryers are in use in many tea gardens of Assam for many decades. The highest efficiency that can be obtained in such dryer in relation to operating parameters is about 36% which is very low (Das 1997).

Dhanakumar (1996) deals with how human-quality relations will emerge in the future. Here, he identifies ‘people’ as the most underutilized resource of tea industry. A case study is presented on how the United Planter’s Association of Southern India-Krishi Vigyan Kendra implemented TQM approach within the framework of ‘totality’ in active participation of every employee from the top to the lowest echelon. It has been revealed in this study that the biggest influence on cost and quality of tea industry is the cycle time starting from the arrival of raw material to the delivery of the made tea. It has been concluded in this paper that:-

- TQM will lead to change in tea industry culture
- Totality cannot be improved by high investment in technology alone

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Totality comes from people
Totality is a result of attitudes and values
Industrial climate and culture decides the quality products and services

Bora (1981) carried a detailed Delphi Study to drive into the weak areas of tea industry responsible for price fluctuation of tea. The whole tea industry is divided into four major sectors, viz., production, domestic marketing, export, R&D. Each sector is divided into ten sub sectors. Using Systems Dynamics, a composite model has been developed and various policies leading to long term price stabilization of tea is carried out after validating the model. The additional feature of this work was that of development of a simulation package: DYMOSIM.

“The Quality Factor” (2002), describes the implementation of several strategies to support and prepare the predominant tea sector in Nilgiris to tackle the development arising out of the globalization in the market.

Bhattcharjee, (2002) carried a survey on the financial health of a public sector tea industry. The causes for the ill health of the unit under study have been systematically made. The remedial financial measures for upliftment of the unit have been suggested.

“A saga of success” (www.teatalk.com) describes the success history of a Kenyan Tea Company. The basic reasons for their success are attributed to:

- hard work, dedication
- deep rooted culture and core values
- company’s policy of considering its people as their greatest asset
- sound principles and practices
- management’s policy of "never compromise on quality"
- management’s effort for continuous improvement
- employee’s participation as teams in improvement of processes
- management’s effort to enhance personnel, & ethical values

Some of the key features of the management philosophy of this company are:

- Accessibility-Open Door Policy
- On-going Training & Development
- Discipline & Respect at Every Level
- Participative Management Style

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- Performance Appraisal System
- Excellent Employee Compensation

These reported studies have highlighted the problems afflicting the tea industry. In the context of Assam Tea, no known literature is available on application of TQM. Cultural and geographical differences make the study of implementing TQM in Assam Tea industry different from tea industry in South India. This strengthens the need for feasibility study of implementing TQM in Tea industries of Assam. Initiation and effective implementation of TQM in Tea Industry of Assam requires an analysis of the Industry to formulate a strategy, specific to the industry, to highlight the requirements and foster the journey of TQM. A valid mathematical model, with which one can explain the present industry behaviour and recommend structural and policy changes, is expected to benefit the whole industry.