TQM A Tool for Self - Discipline, Progress & Prosperity

-Jivendra

ABSTRACT: TQM is a fundamental business strategy and the key management for the future. The quality is the degree of excellence by which a customer's requirements in totality are met. The heart of TQM system is the company wide quality control by all employees in all spheres led by the top management to improve their quality of work as the accumulated quality is finally reflected in the final product/ service. It focuses on the need for continuous improvement of all customers, internal as well as external. In the present context of national/ global economy, the conscious customer's expectation of continual improvement in the product and demonstration of a supplier's capability to deliver a "Q" product, are fully met by TQM. TQM is a participative and co-operative system with main ingredients being equality in participation, team work, standardized and documented procedures with their effective implementation, leadership by managers, appreciation and encouragement, effective and improved communication and interaction amongst all and finally the commitment of everyone, especially the top management. It regards human beings not only as resources but as an asset and thus lays confidence in their capability, respects humanity and concentrates on their continual development by education and training. It improves the quality and productivity, results in a highly focused, effective and productive work force, economizes all activities and resources, reduces wastes and design "Quality IN". It serves as a powerful marketing tool and a keen competitive edge. Obviously, this all leads to overall increased profits, high reputation, prestige, growth and prosperity of the organization.

TQM has proved to produce excellent results in many organizations. However, in view of its adoption in totality being a long process, difficulty in measuring intangible advantages and gains to be visible in a short period, ISO 9000 has established itself as short-cut to TQM. It considers presently many important activities as its basic elements having impact on the quality, remaining once getting introduced gradually. In terms of a standard model for quality

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management system in well standardized and documented form ensuring its adequacy/ effective implementation by an external approved agency, ISO 9000 has provided a common pattern, interpretation, development and application of a "Q" system leading to measurement and comparison and harmonization on a global scale possible and gains visible in a short period.

INTRODUCTION

The term "Quality" has been prevalent from time immemorial, though it has meant differently to different people depending upon their perception. There have been revolutionary changes in the concept of quality and its control functions in the last five decades or so. The emphasis on quantum shifted to inspection oriented quality of products particularly from the 2nd world war. It was subsequently extended to "Built In Process Quality" approach. During the years, new techniques and concepts like Statistical Quality Control, Quality Assurance, Zero Defect, Reliability Engineering, Cost of Quality, Quality Circles, Kaizen & Strategic Quality Management etc. were gradually, some simultaneously, introduced leading ultimately to "Total Quality Management/ Control (TQM/ TQC). In the process, significant contributions were made by Juran, Kaoru, Ishikawa, Feigenbanm Crossby & Edward Deming etc. As a country, Japan has been the pioneer to embrace this concept and implement it.

It the recent decade, TQM has been getting wide acceptance by many organisations, irrespective of their activities, including the paper industry. In India, some do believe that it is not possible to adopt TQM in the paper industry though it is an incorrect belief. There are many paper companies in the world who have adopted this approach, some of them calling themselves as "Quality Assured Companies". It is true that in the conditions prevailing in the Indian Paper Industry, it is comparitively difficult but not impossible. Deming has sarcastically but rightly remarked that "You do not have to go in for it as survival is not compulsory". Moving towards TQM does require major changes in the organisation in all of its business functions.

CONCEPT OF QUALITY (Q)

Q is relative. Dictionary defines it as degree of excellence. The modern concept of quality of products/

services can be broadly defined today as "fitness for purpose/ use, reliablility and value for money". It covers conformance to requirements/ specifications including delivery at the right time and place, durability, dependability, serviceability, safe working, aesthetics, affordability and delightfulness. ISO defines "Q" as "The totality of features and characteristics of a product that bear on its ability to satisfy the stated or implied needs". The words "implied needs" have to be taken seriously while attempting on quality because the specifications/ requirements stated by the customer may not really spell out `What is required to satisfy a customer'. This leads us to define Quality Management as a system or methodology to attain a product quality at optimum cost not only meeting customers entire satisfaction but exceeding their expectations consistantly and progressively. `Q', thus, may also be defined as the degree of excellence by which we satisfy a customer of a product/ service. The changed concept of `Q' in TQM can be briefly compared with the old concept of `Q' in TQM can be briefly compared with the old concept of `Q' in TQM can be briefly compared with the old concept of `Q' in TQM can be briefly compared with the old concept of `Q' in TQM can be briefly compared with the old concept of `Q' as--

Old "Q" is	New "Q" is
- about product/ process	- about organisation
- conformance to specifications	- conformance to customer's requirements.
, manufaturing based	, user based
- technical	- strategic
- for inspectors	- for everyone
- corrective, based on distrust	- preventive, based on trust
- by them	- by us
- led by experts	- led by management
- the high grade	- the appropriate grade
- about control	- about improvement & innovation
- little q	- BIG Q

WHAT IS TQM ?

It is a fundamental business strategy embracing the features of strategic quality movement and a thought

revolution for the management. It has necessarily to be led by them and cannot be delegated.

It is not a science but a concept, a philosophy of way of life and key management for the future. Aided by communications and committment, the main objectives are--

(i) A companywide quality control by involvement of all employees led by top management to improve `Q' of work all, at all levels, in all functional areas and walks of life leading to improved `Q' of work that people do, the main cause for poor quality. The process leads to the optimisation of individuals capacities and contributions for the development of the organisation and the society.

(ii) Integration of all efforts in the organisation towards maintenance, development and improvement of `Q' of the product/ services as defined earlier.

Thus, T Q M can summarily be defined as continued & sustained efforts of the organisation towards maintaining a `Q' culture.

NUCLEUS OF TQM

As there is a world wide trend in product quality and customer service to exceed customer's expectations, there has been a growing realisation that continual improvement in `Q' is often necessary to achieve and sustain a good economic performance.

As purchasers demand not just the certification of product/ service but producer's management capability to do the above too.

Quality assurance is needed. This is a planned and systematic activity operated by the management to provide producers and customers the confidence to produce and receive, respectively, a product/ service to the requirements.

TQM .

- Reassures your customers that producers will do it.

- Removes gaps between words and actions by ensuring that

    What you say do it too.

    What you do say it too.

    What you say/ do, document it too.

Salient features and characteristics of TQM are briefly explained below in symbolic terms rather than detailed description for constraint of space. However, it does carry the message contemplated.

PRINCIPLES

- Customers (External/ Internal) focus. They come first.

- process (comprising of every activity) improvement and innovation, a never ending process, viewed as a competitive weapon to exceed, not only match, competitors quality.

- Involvement of all, irrespective of their activity/ functions as `Q' is everyone's responsibility. The acumalated `Q' of all individuals is finally reflected in the `Q' of the organisation and or the products/ services leading to a good `Q' culture.

- Modern concept of `Q' a product/ service.

KEY CONCEPTS

- `TQ' is prosperity and stamp for survival and growth of the organisation.

- Wide acceptance of `Q' by all as the first priority.

- A preventive management. Do a right thing in a right way at the first time itself and next time too i.e. `Q' built at every stage.

- `Q' measured in terms of cost of non-conformances & quality.

- Voluntary/ group/ participative activities.

- `Q' controls to have timely and accurate information for the identification, correction and improvement of incapable systems.

- It helps the management to allocate strategic resources to improve `Q' system and reduce cost.

- Emphasis on team work, self and mutual enrichment and continuous improvement voluntarily.

    Human resources, the vital one, is respected and regarded not as a cost but as and asset to draw out infinite possibilities of their capabilities.

- TQM is more as a coach rather than judge. It forgives and coaches not to repeat mistakes.

- It has a vision, a mission and a goal. It creates trust

by ensuring that there is no big difference between mission and vision by walking the talk.

- Complete autonomy but controlled.

ELEMENTS

¤ Organisational committment

- top management's support, leadership and committment is the key.
- everyone, the owner of `Q', is highly committed.
- `Q' professionals only advisors to line men.

¤ Organisational structural changes with a supportive structure.

¤ Respect for humanity and object of a happy work place to work in.

¤ Well documented procedures of all that is done to manage and control the activities.

¤ A clear and concise description of the product/ service functions.

¤ Leadership (Managers to become leaders) and the team work.

¤ Adequate and effective communication and interaction with internal & external customers.

¤ Continuous education and training of all employees and their willingness to change.

¤ Development and application of Q.C. methods, especially S.Q.C. techniques.

¤ Problem solving / improvement teams or other participative approaches like `Q' circle activities.

¤ Capturing requirement of process - measure, measure & measure to get feed back.

¤ Reward, appreciation and recognition for sound ideas and their prompt implementation. A parental rather than a contender attitude towards such employees by middle management is helpful.

TABOO

Management by directive, management by suspicion and autocracy (a poison) are not parts of TQM.

TQM IS MANAGED BY *

¤ establishing `Q' policy and objectives.

¤ providing necessary resources and support.

¤ motivating the employees to meet `Q' objectives.

¤ controlling and ensuring the effectivity of the system by frequent audits (Internal & External)

¤ taking corrective actions as a result of audits.

¤ frequent reviews by the management to improve upon the system.

* This is based on improvised model of PDCA over that of Deming's comprising of 6 steps and working in a continuous cycle.

Plan (P)   - Decide objectives & targets.
               - Decide methods of attaining the objectives.
Do (D)   - Educate and train.
               - Do work.
Check (C) - Check results of work.
Act (A)   - Take corrective actions.
               - Check, if correction, has worked?

WHY TQM ?
THE NEED FOR & ADVANTAGES OF TQM

To understand and justify the need for adopting TQM system, the reasons under the `Need for' given below have to be considered not in isolation but in combination with the advantages of the system and the background discussed earlier.

NEED FOR

Organisational character

¤ Competitors are doing it.

¤ Poor quality means loss.

¤ Enhances pride/ image/ reputation and ensures growth.

¤ Tremendous culture change for better.

¤ Improved `Q' of work and life of every one.

¤ Linked with profitability on both, market and cost aspects.

Change in environment

¤ Sellers to buyers market.

- Very conscious customer.
- With more exacting needs demanded, customer satisfaction level changing.
- More value for money paid expected.
- Better `Q' at lower cost viewed as a competitive weapon as buyers put `Q' ahead of cost or equal to cost.
- Competitive domestic market.

Hence, customer driven market strategies required.

Change in market place

¤ As domestic market shrinking for organised sector, need for global market, an ever changing one with increasing competition.

- liberalised economic policies of our government aid it.

¤ Access needed to even to vast national market in India.

Change in value system

¤ Emergence of zero defect.

¤ Inspection to `Q' assurance.

¤ One time conformity to continued improvement.

¤ Shift from product `Q' to `TQ'.

¤ Customer demands demonstrable system of `Q' assurance and a confidence to receive `Q' product without a 2nd or 3rd party inspection.

New elements for `Q' management

¤ New capital (information, improved organisational culture and developed human resources - `Q' people committed to `Q' planning, `Q' control and improvement.

¤ A participative and co - operative management comprising of customers, vendors technology, innovation and all employees (including workers in ownership and decision making who know their job the best).

¤ Unified company's strengths.

¤ Internal & external agencies relieved of old habits, paradigms and resistance to change (the main bottle-neck for `Q').

¤ Improved employees communication tending towards a flat organisation hierarchy.

¤ A competitive weapon

- To meet potential threats from competitors, offers changes necessary as otherwise customers have many choices.

¤ Available product certification prerequisites, if need be.

¤ Improved customer/ vendor relations.

¤ Foundation for improvement & innovation in resources, systems and procedures which contribute 90% in `Q' leaving 10% to people.

ADVANTAGES

¤ Increased profits by economising all activities, spheres and resources by way of

- improved product quality, productivity, quality of management, work and house keeping etc.
- considerable reduction in tangible/ intangible cost of poor `Q' in form of reduced wastes, reruns, scrap, rejections and loss of goodwill/ reputation etc.
- reduced liability risks.

¤ Highly motivated and committed employees with high morale resulting in a focussed/ productive work force because `TQM'.

- being based on respect for human capabilities, develops pride in people in their efforts, imparts recognition to them and thus improves their moral-all motivates to achieve excellence.
- enhances team work at all levels.
- creates respect for humanity, encourages personal development / enrichment and provides employees satisfaction through their committment, participation and involvement besides a cheerful work place.

¤ Transformed thinking (awarness), talking (communication), and walking (action / decision).

¤ Reduced trust gap between senior managers and workers and related stresses.

¤ Well documented proedures/ work instruction/ standards etc. leave no ambiguty and eliminate needless abbrevations, confusions in communication and undesirable talks, disputes, controversies and unpleasantness.

MAIN HURDLES IN TQM

- Lack of understanding of concepts in senior management.

- Lack of education to employees down below upto shop floor.

- Lack of committment.

- Rigid/ prescriptive implementation.

- Gaps between 'words' and 'action'. 'What you say you do not do and what you do you do not say'.

CONTINUOUS IMPROVEMENT AND INNOVATION

Continuous improvement and innovation, the heart of TQM, with the primary objective to drive out wastes and design quality in is achieved by 'quality improvement cycle'.

Fig. 1. QUALITY IMPROVEMENT CYCLE
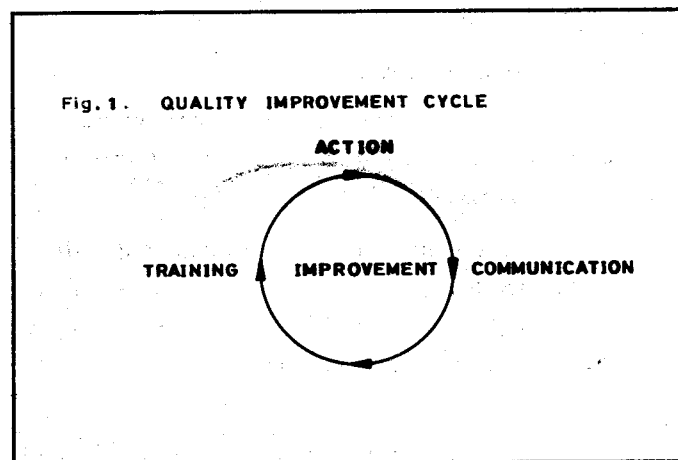
Continuous improvement

¤ competitive bench working and stretching goals (achievable but stretching)

¤ creative bench working

- steal ideas constantly and shamelessly from the best - 'Milliken'.
- driven by customer requirements.
- systematic evaluation of the best practices (Int. + Ext.).
- every aspect of the organization.

Increased innovation

¤ Better understanding of customer's requirements

¤ Process modifications

¤ Reduced cycle time

¤ Multi-functional design teams

¤ Quality Function Development (QFD)

Customer supplier chain for feed back

Every one has customers.

Every one has suppliers.

Hence, every one is involved in improvement as every one's activities add value.
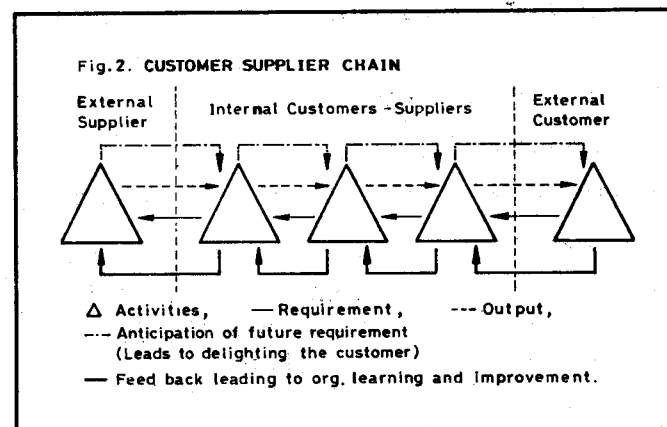

Fig. 2. CUSTOMER SUPPLIER CHAIN

Fig. 2 depicts the customer supplier chain for continuous feed back from the customers (Internal & External) to improve the system. In negative feed back, people being busy looking only to the present and past in order to retain 'Q' have no time to think resulting in the organisation coming down. In the positive feed back, people being engaged more in improvement and innovation achieving smooth going in every thing everyday leaves them much time to think for future and organisation moves up. Hence, positive feed back

instead of negative is desirable. Negative to positive feed back is changed through standard operating procedures. Face to face dialogue with the customers, a never ending process, helps to probe their minds to understand what they are not saying. In respect of excellence, accumulated wisdom and skill in the organisation is a big contributing factor.

ISO 9000 - A JOURNEY TO TQM

TQM has proved to produce excellent results including in many industries in Japan, a pioneer in TQM, and other countries, especially U.S.A. However, its limitations are--

(a) The process of adoption of TQM in totality being long, it takes quite sometime for the gains to be visible.

(b) Strategic decisions, especially in planning, innovation and product development, being qualitative connot be quantified.

(c) Intangible savings and advantages are gained but it is difficult to measure them in monetary terms in a short period. Ofcourse, a conducive environmental change is visible quite early.

(d) The measurement and comparision of effective implementation is not possible.

The above limitations are overcome by ISO 9000 which is more than half the way to TQM. It covers presently many important activities having direct or indirect impact on quality of the product, remaining ones getting introduced gradually. In contrast to TQM, ISO specifies a standard model for the Quality Management System in well standardised and documented form for an organisation and provides a series of standards serving as guidelines on various aspects of quality management system. It makes compulsory for this document to be certified by an approved external certifying agency, thus providing common pattern, common interpretation, development and application of `Q' system leading to measurement and comparision of effective implementation feasible and its harmonisation on a global scale. Standards applicable to the pulp & paper industry as on date are given (Annexure I). Titles of 18 elements of ISO 9002, applicable to pulp & paper industry are given (Annexure II).

The principles, concepts and implementation methodology remains the same as that of TQM, main characteristics being--

(a) The standardised and well documented procedures for the overall planning, administration, control, monitor, audit, review and correction of the `Quality System', tailored to the need of the organisation but structured according to 20 elements (for pulp & paper industry 18 only) and following standard documentation system `Documentation Triangle' as shown (Annexure III). A look at the 20 or 18 elements (specific to our industry) shall indicate nothing new in it. They are the common and important aspects affecting the quality, practised by many organisations in their own way, with continual waivers, revisions and deviations leading to poor quality.

(b) Besides periodic internal audits, periodic audits by approved external certifying agencies to determine whether activities and related results comply with planned arrangement.

NEED FOR ISO 9000

Following reasons specific to the need for ISO 9000 in the present context should be read alongwith the reasons given for TQM earlier.

¤ A passport to global as well as vast Indian market.
- accepted by all national standards organisations.
       by Europeon Economic Community, EEC.
       by Europeon Free Trade Association, EFTA.

¤ Priority by Defence Organisations.

¤ Clear evidence of `Q' and supplier's capability to yield it.

¤ Preference, rather some organisations insist.

¤ Easy marketing, recognition and publicity, reduction in customer's assessment - a competitive edge over non ISO 9000 competitors.

¤ Government incentives.

CONCLUSION

TQM views the organisation as a system to integrate the `Q' efforts of all individuals in all functions. It aims at continuous improvement and innovation in every activity including development

of human resources to harness their capabilities to the maximum. It brings overall total improvement, participation and acceptance, company wide, in all functions and decisions at all times. It believes `Q' of the product to depend upon only the way management leads, the company operates and men do their work. As a result, the product not only satisfies the customer well but exceeds their expectations. It reduces all wastes, improves the quality, optimises all operations and thus finally leads to the reputation, prosperity and growth of the organisation. It also provides harmonisation of quality on a global scale.

ISO 9000 embracing all concepts of TQM and on way to it, allows the quality system measurable by effective implementation of the documented `Q' system structured on the elements of ISO 9000; as certified and monitored by an external agency, and advantages visible in a short period, in contrast to TQM as such.

ANNEXURE - I

I.S.O. 9000 SERIES OF STANDARDS
(Applicable to Pulp & Paper Industry)
(DIS indicates draft international standard)

ISO	8402	: 1986	Quality Management & Quality
	DIS	: 1993	Assurance Vocabulary-basic and fundamental terms/ definitions.
ISO	9000	: 1987	Quality Management & Quality Standards-guidelines for selection and use.
ISO	9000	: 2 DIS	Guidelines for the Application of ISO 9001 to ISO 9003.
ISO	9002	: 1987	Quality Systems-Model for Quality Assurance in Production and Installation.
ISO	9003	: 1987	Quality System-Model for Quality Assurance in Final Inspection and Test.
ISO	9004	: 1987	Quality Management and Quality System Elements-Guidelines. (Extension of ISO 9000).
ISO	9004	- 4 DIS	Guidelines for Managing Quality Improvement.
ISO	9004	- 5 DIS	Guidelines for Quality Plans.
ISO	10013	- DIS	Guidelines for developing Quality Manuals - development, con-

tents, issue/control.

ISO	10011	- 1:1990	Guidelines for Auditing Quality System, Part I - auditing.
ISO	10011	- 2:1991	Guidelines for Auditing Quality Systems, Part II - qualification criteria for quality system auditors.
ISO	10011	- 3:1991	Guidelines for Auditing Quality System, Part III - management of audit programmes.
ISO	10012	: 1992	Quality assurance requirements for measuring equipments, Part I - metrological confirmation system for measuring equipment.

ANNEXURE - II

TITLES OF 18 ELEMENTS OF `QUALITY SYSTEM' OF ISO 9002 OF ISO 9000 SERIES
(Applicable to Pulp & Paper Industry)

NB : Product denotes incoming materials, in process and final products.

1. Management Responsibility

   - Policy, responsibilities and authorites, verification resources and personnel, adequate support and facilities.

2. Quality system

   - A set of specified documents/ procedures and its effective implementation.

3. Contract Review

   - Contracts with the customers to avoid any ambiguity or differences.

4. Documents control

   - Availability and accessibility of upto date data, documents and records.

5. Purchasing

   - Purchase requirements, assessment and selection of suppliers, relations with suppliers, efforts to avoid disputes etc.

6. Purchaser supplied product

   - control of items supplied by the customer

7. Product indentification and traceability

8. Process control

   - Comprises of process, maintenance, house - keeping safety and environment degradation etc

9. Inspection and testing (of products)

10. Inspection, measuring and test equipment

    - Measurement / inspection capability and calibration etc.

11. Inspection and test status

    - Clearcut demarcation of accepted and rejected products.

12. Control of non-conforming product

    - Identification and the way to deal with a non - conforming product

13. Corrective action

    - Wherever, things are not as planned or desired.

14. Handling, storage, packaging and delivery (of products)

15. Quality records

16. Internal quality auditing

17. Training (of all employees)

18. Statistial techniques

    - Its application to the evaluation of the product and process capability.

19. Element of "Service" has now been added to the above making total Elements.

QUALITY SYSTEM
DOCUMENTATION TRAINGLE
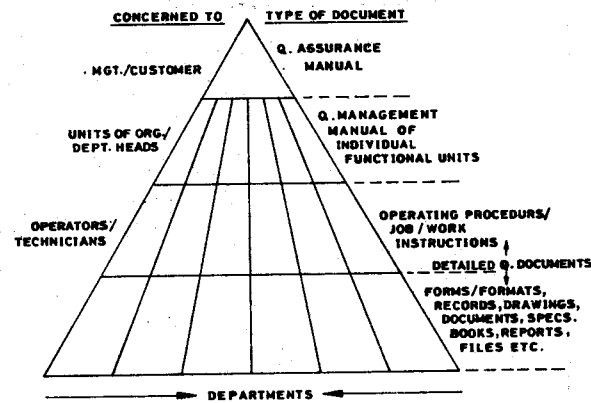
	Q.A. Manual	states broadly what we control	for specific products/systems.
	Q.Mgt.Manual	states specifically how we control	for specific but common area of operations.
	work instructions	show in datail how control a specific operation & how records for evidence generated	for specific operation and worker.
	Records	show evidence of control actually exercised	for all employees/ operations.